

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

**33 Main Street
Saxtons River, VT**

November 16, 2011

Prepared for:
Windham Regional Commission
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1.0 EXECUTIVE SUMMARY

KAS, Inc. of Williston, Vermont conducted a Phase I Environmental Site Assessment (ESA) of land and premises at 33 Main Street in the Village of Saxtons River, in the Town of Rockingham, Vermont. The ESA was conducted pursuant to the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05). This assessment was conducted for the Windham Regional Commission, herein referred to as client and will be used for reliance by Main Street Arts. Main Street Arts, the prospective purchaser of the subject property, is herein referred to as user. The owner of record of the property as of the date of this report is Silvestre Gallegos, herein referred to as owner.¹

The property is located on the western side of the intersection of Main Street and School Street in the village of Saxtons River, Vermont. Development in the vicinity of the subject property is primarily combined residential and light commercial. The property contains a two story building that was constructed in the late 1800's. The building is currently vacant but has had a variety of commercial businesses operating on the first floor and residential apartments on the second floor.

Two Recognized Environmental Conditions (RECs) were identified during this assessment: The historic use of the subject property as a drycleaner with documented PCE contamination in shallow soils and the spill of #2 fuel oil in the basement of the adjacent property that resulted in a release of petroleum contamination to the subsurface.

A REC is defined in ASTM E 1527-05 as “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.”

Several open paint cans in the commercial space are considered de minimis conditions as defined by ASTM E-1527-05.

This Phase I ESA was performed and overseen by environmental professionals as defined by ASTM E-1527-05 and is believed to accurately represent the environmental condition of the property as of November 2011.

¹ Town of Rockingham Land Records, book 283, page 687

2.0 INTRODUCTION

KAS, Inc. of Williston, Vermont (KAS) conducted a Phase I Environmental Site Assessment (ESA) of land and premises at 33 Main Street in the Village of Saxtons River, in the Town of Rockingham, Vermont (see Appendix A: Site Location Map² and Appendix B: Site Plan). The ESA was conducted pursuant to the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05). This assessment was conducted for the Windham Regional Commission, herein referred to as client and will be used for reliance by Main Street Arts. Main Street Arts, the prospective purchaser of the subject property, is herein referred to as user. The owner of record of the property as of the date of this report is Silvestre Gallegos, herein referred to as owner.³

2.1. Purpose

The purpose of this ESA was to identify recognized environmental conditions (RECs), historic RECs and de minimis conditions in association with the property as defined and described in the ASTM standard.

2.2. Detailed Scope-of-Services

KAS was engaged by client to conduct a Phase I ESA as defined in ASTM E-1527-05. The Phase I ESA work scope included the following elements:

- A general description of the site and vicinity, current property and adjoining property uses, description of improvements.
- An evaluation of user supplied information including land records, liens, limitations, specialized knowledge, and valuation information.
- A review of practically reviewable regulatory and historic records in connection with the property.
- A site reconnaissance including general site setting, interior and exterior observations.
- Interviews with owner, site manager, occupants, local government officials and others as available.
- Presentation of Findings, Opinion, Conclusions, Deviations and the results of any out of scope contract obligations between client and KAS.

Unless otherwise stated in Section 12.0 of this document, no invasive environmental testing was conducted, and no assessment or testing of asbestos, lead paint, radon or other structural environmental hazards was conducted. If any of these tasks were contracted between KAS and

² USGS, 1984 and Acquired Land Location Plan

³ Town of Rockingham Land Records, book 283, page 687

client, the methodology, limitations and results of such tasks may be presented in Section 12.0 of this document.

3.0 SITE DESCRIPTION

3.1. Location and Legal Description

The property consists of an approximately 0.8 acre parcel of land at 33 Main Street in the Village of Saxtons River, Vermont (see Appendix Site Location Map and Site Map). The property coordinates are 43°08'19" north latitude and 72°30'30" west longitude. The legal description of the property as ascertained from the review of local land records is land and building located at 33 Main Street. The property was used as a combined commercial and residential structure, with a variety of retail stores and restaurants occupying the first floor and residential apartments on the second floor. A laundromat and drycleaner operated on the first floor of the building in the 1980s.

3.2. Site and Vicinity General Characteristics

The property is located on the western corner of Main Street and School Street (see Site Location Map in Appendix 1). The character of the area is combined residential with light commercial. The general topography in the area is generally flat with a slight slope to the south. Depth to groundwater is likely to be less than 20 feet below grade based on groundwater measurements obtained in the area.⁴ The groundwater flow direction beneath the property is most likely toward the south-southeast based on the surface topography and the location of surface waters. The depth to groundwater and predicted flow direction were not confirmed during this Phase I ESA.

3.3. Current Use of the Property

As of November 2, 2011 the building was vacant. The on site building had commercial space on the first floor and residential apartments on the second floor. A variety of household and restaurant related materials were still evident in the on site building.

3.4. Descriptions of On-Site Structures, Roads and Other Improvements

As of November 2, 2011 the property hosts one 1,750 square foot commercial structure. A building with stables was noted on the subject property in 1885 according to Sanborn insurance maps (see section 5.4.1). The on-site building is a wood framed two story structure with a full unfinished basement. The foundation is primarily comprised of field stone and mortar but also has some newer concrete block sections. The on-site building is bordered on two sides by paved roads, Main Street and School Street. The structure was in fairly poor shape and was under a no

⁴ Phase I Environmental Site Assessment, Sandri Realty Property, 40 Main Street, Saxtons River. Waite Environmental Management, LLC. July 25, 2011

occupancy order due to structural issues. No other improvements were noted on the subject property. The subject property is serviced by a private supply well and a municipal sewer system. Electric power and telephone utilities were noted overhead on the subject property.

3.5. Current Uses of Adjoining Properties

Land uses adjacent to the property as of the date of this assessment were as follows.

- North: Residence
- East: School Street and Telephone Communications Building (reportedly contains a backup system in the event of a power outage to allow for continued telephone service)
- South: Main Street and residences
- West: Main Street Arts and retail craft store

4.0 USER SUPPLIED INFORMATION

4.1. Title Records

KAS reviewed chain of title information for the property at the Town of Rockingham Town Clerk's office on November 2, 2011.⁵ The property history was ascertained as follows.

Table 4-1 Property Ownership Summary				
Grantor	Grantee	Book	Page	Date
Jose R. Gallegos	Silvestre Gallegos	283	687	5/20/2004*
Jose R. Gallegos	Silvestre Gallegos	277	50	6/23/2003
Ronald J. Apuzzo and Elisa C. Leigh	Jose R. Gallegos	258	303	1/26/2001
Paul R. McIntire and Mary J. Pitman	Ronald J. Apuzzo and Elisa C. Leigh	238	301	11/12/1996
A&B Associates	Paul R. McIntire and Mary J. Pitman	208	513	9/19/1988
Town of Rockingham (Tax Sale)	A&B Associates	185	528	8/5/1981
Donald and Iris P. Dunbar	Richard J. Smith	174	394	5/28/1975
Nellie E. Stevens executor of estate of Richard M. Stevens	Donald Dunbar	160	485	10/10/1967
Edward E. Freeman	Richard M. Stevens	144	163	4/1/1960
Anne J. Edwards administrator of estate of Ralph E. Edwards	Edward E. Freeman	121	296	1/29/1954
James E. Bigelow	Ralph E. Edwards	95	451	4/17/1951
Albert T. Bolles administrator of estate of Lislve R. Bascom	Ralph E. Edwards and James E. Bigelow	105	377	4/7/1947
Carrie B. Stone administrator of estate of Charles O. Stone and John W. Bryant	John W. Bryant and Lislve R. Bascom	87	243	6/8/1938
Saxtons River Lodge No 33 IOOF	Charles O. Stone	70	353	12/31/1926

*Remaining 1/2 balance conveyed to Silvestre Gallegos

⁵ Town of Rockingham Records viewed in person at the Rockingham Town Offices, November 2, 2011.

The deed dated 12/31/1926 refers to the property as a piece of land and no buildings are noted.

4.2. Environmental Liens or Activity and Use Limitations

No environmental liens or activity and use limitations were discovered during review of land records. User did not provide positive information of the existence of environmental liens or activity and use limitations in connection with the properties other than the no occupancy order, which is in place for non-environmental reasons.

4.3. Specialized Knowledge

User provided the following specialized knowledge regarding the properties: see Section 7.0.

4.4. Commonly Known or Reasonably Ascertainable Information

User provided the following commonly known or reasonable ascertainable information regarding the properties: see Section 7.0.

4.5. Valuation Reduction for Environmental Issues

User indicated property is being sold potentially below fair market value due to the condition of the building. The price has not been discounted due to environmental issues.

4.6. Owner, Property Manager, and Occupant Information

User identified the property owner, manager and occupants as follows: Silvestre Gallegos (property owner and manager). There are no current occupants.

4.7. Reasons for Performing Phase I

User provided the following reason(s) for conducting this Phase I ESA: potential property transaction.

4.8. Other User Supplied Information and Documentation

User provided the following other information and documentation: user interview.

5.0 RECORDS REVIEW

5.1. Standard Environmental Record Sources

5.1.1 Regulatory Database Search

KAS contracted with Environmental FirstSearch Technology Corporation to perform a review of state and federal regulatory records during this Phase I ESA.⁶ A full copy of the FirstSearch Search Report is included in the Appendix E. A summary of the pertinent data contained in the First Search report is presented below.

Property

The subject property address was not specifically listed on the FirstSearch Report. However, the State Listed Hazardous Waste Site #770135 groups all of the properties in the village of Saxtons River, including the subject property. According to the report, the site is active and PCE is still present in several bedrock water supply wells.

