

JUL 15 1993

93-1404

**UNDERGROUND STORAGE TANK REMOVAL
CUMBERLAND FARMS, INC.
145-149 NORTH MAIN STREET,
RUTLAND, VERMONT**

Prepared for

**Cumberland Farms, Inc.
Canton, Massachusetts**

Prepared by

**CASWELL, EICHLER AND HILL, INC.
West Topsham, Vermont
Portsmouth, New Hampshire
Augusta, Maine
Parsippany, New Jersey**

July 1993



CASWELL, EICHLER & HILL

69 SEWALL STREET
POST OFFICE BOX 5247
AUGUSTA, MAINE 04332-5247

TEL: (207) 622-0032 FAX: (207) 622-1626

July 7, 1993

Mr. Chuck Schwer
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street, West Building
Waterbury, Vermont 05671-0404

Re: Removal of Underground Storage Tanks
145-149 North Main Street, Rutland, VT
CEH Project Reference: Rutland-CFUST

Dear Mr. Schwer:

On behalf of Cumberland Farms Inc.(CFI), Caswell, Eichler & Hill, Inc. (CEH) is submitting this final report of the tank removal and soil sampling activities at the CFI site in Rutland, Vermont. Based on the results of the soil screening performed during tank removal, CEH does not recommend any further site assessment activities. In order to complete the closure, CEH has outlined several options for disposal of the stockpiled 28 cubic yards of soil. The laboratory results of volatile organic compounds (VOC's) in the soil were below, VTDEC guidelines. Therefore, CEH proposes on-site screening of the soils to confirm the absence of VOC's in the soil and on-site disposal of the soil behind the CFI building (if possible). CEH has also provided contingency plans for treatment / disposal of the soils if VOC's are found within the pile. After receiving VTDEC approval of a disposal method, CEH will provide a cost breakdown and schedule.

If there are any questions regarding this report or additional issues regarding this site, please contact David Brooks of CEH at (207) 622-0032 or Michelle Paul of Cumberland Farms at (617) 828-4900 ext. 03416.

Sincerely,
CASWELL, EICHLER & HILL, INC.

David W. Brooks
Project Manager

(919373)

Giving you Environmental Solutions that Work
Geologists, Engineers, Hydrogeologists & Geophysicists

TABLE OF CONTENTS

	<u>Page</u>
WORK PERFORMED	2
SETTING AND LAYOUT	3
SITE HISTORY	6
UNDERGROUND STORAGE TANK REMOVAL	6
Methodology for Screening Soils	6
Laboratory Analysis	7
RESULTS	8
SUMMARY	9
RECOMMENDATIONS	10
FIGURES	
Figure 1	4
Figure 2	5
TABLES	
Table 1 Weather Conditions	6
Table 2 Confirmatory Soil Headspace Results	8
APPENDICES	
Appendix A Vermont DEC UST Closure Form	
Appendix B Health and Safety Plan	
Appendix C Laboratory Results	

WORK PERFORMED

CEH provided environmental services associated with the removal of underground storage tanks (USTs) at the above-referenced property (site). The work included the following tasks:

1. observation of UST removals,
2. collection of soil samples from the excavation for volatile organic compound (VOC) screening,
3. communication with regulatory personnel from the Vermont Department of Environmental Conservation (VTDEC),
4. completion of a preliminary site assessment, and
5. preparation of this letter report.

The removal operation was performed on May 4 to 5, 1993 by Calkins Excavating, P.O. Box 74, Danville, VT 05828, (802) 684-3375. The operation was conducted on behalf of Cumberland Farms, Inc. which owned/operated the site and tanks. The tanks were removed due to the closure of the facility. The State of Vermont Department of Environmental Conservation (Mr. Marc Coleman) was notified of the removal operation on April 16, 1993. Officer Cole of the Rutland Fire Department was notified upon commencement of the operation on May 4, 1993. Dig Safe was notified prior to the operation. Dig Safe clearance (#93183903) was obtained as of April 30, 1993.

In order to provide transportation and disposal services, Merrimack Timber Services, Inc. (MTS) of Littleton, New Hampshire collected soil samples from stockpiled soils and delivered the samples to New England Testing Laboratory for analysis.

SETTING AND LAYOUT

The site is located at 145 to 149 North Main Street in Rutland, Vermont. The site and surrounding area is depicted on Figure 1. A site plan is attached along with the copy of the VTDEC closure form previously submitted (attached as Appendix A). Photographs of the tank removal operation are included as Figure 2.

An existing monitoring well was identified at the northwest corner of the concrete tank pad. This well was approximately 10.3 feet deep and was dry on May 4, 1993. It was damaged during the tank removal and subsequently abandoned. No other monitoring wells were observed at the site.

Land use surrounding the site consists of the following:

1. a cemetery to the north and west;
2. residences to the west and south;
3. a market/general store to the southeast,
4. an army navy surplus store to the east across North Main Street; and
5. Stony Brook Plaza, a strip mall to the northeast at 158 to 162 North Main Street.

No water wells were observed at or near the site. According to John Havens of the Rutland Department of Public Works, the site and surrounding area are connected to the municipal water system. He knew of no public or private water supplies located within one half mile of the site.

Topography in the area of the site slopes steeply downward towards the west (away from North Main Street). Stony Brook Plaza, across Main Street from the site, appears to be topographically upgradient of the site. In order to level the topography and create a flat parking lot at the site, fill was brought in. At the back end of the property the fill is held in place by a nine foot high retaining wall which parallels the westerly property boundary.

This fill was observed in the sidewalls of the excavation. It is a heterogenous gravelly sand which contains stones up to six inches in diameter. It is underlain by a firm light brown gravelly clay loam (native) which in turn overlies marble bedrock encountered at approximately 10 feet below the ground surface.

As previously mentioned, no ground water was observed in the on-site monitoring well. This well extended approximately one foot below the original native ground surface. No ground water was observed in the excavation during the UST removal operation.



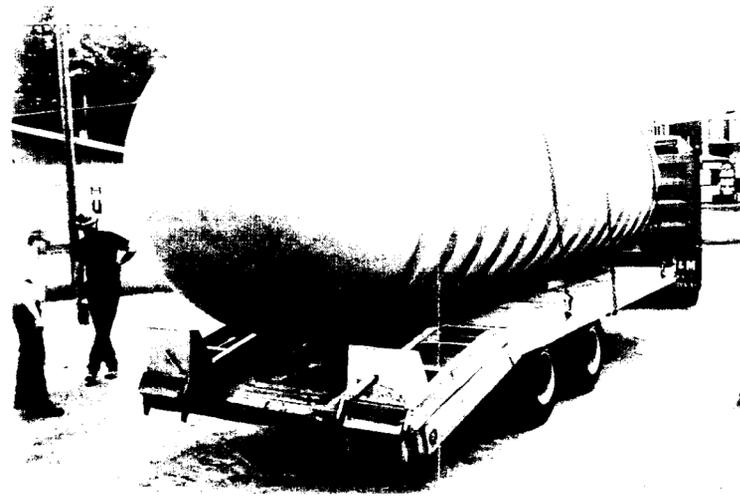
CASWELL, EICHLER & HILL, INC. GEOLOGY HYDROLOGY GEOPHYSICS ENGINEERING		 CEH	
CEH OFFICE: Augusta, Maine			
Figure 1 Site Location			
DATE PREPARED: 5/6/93	DRAWN BY: DVC	PROJECT NAME: Rutland CFUST	SCALE: Scale: 1" = 200'
REVISION DATE:	DRAWN BY:	PREPARED FOR: Cumberland Farms, Inc.	
REVISION DATE:	DRAWN BY:		

Source: Rutland, VT 7.5' USGS Quad. Map

CHARRETTE



Cumberland Farms
145 to 149 North Main Street



Tank 1



Tank 2



Stockpiled Contaminated Soil

CASWELL EICHLER & HILL, INC. GEOLOGICAL AND ENVIRONMENTAL ENGINEERING		CEH	
WEST OFFICE West Topsham, VT			
Figure 2 Site Photographs			
DATE PREPARED: 5/6/93	DRAWN BY: DVC	PROJECT NAME: Rutland - CFUST	SCALE:
REVISION DATE:	DRAWN BY:	PREPARED FOR: Cumberland Farms, Inc.	
REVISION DATE:	DRAWN BY:		

SITE HISTORY

One building occupies the Cumberland Farms site. This is a one-story, 1,764 square foot, cement block structure. The building was last used as a convenience store and gasoline station.

The building is currently vacant. The site is owned, and was last operated by Cumberland Farms, Inc. Gasoline was stored at the site in three 8000-gallon fiberglass USTs located to the northeast of the building; piping was of single-walled steel. A pump island is located between the building and North Main Street. However, the pumps were removed at some time prior to the start of the tank removal operation.

UNDERGROUND STORAGE TANK REMOVAL

The three USTs were removed on May 4 to 5, 1993, no replacement tanks were installed. Prior to their removal, residual petroleum was pumped from the tanks. Approximately 110 gallons of waste gasoline was recovered and stored in three labelled DOT 55-gallon drums on site pending pickup by Pollution Solutions of Vermont, Inc. The USTs appeared in excellent condition (see Figure 2). No holes or cracks were observed. The backfill around the USTs was a fine gravel-sized crushed stone. Piping was single walled steel.

Site operations were conducted in accordance with the Health and Safety Plan attached as Appendix B. Health and safety conditions were monitored with an HNU Model 101 Photoionization Detector (PID) and an Oxygen/Explosion Meter. Based on the tank and work area monitoring, operations were conducted under health and safety Level D.

Weather conditions during the tank pull operation are summarized below in table 1.

TABLE 1 WEATHER CONDITIONS

DATE	TEMPERATURE (Degrees F)	PRECIPITATION (inches)	WIND (Miles Per Hour)
5/4/93	60's to 70's	none	West 0-15
5/5/93	70's	none	South 0-15

Methodology for Screening of Soils

Screening was performed with an Hnu PID equipped with an 11.7 eV lamp. The PID was used to monitor for volatile organic compounds such as those found in gasoline. It was calibrated with an isobutylene standard as 10 ppm benzene. Calibration was performed at the beginning of each day and done according to the manufacturers instructions.

