



November 2, 1994

Marc A. Coleman
Agency of Natural Resources
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street, West Building
Waterbury, VT 05671-0404

**RE: UST Closure Report
Christy's Market
410 Western Avenue
Brattleboro, VT
UST Facility ID # 1156
CEA Ref. # 1713-94**

NOV 7 12 03 PM '94
RECEIVED
Hazardous Materials Management Division
Agency of Natural Resources
Department of Environmental Conservation

Dear Mr. Coleman:

Corporate Environmental Advisors, Inc. (CEA) respectfully submits the following letter report, which details the observations and findings noted during the removal of seven underground storage tanks (USTs) at the above referenced facility (refer to Figure 1, Site Locus). Briefly, each of the seven tanks removed appeared to be structurally sound with some minor corrosion, pitting and no obvious holes. Limited soil surrounding the tanks had been impacted by gasoline, kerosene and/or fuel oil.

Introduction

On September 19, 20 and 30, 1994, CEA personnel were present on-site, to observe UST removal operations and collect representative soil samples to measure for the presence of oil or hazardous materials. The UST removals were performed by New England Petroleum Contractors, Inc. (NEPCO). The capacity, product stored and identification number for each tank is listed in Table 1, as follows:

**Table 1
Underground Storage Tanks**

Tank #	Storage Capacity	Product Stored
1	8,000 gallon	Gasoline
2	12,000 gallon	Gasoline
3	12,000 gallon	Gasoline
4	2,000 gallon	Kerosene
5	6,000 gallon	Diesel
6	1,000 gallon	Heating Oil
7	500 gallon	Heating Oil

All seven tanks were situated at the northwest side of the property in front of the site building (refer to Figure 2, Site Layout, for locations).

In order to appropriately characterize the extent of impact, continuous soil samples were collected during the course of excavation. Samples were either placed in plastic "zip lock" bags or 4 ounce glass jars covered with aluminum foil. The samples were screened in the field, using a Thermo-environmental Photo-ionization detector (PID), in accordance with the protocol established in the VT-DEC Agency Guidelines for Petroleum Contaminated Soil and Carbon Media. The PID is a trace gas analyzer employing the principle of photo-ionization detection. It is a portable instrument used to detect, measure and provide a direct reading of the concentrations of a variety of volatile organic compounds found in industrial or contaminated environments. The PID unit was calibrated on a daily basis throughout the course of the project, using the benzene equivalent, isobutylene.

Tank Removals

Observations and findings noted during the tank removal process are summarized as follows:

The tanks were removed in the sequence of order listed in Table 1. Tank number 1 was removed on September 19, 1994, tanks numbered 2 through 5 were removed on September 20, 1994 and tanks numbered 6 and 7 were removed on September 30, 1994. Olfactory evidence of gasoline and/or petroleum product impact was noted during the course of excavation of each tank. Relatively continuous PID screening of the soil during the excavation detected levels ranging from zero to 80 parts per million (ppm). As outlined in the VT-DEC Agency Guidelines for Petroleum Contaminated Soil and Carbon Media, soils exhibiting readings of 0 to 20 ppm were stockpiled separated from those exhibiting readings of 20 to 80 ppm. With the exception of the first 5 cubic yards, all removed soil was temporarily stockpiled adjacent to the tank pit, and either set aside for backfill or relocated on polyethylene sheeting at the rear of the property. The first 5 cubic yards of soil, exhibiting readings of 0 ppm, was transported to an off-site facility and used for cover. This procedure was halted upon discussion with the VT-DEC and receiving permission from the property owner to stockpile at the rear of the property. Each tank was subsequently removed and appeared to be in good condition, with no visible holes or evidence of leakage. Composite soil samples were collected from representative base side wall locations and screened with the PID (refer to Figure 1, for sample location points). PID screening results are summarized in Table 2, as follows.

Table 2
Soil Sample Photo-ionization Results

Sample #	Sample Location	Result in ppm
T1-01	Base, Tank 1	1
T1-02	Northeast side wall, Tank 1	10
T1-03	Southwest side wall, Tank 1	1
T1-04	Northwest side wall, Tank 1	10
T2-01	Base, Tank 2	6
T2-02	Southwest side wall, Tank 2	3
T2-03	Northeast side wall, Tank 2	5
T3-01	Base, Tank 3	7
T3-02	Southeast side wall, Tank 3	0
T3-03	Northeast side wall, Tank 3	1
T3-04	Southwest side wall, Tank 3	5
T4-01	Base, Tank 4	0