Immediately Adjacent Sites

The property immediately to the west of the subject property is listed in the FirstSearch Report as a spill site. Approximately 200 gallons of #2 fuel oil was spilled in the basement of the Main Street Arts building. The basement reportedly contained a dirt floor. No further information was provided.

The property immediately adjacent to the west of the subject property is listed as a leaking underground storage tank (UST) Site. The CONTEL building contained a 500 gallon #2 fuel oil UST that was removed in 1991. No contamination was reported during the removal of the UST.

Other Sites

Nearby Sites of environmental interest in the report include the King Residence State Listed Hazardous Waste Site, the Sunoco Gasoline Station leaking UST site, the Former Sandri Property brownfields site, and the Saxtons River Elementary School State Listed Hazardous Waste Site.

The State Listed Hazardous Waste Site known as the King Residence is located on Main Street. This Site was opened in 1989 in response to a leaking 6,900 gallon UST. The drinking wells are clean but monitoring is ongoing.

The Sunoco Station is a leaking UST site and a federal Brownfields Site. Contamination above state standards was noted during the removal of five USTs in 1989 and 1990. The USTs were 4,000 gallon, 2,000 gallon, and 500 gallon capacity tanks. The contents of the USTs are not noted on the report. The property is also listed as a federal Brownfields Site. According to the

⁶ First Search report, November 1, 2011.

report the owner of the building has plans to donate the property to the Village of Saxtons River. Petroleum and other contamination is reported but no other specifics are included in the report.

The Saxtons River Elementary School is a State Listed Hazardous Waste Site due to a fuel oil leak that impacted the school and stream. Soil removal occurred to remove grossly contamination soils. The Site was opened in 2007 and is active. The property is also listed as a leaking UST site for a registered 3,000 gallon fuel oil UST that was removed in 2001.

A total of 5 additional sites are included in the FirstSearch report within ½ mile of the subject property. None of these properties appear to pose an environmental threat to the subject property. The listed properties are located downgradient from or at a significant distance away from the property so as to not pose a tangible environmental threat to the subject property.

5.2. Additional Environmental Record Sources

KAS conducted a review of the electronic files for nearby sites that were available through the VTDEC. The complete paper files could not be viewed due to flooding damage at the State of Vermont offices in Waterbury. The following is a summary of the information gathered from this file review.

A Source Identification and Plume Characterization Report, by GEI Consultants, Inc. dated October 31, 1990 indicated the following:⁷

- Petroleum compounds in excess of state regulations were identified in a water supply well in the village in 1989. Other water supplies were soon found to be contaminated as well.
- The source of the petroleum contamination in the drinking water was identified as leaking USTs at the Sunoco station in the village.
- Additional sampling in 1989 revealed the presence of perchloroethylene (PCE) in several of the water supplies as well. The source for this contamination was believed to be a former drycleaner that operated at the corner of Main and School Streets (subject property).
- An apparent PCE tank was then noted in the basement of the subject property.

A record of communication between Mr. Steve Winters of the VTDEC and Bud Carle, retired Saxtons River Fire Chief dated November 30, 1990 indicated the following:⁸

- Tenney's Hardware Store used had two USTs that he does not recall having been removed.
- The former owner of the subject property stored a large variety of electrical equipment in the basement of the building.

⁷ GEI Consultants, Inc, Source Identification and Plume Characterization Report, October 31, 1990.

⁸ Record of Communication between Steve Winters and Bud Carle, November 30, 1990.

- The Sunoco Station had a pit in the garage to collect waste. It became clogged and a dye test was performed to determine the outlet. The test was unsuccessful.

A Site Investigation Work Plan, by GEI Consultants, Inc. dated January 28, 1991 indicated the following:⁹

- Tenney's Hardware Store used to be a Texaco Service Station which may have used solvents.
- The Pizza, Paul, and Mary restaurant (subject property) used to be a laundromat with one dry cleaning machine that may have used PCE.
- The former Moore apartment building was destroyed by a fire of suspicious origin in 1979 and may have had chemicals stored in the basement.
- The dry cleaning machine along with one 55 gallon drum of PCE was reportedly removed from the subject property in 1988.
- An abandoned approximately 100 gallon capacity AST was observed in the basement of the subject property in October 1990. The tank was labeled "Perk Chemical Co."
- The subject property conducted active dry cleaning in the 1960's and 1970's.
- CONTEL Telephone operated on a property adjacent to the subject property. The property was used to store batteries in the event of a power failure to keep the telephone system running. The property had a 250 gallon diesel UST.

A Hazardous Materials Investigation, by GEI Consultants, Inc. dated June 3, 1991 indicated the following:¹⁰

- Soils contaminated with PCE were found in the basement of the Pizza, Paul, and Mary restaurant (subject property). The concentrations of PCE in the soil ranged from 9 to 440 parts per billion (ppb).
- Petroleum contaminated soils exists in the basement and vicinity of the Tenney Hardware Store. The concentrations of petroleum hydrocarbons ranged from 1,000 to 50,000 ppb.
- A monitoring well located downgradient of the subject property contained concentrations of PCE at low levels (5 ppb).
- A 120 gallon AST containing PCE was removed from the basement of the subject property. Approximately 8 gallons of PCE was removed from the AST.

A Phase I Environmental Site Assessment conducted on the 40 Main Street property by Waite Environmental Management, LLC, dated August 24, 2011 revealed the following:¹¹

⁹ GEI Consultants, Inc, Site Investigation Work Plan, January 28, 1991.

¹⁰ GEI Consultants, Inc, Hazardous Materials Investigation, June 3, 1991.

¹¹ Waite Environmental Management, LLC, Phase I Environmental Site Assessment, Sandri Realty Property, 40 Main Street, August 24, 2011.

- The State Listed Hazardous Waste Site known as King Residence is related to leaking USTs at the former Sandri Gas Station property that contaminated nearby drinking water supplies. A groundwater pump and treat system was put in place and groundwater monitoring continued for several years. The most recent sampling event revealed contaminant concentrations in the groundwater in the area were below state regulatory standards.
- The Saxtons River Mill property, which abuts the former gas station property, has documented PAH and metal contamination.

5.3. Physical Setting Sources

5.3.1 USGS Topographic Maps

The most recent USGS topographic quadrangle map dated 1984 was reviewed during this assessment.¹² One building was identified on the subject property.

5.3.2 State Geological Maps

Bedrock in the vicinity of the property is mapped as the Standing Pond Volcanic Member of the Waits River Formation, which is comprised of amphibolites, garnet amphibolites, coarse garnet schist, and hornblende maculate.¹³ The overburden deposits in the area of the subject property are mapped as fluvial gravel.¹⁴

5.4. Historical Use Information on the Property and Adjoining Properties

5.4.1 Standard Historical Sources

Aerial Photographs

KAS reviewed three aerial photographs of the subject property. An aerial photograph dated May 1962 depicts the subject property as developed with one structure¹⁵ An April 1994 and a July 2009 aerial photo of the subject property was reviewed on line at the KAS office¹⁶. The photos show the subject property and the surrounding properties consistent with how they were observed in November 2011. Copies of the aerial photographs are included in Appendix D.

¹² USGS Topographic Map July 1984.

¹³ Centennial Geologic Map.

¹⁴ Surficial Geologic Map.

¹⁵ VT-62-L 3-227

¹⁶ Microsoft Mapping, www.msrl.com

Fire Insurance Maps

Sanborn insurance mapping for the years 1885 through 1944 were examined during this assessment.

Table 5-1: Summary of Sanborn Map On Site Observations

Year	Listing
1885	Country store and dwelling with stables
1894	Harness store and dwelling with stables
1904	Clothing store with stables
1912	Vacant store with stables
1928	Store with residential automobile garage
1944	Store with 4 car garage

Coverage of the adjoining properties was available for select years from 1885 to 1944. Following is summary of adjacent property observations ascertained from the Sanborn Map Collection.

Table 5-2: Summary of Sanborn Map Off Site Observations

Year	Listing
1885	North: dwelling; South: jewelry store and dwelling with barn; East: dwelling; West: country store, storage, and tin store
1894	North: dwelling; South: shoe store and millinery; East: dwelling; West: country store and tin store
1904	North: dwelling; South: store and boarding house; East: dwelling; West: Tailor, barber, and club hall
1912	North: dwelling; South: offices; East: dwelling; West: Jewelry Store and club hall
1928	North: dwelling; South: store and dwelling; East: dwelling; West: Saxtons River Lodge and movie theatre*
1944	North: dwelling; South: store and dwelling; East: undeveloped; West: Saxtons River Lodge*

* Also noted on the 1928 and 1944 maps was a garage and auto repair shop with two gas USTs on the property to the west of Saxtons River Lodge (two properties to the west of the subject property)

Historic USGS Topographic Maps

The 1933 and 1957 historic USGS maps of Saxtons River, Vermont were reviewed on line.¹⁷ The maps depicts the subject property as developed with one structure. Copies of the maps are included in Appendix D.

Street Directory Information

Manning and A.M. Hall directory information was reviewed at the Vermont Law Library on October 28, 2011. No data for the subject property or nearby properties could be obtained. The data was either not listed or was not numeric and therefore could not be ascertained.

¹⁷University of New Hampshire Collections

6.0 SITE RECONNAISSANCE

6.1. Methodology and Limiting Conditions

On November 2, 2011, Angela Emerson of KAS conducted a site reconnaissance to inspect the property for indications of environmental risks or hazardous conditions. A completed site inspection checklist is included in Appendix C. KAS was accompanied by Margo Ghia of Main Street Arts (prospective purchaser) and Ellen Howard (health officer for Town of Rockingham) during the site reconnaissance. Photographs of the property are included in Appendix C.

