LINCOLN
APPLIED GEOLOGY, INC.
Environmental Consultants

July 9, 1999

JUL 12 3 59 PM '99

Mr. Paul Dandrade
Cumberland Farms Inc.
777 Dedham Street
Canton, Massachusetts 02021-9118

RE: Cumberland Farms Inc., Station # 4007 (VDEC Site# 98-2474), 73 Taft Avenue, Hartford, VT - Subsurface Investigation Report

Dear Mr. Dandrade:

Lincoln Applied Geology, Inc. (LAG) is pleased to present this Subsurface Investigation Report (SIR) for Cumberland Farms Inc. (CFI) Station # 4007 (VDEC Site # 98-2474) located at 73 Taft Avenue in Hartford, Vermont. In response to the discovery of gasoline contaminated soils during the replacement of the Underground Storage Tank (UST) system piping, the Vermont Department of Environmental Conservation (VDEC) Sites Management Section (SMS) requested that a subsurface contaminant investigation be performed to determine the extent and magnitude of the petroleum contamination beneath the site. The field portion of the requested contaminant investigation was performed by LAG on February 4 and May 27, 1999 and consisted of the installation of one 102 foot boring and three hand auger wells. The attached SIR includes soil boring logs, monitoring data, soil and surface water quality results, observations made during the sensitive receptor survey, and our conclusions and recommendations for the site.

Results of the investigation show that soils immediately downgradient of the UST area have not been impacted by the petroleum related contamination that was detected during the UST system piping upgrade. Ground water was not encountered during the installation of any of the borings which indicates that the relatively deep ground water system is located at least 102 feet below the UST system and is not impacted. During the investigation no contaminant (vapor or dissolved) impacts were detected associated with surrounding sensitive receptors (i.e. Gulf Brook, and the indoor ambient air of the CFI or surrounding residential/commercial building structures).

Based on data collected during the subsurface investigation, we recommend that no additional subsurface investigation be performed at the site. The limited amount of vadose zone contamination present in the vicinity of the dispenser island area does not pose a significant threat to human health or the deep ground water system. As a result, we formally request that a Sites Management Activities Completed (SMAC) status be granted to the site.

Please do not hesitate to call me or Richard S. Vandenberg, LAG Project Manager, at (800) 477-4384, if you have any questions or comments regarding the attached report.

Sincerely,
Lincoln Applied Geology, Inc.

Jason S. Barnard
Geologist

JSB/jb
enclosures

cc: Chuck Schwer
F:\CLIENTS\CUMBRLND.FRM\HARTFORD\CVRLTR69.RPT

Subsurface Investigation Report
Cumberland Farms Inc., Station # 4007
73 Taft Avenue, Hartford, Vermont
(VDEC Site #98-2474)

Prepared for:

Cumberland Farms Inc.
777 Dedham Street
Canton, Massachusetts 02021-9118
Contact: Paul Dandrade
Phone: (781) 828-4900 ext. 3416

Prepared by:

Lincoln Applied Geology, Inc.
163 Revell Drive
Lincoln, Vermont 05443
Contact: Jason S. Barnard
Phone: (802) 453-4384

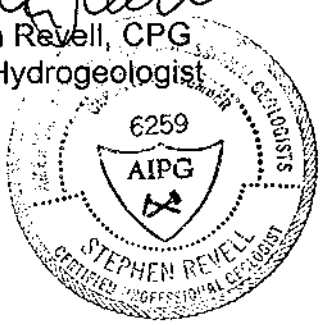
July 9, 1999

Prepared by:

Jason S. Barnard
Geologist

Reviewed and Approved by:

Stephen Revell, CPG
Senior Hydrogeologist



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Lincoln Applied Geology, Inc
Environmental Consultants

163 Revell Road • Lincoln, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

Executive Summary

In June 1998, CFI and their subcontractors completed the removal, closure, and replacement of the underground storage tank (UST) system piping at CFI facility #4007, which is located at 73 Taft Avenue in Hartford, Vermont. Lincoln Applied Geology Inc. (LAG) conducted the assessment work on June 23, 1998 and completed the UST closure report, which was submitted to the Vermont Department of Environmental Conservation (VDEC), Underground Storage Tank Program (USTP) on July 14, 1998. During the assessment, all UST distribution and vent piping was noted in good condition with no apparent holes.

During piping removal and assessment activities, excavated soils were screened with a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). Approximately 60 cubic yards of the most highly contaminated soils were removed (from the dispenser island area) and temporarily stockpiled on-site. Following VDEC approval, the gasoline contaminated soils were transported to the MTS Environmental, Inc. facility in Epsom New Hampshire where they were thermally treated. Based on the results of the June UST piping upgrade, the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (VDEC) requested that additional work be performed to further define the extent and magnitude of the soil and possibly ground water contamination beneath the site.

As a part of the requested additional work, LAG installed four soil borings on-site on February 4 and May 27, 1999 to define the extent and magnitude of the contamination beneath the site. On February 4th one boring (SB-1) was installed immediately downgradient of the UST area and one hand auger boring (AH-1) was installed at the downgradient edge of the CFI property, adjacent to Gulf Brook. Ground water was not encountered during the installation of these borings. Following the completion of SB-1 a soil sample was collected at a depth of 100 to 102 feet below grade. The sample was analyzed for petroleum related VOCs and results show that no petroleum related VOCs and/or TPH concentrations were present in the SB-1 sample above method detection limits.

Due to the lack of ground water at augerable depths (8-10 feet), LAG returned to the site on two separate occasions (April 15th and May 27th) in an attempt to install auger holes that penetrated the water table. No ground water was encountered during either of the supplemental site visits. As a result, two additional hand auger borings (AH-2 and AH-3) were installed at the edge of the CFI property, adjacent Gulf Brook. Again, ground water was not encountered in either of these borings. Due to the lack of water in any of the hand auger borings, surface water samples were collected from Gulf

Brook (nearest sensitive receptor) to determine if the stream is impacted. No petroleum related contaminants were present in either of the surface water samples above method detection limits.

During the May 27th site visit LAG conducted a sensitive receptor survey of the site and surrounding residential/commercial properties. Potential sensitive receptors identified at the site include; a catch basin west of the site (C.B.-1), soil directly beneath the UST system, Gulf Brook (east of the CFI property), and the indoor air of the CFI and surrounding residential/commercial buildings. The CFI and surrounding residential/commercial building structures are all served by municipal sewer and water. During the survey, no PID readings above background were present in any of the evaluated buildings or CB-1.