As the crushed stone was removed from around the tanks, it was monitored for the presence of VOC's. Screening was performed by collecting a gloved handful of soil, and monitoring the vapor concentration one inch above the soil using the PID. The excavated soils were segregated based on the vapor concentration as measured using the PID.

A second set of samples was collected to confirm the removal of contaminated backfill and soil from the excavation. After the removal of each tank, a sample was collected of the underlying soil. The excavation was then extended outward to the soil surrounding the crushed stone, and samples were collected of the sidewalls. A total of eight confirmatory headspace samples were collected and screened.

The Bag Headspace method was used to screen the confirmatory samples. The grab soil samples were placed in Ziploc (brand) bags to 50% full thereby leaving a headspace for volatile organic vapors to accumulate. The samples were allowed to equilibrate for a minimum of 10 minutes. The bags were then kneaded for approximately a minute and allowed to equilibrate for an additional minute. The PID probe was inserted into the bag and the meter deflection recorded. Sample locations are marked on the copy of the attached UST Closure Form Site Diagram which was previously submitted separately. Results of the confirmatory PID headspace screening is discussed below.

Laboratory Analysis

On May 10, 1993, personnel from Merrimack Timber Services, Inc. (MTS) of Littleton, NH collected samples from the 28 yards of contaminated soil stockpiled at the site. MTS submitted the samples to New England Testing Laboratory, Inc. of Providence, Rhode Island for analysis of VOC's, Semivolatiles, Total Petroleum Hydrocarbons, PCB's, TCLP Extractable Pesticides, TCLP Extractable Herbicides, Reactivity, Corrosivity, Ignitability, TCLP Extractables Metals. According to Linda Fauteux of MTS, the sample submitted was a composite from eight locations within the pile (Personal communication between D. Brooks of CEH and L. Fauteux of MTS 6/22/93). The eight grab portions of the sample were collected from 6-8 inches into the pile.

RESULTS

Soil was found within the tank excavations that had PID soil vapor readings exceeding 20 ppm. The VTDEC vapor action level for soils associated with gasoline releases is 20 ppm. Therefore, soil with PID vapor readings greater than 20 ppm was stockpiled on top of polyethylene sheet. The soil was covered with polyethylene sheeting and secured prior to leaving the site (see Figure 2). Approximately 28 cubic yards of soil (primarily crushed stone) was encapsulated in this manner and left on site.

The remainder of the material exhibiting a soil vapor on the PID of less than 20 ppm on was used as backfill in the tank excavation.

Two localized areas of contamination were found while removing the soil surrounding the USTs. The first location was around the fill pipe of UST Number 3. The contamination extended to the east side and underneath the tank. The second location was around the fill pipe of UST #1, down the west side of the tank and under its south end. Contaminated soil from the two areas caused deflections of up to 200 ppm on the PID. The soils were excavated until screening showed levels below 20 ppm. The contamination was limited in area and appeared primarily contained to the crushed stone backfill that surrounded the tanks. The VOC levels in confirmatory bottom and sidewall bag samples were 1.8 ppm or less (see Table 2).

TABLE 2 CONFIRMATORY SOIL HEADSPACE RESULTS

Sample Date	Sample Time (hours)	Sample Location	Depth (feet)	PID Result (ppm)
5/4/93	1454	Under Tank 3	6	1.8
5/4/93	1500	West Sidewall	8	0.0
5/4/93	1504	South Sidewall Near Tank 1	6	1.0
5/5/93	0812	South Sidewall Near Tank 2	8	0.0
5/5/93	0814	Under Tank 2	10	1.6
5/5/93	1055	North Sidewall	8	0.0
5/5/93	1140	Under Tank 1	10	0.0
5/5/93	1145	East Sidewall	6	0.0

No VOC's, Semivolatiles or Total Petroleum Hydrocarbons were above the detection limit the stockpiled soil sample collected by MTS, Inc. The lab results are attached in Appendix C. However, the VTDEC has expressed concern that the stockpiled soil may not have been adequately sampled to determine if VOC contamination still exists (Personnel

communication between D. Brooks of CEH and M. Coleman VTDEC 6/1/93). Mr. Coleman has requested further information on stockpiled soil sampling and laboratory results prior to releasing the soil from further cleanup. That information has been incorporated into this report.

SUMMARY

A underground storage tank (UST) removal operation and preliminary assessment was conducted on May 4 to 5, 1993 at the 145-149 North Main Street in Rutland, Vermont. The assessment indicated the following:

1. Three 8,000 gallon fiberglass USTs previously used for the storage of gasoline were removed. They were in excellent condition. No holes or cracks were observed in the USTs and none appeared to have leaked. Piping was single-walled steel.
2. A total of approximately 110 gallons of residual gasoline was removed from the USTs and stored at the site in three closed, labelled, 55-gallon drums pending pickup by Pollution Solutions of Vermont, Inc.
3. Levels of volatile organic compounds were measured from soil vapor during the operation with a Hnu Model 101 Photoionization Detector equipped with an 11.7 eV probe. The PID readings appeared adjacent the fill pipes of tanks 1 and 3. As soil was removed, material was separated into piles based on PID response. Material causing a reading exceeding the VTDEC soil vapor action level of 20 ppm was stored on top of polyethylene sheet. The soil was covered with polyethylene and the sheeting secured prior to leaving the site. A total of approximately 28 cubic yards of soil was encapsulated in this method. This soil remains stockpiled on site as of June 24, 1993.
4. The rest of the material removed from the excavation with soil vapor PID readings of less than 20 ppm and was utilized as backfill for the tank pit. No new tanks were installed.
5. Confirmatory PID screening was conducted on samples collected from under the USTs and from the sidewalls of the excavation. PID levels ranged from 0 to 1.8 ppm.
6. No ground water was observed in the excavation or in an overburden monitoring well located adjacent to tank 3. The bottom of the excavation and monitoring well were each approximately 10 feet below ground surface.
7. Samples of the 28 cubic yards of stockpiled material were collected by MTS, Inc. of Littleton, NH on May 10, 1993 and analyzed for volatile organic compounds (VOC's). Concentrations of VOC's were below detection limits.

RECOMMENDATIONS

Based on the findings of this assessment, Cumberland Farms, Inc. is seeking to receive acknowledgement from the Vermont Department of Environmental Conservation that no further subsurface action is required at this location.

To finalize the tank closure, Cumberland Farms needs notification from the VTDEC as to whether stockpiled soils require further remediation. Based on the lab results from the MTS Inc. sample, no further remediation of soil is required. Disposal of soils may be possible at the rear of the building (to a depth of approximately 1.25 feet). Grading and drainage of the soils in this area will need to be evaluated. Alternatively, the soil may be offered to the Vermont Agency of Transportation (AOT), Rutland DPW or a local contractor for use as road sub base.

In the event that VTDEC requires confirmation of the lab analysis, CEH recommends spreading of the soil (to increase the chances for volatilization), and additional on site screening of soils using a PID. The methodology for spreading and screening would be as follows:

The soil pile would be placed on a 20 by 80 foot polyethylene sheet (minimum thickness of 8 mil). The soil would be spread to a depth of one half foot. Grab samples of soil for Bag Headspace Screening would be collected at 10 foot grid intervals (approximately 16 samples). If the soil headspace exceeds 20 ppm at any interval, the soil will be allowed to volatilize over a dry precipitation period of up to 24 hours. Prior to leaving the site, a berm will be placed around the soils (in case of precipitation). In addition, a 4 foot fence will be erected around the soils to limit access to the area.

The soils will be screened again after the 24 hour period. If the soil headspace readings are below 20 ppm, the soil will be disposed of on-site or offered as road sub base. In the event that the soil headspace readings are not below 20 ppm, several options for on-site or off-site treatment will be evaluated.

APPENDIX A
VERMONT DEC UST CLOSURE FORM

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 103 SOUTH MAIN STREET
 WATERBURY, VERMONT 05671-0404
 (802) 244-8702

Date of Removal: May 4 to 5, 1993 Date of Assessment: May 4 to 5, 1993
 Person & Company Doing Assessment: David Chapman, Caswell, Eichler + Hill, Inc.
 Telephone Number: (802) 439-6282 West Topsham, VT

Business Name Where Tank(s) Located: Cumberland Farms, Inc.
 Number of Employees: 0 (facility is closed)
 Street Address & Town/City: 145-149 North Main Street, Rutland, VT

Owner of Tank(s): Cumberland Farms, Inc.
 Address: 777 Dedham Street Contact Person: Michelle Paul
 Town/City: Canton, MA Phone Number: 617 828-4900

UST Facility ID Number: _____

Tank #	Product	Size	Condition
1	Gasoline	8,000 g	Excellent
2	Gasoline	8,000 g	Excellent
3	Gasoline	8,000 g	Excellent
4			

Reason for Tank Removal (check one): abandoned routine replacement
 tank or piping leaking liability

Replacement Tank(s)? yes no Number of Replacement Tanks: _____

DEC UST Permit(s) Obtained? yes no

DEC-Permitted Tank(s) Still On-Site? yes no Number of Tanks: _____

Out of Service Tank(s) On-Site? yes no Number of Tanks: _____

Heating Oil Tank(s) On-Site? yes no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? yes no Estimated Volume: 110 gallons

Transported By: Pollution Solutions of Vermont, Inc.