Table 2 continued
Soil Sample Photo-ionization Results

Sample #	Sample Location	Result in ppm
T4-02	Northwest side wall, Tank 4	0
T4-03	Southeast side wall, Tank 4	0
T4-04	Southwest side wall, Tank 4	0
T5-01	Base, Tank 5	0
T5-02	Northeast side wall, Tank 5	0
T5-03	Northwest side wall, Tank 5	0
T5-04	Southeast side wall, Tank 5	0
T6-01	Base, Tanks 6 & 7	0
T6-02	Northeast side wall, Tanks 6 & 7	0
T6-03	Southeast side wall, Tanks 6 & 7	0
T6-04	Southwest side wall, Tanks 6 & 7	0

Note: Results are reported in parts per million (ppm); PID calibrated to benzene standard, as required by DEC

Selected soil samples (as indicated in bold print in Table 2), were submitted to a State certified laboratory for analysis for either gasoline compounds (VOCs) via Method 8020 or Total Petroleum Hydrocarbons (TPH) by Gas Chromatography (GC). Results of the analysis are summarized below in Table 3, and a copy of the laboratory report is provided in Attachment A.

Table 5
Laboratory Analysis of Selected Soil Samples

Sample #	Location	Analysis	Total BTEX	TPH
TP1-01	Base, Tank 1	8020	ND	--
TP1-02	Northeast SW, Tank 1	8020	ND	--
TP2-03	Northeast SW, Tank 2	8020	ND	--
TP3-01	Base, Tank 3	8020	ND	--
TP4-04	Southwest SW, Tank 4	TPH	--	ND
TP5-01	Base, Tank 5	TPH	--	ND
TP5-02	Northeast SW, Tank 5	TPH	--	ND

Note: ppm = parts per million; ND = Not Detected, BTEX = Benzene, Toluene, Ethyl benzene and Xylenes, TPH = Total Petroleum Hydrocarbons

Conclusions

Based on the results of this investigation, including PID and laboratory analysis, no impacted soil remains in the area surrounding the former underground storage tanks. As no holes were noted in the USTs, the most likely source of the impact was historic overfilling of the tanks.

Approximately 250 cubic yards of soil was excavated during the UST removal process. Of that total, 200 cubic yards exhibited readings of less than 20 ppm and 50 cubic yards exhibited readings ranging from 20 ppm to 80 ppm. Approximately 25 cubic yards of the less than 20 ppm soil was used for backfill of the kerosene, diesel and heating oil tank graves. The remaining soil (225 cubic yards) was stockpiled at the rear of the facility, with the less than 20 ppm soils placed separate from the 20 ppm to 80 ppm soils.

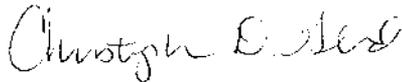
The gasoline tanks were replaced with three Owens Corning fiberglass underground gasoline storage tanks. An additional 275 cubic yards of soil was removed from the gasoline tank graves to make room for the new installations. Of this total, approximately 225 cubic yards of soil, exhibiting PID readings of less than 20 ppm, was stockpiled at the rear of the property, separate from the 50 additional yards of 20 to 80 ppm soil.

A total of 500 cubic yards of material was transported to the Windham Solid Waste Management District Landfill in Brattleboro, VT., on October 13, 14, and 15, 1994. The soil exhibiting readings of less than 20 ppm (400 cubic yards) was used as daily cover at the landfill. The remaining soil (100 cubic yards), which exhibited readings ranging from 20 to 80 ppm, was stockpiled at the Aeration Area of the landfill, until levels decrease to the less than 20 ppm standard and the soil can be used as daily cover.

Should you have any additional questions concerning this report, please do not hesitate to contact our office at (508) 754-1080.

Sincerely,

CEA, Inc.