6.2. General Site Setting

6.2.1 Current Uses

The subject property is currently a vacant building with commercial space on first floor and two residential apartments on the second floor. Personal household belongings were stored in one of the second floor apartments and the first floor contained restaurant related materials.

6.2.2 Past Uses

Past uses appear to be combined commercial and residential.

6.2.3 Current and Past Uses of the Adjoining Properties

Current uses of adjacent properties are included in section 3.5. Past uses appear to be similar to current uses.

6.2.4 Current and Past Uses in the Surrounding Area

Surrounding area is mixed light commercial and residential. Past uses appear to be similar to current uses.

6.2.5 Geologic, Hydrogeologic and Topographic Conditions

Subject property is flat. No bedrock was observed.

6.2.6 General Description of Structures

On-site building consists of a two-story wood frame building with a full unfinished basement. The foundation is mostly comprised of field stone and mortar but areas of concrete block were noted as well. The basement floor is comprised of dirt with a layer of plastic and gravel overlying the dirt floor.

6.2.7 *Roads*

The subject property is located on the eastern corner of Main Street and School Street.

6.2.8 *Potable Water Supply*

Potable water supply is from a supply well on the western portion of the subject property.

6.2.9 *Sewage Disposal System*

Sewage disposal system is a municipal sewer system. The system was installed in 1972 and prior to the installation of the system the sewage flowed directly into the Saxtons River.¹⁸

6.3. **Exterior Observations**

6.3.1 *Current Usage*

The portions of the property not covered by the on-site building are used as gravel parking and driveway with a small lawn on the northern portion of the property.

6.3.2 *Hazardous Substances and Petroleum Products*

No evidence of hazardous substance were noted on the exterior of the subject property. Two propane ASTs were noted on the subject property (see 6.3.3).

6.3.3 *Storage Tanks*

Two propane storage ASTs were noted on the subject property. One AST was approximately 500 gallon capacity and the other was an approximately 30 gallon capacity AST.

6.3.4 *Odors*

No unusual odors were noted on the subject property.

6.3.5 *Pools of Liquid*

No pools of liquid were noted on the subject property.

¹⁸ GEI Consultants, Inc, Hazardous Materials Investigation, June 3, 1991.

6.3.6 *Drums*

No drums were noted on the subject property.

6.3.7 *PCBs*

No evidence of PCB containing materials or products was noted on the subject property.

6.3.8 *Pits, Ponds and Lagoons*

No pits, ponds, or lagoons were noted on the subject property.

6.3.9 *Stained Soil or Pavement*

No stained soil or pavement was noted on the subject property.

6.3.10 *Stressed Vegetation*

No evidence of stressed vegetation was noted on the subject property.

6.3.11 *Solid Waste*

No evidence of solid waste was noted.

6.3.12 *Waste Water*

No evidence of waste water was noted on the subject property.

6.3.13 *Wells*

One supply well was noted on the western portion of the subject property and a monitoring well was noted in the sidewalk on the corner of School and Main Streets, adjacent to the subject property.

6.3.14 *Septic Systems*

No evidence of septic systems were noted on the subject property.

6.4. Interior Observations

6.4.1 Current Usage

The interior spaces of the on site building are currently unused except to store a variety of materials (household and restaurant related primarily)

6.4.2 Hazardous Substances and Petroleum Products

Approximately 10 cans of paint were noted on the first floor of the on-site building. Some of the paint cans were in poor condition and did not have lids.

6.4.3 Storage Tanks

No storage tanks were noted in the on-site building during the site reconnaissance.

6.4.4 Odors

No odors were noted during the site reconnaissance except for a musty/mildew odor in the basement. A large amount of mold was also observed in the basement.

6.4.5 Pools of Liquid

No pools of liquid were noted during the site reconnaissance.

6.4.6 Drums

No drums were noted during the site reconnaissance.

6.4.7 PCBs

No PCBs were noted during the site reconnaissance.

6.4.8 Heating and Cooling

The on-site building is not currently heated. A disconnected natural gas meter and a propane AST indicate historic heating was natural gas and propane.

6.4.9 Stains and Corrosion

No stains or corrosion was noted during the site reconnaissance.

6.4.10 *Drains and Sumps*

An apparent sump was noted in the basement of the on-site building. No pumps or pipes were noted in the vicinity of the sump.

7.0 INTERVIEWS

7.1. Interview with Property Owner

Silvestre Gallegos, current property owner, completed an interview questionnaire on November 2, 2011. The following is a summary of the matters of environmental significance conveyed in the interview. A copy of the interview form is included in Appendix F.

- The building contains a small commercial space with two apartments.
- Some sections of the foundations have been replaced.
- Water storage tanks connected to the supply well had historically shown some contamination but no contamination was found in the well.
- The Vermont Department of Labor based in Springfield issued an enforcement or violation notice in connection with the property.

7.2. Interview with Site Manager

See section 7.1 and 7.5.

7.3. Interview with Occupants

None.

7.4. Interview with Local Government Officials

KAS left several telephone messages with the volunteer fire department in Saxtons River, Vermont to interview them concerning spills on the subject property and adjacent properties. Our calls were not returned.

Ms. Ellen Howard, Planning-Zoning Administrator and Health Officer for the Town of Rockingham, completed an interview questionnaire on November 10, 2011. Ms. Howard stated the property had a contamination issue dealing with PCE from its previous use as a Laundromat. A copy of the interview form is included in Appendix F.

Mr. Richard Spiese, Site Manager for the VTDEC was interviewed via telephone on November 7, 2011. He stated that the only work that has been done in the last fifteen years is drinking

water sampling. They never found a direct source for the PCE in the supply wells. The concentrations continue to decrease and are low. A copy of the telephone log is included in Appendix F.

7.5. Interview with Others

The user of this document (prospective purchaser) completed an interview on November 2, 2011. Follow-up questions were answered by the user via email on November 15, 2011. A copy of the interview questionnaire and emails are provided in Appendix F. Important information noted in the interview included the following.

- No environmental cleanups liens or activity and use limitations are known to exist for the property. There is a no occupancy order in place but it is not related to environmental issues.
- The property has been vacant since April 2011 and no businesses have operated at the property for approximately 2 years.
- Prior uses of the Site include a bakery, pizza parlors, jewelry store, and a drycleaner/Laundromat (1980s)
- A drum of PCE was found in the basement of the building at one time.
- Some cleanup occurred at the property in connection with the PCE.
- A spill of #2 fuel oil occurred in the adjacent Main Street Arts building basement in early 2011. An environmental consultant was hired to complete a site investigation and they installed monitoring wells. The supply well for the subject property was tested and was not impacted. The site is scheduled to be closed soon.
- No additional environmental documents are known to exist for the subject property.

No previous owners, operators, or occupants could be located during this Phase I ESA to interview. It is likely that information obtained in the above interviews would be similar to that obtained by previous owners, operators, or occupants.

8.0 FINDINGS

Two RECs were identified during this Phase I ESA as defined by ASTM and as outlined in Sections 9.0 and 10.0: the historic use of the subject property as a laundromat with documented PCE contamination in shallow soils and the spill of #2 fuel oil in the basement of the adjacent property that resulted in a release of petroleum contamination to the subsurface.

9.0 OPINION

The property has been assessed in accordance with ASTM E-1527-05 and it has been determined that the historic and current uses of the subject property have been for combined commercial and

residential uses. The first floor has housed several retail and commercial operations since the late 1800's including harness, clothing, jewelry, bakery, and pizza parlors. A laundromat/drycleaner operated in the on-site building in the 1980s. The property has been vacant since April 2011 but no businesses have operated on the property since 2009.

Two RECs were identified during this assessment: The historic use of the subject property as a drycleaner with documented PCE contamination in shallow soils and the spill of #2 fuel oil in the basement of the adjacent property that resulted in a release of petroleum contamination to the subsurface.

The subject property housed a laundromat with a small drycleaning operation in the 1980's. An AST containing PCE was removed from the subject property in 1991. Shallow soil samples collected from the basement revealed concentrations of PCE indicating a release to the subsurface took place. PCE was also detected in area drinking water wells and monitoring wells downgradient of the subject property but not in the on-site drinking water well (according to a sample collected in 1989).

A spill of #2 fuel oil occurred on the western adjacent property in early 2011. The release occurred in the basement of the adjacent building, which contained a dirt floor. Monitoring wells were installed and are still present on the subject property.

The Saxtons River Mill Brownfields site is not considered a REC due to the documented contamination which includes immobile contaminants located downgradient of the subject property. Likewise, the former Sandri Realty site is also not considered a REC due to the documented groundwater flow and the fact that contaminant concentrations are below state regulatory standards. Petroleum contamination from the former Sandri Realty site contaminated area drinking water wells, but no petroleum contaminants were detected in the drinking water well on the subject property according to a sample collected in 1989.

The Former Tenney Hardware Store (located two buildings to the west of the subject property), which historically has gasoline USTs is not considered a REC due to the distance from the subject property and because it is located cross-gradient from the subject property.

The current property owner stated that contamination had been found in the water storage tank for the drinking water on the on-site property, but not in the supply well. In KAS' experience, this is plausible due to liners in these tanks that historically contained chemicals such as trichloroethylene (TCE).

A large amount of pvc piping, a plastic covering on the dirt floor, and a plastic corrugated pipe with an unknown purpose were observed in the basement of the subject property. More information is needed to determine if this indicates a historic remediation system on the subject property. However, further information would not change the conclusions of this ESA.