Size of Excavation (ft²): 1200 Depth: 10 feet Soil Type: Gravelly loamy sandy fill

Concentrations Detected with PID: Peak = 1.8 Average = 0.6

Type of PID: Hnu Model 101 with an 11.7 eV lamp

Number of Readings (please put locations on attached drawing): 7

Calibration Info. (date, time, type of gas): 5/4/93 0840; 5/5/93 0825; Hnu Span Gas

Free Phase Product Encountered? yes no Approx. Amount: _____

Cont. Soils Stockpiled? yes no Amount (yd³): 28

Cont. Soils Backfilled? yes no (NOTHING OVER 20 PPM PID BACKFILL) Amount (yd³): _____

Groundwater Encountered? yes no Depth to Groundwater: _____

Monitoring Wells Installed? yes no Number: _____ Screen Depth: _____

On-Site Drinking Well? yes no (if yes: rock gravel spring)

Public Water Supply Well(s) Within 1/4 Mile? yes no

Distance to nearest: _____

Private Water Supply Well(s) Within 1/4 Mile? yes no How Many? _____

Samples Collected for Laboratory Analysis? yes no How Many? _____

(check all that apply: soil groundwater drinking water)

Receptors Affected (check all that apply):

soil* residential; # of houses/people: _____

groundwater surface water; name/type of water body: _____

* Removed

Signature of Owner or Authorized Representative: _____

Date: _____ Signature of Person Performing Site Assessment: David Chapman

Date: 5/6/93

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 TANK PULL FORM

TODAY'S DATE: 5/5/93

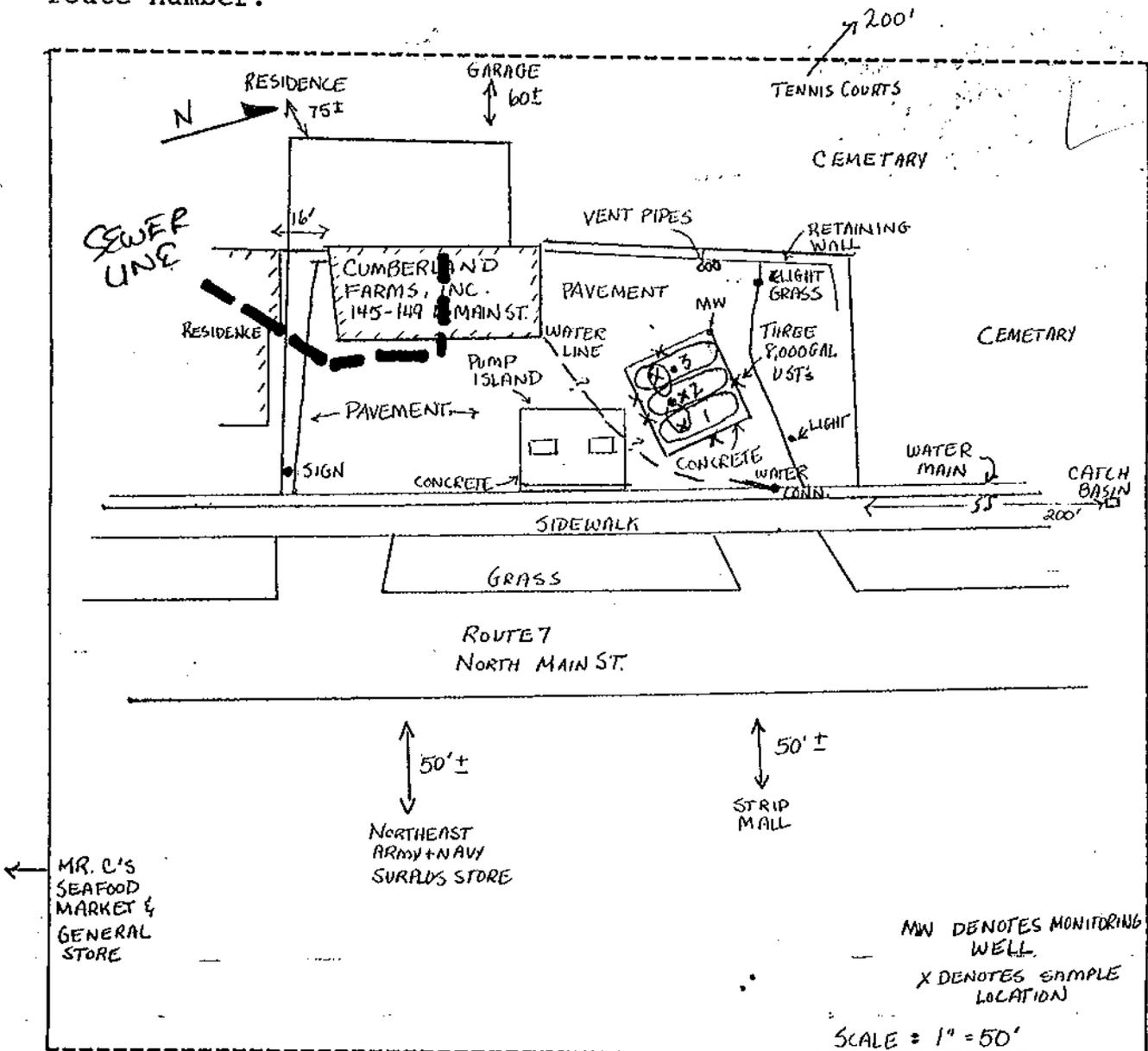
INSPECTOR: David Chapman

DATE OF REMOVAL: 5/4/93 to 5/5/93

BUSINESS NAME: Cumberland Farms, Inc.

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



MEMORANDUM

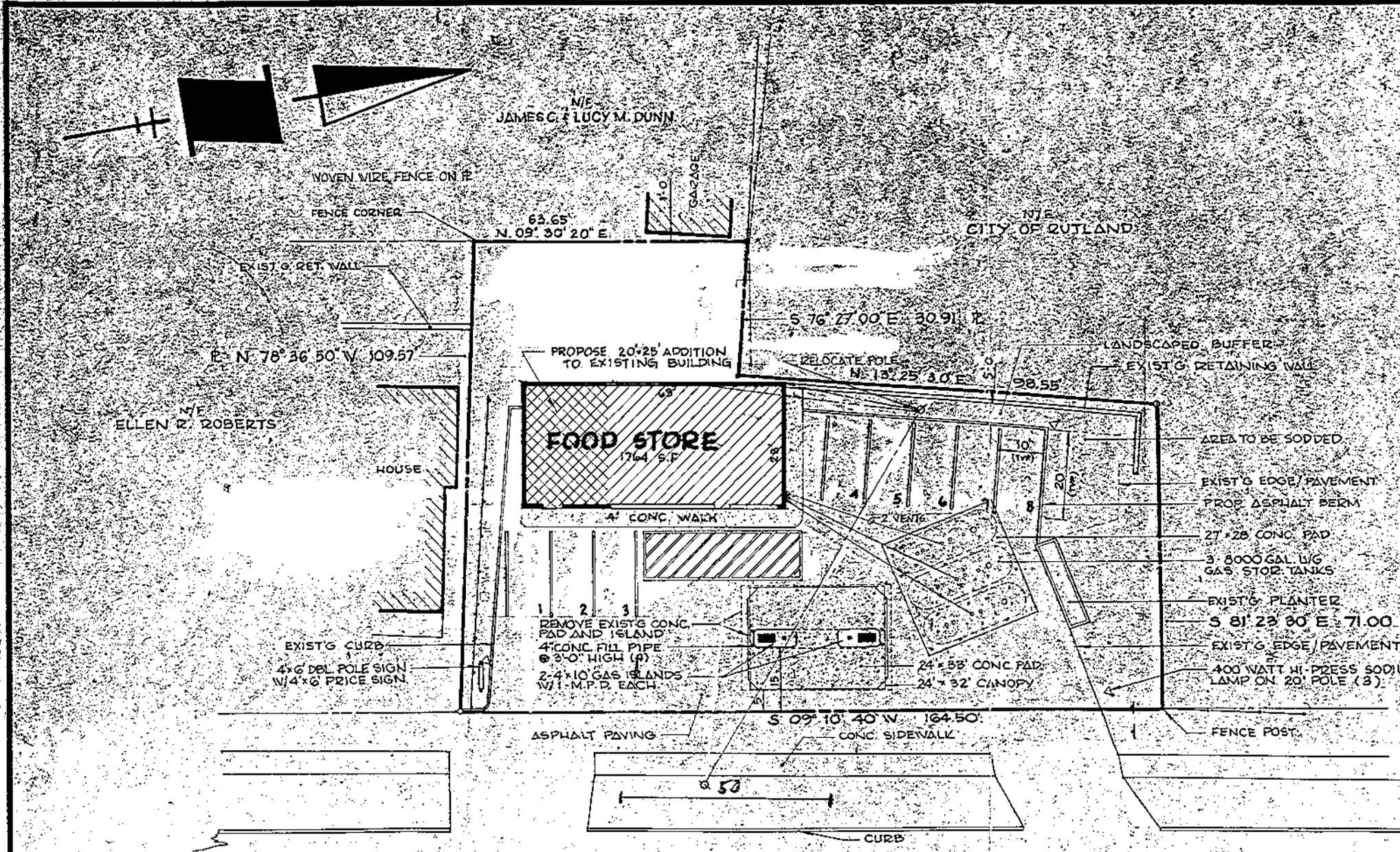
TO: Marc Coleman, Vermont DEC
FROM: David Chapman, CEH
DATE: May 6, 1993
SUBJECT: Underground Storage Tank Removal, Cumberland Farms, Inc.
145-149 North Main Street, Rutland, Vermont
Conclusions and Recommendations

A underground storage tank (UST) removal operation and preliminary assessment was conducted on May 4 to 5, 1993 at the 145-149 North Main Street in Rutland, Vermont. The assessment indicated the following:

1. Three 8,000 gallon fiberglass USTs were removed. The USTs were used for the storage of gasoline. They were in excellent condition. No holes or cracks were observed in the USTs and none appeared to have leaked. Piping was single-walled steel.
2. A total of approximately 110 gallons of waste gasoline was removed from the USTs and stored at the site in three closed, labelled, 55-gallon drums pending pickup by Pollution Solutions of Vermont, Inc.
3. Levels of volatile organic compounds were monitored during the operation with a Hnu Model 101 photoionization device equipped with an 11.7 eV lamp. As it was removed, material was separated into piles based on PID response. Material causing a deflection of over 20 ppm on the PID was stored on top of then covered with polyethylene pending offsite disposal at MTS in Littleton, NH. A total of approximately 28 cubic yards of this material was found in two hot spots near the fill pipes of tanks one and three. The remainder of the material removed from the excavation caused a PID deflection of less than 20 ppm and was utilized as backfill.
4. Confirmatory PID sampling was conducted on samples collected from under the USTs and from the sidewalls of the excavation. PID levels ranged from 0 to 1.8 ppm.
5. No ground water was observed in the excavation or in a monitoring well located adjacent to tank 3. The base of the excavation and monitoring well were each approximately 10 feet below ground surface.