Data collected during the subsurface investigation clearly shows that ground water beneath the UST system is located at depths greater than 102 feet below grade and Gulf Brook does not have a shallow based ground water system associated with it. Based on these findings and the data collected during the sensitive receptor survey, we recommend that no additional subsurface investigational work be performed at this site. The limited amount of vapor phase contamination present in soils in the vicinity of the dispenser island area does not pose a significant threat to human health and/or the environment. It is therefore recommended that a Sites Management Activities Completed (SMAC) designation be granted to the subject facility.

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Site Description

Cumberland Farms, Inc. (CFI) facility #4007 is located at 73 Taft Avenue in Hartford, Vermont (**Figure 1**). The property is bound by Taft Avenue/Route 5 to the west, N/F Stone Inc property to the north, Blood's Catering to the south, and Gulf Brook to the east (**Figure 2**). CFI's one-story, slab on-grade building, is served by municipal water and sewer. **Figure 2** is a Detailed Site Map showing pertinent features of the site.

Site History

CFI and their subcontractors completed the excavation, removal, and replacement of all UST system distribution piping in June 1998. During the work, LAG provided oversight and assessment of the piping and soils. The UST Permanent Closure Form, photoionization detector (PID) data, and photographs of the site were submitted by LAG to the Vermont Department of Environmental Conservation (VDEC), Underground Storage Tank Program (USTP) in a report dated July 14, 1998.

During the work, excavated soils were screened for the presence of VOCs using a properly calibrated photoionization detector (PID) equipped with a 10.2 electron volt lamp. Data collected during the UST piping upgrade indicated that soils in the vicinity of the dispenser island area contained elevated concentrations of VOCs. To accommodate the new distribution piping and appropriate backfill material, the most highly contaminated soils were removed from the dispenser island area. Approximately 60 cubic yards of the most highly contaminated soils were removed from the excavation and ultimately disposed of at MTS Environmental in Epsom, New Hampshire. Due to the presence of contamination remaining in soils in the vicinity of the dispenser island, the SMS requested that additional work be performed to further define the extent and magnitude of the contamination beneath the site.

Soil Boring Installations

One soil boring (SB-1) was drilled using hollow stem auger drilling techniques by T & K Drilling Inc. and one hand auger boring/monitor well (AH-1) was installed by LAG on February 4, 1999. Due to the lack of water in AH-1, LAG installed two additional hand auger borings (AH-2 and AH-3) on May 27, 1999 in an attempt to locate shallow water table associated with Gulf Brook. The locations of the four borings are shown on **Figure 2**. A description of the sediments encountered during the drilling/boring activities and PID data from the split spoon and hand auger grab samples, are presented in the detailed soil boring/well logs which are included as **Appendix A**.

Review of **Appendix A** indicates that PID readings were at or near background

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(BG) in all samples collected during the installation of the four borings. This data clearly indicate that soil immediately downgradient of the UST system has not been impacted by the limited amount of contamination in the vicinity of the dispenser island area.

Site Geology

Soils encountered during the installation of SB-1 include a very fine to fine sand overlying a very fine sandy silt layer which was noted between 15 and 22 feet below grade. Beneath the sandy silt is a highly permeable sand and gravel layer which extends to a depth of at least 102 feet below grade. Soils encountered during the installation of the three hand auger borings completed adjacent to Gulf Brook include fine to medium sand and gravel. Refusal on large boulders during the installation of the hand auger borings was encountered in AH-1, 2, and 3 at depths of 7, 5, and 10.5 feet below grade, respectively. Ground water was not encountered during the installation of these borings. A well was installed in AH-1 so that seasonal water levels could be detected, if present.

Review of the Centennial Geologic Map of Vermont (C.G. Doll, 1961) indicates that the underlying bedrock is the Post Pond Volcanic formation (450 to 460 million years ago). The Post Pond Volcanic formation is of a green chlorite schist.

Site Monitoring and Hydrogeology

On April 15 and May 27, 1999, LAG was on-site to gauge AH-1 for the presence of ground water. On both occasions the well was dry. As a result, the well was removed on May 27th and two additional hand auger borings were installed. Ground water was not encountered during the installation of either of these borings. Based on the close proximity of these hand auger borings to Gulf Brook and the depth that they were installed (5 to 10.5 feet) it appears that this small stream perched and somehow does not have a shallow water table aquifer associated with it. It is our professional opinion that this receptor is not at significant risk of becoming impacted by the limited amount of soil contamination present in the vicinity of the dispenser island area because the stream is losing water to the ground rather than receiving it.

Soil Quality Sampling

Due to the lack of ground water at a depth of 102 feet below grade in SB-1, a soil sample was collected from the last split-spoon sample (100-102 feet). The sample was analyzed for petroleum related VOCs via EPA Method 8021b and for TPH via EPA Method 8015 GRO. The collected data is summarized and presented as **Table 2**, and

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the laboratory reports are included as **Appendix B**. The soil quality result is spatially depicted on **Figure 3**. Review of the analytical results indicate that no petroleum related VOCs and/or TPH were quantified in the sample above method detection limits.

Surface Water Quality Sampling

Due to the lack of water in any of the hand auger borings, LAG collected surface water samples from Gulf Brook on May 27, 1999. The samples were collected in order to determine if the stream has been impacted by the residual soil contamination present beneath the dispenser island area. The collected samples were analyzed for the presence of VOCs via EPA Method 8021b and for TPH via EPA Method 8015 GRO at Toxicon Laboratories Inc. in Bedford, Massachusetts.

The surface water analytical results are summarized in **Table 3** and are presented on the Contaminant Concentration Summary Map included as **Figure 3**. Copies of the laboratory reports are included as **Appendix B**. Review of **Table 3, Figure 3,** and **Appendix B** indicate that no petroleum related compounds were quantified above method detection limits in either of the collected samples.

Sensitive Receptor Survey

On May 27, 1999 LAG conducted a sensitive receptor survey of the site and surrounding properties. Potential sensitive receptors include: Gulf Brook, soils beneath the site, the storm sewer catch basin (C.B.-1) west of the dispenser island area, and the indoor air of the CFI and surrounding residential/commercial buildings. The CFI building and surrounding residential/commercial buildings are all served by municipal water and sewer. Furthermore, indoor ambient air impacts to the CFI facility and Blood's Catering are highly unlikely because these buildings are concrete slab on-grade construction. PID data is summarized and presented in **Table 1**. The data shows that no PID readings above BG were present in any of the evaluated building structures and/or C.B.-1. Based upon these results, LAG believes that there are no significant health related risks associated with the limited amount of adsorbed and vapor phase contamination beneath the dispenser island area.