Christopher D. Glod
Hydrogeologist

CDG:cdg

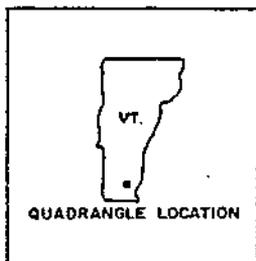
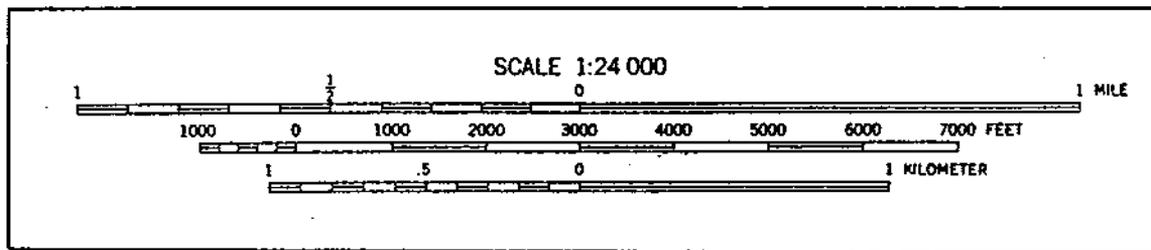
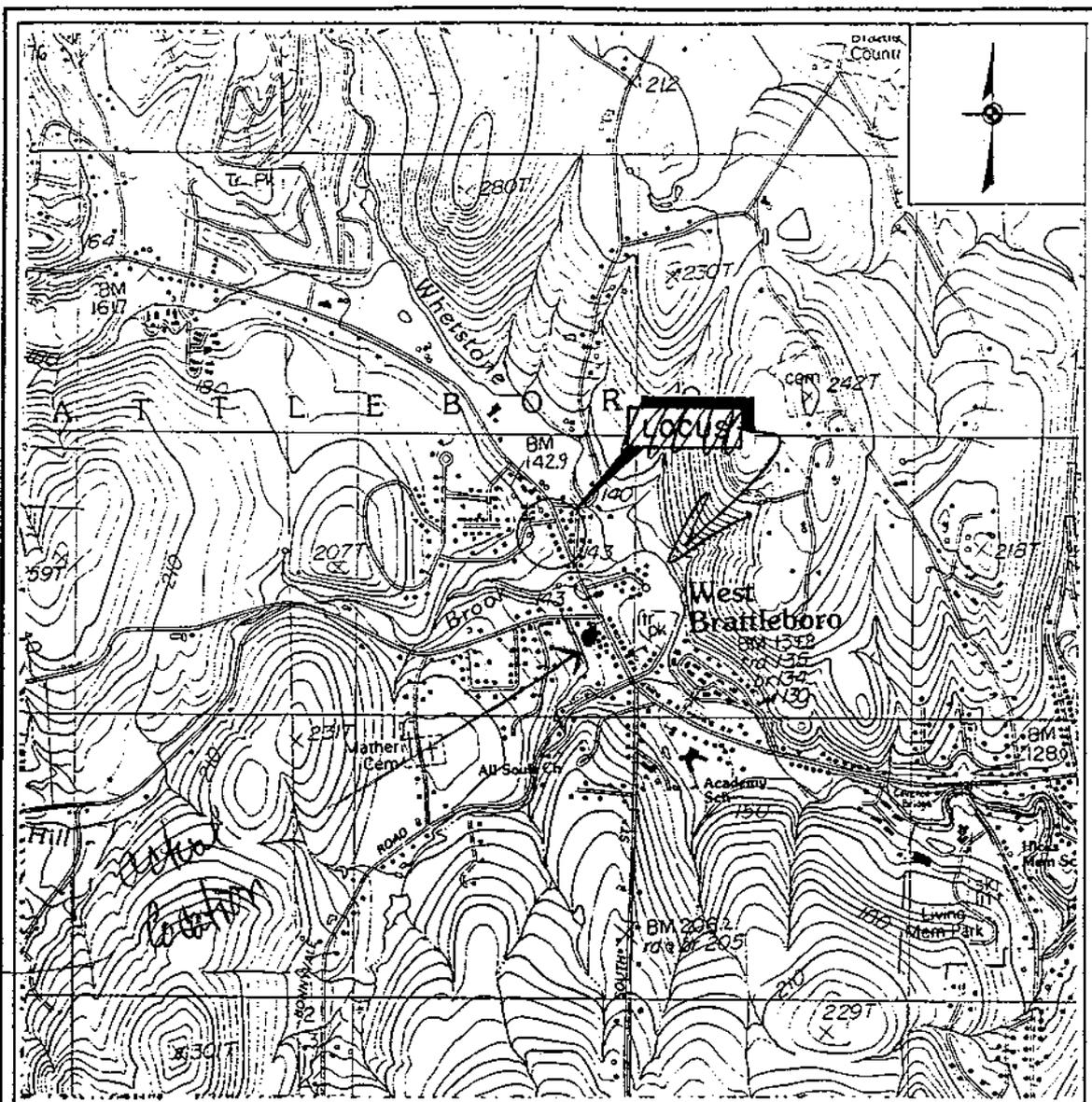
Enc: Figures and Lab Analysis Report

pc: Mr. Thomas Wilburn, P.E.
Construction Manager
Christy's Markets, Inc.
22 Christy's Drive
Brockton, MA 02401