In summary, based on the findings of the assessment, Cumberland Farms, Inc. is seeking to receive acknowledgement from the Vermont Department of Environmental Conservation that no further action is required at this location.

CEH will follow up this memo with a letter report detailing the methodology and findings of the preliminary site assessment.



NORTH MAIN STREET ~ RTE. 7



CASWELL, EICHLER & HILL

69 SEWALL STREET
POST OFFICE BOX 5247
AUGUSTA, MAINE 04332-5247

TEL: (207) 622-0032 FAX: (207) 622-1626

June 24, 1993

Mr. Marc Coleman
Department of Environmental Conservation
103 South Main Street, West Building
Waterbury, Vermont 05671-0404

Re: Removal of Underground Storage Tanks
145-149 North Main Street, Rutland, VT
CEH Project Reference: Rutland-CFUST

Dear Mr. Coleman

Caswell, Eichler & Hill, Inc. (CEH) has provided environmental services associated with the removal of underground storage tanks (USTs) at the above-referenced property (site). The work included the following tasks:

1. observation of UST removals,
2. collection of soil samples from the excavation for volatile organic compound (VOC) screening,
3. communication with regulatory personnel from the Vermont Department of Environmental Conservation (VTDEC),
4. completion of a preliminary site assessment, and
5. preparation of this letter report.

The removal operation was performed on May 4 to 5, 1993 by Calkins Excavating, P.O. Box 74, Danville, VT 05828, (802) 684-3375. The operation was conducted on behalf of Cumberland Farms, Inc. which owned/operated the site and tanks. The tanks were removed due to the closure of the facility. The State of Vermont Department of Environmental Conservation (Mr. Marc Coleman) was notified of the removal operation on April 16, 1993. Officer Cole of the Rutland Fire Department was notified upon commencement of the operation on May 4, 1993.

Dig Safe was notified prior to the operation. Dig Safe clearance (#93183903) was obtained as of April 30, 1993.

Giving you Environmental Solutions that Work

Geologists, Engineers, Hydrogeologists & Geophysicists

APPENDIX B
HEALTH & SAFETY PLAN

HEALTH AND SAFETY PLAN

CASWELL, EICHLER & HILL, INC.

PROJECT IDENTIFICATION

Project Name: RUTLAND CFUST
Jobsite Address: 145-149 North Main Street, Rutland Vermont
Project Number:
Client: Cumberland Farms
Date Prepared: April 30, 1993
Date Revised:
(Refer to page)
Date of Work Start-Up: May 4, 1993

TABLE OF CONTENTS

	<u>Page</u>
Introduction	2
Abbreviations	2
Site Description	3
Site History	3
Site Figure	3
Work Plan	5
Personnel and Responsibilities	5
Hazardous Material Summary	6
Hazards of Concern	6
Table of Chemicals and Safety Data	7
Overall Hazard Evaluation	8
Protective Clothing	9
Monitoring Equipment	11
Personnel Decontamination Procedures	13
Equipment Decontamination	14
Site Control	15
Heat/Cold Stress Monitoring	15
Emergency Procedures	16
Emergency Equipment	18
Emergency Contacts	19
Health & Safety Plan Approvals	21
Health & Safety Revisions	22
Hazardous Waste Incident Report	23

**HEALTH AND SAFETY PLAN
CASWELL, EICHLER & HILL, INC.**

INTRODUCTION

This Health and Safety Plan establishes guidelines and requirements for safety of personnel during the conduct of field activities associated with the referenced project. All employees of Caswell, Eichler & Hill, Inc. (CEH) involved in field activities of this project are required to abide by the provisions of this plan. They are required to read the plan and sign the attached Compliance Agreement. Subcontractors involved in field activities of this project will be advised of all risks that may be present while working on the site. Subcontractors are strongly encouraged to adopt this or a similar plan for the protection of their employees. The subcontractor has the responsibility of implementing health and safety precautions for their employees based on health hazard information provided by CEH.

The health and safety guidelines and requirements presented herein are based on a review of available information and an evaluation of potential hazards. This plan outlines the health and safety procedures and equipment required for activities at this site to minimize the potential for exposure to hazardous situations by field investigative personnel.

All personnel involved in field activities must have taken the 40-hour hazardous waste training program and respirator fit testing as specified by the Occupational Safety and Health Administration (OSHA) regulations codified at 29 CFR 1920.120. Additionally, all yearly 8-hour updates must be completed and documented. Those personnel acting as site supervisors shall have also completed the one-time 8-hour supervisor training program.

All CEH site workers shall be regularly monitored as part of corporate medical surveillance program. Subcontractors must show their compliance with an equivalent program.

ABBREVIATIONS

The following abbreviations will be used throughout the remainder of this Health and Safety plan:

PPL -	Personal Protection Level
SCBA -	Self-contained Breathing Apparatus
APR -	Air Purifying Respirator
PEL -	Permissible Exposure Limit
TLV -	Threshold Limit Value
LEL -	Lower Explosive Limit
SHSO -	Site Health and Safety Officer
REZ -	Radiation Exclusion Zone
MSDS -	Material Safety Data Sheet
STEL -	Short Term Exposure Limit
PPM -	Parts Per Million

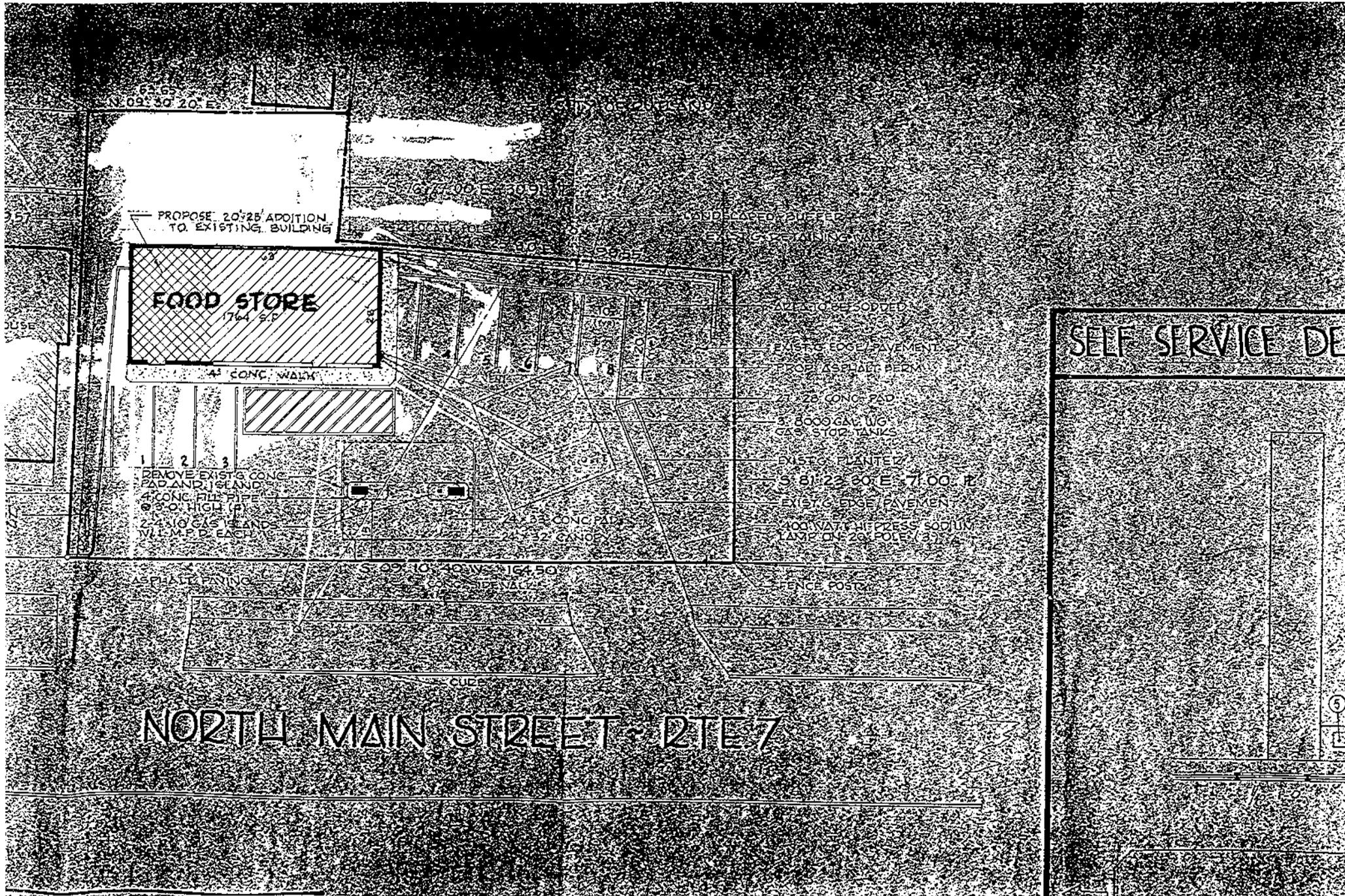
SITE DESCRIPTION

The subject underground storage tanks are located at 145-149 North Main Street in Rutland, Vermont.

The tank installation consists of three, 8,000 gallon fiberglass tanks. The tanks were used for gasoline storage for retail sales at the site. They were new when installed in 1985, but have been out of service for several years.

SITE HISTORY

The site has been a Cumberland Farms convenience store since approximately 1985.



PROPOSE 20'x25' ADDITION
TO EXISTING BUILDING

FOOD STORE
1764 S.F.