Summary of Findings

Based on the data collected and observations made, the following conditions exist at the site:

1. A limited amount of vadose zone contamination exists in the vicinity of the dispenser island area.

2. Ground water beneath the UST system is located at depths greater than

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102 feet below grade.

3. Gulf Brook which is located on the eastern edge of the CFI property is losing water and has not been impacted by the limited amount of soil contamination present beneath the site.

4. The CFI building and other surrounding building structures, and/or C.B.-1 have not been impacted by vapor from the soil contamination.

5. The CFI and surrounding residential/commercial buildings are all served by municipal water and sewer.

Recommendations

Based on these findings, the following recommendations are made:

1. No additional subsurface investigation should be performed at this site. We believe that the limited amount of vadose zone contamination present in the vicinity of the dispenser island area does not pose a significant threat to the deep (>102 feet) ground water system. The residual soil contamination will decrease over time due to intrinsic bioremediation and natural attenuation and does not require or warrant any active remediation.

2. We formally request that a Sites Management Activities Completed (SMAC) status be granted for this site.

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+ Note to Fund records.

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References

Doll, C. G., Eds. 1961. Centennial Geologic Map of Vermont

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Project: Cumberland Farms, Inc. - Station #4007
Location: Hartford, Vermont

Table 1
VDEC Site # 98-2474
Sheet 1 of 1

Sensitive Receptor Survey
Photoionization Detector Results (ppm)

Data Point	05/27/99						
CB-1	BG						
CFI Store	BG						
Blood's Catering	BG						
Private Residence	BG						
Vacant Residence							

Notes:
BG = Background
SL = Saturated Lamp
Dark Grey Cells = Inaccessible

Project: Cumberland Farms Inc.
Location: Hartford, Vermont

Table 2
VDEC Site # 98-2474

Soil Quality Results (ppb)

Data Point	Compound	02/04/99				
SB-1 100 - 102'	Benzene	<5				
	Toluene	<5				
	Ethylbenzene	<5				
	Xylenes	<10				
	1,2,4 Trimethylbenzene	<10				
	1,3,5 Trimethylbenzene	<10				
	Naphthalene	<10				
	MTBE	<5				
	BTEX	<55				
	BTEX + MTBE	<60				
	TPH (ppm)	<0.02				

NOTES:
< - Contaminant not detected at specified detection limit
BTEX and MTBE compounds quantified in parts per billion (ppb), and total petroleum hydrocarbons (TPH) concentrations quantified in parts per billion (ppb).

Project: Cumberland Farms Inc.
Location: Hartford, Vermont

Table 3
VDEC Site # 98-2474
Sheet 1 of 1

Surface Water Quality Results (ppb)

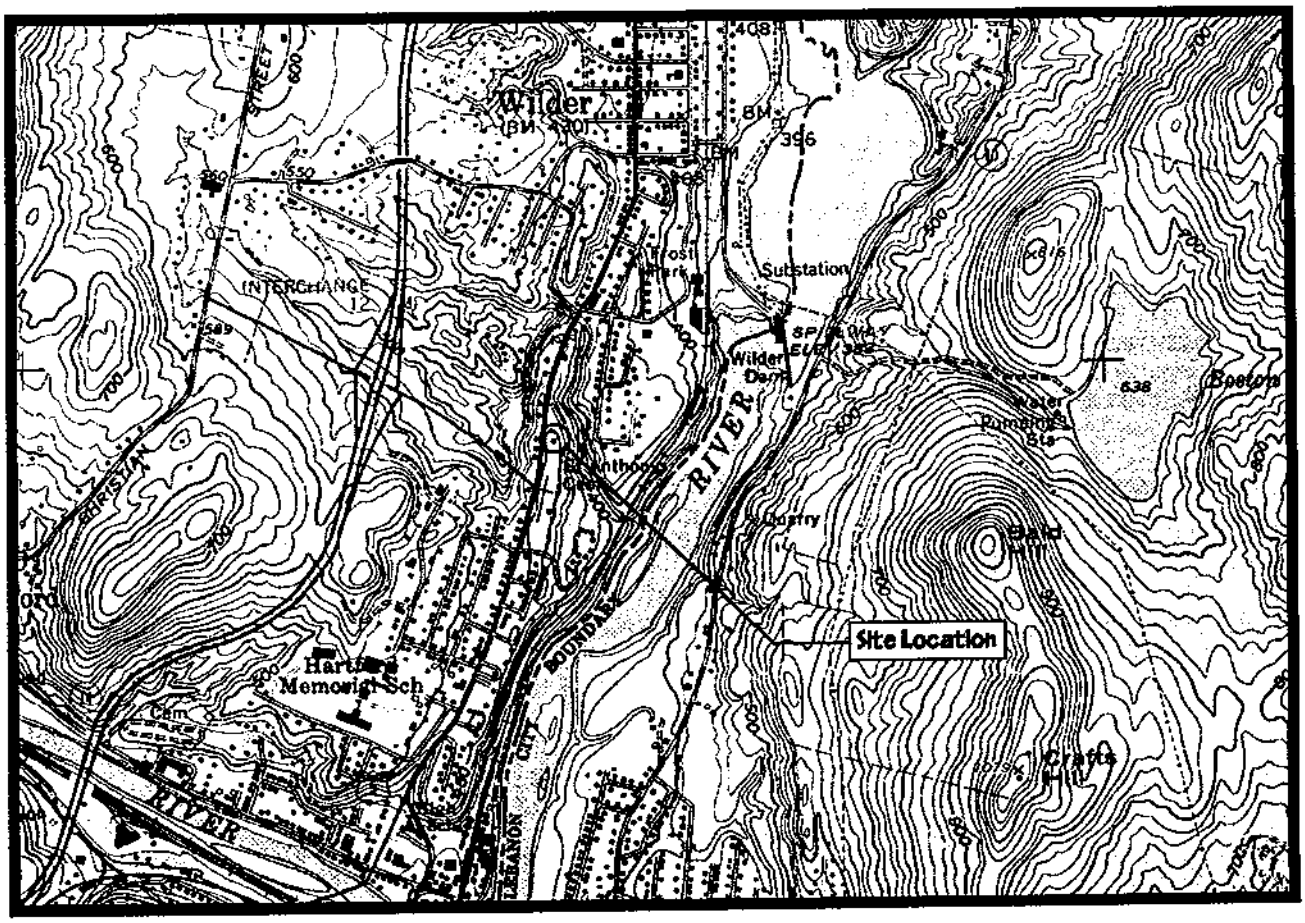
Data Point	Compound	05/27/99				
SW-1	Benzene	<2				
	Toluene	<2				
	Ethylbenzene	<2				
	Xylenes	<2				
	1,2,4 - Trimethylbenzene	<2				
	1,3,5 - Trimethylbenzene	<2				
	Naphthalene	<2				
	MTBE	<5				
	BTEX	<14				
	BTEX + MTBE	<19				
	TPH (ppm)	<0.02				
SW-2	Benzene	<2				
	Toluene	<2				
	Ethylbenzene	<2				
	Xylenes	<2				
	1,2,4 - Trimethylbenzene	<2				
	1,3,5 - Trimethylbenzene	<2				
	Naphthalene	<2				
	MTBE	<5				
	BTEX	<14				
	BTEX + MTBE	<19				
	TPH (ppm)	<0.02				