FIGURE 1

SITE LOCUS

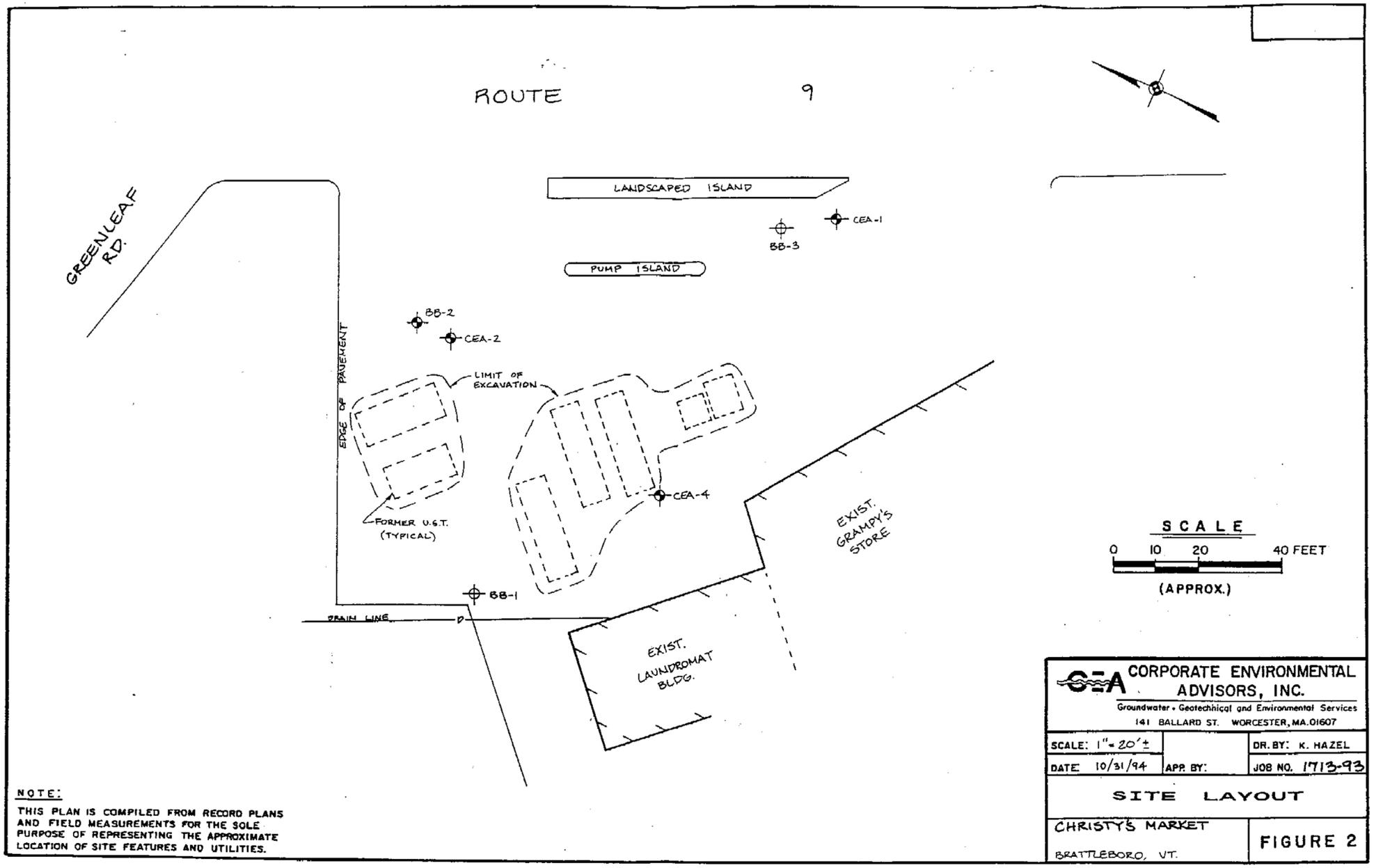
MCB (Stone Environmental Inc) (used to line up Greenleaf
S&J)
USPS



BRATTLEBORO, VERMONT
U.S.G.S. QUADRANGLE

FIGURE 1
SITE LOCUS

FIGURE 2
SITE LAYOUT



NOTE:
 THIS PLAN IS COMPILED FROM RECORD PLANS
 AND FIELD MEASUREMENTS FOR THE SOLE
 PURPOSE OF REPRESENTING THE APPROXIMATE
 LOCATION OF SITE FEATURES AND UTILITIES.