4' CONC WALK

1. REMOVE EXIST'G CONC PAD AND ISLAND
2. CONC FILL PIPE @ 3'-0" HIGH (P)
3. 2" x 10" GAS ISLANDS WILL M.P.P. EACH

4' x 8' CONC PATAS
12' CONC

SELF SERVICE DEPARTMENT

- ADAPTIVE SODDED
- EXIST'G EDGE PAVEMENT
- PROB' ASPHALT BERM
- 25' x 25' CONC PAD
- 5' 6000 GAL W/G GAS STOP TANKS
- EXIST'G PLANTING
- S 81° 22' 30" E - 7' 00" IF
- EXIST'G EDGE PAVEMENT
- 100' WATER PRESS SODIUM TANK ON 24" PIPE (3")
- FENCE POSTS

NORTH MAIN STREET - DTE 7

WORK PLAN

<u>Description / Site Location</u>	<u>Type</u>	<u>Primary Level of Protection</u>	<u>For Invasive Tasks, Has Dig Safe Been Contacted</u>
1) Excavation, Tank Removal and Backfill	(x) Invasive () Non-Invasive	() A () B () C (x) D () Modified	(x) Yes () No By Whom: Caulkins Excavating Date: Dig Safe No.: If No, is property private? () Yes () No
2)	() Invasive () Non-Invasive	() A () B () C () D () Modified	() Yes () No By Whom: Date: Dig Safe No.: If No, is property private? () Yes () No
3)	() Invasive () Non-Invasive	() A () B () C () D () Modified	() Yes () No By Whom: Date: Dig Safe No.: If No, is property private? () Yes () No
4)	() Invasive () Non-Invasive	() A () B () C () D () Modified	() Yes () No By Whom: Date: Dig Safe No.: If No, is property private? () Yes () No

PERSONNEL AND RESPONSIBILITIES (Include Subcontractors)

<u>NAME</u>	<u>FIRM</u>	<u>RESPONSIBILITIES</u>	<u>ON-SITE?</u>
W. Bradford Caswell	CEH	Corporate Health & Safety Officer	Task - ()1 ()2 ()3 ()4 ()No
David B. Hill	CEH		Task - ()1 ()2 ()3 ()4 ()No
Danna B. Truslow	CEH		Task - ()1 ()2 ()3 ()4 ()No
Craig R. Gendron	CEH		Task - ()1 ()2 ()3 ()4 ()No
John B. Wathen	CEH		Task - ()1 ()2 ()3 ()4 ()No
Dave A. Allwine	CEH		Task - ()1 ()2 ()3 ()4 ()No
Don E. Kelsey	CEH		Task - ()1 ()2 ()3 ()4 ()No
Bruce P. Bline	CEH		Task - ()1 ()2 ()3 ()4 ()No
Blaine S. Bauman	CEH		Task - ()1 ()2 ()3 ()4 ()No
Dave A. Gerschwiler	CEH		Task - ()1 ()2 ()3 ()4 ()No
Thomas Fargo	CEH		Task - ()1 ()2 ()3 ()4 ()No
David Brooks	CEH	Project Manager	Task - ()1 ()2 ()3 ()4 (x)No
Lou Stern	CEH		Task - ()1 ()2 ()3 ()4 ()No
David Chapman	CEH	Project Hydrogeologist	Task - (x)1 ()2 ()3 ()4 ()No
Don Moore	CEH		Task - ()1 ()2 ()3 ()4 ()No
John J. DiGiulio	CEH		Task - ()1 ()2 ()3 ()4 ()No
Gretchen A. Pickart	CEH		Task - ()1 ()2 ()3 ()4 ()No
Dana Calkins	Calkins Excavating		Task - (x)1 ()2 ()3 ()4 ()No

Field personnel listed on this page have completed the training, medical, and respiratory program of the CEH Health and Safety Program and OSHA standard 29 CFR 1910.120.

HAZARDOUS MATERIAL SUMMARY**Waste Type** (check as many as applicable)

- Liquid Solid Sludge Gas Unknown
 Other (specify)

Waste Characteristics (check as many as applicable)

- Corrosive Toxic Inert Flammable Volatile
 Reactive Radioactive Unknown Other (specify)

Chemicals

- Acids
 Pickling Liquors
 Caustics
 Pesticides
 Dyes/Inks
 Cyanides
 Phenols
 Halogens
 PCBs
 Metals
 Other (specify)

Solids

- Flyash/Bottom Ash
 Asbestos
 Milling/Mine Tailings
 Ferrous Smelter
 Non-Ferrous Smelter
 Other (specify)

Sludges

- Paint Pigments
 Metals Sludges
 POTW Sludge
 Aluminum
 Other (specify)

Solvents

- Halogenated Solvents
 Non-Halogenated Solvents
 Other (specify)

Oils

- Oily Wastes
 Other (specify)

Other

- Laboratory
 Pharmaceutical
 Hospital
 Radiological
 Municipal
 Other (specify)

HAZARDS OF CONCERN

- Heat Stress (see attached guidelines) Noise
 Cold Stress (see attached guidelines) Inorganic Chemicals
 Explosive/Flammable Substances Organic Chemicals
 Oxygen Deficient Atmosphere Other (specify)
 Radiological
 Biological

SECTION VI. HEALTH HAZARD INFORMATION	TLV 300 ppm (See Sect. II)
<p>Inhalation causes intense burning of the mucous membranes, throat and respiratory tract; overexposure to vapors can lead to bronchopneumonia. Inhalation of high conc. can cause fatal pulmonary edema. Repeated or prolonged skin exposure causes dermatitis. Can cause blistering of skin due to its defatting properties. Exposure to eyes can cause hyperemia of the conjunctiva.</p> <p>Ingestion or excessive vapors can cause inebriation, drowsiness, blurred vision, vertigo, confusion, vomiting and cyanosis (2000 ppm produces mild anesthesia in 30 min, higher conc. are intoxicating in less time.) Aspiration after ingestion causes bronchitis, pneumonia, or edema which can be fatal.</p> <p>FIRST AID:</p> <p><u>Eye Contact:</u> Flush thoroughly with running water for 15 min. including under eyelids.</p> <p><u>Skin Contact:</u> Remove contaminated clothing. Wash affected area with soap and water.</p> <p><u>Inhalation:</u> Remove to fresh air. Restore breathing and administer oxygen if needed.</p> <p><u>Ingestion:</u> Do not induce vomiting. Aspiration hazard. Contact physician.</p> <p>Seek prompt medical assistance for further treatment, observation and support.</p>	
<p>SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES</p> <p>Notify safety personnel of leaks or spills. Remove sources of heat or ignition. Provide adequate ventilation. Clean-up personnel require protection against liquid contact and vapor inhalation. If a leak or spill has not ignited, use water spray to disperse vapors and to protect men attempting to stop the leakage. Contain spill. Do not allow to enter sewer or surface water. Add absorbent solid to small spills or residues and pick up for disposal.</p> <p>DISPOSAL: Burn scrap material in an approved incinerator. Burn contaminated liquid by spraying into an incinerator. Follow Federal, State, and Local regulations.</p>	
<p>SECTION VIII. SPECIAL PROTECTION INFORMATION</p> <p>Use general and local exhaust ventilation (<u>explosion-proof</u>) to keep vapors below the TLV requirements in the workplace. Respirators should be available for nonroutine or emergency use above the TLV.</p> <p>Avoid eye contact by use of chemical safety goggles and/or full faceshield where splashing is possible. Wear protective clothing appropriate for the work situation to minimize skin contact such as rubber gloves and boots. Clothing to be changed daily and laundered.</p> <p>Eyewash fountains, showers and washing facilities should be readily accessible</p> <p>Provide suitable training to those handling and working with this material.</p>	
<p>SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS</p> <p>Store in closed containers in a cool, dry, well-ventilated area away from sources of heat, ignition and strong oxidizing agents. Protect containers from physical damage.</p> <p>Avoid direct sunlight. Storage must meet requirements of OSHA Class IA liquid.</p> <p>Outdoor or detached storage preferred. No smoking in areas of use. Prevent static electric sparks and use explosion-proof electrical services. (Must meet code.)</p> <p>Avoid skin and eye contact. Avoid inhalation of vapors. Wear clean work clothing daily.</p> <p>Indoor use of this material requires exhaust ventilation to remove vapors.</p> <p>ICC Flammable Liquid, Red Label. LABEL: Flammable Liquid DOT I.D. No. UN 1203.</p> <p>DOT Classification: FLAMMABLE LIQUID</p> <p>DATA SOURCE(S) CODE: 2-4-9 34, 37</p>	
<p>Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, Genium Publishing Corporation assumes no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.</p>	<p>APPROVALS: MIS CRD <i>J.M. [Signature]</i></p> <p>Industrial Hygiene and Safety <i>[Signature]</i> 10-24-81</p> <p>MEDICAL REVIEW: 14 November 1981</p>

OVERALL HAZARD EVALUATION

Task 1 - _____

High Medium Low Unknown

Justification:

- High - Exposure hazard justifies level A or B PPL.
- Medium - Exposure hazard justifies Level C PPL.
- Low - Exposure hazard justifies Level D PPL.
- Unknown - Knowledge of existing hazards insufficient to determine proper level of protection. Use most conservative PPL (A or B) until site reconnaissance completed.

Comment further on reasons for determining need for A, B, C or D PPL.

Task 2 - _____

High Medium Low Unknown

Justification:

- High - Exposure hazard justifies level A or B PPL.
- Medium - Exposure hazard justifies Level C PPL.
- Low - Exposure hazard justifies Level D PPL.
- Unknown - Knowledge of existing hazards insufficient to determine proper level of protection. Use most conservative PPL (A or B) until site reconnaissance completed.

Comment further on reasons for determining need for A, B, C or D PPL.

Task 3 - _____

High Medium Low Unknown

Justification:

- High - Exposure hazard justifies level A or B PPL.
- Medium - Exposure hazard justifies Level C PPL.
- Low - Exposure hazard justifies Level D PPL.
- Unknown - Knowledge of existing hazards insufficient to determine proper level of protection. Use most conservative PPL (A or B) until site reconnaissance completed.