NOTES:
< - Contaminant not detected at specified detection limit
BTEX and MTBE compounds quantified in parts per billion (ppb), and total petroleum hydrocarbons (TPH) quantified in parts per million (ppm)

Figure 1

Cumberland Farms, Inc.
Station #4007; VDEC Site #98-2474
Wilder, Vermont

GENERAL LOCATION MAP



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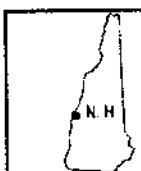

HANOVER, N. H. – VT.
43072-F3-TF-024

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PHOTOREVISED 1988
QUADRANGLE LOCATION DMA 6571 III NE–SERIES V813

Maptech® U.S. Terrain Series™, ©Maptech®, Inc. 603-433-8500

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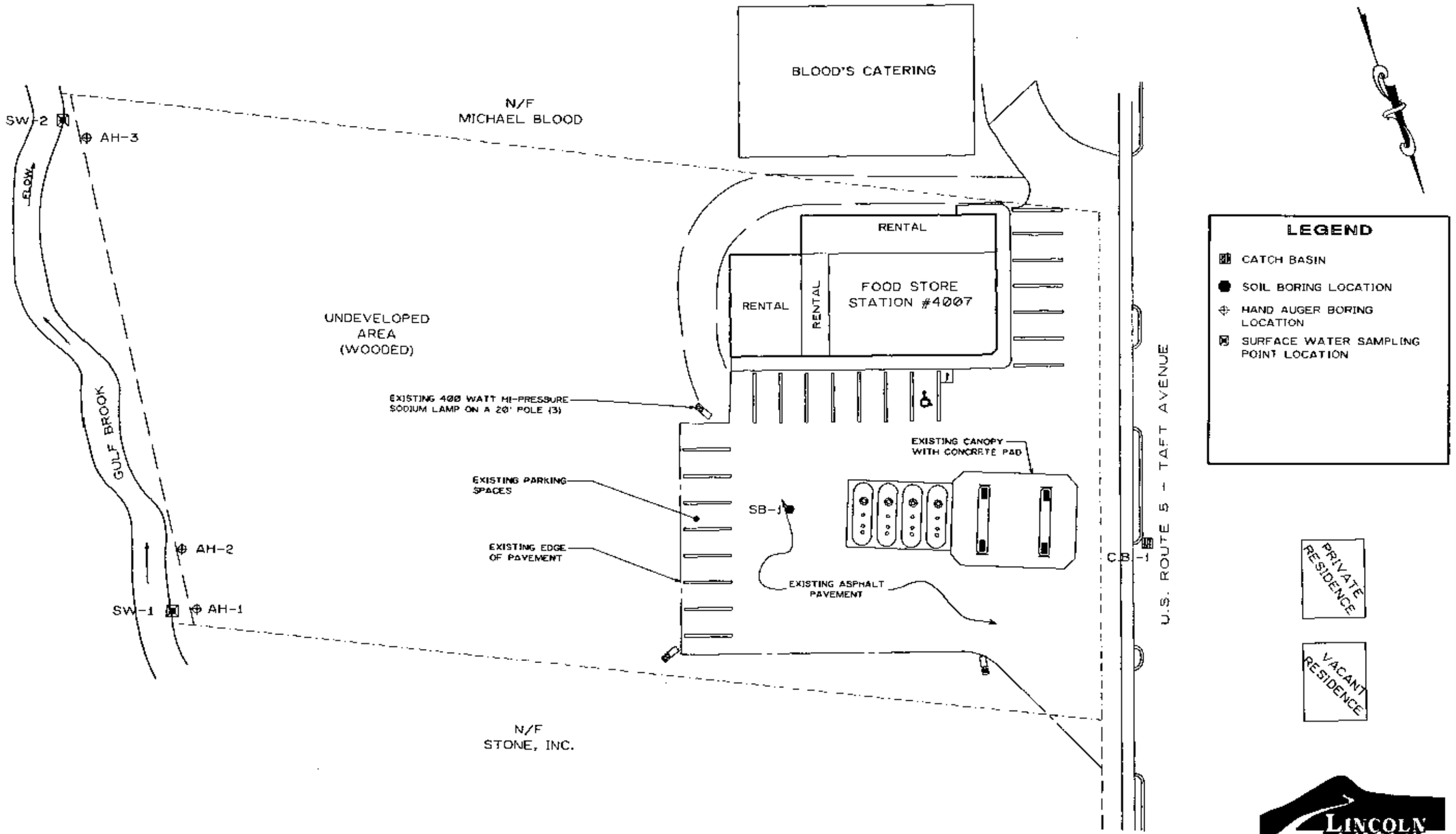

NOTE: PORTIONS OF THIS SITE MAP WHERE ADAPTED FROM CUMBERLAND FARMS - SITE PLAN.