A presence of several paint cans in poor condition is a dominium condition as defined by ASTM E-1527-05. These cans should be removed from the property in accordance with state and federal regulations.

Asbestos, lead based paint, and PCB containing materials could be present in the on-site building due to the age of the building. Inspections should be completed prior to demolition of the building. Additionally, mold was observed in the basement of the on-site building and it will need to be managed if the building is to be re-occupied.

A Phase II Environmental Site Assessment would be needed to determine whether these RECs contributed to contamination on the subject property. Phase II investigations may include soil, groundwater, and drinking water sampling as well as indoor air and soil vapor sampling. Chlorinated solvents have been known to impact the indoor air of buildings via vapor intrusion through preferential pathways (dirt floors, masonry foundations, utility piping penetrations etc.). The primary contaminants of concern for the subject property are likely chlorinated solvents from historical property usage and petroleum hydrocarbons from the off-site spill of #2 fuel oil.

9.1 Additional Investigation

An additional investigation is deemed necessary to determine the purpose of the pvc piping and corrugated plastic piping located in the basement that may be indicative of a former environmental remediation system on the subject property. Per ASTM E-1527-05, this opinion regarding additional investigations is only intended to convey those additional investigations that may be necessary to ascertain the presence or absence of a REC. It does not convey any recommendation relative to the need to evaluate identified RECs at the property.

10.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of land and premises at 33 Main Street in Saxtons River, Vermont, the property. Any exceptions to, or deletions from, this practice are described in Section 11.0 of this report. This assessment has revealed no evidence recognized environmental conditions in connection with the property except for the following: The historic use of the subject property as a drycleaner with documented PCE contamination in shallow soils and the spill of #2 fuel oil in the basement of the adjacent property that resulted in a release of petroleum contamination to the subsurface.

A recognized environmental condition is defined in ASTM E 1527 as “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis

conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.”

11.0 DEVIATIONS

11.1. Deviations

Noted exclusions to the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-2005) included: portions of the subject property were covered with snow during the site reconnaissance and areas of the exterior ground could not be thoroughly observed. Data gaps: there some several intervals where documentation gaps exceed the 5-year period specified in ASTM E 1527-05 at §8.3.2.1 since the property was developed (prior to 1885 based on Sanborn Fire Insurance mapping. KAS was unable to view the Vermont Department of Environmental Conservation’s paper records for this property due to damage sustained during recent flooding at the State of Vermont offices in Waterbury. Limited digital files were made available but the file was incomplete. The Manning Directories were not useful to fill data gaps because street addresses were not listed. Given the fact that this Site operated as a drycleaner and had an abandoned AST of PCE in the basement, as well as the fact that area supply wells had PCE contamination, this data failure is considered a significant data gap.

11.2. Significant Assumptions

KAS undertook performance of this Phase I ESA according to the following assumptions: None.

11.3. Limitations and Exclusions

KAS has prepared this Phase I ESA report in accord with ASTM E-1527-05 using the best efforts of Environmental Professionals and information available at the time of preparation. This report is intended to convey a point-in-time environmental evaluation of the property, as well as relevant information on past uses. The user of this document must recognize the limitations inherent in conducting a Phase I ESA, as stated in ASTM E-1527-05, which include but are not necessarily limited to:

- This document does not address regulatory compliance issues and KAS makes no assurances relative to the federal, state or local regulatory compliance of the property (ref. Section 1.4).
- All appropriate inquiry as defined by ASTM E-1527-05 is not an exhaustive assessment of a clean property (ref. Section 4.5.2).

- A variable level of inquiry may be conducted depending on the specific characteristics and features of the property and the information developed during the course of the assessment (ref. Section 4.5.3).
- An assessment meeting or exceeding the requirements of ASTM E-1527-05 and completed less than 180 days prior to the date of acquisition or intended transaction is presumed to be valid (ref. Section 4.6).
- All appropriate inquiry as defined by ASTM E-1527-05 is not exhaustive and does not require assessment of historic uses more frequently than every five years (ref. Section 8.3.2.1).

11.4. Special Terms and Conditions

None.

11.5. User Reliance

This report is for the use and benefit of client as defined herein. Affiliates of client, and third parties authorized in writing by KAS and client, may rely upon this report to the extent that client is entitled to do so, provided said parties agree to abide by the limitations and exclusions as stated herein.

12.0 ADDITIONAL SERVICES

None.

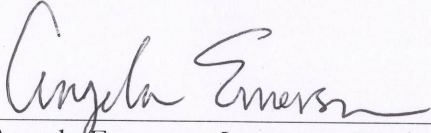
13.0 REFERENCES

1. Town of Rockingham Land Records viewed in person at the Rockingham Municipal Offices, November 2, 2011.
2. United States Geological Survey Map of Saxtons River, Vermont, 1984, obtained from Microsoft USA, <http://msrmaps.com>.
3. Phase I Environmental Site Assessment, Sandri Realty Property, 40 Main Street, Saxtons River. Waite Environmental Management, LLC. July 25, 2011.
4. First Search Technology Corporation, Environmental FirstSearch Report, 33 Main Street, Saxtons River, Vermont, November 1, 2011.
5. Source Identification and Plume Characterization Report. GEI Consultants, Inc., October 31, 1990.
6. Record of Communication between Steve Winters and Bud Carle, November 30, 1990.
7. Source Investigation Work Plan. GEI Consultants, Inc., January 28, 1991.
8. Source Investigation Work Plan. GEI Consultants, Inc., January 28, 1991.
9. Hazardous Materials Investigation. GEI Consultants, Inc., June 3, 1991.
10. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.
11. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.

12. Aerial Photograph VT-62-L 3-79, viewed in person at the Vermont Law Library, State Street, Montpelier on October 28, 2011.
13. Aerial Photograph of Burlington, Vermont, April 275, 1994, obtained from Microsoft USA, <http://msrmaps.com>.
14. Sanborn Insurance Maps of Saxtons River, Vermont obtained via First Search Technology Corporation on November 2, 2011.
15. Historic USGS Topographic Maps, viewed on line; <http://docs.unh.edu>.

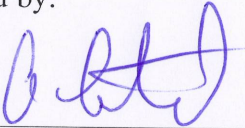
14.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Prepared by:



Angela Emerson, Inspector, Environmental Professional

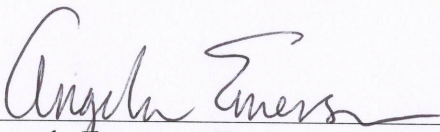
Reviewed by:



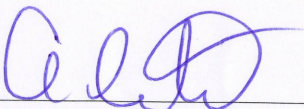
Alan Liptak, Environmental Professional

15.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of this part. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Angela Emerson, Environmental Professional



Alan Liptak, Environmental Professional

16.0 APPENDICIES

- A. Site Location Map
- B. Site Plan
- C. Site Photographs and Site Reconnaissance Checklist
- D. Historical Research Documentation
- E. Regulatory Records Documentation
- F. Interview Documentation
- G. Qualifications of Environmental Professionals
- H. Additional Environmental Records



APPENDIX A

SITE LOCATION MAP



APPENDIX B

SITE PLAN

SITE SKETCH
November 2, 2011
33 Main Street

PROANE
AST

PROANE AST

CORROGATED
PIPES

supply
well

Possible
sump

Monitoring
wells

33 MAIN STREET

PILE OF
PVC
PIPING

SCHOOL STREET

N
↑

Monitoring
well

MAIN STREET (ROUTE 121)

#508110219



APPENDIX C

SITE PHOTOGRAPHS
AND
SITE RECONNAISSANCE CHECKLIST



Photographic Documentation
Phase I Environmental Site Assessment
33 Main Street
Saxtons River, Vermont
508110219

Photograph ID: 01

Date: 11/2/11

Location:

Exterior of on-site building
on subject property

Direction:

From the south

Comments:

On-site building with commercial
space in basement and
apartments on second floor.



Photograph ID: 02

Date: 11/2/11

Location:

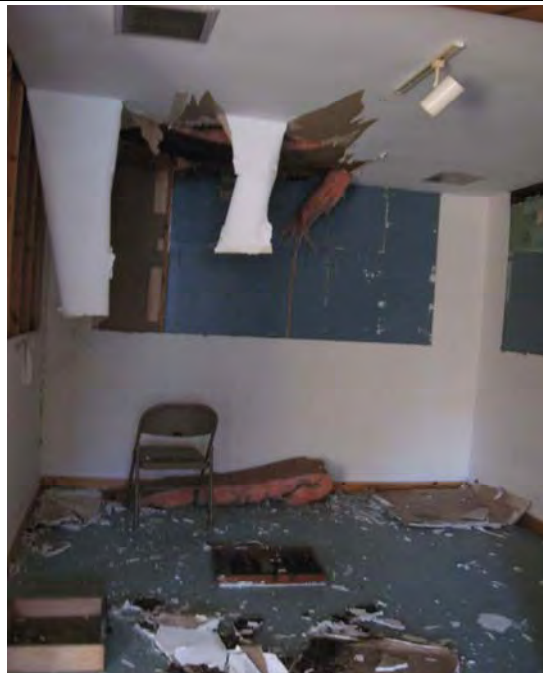
Interior of on-site building

Direction:

From the south

Comments:

Typical interior of on-site
building.