Comment further on reasons for determining need for A, B, C or D PPL.

Task 4 - _____

High Medium Low Unknown

Justification:

- High - Exposure hazard justifies level A or B PPL.
- Medium - Exposure hazard justifies Level C PPL.
- Low - Exposure hazard justifies Level D PPL.
- Unknown - Knowledge of existing hazards insufficient to determine proper level of protection. Use most conservative PPL (A or B) until site reconnaissance completed.

Comment further on reasons for determining need for A, B, C or D PPL.

PROTECTIVE CLOTHING

Task 1 - Excavation, Tank Removal and Backfilling

Protection Level: A B C D Modified

Respiratory: Not needed

Protect. Clothing: Not needed

Boots: Not needed

- SCBA, Airline: _____
- APR: _____
- Cartridge: _____
- Escape Mask: _____
- Other: _____

- Encapsulated Suit: _____
- Splash Suit: _____
- Apron: _____
- Tyvek Coverall _____
- Saranex Coverall _____
- Coverall: _____
- Other: _____

- Boots: _____
- Overboots: _____
- Other (specify below)

Head, Eye, and Ear: Not needed

Gloves: Not needed

- Safety Glasses: _____
- Face Shield: _____
- Goggles: _____
- Hard Hat: _____
- Ear Plugs: _____
- Other: _____

- Undergloves: _____
- Gloves: _____
- Overgloves: _____
- Other: _____

Comments: Respirator users must be clean shaven. Respirators should be rinsed and sanitized after each use (see Personnel Decontamination Procedures section). Respirator cartridges should be changed at least once a day or when breakthrough occurs. Refer to Table 1 for breakthrough characteristics of specific site contaminants.

MONITORING EQUIPMENT: Specify by task, indicate type as necessary. Attach additional sheets as necessary.

<u>INSTRUMENT</u>	<u>TASK</u>	<u>ACTION LEVELS</u>
<u>Photoionization Detector</u>	(x) 1 () 2 () 3 () 4	Parameter: Total Volatile Organics
Type: <u>HNII/Microtip/Tip1</u>		
(x) 11.7 eV lamp		<u>PPL</u>
() 10.2 eV lamp		<u>Level</u> <u>At Concentration</u>
() _____ eV lamp		D Background - 5.0 ppm
		C 5.0 ppm to 50 ppm above background
		B 50 - 500 ppm above background
		D Background - 5.0 ppm
		C 5.0 ppm to 50 ppm above background
		B 50 - 500 ppm above background

() Not needed

COMMENTS:

Action levels must be sustained for 15 minutes at the breathing zone to justify implementing specific PPL. The above action levels only apply if types of contaminants are unknown. If contaminants are known, contaminant-specific exposure data will be used to determine action levels. Background to TLV for specific compound will justify use of Level D PPL. TLV to compound-specific STEL or 3 x TLV will justify use of Level D PPL for 15 minutes only. If concentrations between TLV and STEL/3 x TLV are maintained for greater than 15 minutes, Level C will be implemented. Level B action levels will be determined on a project-specific basis. Project manager will be notified of any upgrade of PPL.

<u>INSTRUMENT</u>	<u>TASK</u>	<u>ACTION LEVELS</u>
<u>Flame Ionization Detector</u>	() 1 () 2 () 3 () 4	Parameter: Total Volatile Organics
Type: <u>OVA</u>		
		<u>PPL</u>
		<u>Level</u> <u>At Concentration</u>
		D Background - 5.0 ppm
		C 5.0 ppm to 50 ppm above background
		B 50 - 500 ppm above background

(x) Not needed

COMMENTS:

Action levels must be sustained for 15 minutes at the breathing zone to justify implementing specific PPL. The above action levels only apply if types of contaminants are unknown. If contaminants are known, contaminant-specific exposure data will be used to determine action levels. Background to TLV for specific compound will justify use of Level D PPL. TLV to compound-specific STEL or 3 x TLV will justify use of Level D PPL for 15 minutes only. If concentrations between TLV and STEL or 3 x TLV are maintained for greater than 15 minutes, Level C will be implemented. Level B action levels will be determined on a project-specific basis. Project manager will be notified of any upgrade of PPL.

<u>INSTRUMENT</u>	<u>TASK</u>	<u>Contaminant</u>	<u>TLV</u>	<u>STEL</u>	<u>Tube Type</u>
<u>Detector Tubes</u>	() 1 () 2 () 3 () 4				

Type: Draeger

(x) Not needed

MONITORING EQUIPMENT (continued)

	<u>TASK</u>	<u>ACTION LEVELS</u>
<u>Combustible Gas Indicator</u>	(x) 1 () 2 () 3 () 4	0-10% LEL No explosion hazard. 10-25% LEL Potential explosion hazard; notify SHSO. >25% LEL Explosion hazard; interrupt task/evacuate.
Type: LEL/O ₂		21.0% O ₂ Oxygen normal. <21.0% O ₂ Oxygen deficient; notify SHSO. <19.5% O ₂ Interrupt task/evacuate.

() Not needed

COMMENTS:

	<u>TASK</u>	<u>ACTION LEVELS</u>
<u>Radiation Survey Meter</u>	() 1 () 2 () 3 () 4	3 x background: Notify SHSO >2mR/hr: Establish REZ

Type: _____

(x) Not needed

COMMENTS:

	<u>TASK</u>	<u>ACTION LEVELS</u>
<u>Respirable Dust Monitor</u>	() 1 () 2 () 3 () 4	If field team observes visible dust, they will don either disposable dust masks or Level C respiratory protection at the discretion of the SHSO.

Type: _____

(x) Not needed

COMMENTS:

	<u>TASK</u>
Other (specify):	() 1 () 2 () 3 () 4

(x) Not needed

COMMENTS:

PERSONNEL DECONTAMINATION PROCEDURES

ATTACH SITE MAP INDICATING EXCLUSION, DECONTAMINATION, AND SUPPORT ZONES () Not needed

Level C

- * Wash overboots and overgloves with detergent (i.e., Alconox) solution.
- * Rinse with potable water.
- * Remove tape from overboots and wrists.
- * Remove overboots, overgloves, and coverall.
- * Discard all into plastic bag.
- * Remove respirator.
- * Remove undergloves and discard into plastic bag.
- * Wash face and hands with soap and water.

Level D

- * Remove work gloves and coverall; place in plastic trash bag for shipment to commercial cleaning service.
- * Remove undergloves and discard into plastic bag.
- * Wash face and hands with soap and water.

Respirators will be disassembled and rinsed with potable water in the field and allowed to drip dry, then inserted into a plastic bag after each use. They will be cleaned at the end of each day using alcohol wipes. Non-expendable reusable equipment (i.e., outer gloves, boots, hardhats) will be thoroughly washed at the decontamination location. Decontamination will consist of scrubbing contaminated gloves and boots with an alconox (or equal) detergent followed by a water rinse. Equipment will either be allowed to drip dry or be wiped off with paper towels which will be collected in plastic trash bags for disposal.

() Not needed

Containment and Disposal Method (Personnel Protective Equipment)

Disposable protective clothing and non-reusable equipment will be collected in plastic trash bags. These materials will be stored on-site in a secure area pending final disposal. Reusable protective clothing will be collected in plastic trash bags for shipment to commercial cleaning services.

EQUIPMENT DECONTAMINATION

Sampling Equipment

All sampling equipment will be decontaminated between each sampling station using the following procedures:

- * Wear clean surgical gloves (and outer gloves if task-required).
- * Disassemble equipment and place component parts on polyethylene sheeting.
- * Clean all component parts with warm detergent solution (i.e., alconox) using a brush to clean inside and outside surfaces.
- * Rinse surfaces with potable water.
- * Reassemble equipment.
- * Wrap equipment in aluminum foil or in polyethylene sheeting. Tape sheeting closed with duct tape.
- * Label equipment, indicating date of decontamination.

Not needed

Containment and Disposal Method (Sampling Equipment)

Decontamination wastes will be visually inspected and field and/or laboratory screened for evidence of contamination. If no contamination is found, the materials will be discharged to the ground in compliance with applicable regulatory protocols. If contaminated, materials will be containerized in drums or on polyethelene sheeting. Containerized materials will be stored in a secure on-site location until disposed.

Not needed

Drilling Equipment

Downhole equipment will be steam cleaned between each drilling point.

Not needed

Containment and Disposal Method (Drilling Equipment)

Water from steam cleaning will be containerized in drums and stored on site pending final disposal. Drums will be appropriately labelled and stored as described previously.

Not needed

SITE CONTROL

Site workers should minimize contact of personnel and equipment with contaminated or potentially-contaminated materials. Access to the site for non-project personnel should be limited by the use of barriers such as tape, fencing, etc.

HEAT/COLD STRESS MONITORING

The SHSO or Alternate shall monitor ambient temperature and implement the following work/rest regimes accordingly:

- * For ambient temperatures between -15° and 70°F, standard rest breaks (i.e., fifteen minutes every four hours should be used).
- * For temperatures below -15°F, work will be done at the discretion of the SHSO or Alternate.
- * For temperatures above 70°F, the following regime shall be followed for workers wearing permeable coveralls:

<u>Adjusted Temperature (a)</u>	<u>Normal Work Ensemble (b)</u>	<u>Impermeable Ensemble</u>
90°F or above	after 45 min. of work	after 15 min. of work
87.5°F to 90°F	after 60 min. of work	after 30 min. of work
82.5°F to 87.5°F	after 90 min. of work	after 60 min. of work
77.5°F to 82.5°F	after 120 min. of work	after 120 min. of work
77.2°F to 77.5°F	after 150 min. of work	after 120 min. of work

a) Calculate the adjusted air temperature ($t_{a \text{ adj}}$) by using this equation: $t_{a \text{ adj}} \text{ degrees F} = t_a \text{ }^\circ\text{F} + 13^\circ \times \text{sunshine}$. Measure air temperature (t_a) with a standard mercury-in glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun causes shadows. (100 percent sunshine - no cloud cover and a sharp, distinct shadow; 0 percent sunshine - cloudy, no shadows).

b) A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

Workers wearing semi-permeable or impermeable encapsulating protective clothing should be monitored when the temperature in the work area is above 70°F. To monitor the worker, measure:

1. **Heart Rate** - Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third. If the heart rate exceeds 110 beats per minute at the next rest period, shorten the following work cycle by one-third. An alternate test is if the heart rate exceeds 140 beats per minute at the end of the work period, and 100 beats per minute at the end of the rest period, shorten the work cycle by one-third or lengthen the rest period by one-third.
2. **Oral Temperature** - Use a clinical thermometer (3 minutes under the tongue or similar device to measure the oral temperature at the end of the work period (before drinking). If oral temperature exceeds 99.6 F, shorten the next work cycle by one-third. If oral temperature still exceeds 99.6 °F at the beginning of the next rest period, shorten the following work cycle by one-third.