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FIGURE 2

CUMBERLAND FARMS, INC.
STATION #4007; VDEC SITE #98-2474
WILDER, VERMONT

DETAILED SITE MAP

Date:	Job Type:	Scale:
DEC '98	SUBSURFACE INVESTIGATION	1" = 40'

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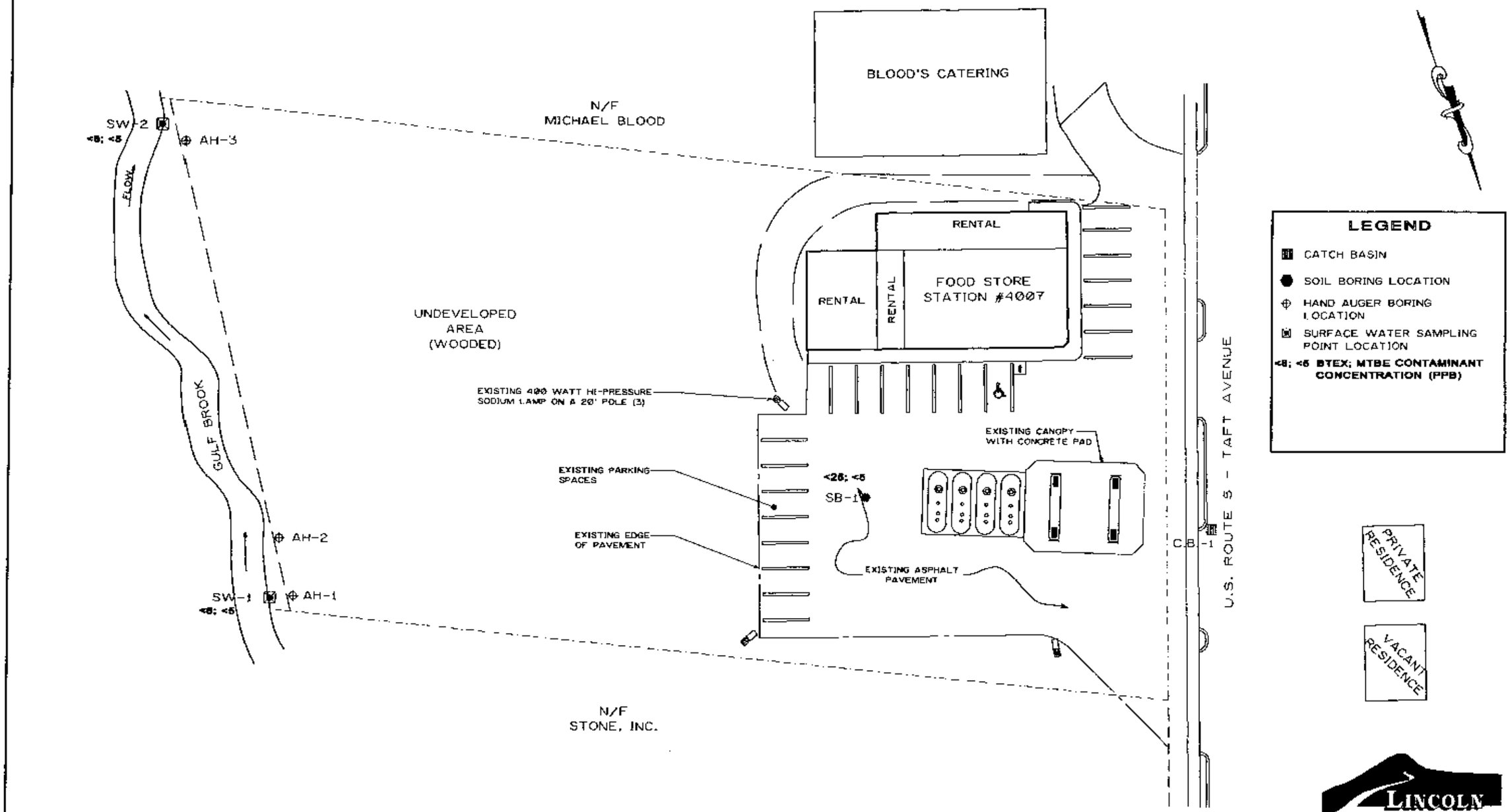

NOTE: PORTIONS OF THIS SITE MAP WHERE ADAPTED FROM CUMBERLAND FARMS - SITE PLAN.

LINCOLN
APPLIED GEOLOGY, INC.
Environmental Consultants

FIGURE 3

CUMBERLAND FARMS, INC.
STATION #4007; VDEC SITE #98-2474
WILDER, VERMONT

SOIL AND SURFACE
WATER QUALITY SUMMARY MAP

Date:	Job Type:	Scale:
DEC '98	SUBSURFACE INVESTIGATION	1" = 40'

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Appendix A

Soil Boring Logs

WELL LOG

WELL: SB-1
LOCATION: Cumberland Farms, Inc., Hartford, Vermont - 22 feet downgradient of fomer/current UST area.
DRILLER: T&K Drilling Inc. - Troy, New Hampshire
HYDROGEOLOGIST: Jason Barnard, Lincoln Applied Geology, Inc.
DATE: 4 February, 1999

Soils Description: (BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)

Depth	Description	PID (ppm)
5' - 7'	Sand, very fine to fine, light brown; trace silt; dry; no hydrocarbon odor.	BG
10' - 12'	Sand, very fine to fine, brown to grey; trace silt; dry; no hydrocarbon odor.	BG
15' - 17'	Sand, very fine, grey to brown; silt; weak blocky structure; dry; no hydrocarbon odor.	BG
20' - 22'	Sandy, very fine, olive grey to brown; and silts; weak blocky structure; dry; no hydrocarbon odor.	0.5
30' - 32'	Sand, medium, brown; loose granular structure; dry; no hydrocarbon odor.	0.6
40' - 42'	Sand, medium to coarse, brown to grey; trace gravel, fine; dry; no hydrocarbon odor.	BG
50' - 52'	Sand, fine to medium, grey; dry; no hydrocarbon odor.	BG
60' - 62'	Sand, fine to medium dry, brown to grey; dry; no hydrocarbon odor.	BG
70' - 72'	Sand, fine to medium, brown to grey; some gravel, medium; dry; no hydrocarbon odor.	BG
80' - 82'	Sand, fine to medium, brown to grey; some gravel, medium; dry; no hydrocarbon odor.	BG
90' - 92'	Sand, fine to medium, brown to grey; dry; no hydrocarbon odor.	BG
100' - 102'	Sand, fine to medium, grey; some gravel, fine to medium; dry; no hydrocarbon odor.	BG

Well Construction:

Bottom of Boring: 102'
Bottom of Well: No Well Set
Well Screen:
Solid Riser:
Sand Pack:
Bentonite Seal:
Backfill:
Well Box:

WELL LOG

WELL:	AH-1
LOCATION:	Cumberland Farms, Inc., Hartford, Vermont - Near northeast property corner 8 feet west of small stream.
DRILLER:	T&K Drilling Inc. - Troy, New Hampshire
HYDROGEOLOGIST:	Jason Barnard, Lincoln Applied Geology, Inc.
DATE:	4 February, 1999

Soils Description: **(BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)**

Depth	Description	PID (ppm)
0 - 2'	Sand, medium to coarse, dark brown; some gravel, fine; dry; no hydrocarbon odor.	BG
2' - 5'	Sand, medium to coarse, dark brown; some gravel, fine to medium; trace cobbles; moist; no hydrocarbon odor.	BG
5' - 7'	Sand, medium to coarse, dark brown; some gravel, medium; trace cobbles; very moist; no hydrocarbon odor.	BG
	Auger refusal at 7 feet below grade.	