CORPORATE ENVIRONMENTAL ADVISORS, INC. <small>Groundwater • Geotechnical and Environmental Services 141 BALLARD ST. WORCESTER, MA. 01607</small>	
SCALE: 1" = 20' ±	DR. BY: K. HAZEL
DATE: 10/31/94	APP. BY: JOB NO. 1713-93
SITE LAYOUT	
CHRISTY'S MARKET	
BRATTLEBORO, VT.	FIGURE 2

ATTACHMENT A

LABORATORY ANALYSIS



SPECTRUM ANALYTICAL, INC.

Massachusetts Certification M-MA 138
Connecticut Approval # PH 0777
Rhode Island # 98 & Maine # n/a
New Hampshire ID#253893
New York ID#11393

*CEA, Inc.
141 Ballard Street
Worcester, MA 01607*

October 1, 1994

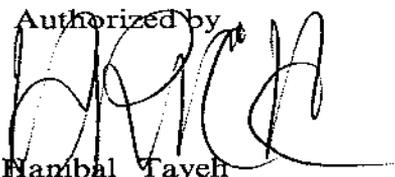
Attn: C. Glod

Client Project No.: 1713-94

Location: 410 Western Ave. Brattleboro

<u>Lab ID No.</u>	<u>Client ID</u>	<u>Analysis Requested</u>
AA21759	T1-01	EPA 8020
AA21760	T1-02	EPA 8020
AA21761	T2-03	EPA 8020
AA21762	T3-01	EPA 8020
AA21763	T4-04	TPH by GC (Soil)
AA21764	T5-01	TPH by GC (Soil)
AA21765	T5-02	TPH by GC (Soil)

Authorized by



Nambal Tayeh
General Manager

ENVIRONMENTAL ANALYSES

588 Silver Street • Agawam, Massachusetts 01001 • 413-789-9018 • FAX 413-789-4076

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Sample ID: T1-01
Lab ID No: AA21759Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94Matrix: Soil
Sampled on 09/19/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HTPreservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier**Volatile Aromatics**
EPA Method 602/8020

Parameter	Result (in ug/Kg)	MDL	Extracted	Analyzed	Analyst
Methyl-t-butyl ether	Not detected	5	09/23/94	09/26/94	DG
Benzene	Not detected	5	09/23/94	09/26/94	DG
Toluene	Not detected	5	09/23/94	09/26/94	DG
Ethylbenzene	Not detected	5	09/23/94	09/26/94	DG
m,p-Xylenes	Not detected	10	09/23/94	09/26/94	DG
o-Xylene	Not detected	5	09/23/94	09/26/94	DG
Chlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,2-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,3-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,4-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
TFT Surrogate Recovery (%)	101		09/23/94	09/26/94	DG
% Solids	86.6	0.1	09/23/94	09/26/94	DG

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Sample ID: T1-02
Lab ID No: AA21760

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Sampled on 09/19/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Volatile Aromatics EPA Method 602/8020

Parameter	Result (in ug/Kg)	MDL	Extracted	Analyzed	Analyst
Methyl-t-butyl ether	Not detected	5	09/23/94	09/26/94	DG
Benzene	Not detected	5	09/23/94	09/26/94	DG
Toluene	Not detected	5	09/23/94	09/26/94	DG
Ethylbenzene	Not detected	5	09/23/94	09/26/94	DG
m,p-Xylenes	Not detected	10	09/23/94	09/26/94	DG
o-Xylene	Not detected	5	09/23/94	09/26/94	DG
Chlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,2-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,3-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,4-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
TFT Surrogate Recovery (%)	102		09/23/94	09/26/94	DG
% Solids	93.7	0.1	09/23/94	09/26/94	DG

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Sample ID: T2-03
Lab ID No: AA21761

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Sampled on 09/20/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Volatile Aromatics EPA Method 602/8020

Parameter	Result (in ug/Kg)	MDL	Extracted	Analyzed	Analyst
Methyl-t-butyl ether	Not detected	5	09/23/94	09/26/94	DG
Benzene	Not detected	5	09/23/94	09/26/94	DG
Toluene	Not detected	5	09/23/94	09/26/94	DG
Ethylbenzene	Not detected	5	09/23/94	09/26/94	DG
m,p-Xylenes	Not detected	10	09/23/94	09/26/94	DG
o-Xylene	Not detected	5	09/23/94	09/26/94	DG
Chlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,2-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,3-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
1,4-Dichlorobenzene	Not detected	5	09/23/94	09/26/94	DG
TFT Surrogate Recovery (%)	101		09/23/94	09/26/94	DG
% Solids	92.2	0.1	09/23/94	09/26/94	DG