Do not permit a worker to wear a semi-permeable or impermeable garment when their temperature exceeds 100.6°F. Workers shall not be required to continue working if they feel any of the symptoms of heart stress. Rest periods should be a minimum of 15 minutes. Length of rest periods should be extended as appropriate or as recommended by the SHSO or Alternate.

EMERGENCY PROCEDURES

PERSONNEL EXPOSURE

In the event of chemical exposure to known site contaminants, the MSDS or chemical data sheet, if available, should be consulted first. General practice exposure emergency actions include:

Inhalation Exposure - The following actions should be taken based on the condition of the effected employee.

- * If symptoms are present (dizziness, nausea, headache, shortness of breath, burning sensation in mouth, throat, or lungs), the victim should be escorted from the work zone immediately.
- * If unconscious, the victim should be removed from the work zone immediately. Rescuers must be wearing proper respiratory and protective equipment before attempting the rescue.
- * If the victim is no longer breathing, cardiopulmonary resuscitation (CPR) or some other form of artificial respiration should begin immediately and medical support personnel notified.

Skin Exposure - The skin should be thoroughly washed with copious amounts of soap and water. If clothing is contaminated, it should be removed immediately and the skin washed thoroughly with running water. All contaminated parts of the body, including the hair, should be thoroughly decontaminated. It may be necessary to wash repeatedly.

Ingestion - Medical support should be obtained immediately.

Eyes - If a toxicant should get into the eyes, flush with generous amounts of water. Washing should be contaminated for at least fifteen minutes and medical attention should be obtained if deemed necessary by the SHSO or Alternate.

PERSONNEL INJURY

The following contingency plan will be enacted in the event of personnel injuries.

1. **Initial alarm and first aid.** Upon observation of an injury, quickly get attention of other nearby workers. Immediately act to protect the injured person from a life-threatening situation. Render appropriate first aid. Warn unsuspecting persons of the potential hazard.
2. **Notify SHSO.** Utilizing freon air horn or other rapid method, notify the SHSO or the SHSO representative of the situation. Identify the injured person, the type of injury and the project site location.
3. **Ambulance and hospital services.** The SHSO or other appropriate personnel will immediately assess the situation and, if necessary, notify the designated ambulance service and hospital of the emergency situation.
4. **Follow-up.** The Site Safety Officer will determine why the injury occurred and will take appropriate steps to prevent a similar recurrence. Events associated with the injury will be recorded in the project safety logbook.

FIRE/EXPLOSION

Upon notification of a fire or explosion on site, the designated emergency signal shall be sounded and all site personnel assembled at the designated access points. The Fire Department shall be alerted and all personnel moved to a safe distance from the involved area. Personnel in the immediate vicinity of a fire shall use fire extinguishers or other immediately available means if this can be done safely and the fire can be immediately controlled or stopped from spreading, but should not attempt to fight major fires or fires involving potential explosives. The Fire Department will be notified regarding site activities and should respond in case of an emergency.

EMERGENCY PROCEDURES (continued)

SPILLS

In the event of a liquid/solid spill:

1. **First aid will be administered to injured/contaminated persons.** Any person observing a spill will act immediately to safely remove and protect injured/contaminated persons from any life-threatening situation. First aid and decontamination procedures will be implemented as appropriate.
2. **Warn unsuspecting persons/vehicles of the hazard.** All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons and by obtaining assistance of other personnel who are familiar with spill control and clean-up techniques.
3. **Stop the spill at the source, if possible.** Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug. Personnel will not expend more than a brief effort prior to notifying the Project Manager.
4. **Notify the Project Manager.** Utilizing available personal radio communications or other rapid communication procedures, the Project Manager will be notified of the spill, including information on material spilled, quantity, personnel injuries and immediate life-threatening hazards.
5. **Spill assessment and primary containment.** The SHSO will make a rapid assessment of the spill and direct primary containment measure. Depending upon the nature of the spill, primary containment measures may include, but are not limited to:
 - * construction of a temporary containment berm utilizing on-site absorbent material;
 - * digging a sump, installing a polyethylene liner and diverting the spill material into the sump;
 - * placing drums under the leak to collect the spilling material before it flows over the ground;
 - * transferring the material from its original container to another container.
6. **The Project Manager will discuss with and obtain the SHSO's concurrence as to secondary spill containment procedures, if necessary.** He will make a determination regarding the requirements for notifications of backup response personnel, and State and local officials including emergency response teams, and the National Response Center.
7. **Spill clean-up procedures.** The Project Manager will develop spill clean-up procedures taking into consideration associated hazards, quantity of spilled material, disposal methods, and costs.
8. **Spill clean-up.** Personnel will clean up spills following the spill clean-up plan developed by the Project Manager. The Project Manager will supervise the procurement of supplies necessary to clean up a spill. Such items may include, but are not limited to: front end loader, shovels, rakes, clay absorbent, polyethylene, personal safety equipment, steel drums, pumps and miscellaneous hand tools. All material and equipment will be located in the Containment Reduction Zone.
9. **Spill clean-up inspection.** The Project Manager will inspect the spill site to determine that the spill has been cleaned up satisfactorily. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort.
10. **Identify the cause of the spill and remedial action to prevent recurrence.** The Project Manager will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The Project Manager will review the cause of the spill and obtain his concurrence with the remedial action plan.

EMERGENCY PROCEDURES (continued)

EVACUATION PROCEDURES

If at any time, the entire project site needs to be evacuated, the following procedures are to be carried out immediately:

1. The Project Manager or SHSO will initiate the site evacuation.
2. The SHSO will instruct that the evacuation signal will be given. This signal will consist of a repetitive three (3) blasts from the alarm system (air horn).
3. All personnel will immediately halt work and proceed off site by the shortest upwind route.
4. Unless otherwise directed, all site personnel will report to the field office or other staging area.

Following an emergency situation, the SHSO will fill out a Hazardous Waste Incident Report (copy attached) and submit it to the Corporate Health and Safety Officer and Project Manager for review and evaluation.

EMERGENCY EQUIPMENT

The following safety equipment is included in the standard CEH Level D or Level C "Ready Bags". This equipment will provide appropriate protection from chemical and noise in most situations encountered. However, for a particular job, certain items which are not included in a standard ready bag may be required. The Project Manager and SHSO will be consulted on what extra or alternate equipment is needed.

Level D

- * Hard hat with winter liner
- * Latex gloves
- * Neoprene gloves
- * Standard tyvek suit
- * Polycoated tyvek suit
- * Tyvek hood
- * Safety glasses and goggles
- * Disposable ear plugs
- * Disposable overboots
- * First aid kit
- * Eyewash kit
- * Fire extinguisher
- * Air horn
- * Duct tape

Level C (in addition to Level D equipment)

- * Full-face air-purifying respirator
- * Suitable cartridges
- * Nose-cup insert
- * Protective lenses
- * Respirator disinfectant (alcohol wipes)

EMERGENCY CONTACTS

<u>CONTACTS</u>	<u>NAME</u>	<u>PHONE NUMBER</u>	<u>LOCATION</u>
CEH Project Manager	David Brooks	(207) 622-0032	Augusta, ME
Client Contact	Michelle Paul	800 225-9707	Canton, MA
Fire Department		911 or 773-2565	Rutland, VT
Police or Sheriff's Department		911 or 773-9101	Rutland, VT
State Poison Control Center		1-658-3456	Burlington, VT
State Hazmat Emergency Agency		244-8702	Waterbury, VT
State Environmental Agency	Marc Coleman	244-8702	Waterbury, VT
National Response Center		(800) 424-8802	Washington, DC
USEPA Environmental Response Team		(201) 321-6660	
Association of American Railroads Response Team		(202) 293-4048	
US Coast Guard Environmental Response Team		(800) 424-8802	
CHEMTREC		(800) 424-9300	