Well Construction:

Bottom of Boring:	7'
Bottom of Well:	Well Set Temporarily at 7'
Well Screen:	5' (2' - 7') of 2" sch. 40 PVC, 0.010" slot
Solid Riser:	5' (2' below grade - 3' above grade) of 2" sch. 40 PVC
Sand Pack:	Natural
Bentonite Seal:	1' (0 - 1') of chips
Backfill:	None
Well Box:	Stickup Casing (3' above grade)

WELL LOG

WELL: AH-2
LOCATION: Cumberland Farms Inc., Hartford, Vermont - 25 feet south of AH-1 6 feet west of small steam.
DRILLER: T&K Drilling Inc. - Troy, New Hampshire
HYDROGEOLOGIST: Jason S. Barnard, Lincoln Applied Geology, Inc.
DATE: May 27, 1999

Soils Description: **(BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)**

Depth	Description	PID (ppm)
0 - 2'	Sand, medium to coarse, brown; some gravel, medium; damp; no hydrocarbon odor.	BG
2' - 4'	Sand, medium to coarse; brown; and gravel, medium to coarse; damp; no hydrocarbon odor.	BG
4' - 5'	Sand, medium to coarse, brown; some gravel and cobbles, coarse; moist; no hydrocarbon odor.	BG
	Auger refusal at 5 feet below grade.	

Well Construction:

Bottom of Boring: 5'
Bottom of Well: No Well Set
Well Screen:
Solid Riser:
Sand Pack:
Bentonite Seal:
Backfill:
Well Box:

WELL LOG

WELL: AH-3
LOCATION: Cumberland Farms Inc., Hartford, Vermont - Near southeast property corner 8 feet west of small stream.
DRILLER: Lincoln Applied Geology Inc. - Lincoln, Vermont
HYDROGEOLOGIST: Jason S. Barnard, Lincoln Applied Geology, Inc.
DATE: May 27, 1999

Soils Description: **(BG = Background [0.2], SL = Saturated Lamp [>500], ppm = Parts Per Million)**

Depth	Description	PID (ppm)
0 - 7'	Sand, medium to coarse, brown; some gravel, medium; moist; no hydrocarbon odor	BG
7' - 10.5'	Sand, medium to coarse, brown; and gravel, medium to coarse; moist; no hydrocarbon odor.	BG
	Auger refusal at 10.5 feet below grade.	

Well Construction:

Bottom of Boring: 10.5'
Bottom of Well: No Well Set
Well Screen:
Solid Riser:
Sand Pack:
Bentonite Seal:
Backfill:
Well Box:

Appendix B

Laboratory Reports for February 4 and May 27, 1999

Received: 02/06/99 02/16/99 17:03:33

REPORT LINCOLN APPLIED GEOLOGY
TO REVELL DRIVE
LINCOLN, VT 05443
802-453-4384 FAX: 5399
ATTEN RICK VANDENBERG

PREPARED TOXIKON CORPORATION
BY 15 WIGGINS AVE
BEDFORD, MA 01730
CERTIFIED BY
ATTEN PAUL LEZBERG
PHONE (781)275-3330 CONTACT JOHNM

CLIENT LINCOLN VT SAMPLES 2
COMPANY LINCOLN APPLIED GEOLOGY
FACILITY REVELL DRIVE
LINCOLN, VT 05443

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND, O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID CFI HARTFORD,VT
TAKEN 2/4/99
TRANS
TYPE SOIL
P.O. # CFI
INVOICE under separate cover

VERIFIED BY:
CERT #MMA064

SAMPLE IDENTIFICATION

01 MW-1 100-102'
02 MW-1 100-102'

TEST CODES and NAMES used on this workorder

8260 PURGEABLE ORGANICS VOA
GRO GASOLINE RANGE ORGANICS

Received: 02/06/99 Results by Sample

SAMPLE ID MW-1 100-102' FRACTION 01A TEST CODE 8260 NAME PURGEABLE ORGANICS VOA
Date & Time Collected 02/04/99 16:00:00 Category SOIL

EPA 8260 PURGEABLE ORGANICS

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	5.0	m+p-Xylene	ND	5.0
Vinyl Chloride	ND	2.0	1,2-Dichlorobenzene	ND	5.0
Chloroethane	ND	10	1,3-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,4-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	Naphthalene	ND	10
Trichlorofluoromethane	ND	10	n-Propylbenzene	ND	10
1,1-Dichloroethane	ND	5.0	Bromobenzene	ND	5.0
Trans-1,2-Dichloroethene	ND	5.0	Bromchloromethane	ND	5.0
Chloroform	ND	5.0	n-Butylbenzene	ND	10
1,2-Dichloroethane	ND	5.0	sec-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	tert-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	2-Chlorotoluene	ND	5.0
Bromodichloromethane	ND	5.0	4-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromoethane	ND	5.0
Dibromochloromethane	ND	5.0	Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dichlorodifluoromethane	ND	10
Benzene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0	1,3-Dichloropropane	ND	5.0
2-2-Dichlorpropane	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Bromoform	ND	5.0	1,2,3-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Isopropylbenzene	ND	10	1,2,4-Trichlorobenzene	ND	5.0
Tetrachloroethene	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Toluene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Ethyl Benzene	ND	5.0	trans-1,3-Dichloropropene	ND	5.0
p-Isopropyltoluene	ND	10	Styrene	ND	5.0

Notes and definitions for this report:

DATE RUN 02/16/99
ANALYST JCP
INSTRUMENT D
DIL. FACTOR 1
UNITS ug/Kg
COMMENTS

ND = Not detected at detection limit

Received: 02/06/99 Results by Sample

SAMPLE ID MW-1 100-102' FRACTION 02A TEST CODE GRO NAME GASOLINE RANGE ORGANICS
Date & Time Collected 02/04/99 16:00:00 Category SOIL

8015 MODIFIED GRO

	RESULT *	LIMIT
ALIPHATICS	ND	0.010
AROMATICS	ND	0.010

Notes and Definitions for this Report:

DATE RUN	02/11/99
ANALYST	NLC
INSTRUMENT	V5
DIL. FACTOR	1
UNITS =	mg/Kg

ND = not detected at detection limit

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260B: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods. EPA SW-846 Final Update III, 1996. Office of Solid Waste, USEPA.