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Sample ID: T3-01
Lab ID No: AA21762

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Sampled on 09/20/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Volatile Aromatics EPA Method 602/8020

Parameter	Result (in ug/Kg)	MDL	Extracted	Analyzed	Analyst
Methyl-t-butyl ether	Not detected	10	09/23/94	09/26/94	DG
Benzene	Not detected	10	09/23/94	09/26/94	DG
Toluene	Not detected	10	09/23/94	09/26/94	DG
Ethylbenzene	Not detected	10	09/23/94	09/26/94	DG
m,p-Xylenes	Not detected	20	09/23/94	09/26/94	DG
o-Xylene	Not detected	10	09/23/94	09/26/94	DG
Chlorobenzene	Not detected	10	09/23/94	09/26/94	DG
1,2-Dichlorobenzene	Not detected	10	09/23/94	09/26/94	DG
1,3-Dichlorobenzene	Not detected	10	09/23/94	09/26/94	DG
1,4-Dichlorobenzene	Not detected	10	09/23/94	09/26/94	DG
TFT Surrogate Recovery (%)	103		09/23/94	09/26/94	DG
% Solids	94.5	0.1	09/23/94	09/26/94	DG

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Client ID: T4-04
Lab ID No: AA21763

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Collected: 09/20/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Total Petroleum Hydrocarbons by GC

Modified EPA Method 8100

Parameter	Result (mg/Kg)	MDL	Extracted	Analyzed	Analyst
Total Hydrocarbons (GC)	Not detected		09/27/94	09/28/94	KS
Fingerprint based quantification:					
Gasoline	Not detected	40	09/27/94	09/28/94	KS
Fuel Oil #2	Not detected	40	09/27/94	09/28/94	KS
Fuel Oil #4	Not detected	40	09/27/94	09/28/94	KS
Fuel Oil #6	Not detected	80	09/27/94	09/28/94	KS
Motor Oil	Not detected	80	09/27/94	09/28/94	KS
Ligroin	Not detected	40	09/27/94	09/28/94	KS
Aviation Fuel	Not detected	40	09/27/94	09/28/94	KS
Other Oil	Not detected	80	09/27/94	09/28/94	KS
Unidentified	Not detected		09/27/94	09/28/94	KS
% Solids	96.5	0.1	09/27/94	09/27/94	KS

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from petroleum products. Possible match categories are as follows;

- Gasoline - includes regular, unleaded, premium, etc.
- Fuel Oil #2 - includes home heating oil, #2 fuel oil and diesel.
- Fuel Oil #4 - Includes #4 Fuel Oil
- Fuel Oil #6 - includes #6 oil and bunker "C" oil.
- Motor Oil - includes virgin and waste automobile oils.
- Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha.
- Aviation Fuels - includes Kerosene, Jet A and JP-4.
- Other Oil - includes cutting and lubricating oils.

Factors such as microbial degradation, weathering and solubility generally prevent specific identification within a petroleum category. A finding of "unidentified" means that the sample fingerprint was characteristic of a petroleum product, but could not be matched to a fingerprint in the library.

After fingerprint identification, the amount present in the sample is quantified using a calibration curve prepared from a petroleum product of the same category as the identified petroleum. Unidentified petroleum is quantified using a petroleum calibration that approximates the distribution of compounds in the sample.

A * in the results column indicates the petroleum calibration used to quantify unidentified samples.

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Client ID: T5-01
Lab ID No: AA21764

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Collected: 09/20/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Total Petroleum Hydrocarbons by GC

Modified EPA Method 8100

Parameter	Result (mg/Kg)	MDL	Extracted	Analyzed	Analyst
Total Hydrocarbons (GC)	Not detected		09/27/94	09/30/94	KS
Fingerprint based quantification:					
Gasoline	Not detected	40	09/27/94	09/30/94	KS
Fuel Oil #2	Not detected	40	09/27/94	09/30/94	KS
Fuel Oil #4	Not detected	40	09/27/94	09/30/94	KS
Fuel Oil #6	Not detected	80	09/27/94	09/30/94	KS
Motor Oil	Not detected	80	09/27/94	09/30/94	KS
Ligroin	Not detected	40	09/27/94	09/30/94	KS
Aviation Fuel	Not detected	40	09/27/94	09/30/94	KS
Other Oil	Not detected	80	09/27/94	09/30/94	KS
Unidentified	Not detected		09/27/94	09/30/94	KS
% Solids	95.2	0.1	09/27/94	09/27/94	KS

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from petroleum products. Possible match categories are as follows;

- Gasoline - includes regular, unleaded, premium, etc.
- Fuel Oil #2 - includes home heating oil, #2 fuel oil and diesel.
- Fuel Oil #4 - Includes #4 Fuel Oil
- Fuel Oil #6 - includes #6 oil and bunker "C" oil.
- Motor Oil - includes virgin and waste automobile oils.
- Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha.
- Aviation Fuels - includes Kerosene, Jet A and JP-4.
- Other Oil - includes cutting and lubricating oils.