Photographic Documentation
Phase I Environmental Site Assessment
33 Main Street
Saxtons River, Vermont
508110219

Photograph ID: 03

Date: 11/2/11

Location:

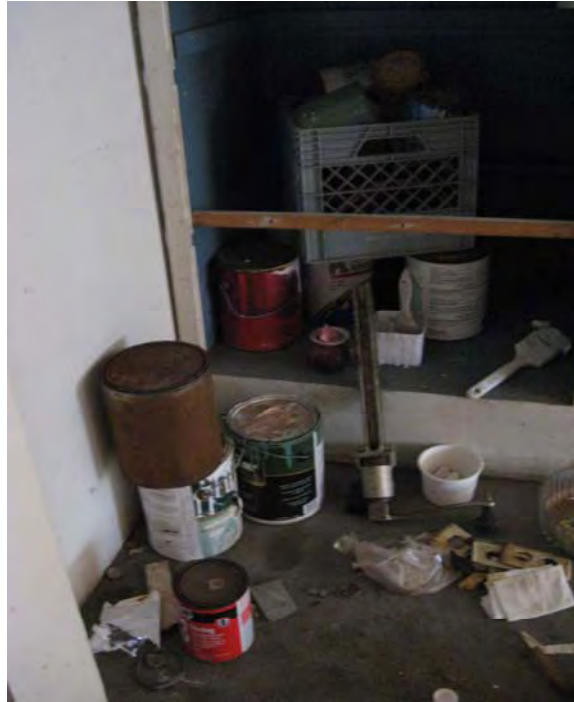
Commercial space on first floor
of on-site building

Direction:

From the east

Comments:

Paints stored on first floor of
on-site building



Photograph ID: 04

Date: 11/2/11

Location:

Northern portion of subject
property

Direction:

From the south

Comments:

Propane heating tank for
subject property





Photographic Documentation
Phase I Environmental Site Assessment
33 Main Street
Saxtons River, Vermont
508110219

Photograph ID: 05

Date: 11/2/11

Location:

Corner of Main St and School St

Direction:

From the west

Comments:

Monitoring well on sidewalk
adjacent to subject property



Photograph ID: 06

Date: 11/2/11

Location:

Basement of on-site building

Direction:

From the north

Comments:

Apparent sump in basement
floor of on-site building





Photographic Documentation
Phase I Environmental Site Assessment
33 Main Street
Saxtons River, Vermont
508110219

Photograph ID: 07

Date: 11/2/11

Location:

Basement of on-site building

Direction:

From the north

Comments:

Mold on wall in basement



Photograph ID: 008

Date: 11/2/11

Location:

Basement of on-site building

Direction:

From the west

Comments:

PVC indicates possible
historic vent system in
basement of on-site building





Photographic Documentation
Phase I Environmental Site Assessment
33 Main Street
Saxtons River, Vermont
508110219

Photograph ID: 09

Date: 11/2/11

Location:

Basement of on-site building

Direction:

From the south

Comments:

Corrugated pipes in basement
of on-site building



Photograph ID: 10

Date: 11/2/11

Location:

Exterior of on-site building
on subject property

Direction:

From the north

Comments:

On-site building with propane
tank in lower right



Site Reconnaissance Checklist
Phase I Environmental Site Assessment

KAS Project No.: 508112019

Date: November 2, 2011

Site Name: 33 Main Street

Location: 33 Main Street

Saxtons River, Vermont

Inspector: Angela Emerson

Signed: 

Weather: Sunny approximately 40 degrees F

Accompanied By: Margo Ghia and Ellen Howard

Title, or Relationship to the Property: Prospective Purchaser and Town Health Officer Respectively

Telephone: (802) 869-2960

Section 1. General Site Setting (ASTM E-1527-05 Section 9.4.1)

- A. *Current uses of the property (Section 9.4.1.1):* Describe current property uses with emphasis on those likely to involve use, treatment, storage, disposal and/or generation of hazardous substances and/or petroleum products. Generate site sketch map (or obtain existing site plans). Include an estimate of the subject property boundaries. Include detail sketches if appropriate. Describe structures and other improvements on the property.

Property is currently vacant and under a "no occupancy" order. First floor appears to have been used for retail/restaurants and the second floor was used as residential apartments. See site sketch.

- B. *Past uses of the property (Section 9.4.1.2):* To the extent visually evident, describe past property uses with emphasis on those likely to involve use, treatment, storage, disposal and/or generation of hazardous substances and/or petroleum products.

Same as current

Site Reconnaissance Checklist

Phase I Environmental Site Assessment

- C. Current and past uses of adjoining properties (Section 9.4.1.3 and 9.4.1.4): To the extent visually identifiable from the subject property, list current uses of adjoining properties with emphasis on those likely to indicate recognized environmental conditions on the subject property. If past uses of adjoining properties with such potential are evident list these also.

North: Residence

South: Main Street and residences

East: School Street and Teljet Communications Building (reportedly contains a backup system in the event of a power outage to allow for continued telephone service)

West: Main Street Arts and retail craft store

- D. Current or past uses in the surrounding area (Section 9.4.1.5): To the extent visually identifiable from the subject property and public thoroughfares in the vicinity, describe general area development with potential to indicate recognized environmental conditions with the subject property.

Appear to have been similar to current. Typical downtown village Main Street with small commercial establishments, restaurants, and residences.

- E. Geologic, Hydrogeologic, Hydrologic and Topographic Conditions (Section 9.4.1.6): Describe the overall property setting. Describe natural bodies of water (including springs and seeps) and possible wetlands on subject property and indicate location(s) on site sketch map. Note presence of exposed bedrock on property grounds and indicate general location(s) on site sketch map.

Topography is flat on subject property. No bodies of water or wetlands noted on the property. No bedrock noted.

- F. General Description of Structures (Section 9.4.1.7): Describe structures or other improvements on the property including number and size of buildings, footprints, number of stories each, approximate age of buildings, occupancy status, pavement, fences, foundations/ruins, utilities, product pipelines, and ancillary structures such as railroad spurs and power transmission lines.

Two story wood framed building with commercial space on first floor and residential apartments on second floor. The building contains a full unfinished basement constructed of field stone and mortar with some newer concrete block sections. The basement has a dirt floor which is covered by a layer of plastic and gravel. Building was vacant but still contained a fair amount of household belongings and restaurant materials.

Site Reconnaissance Checklist

Phase I Environmental Site Assessment

- G. Roads (Section 9.4.1.8): List public thoroughfares, roads, streets and parking facilities adjoining / on the subject property.

Main Street to the South and School Street to the East

- H. Potable Water Supply (Section 9.4.1.9): Identify potable water supply source(s) for the subject property as apparent from visual inspection.

Private supply well located on the western portion of the subject property.

- I. Sewage Disposal System (Section 9.4.1.10): Identify current sewage disposal system as apparent from visual inspection.

Municipal based on sewer connection noted in basement.

Section 2. Interior and Exterior Observations (ASTM E-1527-05 Section 9.4.2)

- A. Current and Past Property Use (Sections 9.4.2.1 and 9.4.2.2): If building structures are identified on the subject property, visually inspect accessible common areas (lobbies, hallways), maintenance and repair areas (boiler rooms) and a representative sample of occupant spaces. Identify below which interior spaces were inspected and describe. Also note which interior spaces were not inspected.

First floor was used as commercial space and second floor was residential apartments.

- B. Hazardous Substances and Petroleum Products (Sections 9.4.2.3, 9.4.2.8 and 9.4.2.9): List apparent hazardous substances, petroleum products, pollutants, contaminants and raw materials observed on the subject property. Include type, container size and quantity, locations and whether stored appropriately. Note presence or absence of labeling, content according to labels, drum condition. Are adverse environmental conditions observed? Obtain/ review Material Safety Data Sheets if possible.

Approximately 10 paint cans were noted in the commercial space (first floor) of the subject property. Many of the cans were in poor shape and some did not have lids.

- C. Storage Tanks (Section 9.4.2.4): Identify ASTs and USTs on the subject property. Note pumps, fill pipes, vents, access ways, concrete pads, saw cuts in paved areas, etc. Determine location, size and construction material to the extent visually identifiable, apparent contents, spill/ release protection, containment measures, status (active or inactive). Note upgrades such as corrosion protection, spill and overfill protection, secondary containment systems, etc. Note visual evidence of whether tank(s) have been taken out of operation, removed, closed in place, or otherwise closed.

Two propane ASTs were noted – a permanent 500 gallon AST was located on the northern portion of the subject property and a small 30 gallon propane AST was located adjacent to the northern wall of the on site building.

Site Reconnaissance Checklist

Phase I Environmental Site Assessment

D. Odors (Section 9.4.2.5): Note strong, pungent, or noxious odors and attempt to identify source.

No odors were noted other than mold/mildew in the basement. Mold was found in basement

E. Pools of Liquid (Section 9.4.2.6): Note standing surface water, and pools or sumps containing liquids likely to be hazardous substances or petroleum products, to the extent visually identifiable.

No pools of liquid were noted.

F. Drums (Section 9.4.2.7): Identify drums potentially containing hazardous substances, petroleum products, pollutants, or contaminants. Identify storage methods including whether release protection measures are in place. Are adverse environmental conditions such as leakage, weeping or overfilling observed? If drums are identified, indicate whether they are labeled and identify drum contents according to labeling.

No drums were noted.

G. PCBs (Section 9.4.2.10): List suspect sources of polychlorinated biphenyls (PCBs) such as electrical or other equipment with potential to contain PCBs (transformers, circuit breakers, capacitors, hydraulic fluids, pesticide extenders, lubricants, cutting oils, vacuum pumps, heat transfer systems, plasticizer applications). Fluorescent light ballasts need not be noted. Note with respect to each whether known to contain PCBs (as indicated by labeling), name of utility company (if applicable) and serial numbers, other marks, manufacturer, and model number; evidence of spill or release. Indicate location(s) on site sketch map.