SOIL RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE GRO NAME GASOLINE RANGE ORGANICS

METHOD:EPA METHOD 8015 Modified;Gasoline Range Organics

Nonhalogenated Volatile Organics. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods 3rd Edition, Final Update I.

Quantitation for BTEX/MTBE is performed by analysis on a PID detector. Miscellaneous aromatics eluting between o-xylene and 1,2,4-trimethylbenzene are quantitated on the PID detector using the response factor of o-xylene.Miscellaneous aliphatics eluting between 3-methylpentane and isooctane are quantitated on the FID detector using the response factor of n-hexane.

This method meets the specifications of Maine DEP Method 3.1.1.2.6

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-02-115
DUE DATE: 2-18-99

COMPANY: [illegible] For CFI
ADDRESS: [illegible]
[illegible] VT 05443
PHONE #: (802) 453 4384 FAX #: (802) [illegible]
P.O. #:
PROJECT MANAGER: [illegible]
PROJECT ID/LOCATION: CFI Hartford VT

SAMPLE TYPE: 1. WASTEWATER 2. SOIL 3. SLUDGE 4. OIL 5. DRINKING WATER 6. WATER (GW/MW/SW) 7. OTHER (SPECIFY

CONTAINER TYPE: P - PLASTIC G - GLASS V - VOA

ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	EPA 8260B	[illegible]	SPECIAL INSTRUCTIONS/ COMMENTS
1	MW-1 100-105'	Soil	40 ml VOA	Glass	2	2/4/99	1000	Ice Cool	X		
2	MW-1 100-105'	Soil	8oz	Glass	1	2/4/99	1000	Ice Cool		X	

SAMPLED BY: [illegible]	DATE: 2-4-99 TIME: 10-00	QUOTATION #:	
RELINQUISHED BY: [illegible]	DATE: 2-4-99 TIME: 19-00	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY: Express [illegible]	DATE: 2-5-99 TIME: 09-15-	RECEIVED FOR LAB BY: [illegible]	DATE: 2-6-99 TIME: [illegible]
METHOD OF SHIPMENT: USPS # [illegible] 12:00		COOLER TEMPERATURE 6.7c	

☐ RUSH ..... BUSINESS DAY TURN AROUND
☒ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ✓ If Yes, 1st Known ______

APPLIED GEOLOGIC

June 09, 1999

RICK VANDENBERG
LINCOLN APPLIED GEOLOGY
REVELL DRIVE
LINCOLN, VT 05443
TEL: 802-453-4384
FAX: ( ) 453-5399

RE: CFI #4007 73 Taft Ave wilder VT Order No.: 9906064

Dear RICK VANDENBERG,

Toxikon received 2 samples on 6/2/99 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

CC:

Toxikon

Date: *09-Jun-99*

CLIENT:	LINCOLN APPLIED GEOLOGY	**Client Sample ID:**	SW-1
Lab Order:	9906064	**Collection Date:**	5/27/99 2:40:00 PM
Project:	CFI #4007 73 Taft Ave wilder VT	**Matrix:**	AQUEOUS
Lab ID:	9906064-01A		

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS		**SW8021B**				Analyst: ADM
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	1	6/9/99
1,1,1-Trichloroethane	ND	2.0		µg/L	1	6/9/99
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/9/99
1,1,2-Trichloroethane	ND	2.0		µg/L	1	6/9/99
1,1-Dichloroethane	ND	2.0		µg/L	1	6/9/99
1,1-Dichloroethene	ND	2.0		µg/L	1	6/9/99
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	6/9/99
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/9/99
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	6/9/99
1,2,4-Trimethylbenzene	ND	5.0		µg/L	1	6/9/99
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/9/99
1,2-Dibromoethane	ND	2.0		µg/L	1	6/9/99
1,2-Dichlorobenzene	ND	2.0		µg/L	1	6/9/99
1,2-Dichloroethane	ND	2.0		µg/L	1	6/9/99
1,2-Dichloropropane	ND	2.0		µg/L	1	6/9/99
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	6/9/99
1,3-Dichlorobenzene	ND	2.0		µg/L	1	6/9/99
1,3-Dichloropropane	ND	2.0		µg/L	1	6/9/99
1,4-Dichlorobenzene	ND	2.0		µg/L	1	6/9/99
2-Chlorotoluene	ND	2.0		µg/L	1	6/9/99
4-Chlorotoluene	ND	2.0		µg/L	1	6/9/99
Benzene	ND	2.0		µg/L	1	6/9/99
Bromobenzene	ND	2.0		µg/L	1	6/9/99
Bromochloromethane	ND	2.0		µg/L	1	6/9/99
Bromodichloromethane	ND	2.0		µg/L	1	6/9/99
Bromoform	ND	2.0		µg/L	1	6/9/99
Bromomethane	ND	5.0		µg/L	1	6/9/99
Carbon tetrachloride	ND	2.0		µg/L	1	6/9/99
Chlorobenzene	ND	2.0		µg/L	1	6/9/99
Chloroethane	ND	2.0		µg/L	1	6/9/99
Chloroform	ND	2.0		µg/L	1	6/9/99
Chloromethane	ND	2.0		µg/L	1	6/9/99
cis-1,2-Dichloroethene	ND	2.0		µg/L	1	6/9/99
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	6/9/99
Dibromochloromethane	ND	2.0		µg/L	1	6/9/99
Dibromomethane	ND	5.0		µg/L	1	6/9/99
Dichlorodifluoromethane	ND	2.0		µg/L	1	6/9/99
Ethylbenzene	ND	2.0		µg/L	1	6/9/99
Hexachlorobutadiene	ND	2.0		µg/L	1	6/9/99
Iodomethane	ND	2.0		µg/L	1	6/9/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *09-Jun-99*