Factors such as microbial degradation, weathering and solubility generally prevent specific identification within a petroleum category. A finding of "unidentified" means that the sample fingerprint was characteristic of a petroleum product, but could not be matched to a fingerprint in the library.

After fingerprint identification, the amount present in the sample is quantified using a calibration curve prepared from a petroleum product of the same category as the identified petroleum. Unidentified petroleum is quantified using a petroleum calibration that approximates the distribution of compounds in the sample.

A * in the results column indicates the petroleum calibration used to quantify unidentified samples.

SPECTRUM ANALYTICAL, INC.

Laboratory Report

Client ID: T5-02
Lab ID No: AA21765

Location: 410 Western Ave. Brattleboro
Client Job No.: 1713-94

Matrix: Soil
Collected: 09/20/94 by C. GLOD/CEA
Received on 09/21/94 by LD
QC and Data Review by HT

Preservative: Refrigeration
Container : 1 Glass Soil Jar
Condition of Sample as Received: Satisfactory
Delivered by: Courier

Total Petroleum Hydrocarbons by GC

Modified EPA Method 8100

Parameter	Result (mg/Kg)	MDL	Extracted	Analyzed	Analyst
Total Hydrocarbons (GC)	Not detected		09/27/94	10/01/94	KS
Fingerprint based quantification:					
Gasoline	Not detected	40	09/27/94	10/01/94	KS
Fuel Oil #2	Not detected	40	09/27/94	10/01/94	KS
Fuel Oil #4	Not detected	40	09/27/94	10/01/94	KS
Fuel Oil #6	Not detected	80	09/27/94	10/01/94	KS
Motor Oil	Not detected	80	09/27/94	10/01/94	KS
Ligroin	Not detected	40	09/27/94	10/01/94	KS
Aviation Fuel	Not detected	40	09/27/94	10/01/94	KS
Other Oil	Not detected	80	09/27/94	10/01/94	KS
Unidentified	Not detected		09/27/94	10/01/94	KS
% Solids	96.1	0.1	09/27/94	09/27/94	KS

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from petroleum products. Possible match categories are as follows;

- Gasoline - includes regular, unleaded, premium, etc.
- Fuel Oil #2 - includes home heating oil, #2 fuel oil and diesel.
- Fuel Oil #4 - Includes #4 Fuel Oil
- Fuel Oil #6 - includes #6 oil and bunker "C" oil.
- Motor Oil - includes virgin and waste automobile oils.
- Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha.
- Aviation Fuels - includes Kerosene, Jet A and JP-4.
- Other Oil - includes cutting and lubricating oils.

Factors such as microbial degradation, weathering and solubility generally prevent specific identification within a petroleum category. A finding of "unidentified" means that the sample fingerprint was characteristic of a petroleum product, but could not be matched to a fingerprint in the library.

After fingerprint identification, the amount present in the sample is quantified using a calibration curve prepared from a petroleum product of the same category as the identified petroleum. Unidentified petroleum is quantified using a petroleum calibration that approximates the distribution of compounds in the sample.

A * in the results column indicates the petroleum calibration used to quantify unidentified samples.

Spectrum Analytical, Inc. Laboratory Report Supplement

References

- Methods for the Determination of Organic Compounds in Drinking Water. EPA-600/4-88/039. EMSL 1988.
- Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. EMSL 1983.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. EPA 600/4-82-057. EMSL 1982.
- Test Methods for Evaluating Solid Waste. Physical/Chemical Methods. EPA SW-846. 1986.
- Standard Methods for the Examination of Water and Wastes. APHA-AWWA-WPCF. 16th Edition. 1985.
- Standard Methods for Comparison of Waterborne Petroleum Oils by Gas Chromatography. ASTM D 3328. 1982.
- Oil Spill Identification System. U.S. Coast Guard CG-D-52-77. 1977.
- Handbook for Analytical Quality Control in Water and Wastewater Laboratories. EPA 600/4-79-019. EMSL 1979.
- Choosing Cost-Effective QA/QC (Quality Assurance/Quality Control) Programs for Chemical Analyses. EPA 600/4-85/056. EMSL 1985.