MEDICAL EMERGENCY

Hospital Name and Telephone Number: Rutland Regional Medical Center 775-7111

Hospital Address: 160 Allen St., Rutland, VT

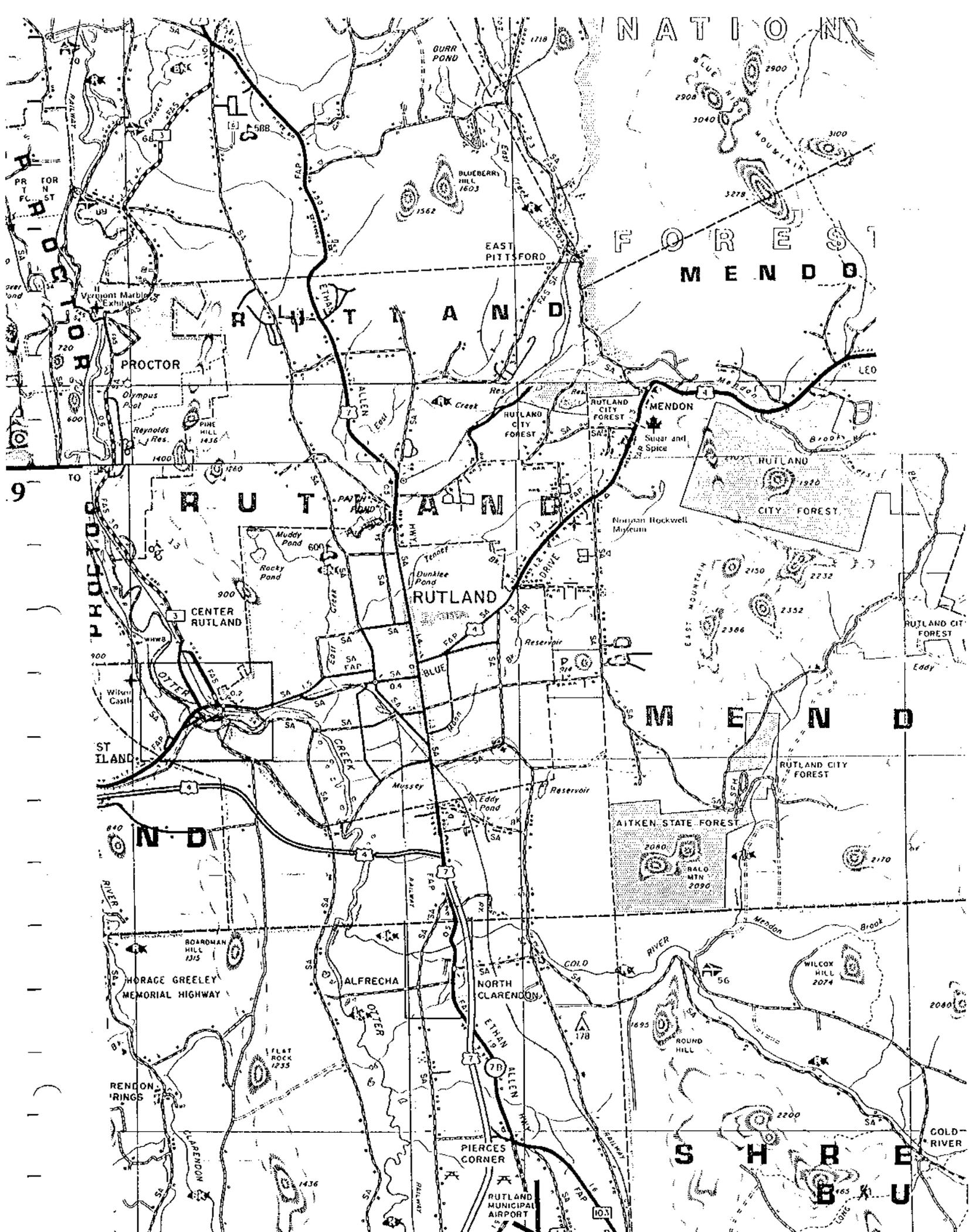
Name of Contact at Hospital:

Name and Telephone of 24-hour Ambulance: 911

Distance to Hospital: 3 miles

Route to Hospital: South on Main Street then East on Allen Street

Map showing route to hospital attached



HEALTH AND SAFETY PLAN APPROVALS

Signature: W. Bradford Caswell ^{DC}
CEH Corporate Health & Safety Officer

Date: _____

Signature: David W. Brooks
CEH Project Manager

Date: 5/3/93

HEALTH AND SAFETY PLAN COMPLIANCE AGREEMENT

I (signatory below), have received a copy of the Health and Safety Plan for the _____ site. I have read the plan, understand it, and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the plan.

Signature/Firm: Dana E. Calbin CALKINS EX

Date: 5-4-93

Signature/Firm: Scott E. Sonney " "

Date: 5-4-93

Signature/Firm: Arnold Z. [unclear]

Date: 5-4-93

Signature/Firm: Robert Chapman

Date: 5/4/93

Signature/Firm: _____

Date: _____

HEALTH AND SAFETY PLAN REVISIONS

Date: _____

SHSO Approval: _____

Corporate Health and Safety Officer Approval: _____

Revision (describe below)

Date: _____

SHSO Approval: _____

Corporate Health and Safety Officer Approval: _____

Revision (describe below)

Date: _____

SHSO Approval: _____

Corporate Health and Safety Officer Approval: _____

Revision (describe below)

PROJECT NAME
PROJECT LOCATION

HAZARDOUS WASTE INCIDENT REPORT

DATE OF INCIDENT _____ DATE OF REPORT _____

DESCRIPTION OF INCIDENT, INCLUDING INJURIES, PROPERTY DAMAGE AND EMERGENCY ACTION
TAKEN AND PERSONNEL INVOLVED (use additional sheets if needed):

WITNESS OF INCIDENT:

POSSIBLE OR KNOWN CAUSES:

WHAT ACTIONS ARE NEEDED TO PREVENT A SIMILAR INCIDENT?

(4202)

APPENDIX C
LABORATORY RESULTS



RECEIVED

MAY 19 1993

May 17, 1993

CUMBERLAND FARMS
ENVIRONMENTAL DEPARTMENT

Ms. Michele Paul
Cumberland Farms, Inc.
777 Dedham Street
Canton, MA 02021

Dear Michele,

Enclosed are the results from the sample taken at a Cumberland Farms site located at 145 N. Main Street in Rutland, VT.

Please note that MTS took this sample for the purpose of determining the soils acceptability at our facility. I felt it necessary to let you know that the sample MTS took showed no contamination. However, this may not mean that there is no contamination in the soil. MTS has not performed a site assessment in Rutland, VT in order to protect Cumberland Farms from any future liability.

If you decide to recycle the soil or have any further questions, please don't hesitate to contact me. Thank You.

Sincerely,

Lisa M. Fauteux
Lisa M. Fauteux
MTS, Inc.

RECEIVED

MAY 19 1993

CLIVE B. HARRIS
ENVIRONMENTAL DEPARTMENT

Certificate of Analysis

To: MTS
Box 359
Epson, NH 03234

Attn: Lisa Fauteux

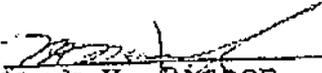
Date Reported: May 14, 1993
Date Received: May 10, 1993
Order No.
Case No. D0510-01

Sample Description One (1) submitted soil sample designated:
"Rutland, VT"
1. 145 N. Main St.

SUBJECT: Determine Reactivity, Corrosivity, Ignitability,
Total Petroleum Hydrocarbons, PCB's, VOC's,
Semivolatiles, TCLP Extractable: 8 Heavy Metals,
Pesticides and Herbicides concentrations

METHOD: Test Methods for Evaluating Solid
Waste, Physical/Chemical Methods,
SW-846, USEPA.

RESULTS: See Attached


Mark H. Bishop
Laboratory Director

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue, North Providence, Rhode Island 02904-5392 • 401-353-3420

Our letters and reports are for the exclusive use of the client to whom they are addressed, and their communication to any others, or the use of the name of the New England Testing Laboratory, Inc. must receive our prior written approval. Our letters and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. Samples not destroyed in testing are retained a maximum of thirty (30) days.

Case No. D0510-01

145 N. Main St.

<u>Parameter</u>	<u>Result, mg/Kg</u>
Reactivity	
Sulfide	<1
Cyanide	<0.3
Corrosivity	
pH, S.U.	6.6
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	<10
PCB's	<0.5
VOC's	Attached
Semivolatiles	Attached
TCLP Extractable:	
Metals	Attached
Pesticides	Attached
Herbicides	Attached

Sample: 145 N.Main St.

Case No. D0510-01

Date Analyzed: 5/14/93

Subject: Volatile Organic Compounds

Method: EPA 8240

<u>Compound</u>	<u>Concentration</u> <u>mg/Kg (ppm)</u>	<u>Reporting</u> <u>Limit</u>
Acetone	N.D.	5
Benzene	N.D.	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	N.D.	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	N.D.	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: 145 N.Main St.

Case No. D0510-01

<u>Compound</u>	<u>Concentration</u> <u>mg/Kg (ppm)</u>	<u>Reporting</u> <u>Limit</u>
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	N.D.	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	N.D.	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	N.D.	0.5

Surrogates:

<u>Compound</u>	<u>% Recovery</u>	<u>Limits</u>
Toluene d8	91	81-117
1,2-Dichloroethane-d4	95	70-121
4 BFB	89	74-121

Sample: 145 N.Main St.

Case No. D0510-01

Date Extracted: 5/12/93

Date Analyzed: 5/13/93

Subject: Semivolatile Base/Neutral Extractable Compounds

Method: EPA 8270

<u>Compound</u>	<u>Concentration, mg/Kg (ppm)</u>	<u>Reporting Limit</u>
Acenaphthene	N.D.	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	N.D.	2
Benzidine	N.D.	30
Benzo(a)anthracene	N.D.	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	N.D.	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	N.D.	2
Fluorene	N.D.	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: 145 N.Main St.

Case No. D0510-01

<u>Compound</u>	<u>Concentration, mg/Kg (ppm)</u>	<u>Reporting Limit</u>
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	N.D.	2
Naphthalene	N.D.	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	N.D.	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	N.D.	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

<u>Compound</u>	<u>Concentration, mg/Kg (ppm)</u>	<u>Reporting Limit</u>
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

<u>Compound</u>	<u>% Recovery</u>	<u>Limits</u>
Nitrobenzene d5	71	23-120
2-Fluorobiphenyl	102	30-115
p-Terphenyl d14	122	18-137
Phenol d5	94	24-113
2,4,6-Tribromophenol	41	19-122
2-Fluorophenol	90	25-121

Sample: 145 N.Main St.

Case No. D0510-01

Date TCLP Extracted: 5/10/93

Date Analyzed*: 5/13/93

<u>TCLP Extractable Metals:</u>	<u>Result, mg/L</u>	<u>Regulatory Limit, mg/L</u>
Arsenic	<0.1	5.0
Barium	<0.5	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: 145 N.Main St.

Case No. D0510-01

Date TCLP Extracted: 5/10/93

Date Prep Extracted: 5/13/93

Date Analyzed: 5/14/93

TCLP Extractable Pesticides/Herbicides:

<u>Compound</u>	<u>Concentration mg/L (ppm)</u>	<u>Regulatory Limit, mg/L (ppm)</u>
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0