No PCB materials were noted. Given the age of the building, PCB containing paints and caulks may be present.

Section 3. Interior Observations (ASTM E-1527-05 Section 9.4.3)

A. Heating/Cooling (Section 9.4.3.1): Identify current fuel source(s) for heating and cooling. If possible to identify past fuel sources for heating and cooling, list these also.

Building is not currently heated. There is a disconnected natural gas meter on the western wall of the building. The propane ASTs were most likely used for heating as well. No cooling system was noted.

B. Stains/Corrosion (Section 9.4.3.2): Identify stains or corrosion of floors, walls, or ceilings except for staining from water.

No stains were noted

C. Drains and Sumps (Section 9.4.3.3): Identify floor drains, other drains, ditches, and sumps on the subject property. Note the presence or absence of wastewater or other liquid discharge, and sediments, in or into these structures. Describe whether flowing or pooled, sheens, color, odor. Note processes active in their vicinity and whether drains are sealed or operational. Can discharge pipes be seen and if so, note the direction they exit the floor drain. Do drains daylight on the property?

An apparent sump was noted in the basement. No pumps or pipes were noted in the sump.

Site Reconnaissance Checklist
Phase I Environmental Site Assessment

Section 4. Exterior Observations (ASTM E-1527-05 Section 9.4.4)

- A. Pits, Ponds and Lagoons (Section 9.4.4.1): Note pits, pools, ponds, lagoons, sumps, or catch basins and indicate location on site sketch map and indicate whether they appear to have been used in connection with waste disposal or treatment.

None noted.

- B. Stained soil or pavement (Section 9.4.4.2): Note stained soil or pavement.

None noted – presence of snow prohibited complete inspection.

- C. Stressed Vegetation (section 9.4.4.3): Note areas of stressed vegetation from cause other than lack of water and indicate location on site sketch map.

None noted.

- D. Solid Waste (Section 9.4.4.4): Note landfills for solid waste or hazardous waste and whether active or abandoned. Note presence of trash and/or construction debris. Note areas that are apparently filled or graded by non-natural causes or filled with material of unknown origin, mounds, or depressions suggesting solid waste disposal.

None noted.

- D. Waste Water (Section 9.4.4.5): Describe wastewater or other liquid (including storm water) discharge into drain, ditch, or stream on or adjacent to the subject property. Note the condition of wastewater or liquid discharge (e.g., water flowing or pooled, sheens on the liquid surface, color, odor)

None noted

- E. Wells (Section 9.4.4.6): Note active or inactive wells on the subject property (including oil or gas wells, injection wells, irrigation wells, groundwater monitoring wells, dry wells, abandoned wells, or other wells) and indicate location on site sketch map.

One supply well was noted on the western portion of the subject property and a monitoring well was located in the sidewalk on the corner of Main and School Streets.

- F. Septic Systems (Section 9.4.4.7): Indicate whether evidence exists of on site septic systems and/or cesspools, to the extent visually identifiable.

None noted.

- G. Limitations (Section 9.2.4): Identify condition(s) which prevented thorough inspection of building interiors and/or property grounds (snow cover, denied access, safety or structural issues).

Snow cover prohibited complete inspection of ground.

Site Reconnaissance Checklist
Phase I Environmental Site Assessment

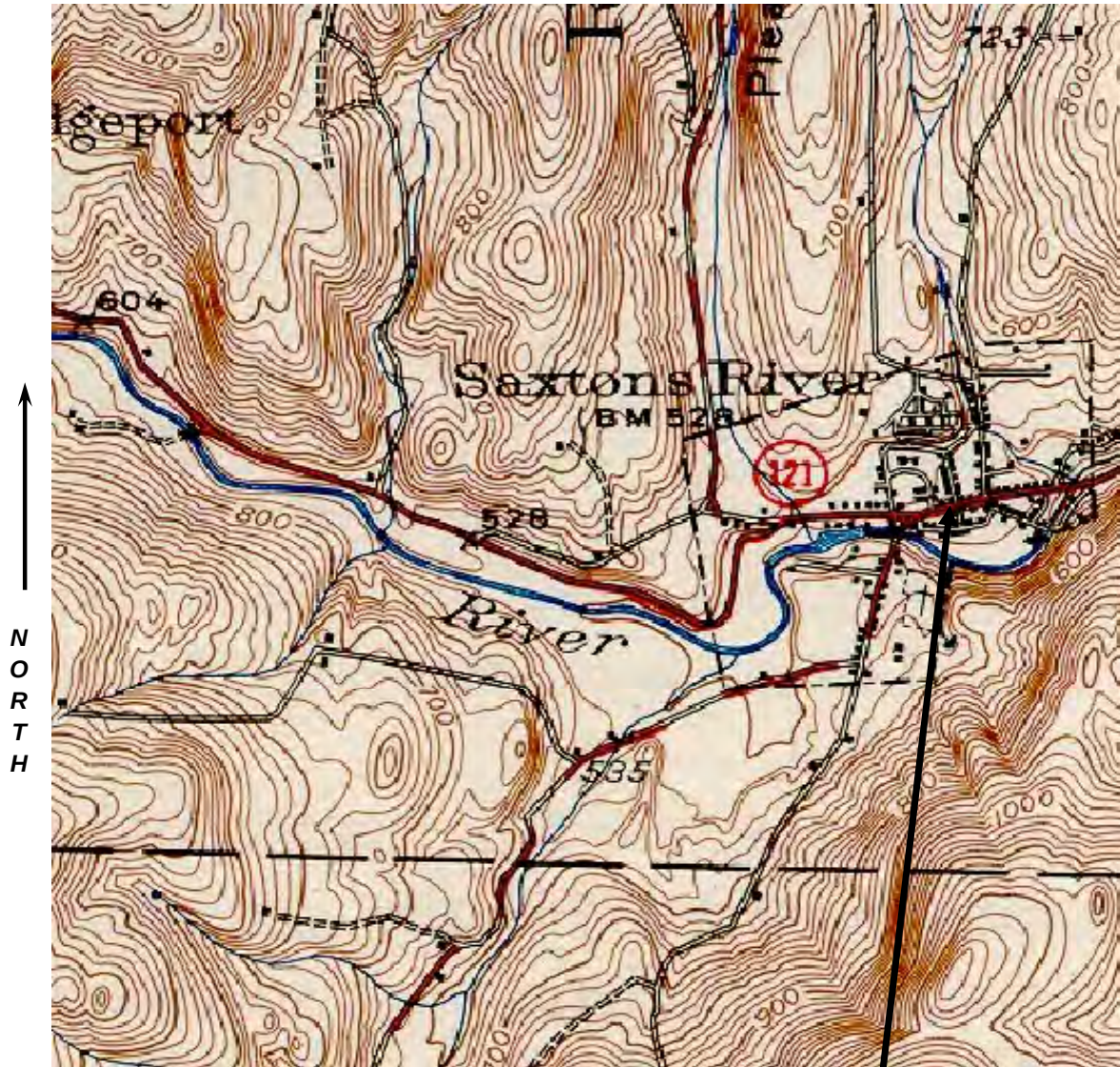
- H. *Additional Site Reconnaissance Observations:* This section is used to describe other contract specific requests not addressed above, whether ASTM or non-ASTM criteria are used to evaluate the specific feature (Attach additional pages as needed.)

None requested



APPENDIX D

HISTORICAL RESEARCH DOCUMENTATION



**SUBJECT
PROPERTY**

KAS Job Number 508110219

Source: University of New Hampshire on line map collection, <http://docs.unh.edu/VT/>



**33 Main Street
Saxtons River, Vermont**

1933 USGS Topographic Map

Date: 11/09/11	Drawing No. 0	Scale: 1:62,500	By: AE



**SUBJECT
PROPERTY**

KAS Job Number 508110219

Source: University of New Hampshire on line map collection, <http://docs.unh.edu/VT/>