Report Notations

Not Detected, Not Det, ND or nd	=	<i>The compound was not detected at a concentration equal to or above the established method detection limit.</i>
NC	=	<i>Not Calculated</i>
VOA	=	<i>Volatile Organic Analysis</i>
BFB	=	<i>4-Bromofluorobenzene (an EPA 624 Surrogate)</i>
p-DFB	=	<i>1,4-Difluorobenzene (an EPA 624 Surrogate)</i>
CLB-d5	=	<i>Chlorobenzene-d5 (an EPA 624 Surrogate)</i>
BCP	=	<i>2-Bromo-1-chloropropane (an EPA 601 Surrogate)</i>
TFT	=	<i>a, a, a-Trifluorotoluene (an EPA 602 Surrogate)</i>

Definitions

Surrogate Recovery = The recovery (expressed as a percent) of a non method analyte (see surrogates listed above) added to the sample for the purpose of monitoring system performance.

Matrix Spike Recovery = The recovery (expressed as a percent) of method analytes added to the sample for the purpose of determining any effect of sample composition on analyte recovery.

Laboratory Replicate = Two sample aliquots taken in the analytical laboratory and analyzed separately with identical procedures. Analyses of laboratory duplicates give a measure of the precision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.

Field Duplicate = Two separate samples collected at the same time and place under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analysis of Field duplicates give a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

Relative Percent Difference (%RPD) = The precision measurement obtained on duplicate/replicate analyses. %RPD is calculated as:

$$\%RPD = \frac{|value1 - value2|}{ave. value} * 100\%$$



CHAIN OF CUSTODY RECORD

588 Silver Street
Agawam, MA 01001

Tel. (413) 789-9018
FAX (413) 789-4076

REPORTS TO: <u>CEA, INC</u>	INVOICE TO: <u>CEA, INC</u>
PROJECT No: <u>1713-94</u>	P.O. No: <u>1713-94</u>
PROJECT Mgr: <u>CDG</u>	SAMPLER(s): <u>C. Glod</u>
SITE LOCATION: <u>410 Western Ave. Brattleboro, VT</u>	

SAMPLE TYPE & MATRIX CODES:				CONTAINERS				ORGANICS			METALS		OTHER										
1=4°C 2=HCl 3=H ₂ SO ₄ 4=HNO ₃ 5= OTHER				# 40 ml VOA VIALS	# OF AMBER GLASS LITERS	# OF PLASTIC LITERS	# OF GLASS SOIL JARS	<input type="checkbox"/> 601 <input type="checkbox"/> 8010	<input type="checkbox"/> 602 <input type="checkbox"/> 8020	<input type="checkbox"/> 502.2	<input type="checkbox"/> 624 <input type="checkbox"/> 8260	<input type="checkbox"/> 524.2	<input type="checkbox"/> HSL	<input type="checkbox"/> 625 <input type="checkbox"/> 8270	<input type="checkbox"/> SOLUBLE	<input type="checkbox"/> TOTAL	<input type="checkbox"/> TCLP	<input type="checkbox"/> RORA 8	<input type="checkbox"/> PP13	<input type="checkbox"/> FINGERPRINT	<input type="checkbox"/> OIL&GREASE	<input type="checkbox"/> 610	<input type="checkbox"/> 608
C = COMPOSITE G = GRAB																							
1 = AQUEOUS 3 = SLUDGE 5 = OTHER 2 = SOIL 4 = SEDIMENT																							
LAB USE ONLY	SAMPLE I.D.	DATE	TIME	MATRIX	SAMPLE TYPE	PRESERVATIVE																	
21759	T1-01	9-19-94	2:30	Z	C	1				X		X											
60	T1-02	I	I	Z	C	1				X		X											
61	T2-03	9-20-94	350	Z	C	1				X		X											
62	T3-01	I	350	Z	C	1				X		X											
63	T4-04	I	200	Z	C	1														X			
64	T5-01	I	130	Z	C	1														X			
65	T5-02	I	130	Z	C	1														X			

RELINQUISHED BY: <i>[Signature]</i>	RECEIVED BY: <i>[Signature]</i>	DATE <u>9-21-94</u>	TIME <u>5:30y</u>
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SPECIAL INSTRUCTIONS:	SPECIAL HANDLING <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 7 BUS. DAYS <input type="checkbox"/> RUSH 24 HOURS DATE RESULTS NEEDED: _____
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