CLIENT: LINCOLN APPLIED GEOLOGY **Client Sample ID:** SW-1
Lab Order: 9906064 **Collection Date:** 5/27/99 2:40:00 PM
Project: CFI #4007 73 Taft Ave wilder VT **Matrix:** AQUEOUS
Lab ID: 9906064-01A

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	2.0		µg/L	1	6/9/99
m,p-Xylene	ND	2.0		µg/L	1	6/9/99
Methyl tert-butyl ether	ND	5.0		µg/L	1	6/9/99
Methylene chloride	ND	2.0		µg/L	1	6/9/99
n-Butylbenzene	ND	2.0		µg/L	1	6/9/99
n-Propylbenzene	ND	2.0		µg/L	1	6/9/99
Naphthalene	ND	2.0		µg/L	1	6/9/99
o-Xylene	ND	2.0		µg/L	1	6/9/99
p-Isopropyltoluene	ND	2.0		µg/L	1	6/9/99
sec-Butylbenzene	ND	2.0		µg/L	1	6/9/99
Styrene	ND	2.0		µg/L	1	6/9/99
Tetrachloroethene	ND	2.0		µg/L	1	6/9/99
Toluene	ND	2.0		µg/L	1	6/9/99
trans-1,2-Dichloroethene	ND	2.0		µg/L	1	6/9/99
Trichloroethene	ND	2.0		µg/L	1	6/9/99
Trichlorofluoromethane	ND	2.0		µg/L	1	6/9/99
Vinyl chloride	ND	2.0		µg/L	1	6/9/99
Xylenes, Total	ND	2.0		µg/L	1	6/9/99
GASOLINE RANGE ORGANICS		GRO				Analyst: ADM
Aliphatics	ND	0.010		mg/L	1	6/4/99
Aromatics	ND	0.010		mg/L	1	6/4/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *09-Jun-99*

CLIENT: LINCOLN APPLIED GEOLOGY **Client Sample ID:** SW-2
Lab Order: 9906064 **Collection Date:** 5/27/99 2:45:00 PM
Project: CFI #4007 73 Taft Ave wilder VT **Matrix:** AQUEOUS
Lab ID: 9906064-02A

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS		SW8021B				Analyst: ADM
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	1	6/8/99
1,1,1-Trichloroethane	ND	2.0		µg/L	1	6/8/99
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/8/99
1,1,2-Trichloroethane	ND	2.0		µg/L	1	6/8/99
1,1-Dichloroethane	ND	2.0		µg/L	1	6/8/99
1,1-Dichloroethene	ND	2.0		µg/L	1	6/8/99
1,2,3-Trichlorobenzene	ND	2.0		µg/L	1	6/8/99
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/8/99
1,2,4-Trichlorobenzene	ND	2.0		µg/L	1	6/8/99
1,2,4-Trimethylbenzene	ND	5.0		µg/L	1	6/8/99
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/8/99
1,2-Dibromoethane	ND	2.0		µg/L	1	6/8/99
1,2-Dichlorobenzene	ND	2.0		µg/L	1	6/8/99
1,2-Dichloroethane	ND	2.0		µg/L	1	6/8/99
1,2-Dichloropropane	ND	2.0		µg/L	1	6/8/99
1,3,5-Trimethylbenzene	ND	2.0		µg/L	1	6/8/99
1,3-Dichlorobenzene	ND	2.0		µg/L	1	6/8/99
1,3-Dichloropropane	ND	2.0		µg/L	1	6/8/99
1,4-Dichlorobenzene	ND	2.0		µg/L	1	6/8/99
2-Chlorotoluene	ND	2.0		µg/L	1	6/8/99
4-Chlorotoluene	ND	2.0		µg/L	1	6/8/99
Benzene	ND	2.0		µg/L	1	6/8/99
Bromobenzene	ND	2.0		µg/L	1	6/8/99
Bromochloromethane	ND	2.0		µg/L	1	6/8/99
Bromodichloromethane	ND	2.0		µg/L	1	6/8/99
Bromoform	ND	2.0		µg/L	1	6/8/99
Bromomethane	ND	5.0		µg/L	1	6/8/99
Carbon tetrachloride	ND	2.0		µg/L	1	6/8/99
Chlorobenzene	ND	2.0		µg/L	1	6/8/99
Chloroethane	ND	2.0		µg/L	1	6/8/99
Chloroform	ND	2.0		µg/L	1	6/8/99
Chloromethane	ND	2.0		µg/L	1	6/8/99
cis-1,2-Dichloroethene	ND	2.0		µg/L	1	6/8/99
cis-1,3-Dichloropropene	ND	2.0		µg/L	1	6/8/99
Dibromochloromethane	ND	2.0		µg/L	1	6/8/99
Dibromomethane	ND	5.0		µg/L	1	6/8/99
Dichlorodifluoromethane	ND	2.0		µg/L	1	6/8/99
Ethylbenzene	ND	2.0		µg/L	1	6/8/99
Hexachlorobutadiene	ND	2.0		µg/L	1	6/8/99
Iodomethane	ND	2.0		µg/L	1	6/8/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

TURNUN
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-06069

DUE DATE : 06-09-99

COMPANY: Lincoln Applied Geology Inc. for CFI
ADDRESS: 163 Revell Drive
Lincoln, VT 05443
PHONE #: (802) 453-4364 FAX #: (802) 453-5392
P.O. #:
PROJECT MANAGER: Rick Vanderberg
PROJECT ID/LOCATION: CFI, Hartford/Wilder, VT

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	ANALYSES: EPA - 8021b (MTBE); TPH - SW5 (GRO); JUN; MOD. APPLIED	SPECIAL INSTRUCTIONS/ COMMENTS
(1)	SW-1	H2O (6)	40 ml	VOA	4	5/27/99	1440	HCl	X X	
(2)	SW-2	↓	↓		↓	↓	1445	HCl	X X	

SAMPLED BY: Jason Barnard
DATE: 5 - 27 - 99
TIME: 15 - 00 -

RELINQUISHED BY: Jason Barnard
DATE: 6 - 8 - 99
TIME: 9 - 19 - AM

RELINQUISHED BY: U.S.P.S.
DATE: 06 - 02 - 99
TIME: 12 - 00 -

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY:
DATE: - -
TIME: - -

RECEIVED FOR LAB BY:
DATE: 06 - 02 - 99
TIME: 12 - 00 -

COOLER TEMPERATURE
10.2 c

☐ RUSH ..... BUSINESS DAY TURN AROUND
☒ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ✓ If Yes, 1st Known ____