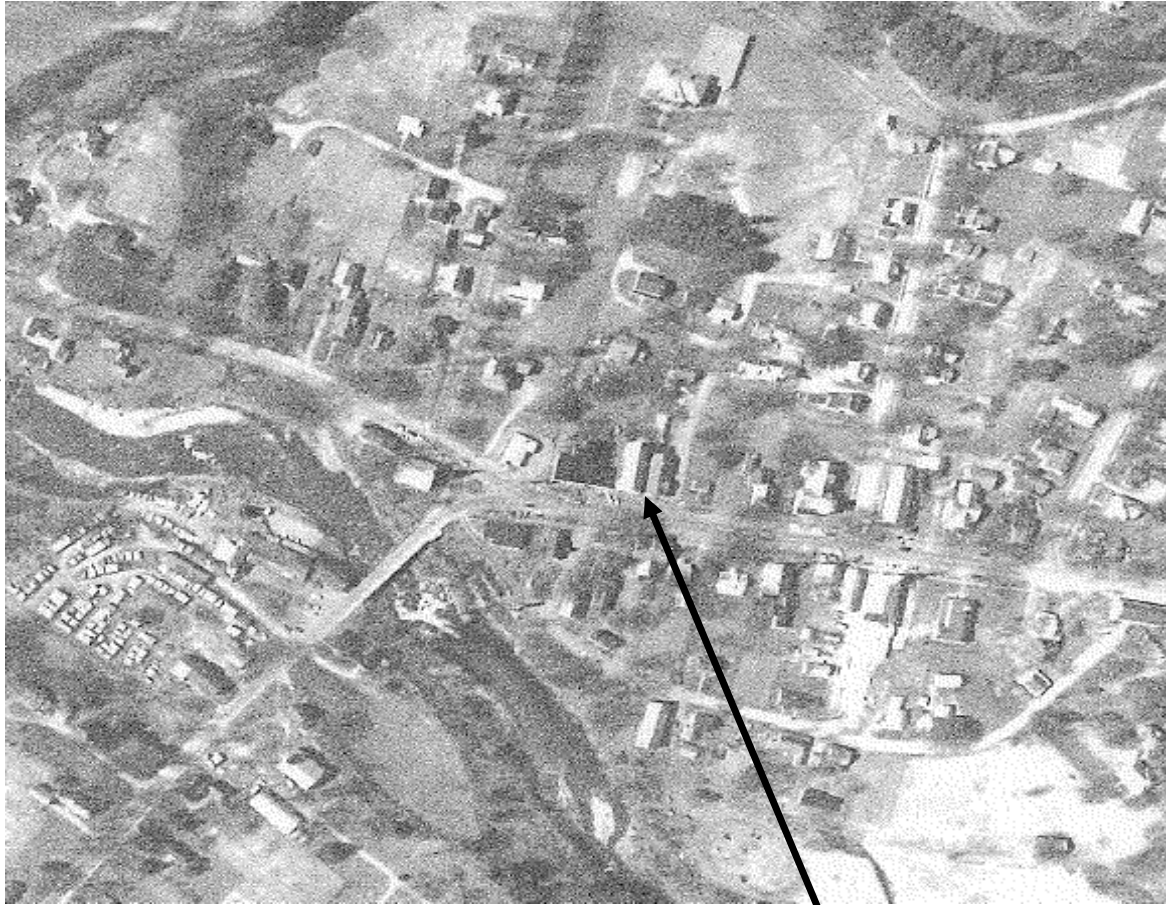


**33 Main Street
Saxtons River, Vermont**

1957 USGS Topographic Map

Date: 11/09/11	Drawing No. 0	Scale: 1:62,500	By: AE

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O
R
T
H



**SUBJECT
PROPERTY**

KAS Job Number 508110219
Source: 1962 Vermont Low Altitude Series



**33 Main Street
Saxtons River, Vermont**

Aerial Photography
April 26, 1962 Image

Date: 11/09/11	Drawing No. 0	Scale: 1:24,000	By: AE



**SUBJECT
PROPERTY**

KAS Job Number 508110219
Source: <http://msrmaps.com>



**33 Main Street
Saxtons River, Vermont**

Aerial Photography
April 27, 1994 USGS Image

Date: 11/09/11	Drawing No. 0	Scale: 1:24,000	By: AE



**SUBJECT
PROPERTY**

KAS Job Number 508110219
Source: Google Earth Imagery



**33 Main Street
Saxtons River, Vermont**

Aerial Photography
Image Date July 5, 2009

Date: 11/09/11	Drawing No. 0	Scale: NS	By: AE



FIRE INSURANCE MAP ABSTRACT RESEARCH RESULTS

Report Date: 11/2/2011

Client Job Number: 508110219

FirstSearch Index Number: 284714

Site Address(es): 33 MAIN ST

SAXTONS RIVER, VT 05154

Listed below, please find the results of our search for historic fire insurance maps, performed in conjunction with your Environmental FirstSearch® report.

State	City	Date	Volume	Sheet Number(s)
Vermont	Saxton's River	1944	none	3
Vermont	Saxton's River	1928	none	3
Vermont	Saxton's River	1912	none	3
Vermont	Saxton's River	1904	none	2
Vermont	Saxton's River	1894	none	2
Vermont	Saxton's River	1885	none	2

This abstract is the result of a visual inspection of various Sanborn® Map collections. Supporting documentation follows in the Appendix. Use of this material is meant for research purposes only.

Copyright Policy Disclaimer

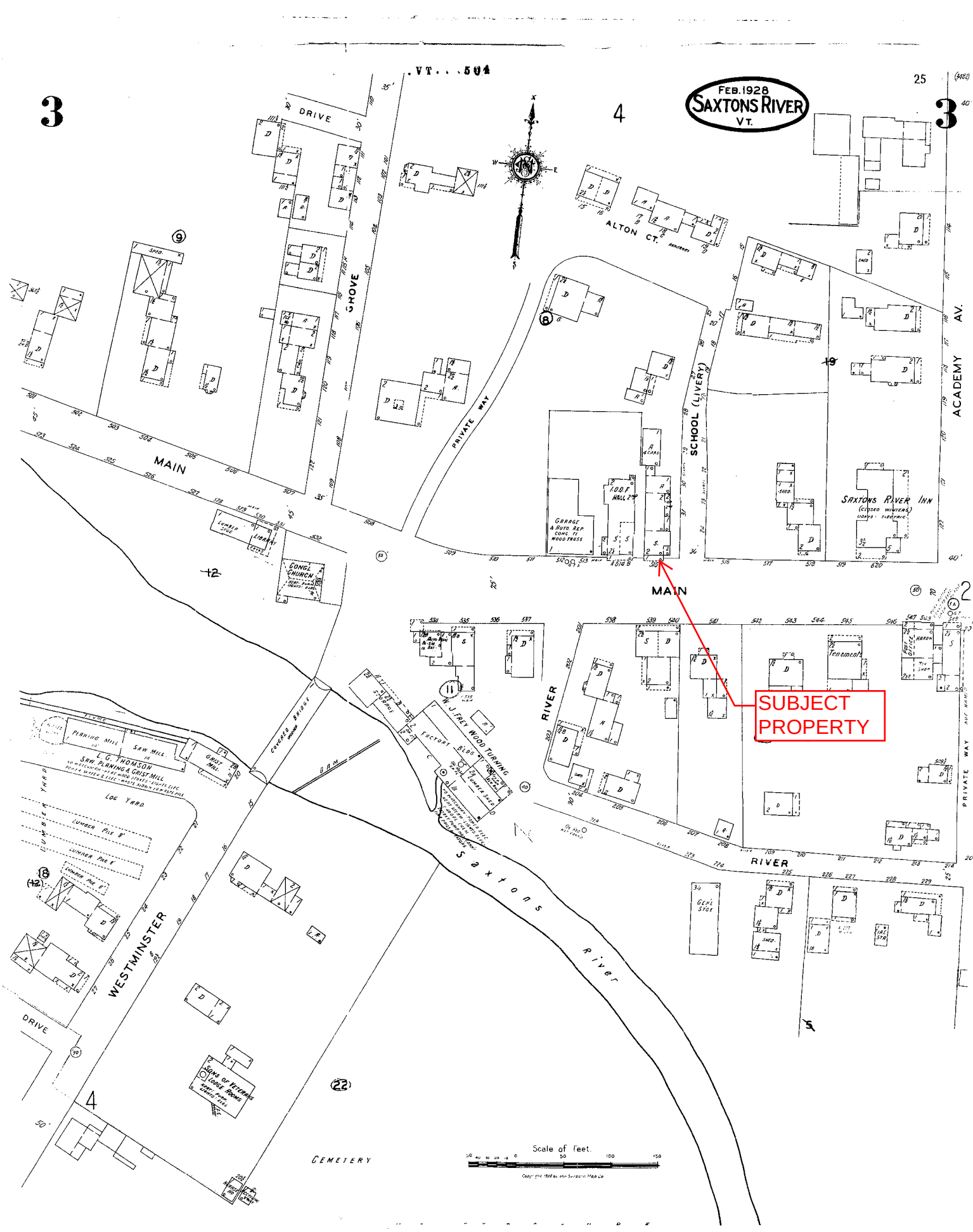
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FirstSearch Technology Corporation

***10 Cottage Street, Norwood, MA 02062
Tel: 781-551-0470 Fax: 781-551-0471***

Appendix

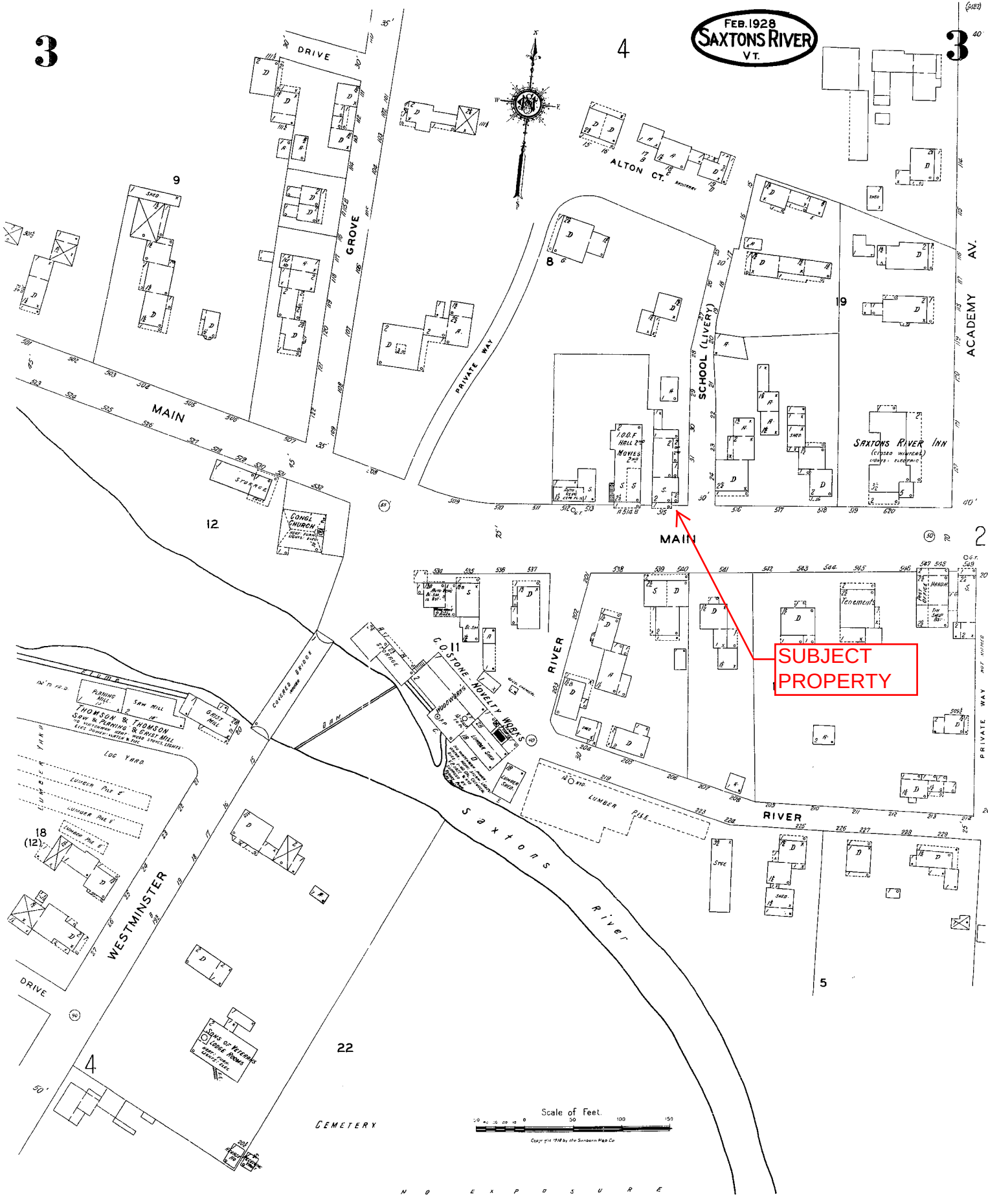
Supporting Documentation

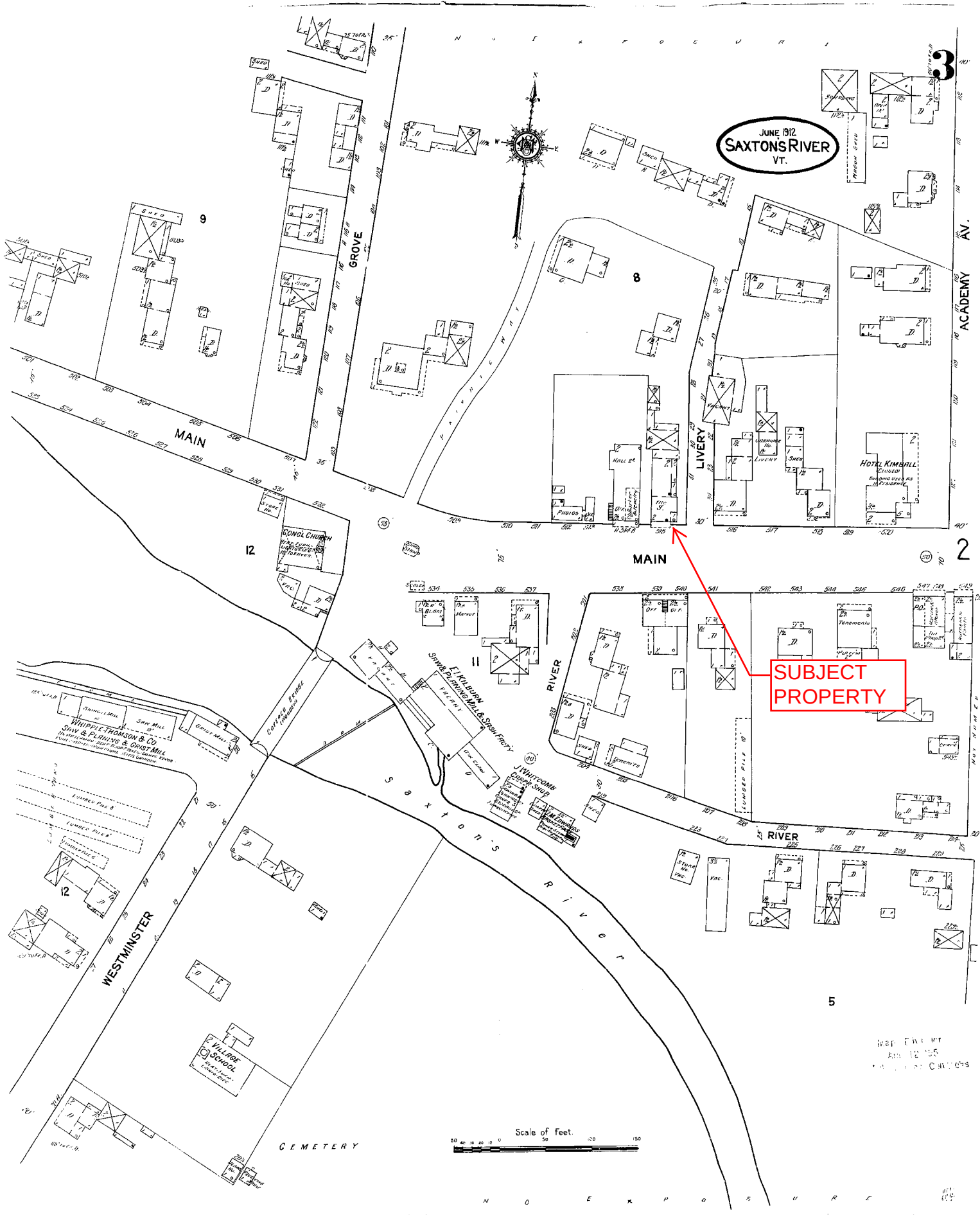


3

FEB. 1928
SAXTONS RIVER
VT.

3

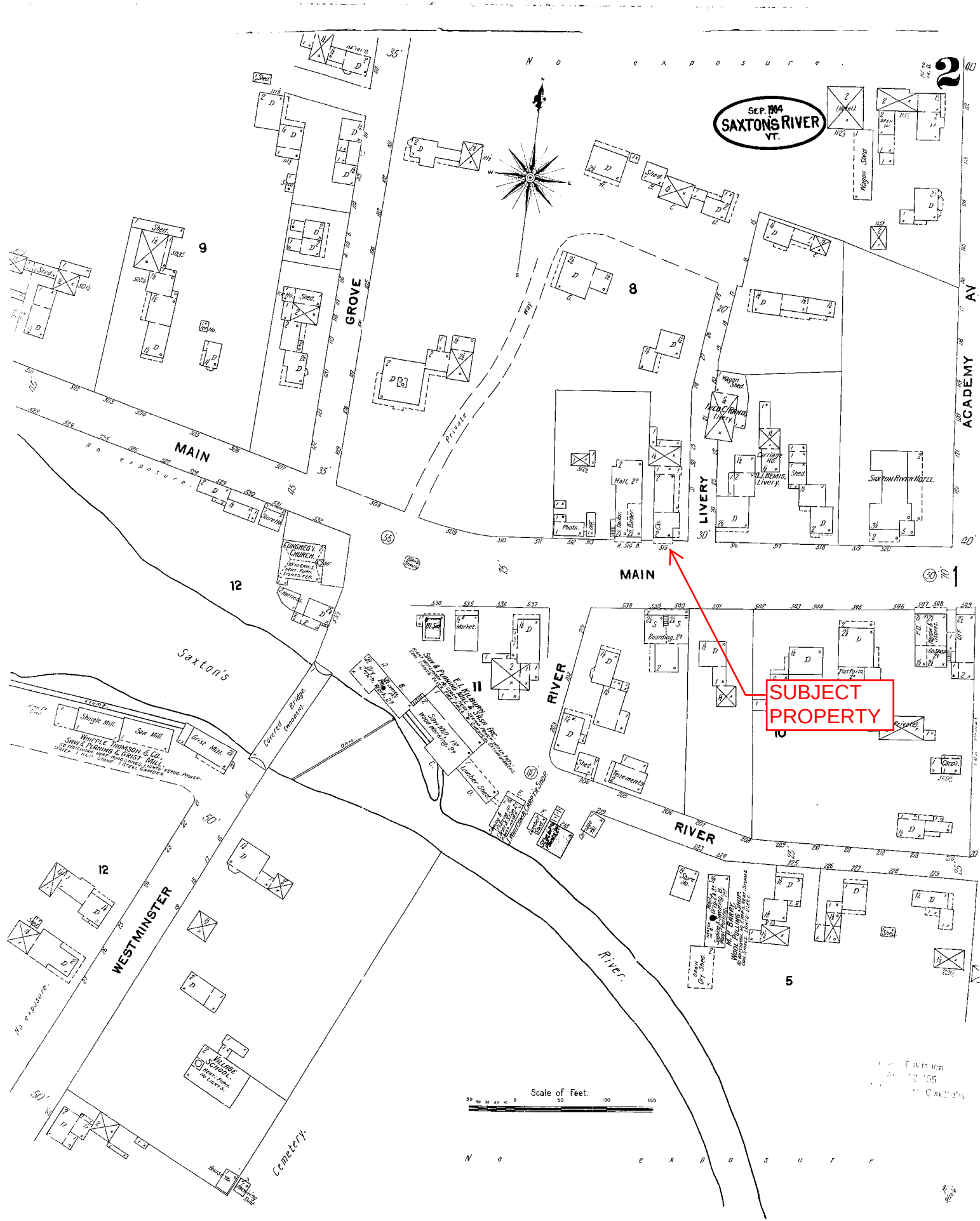


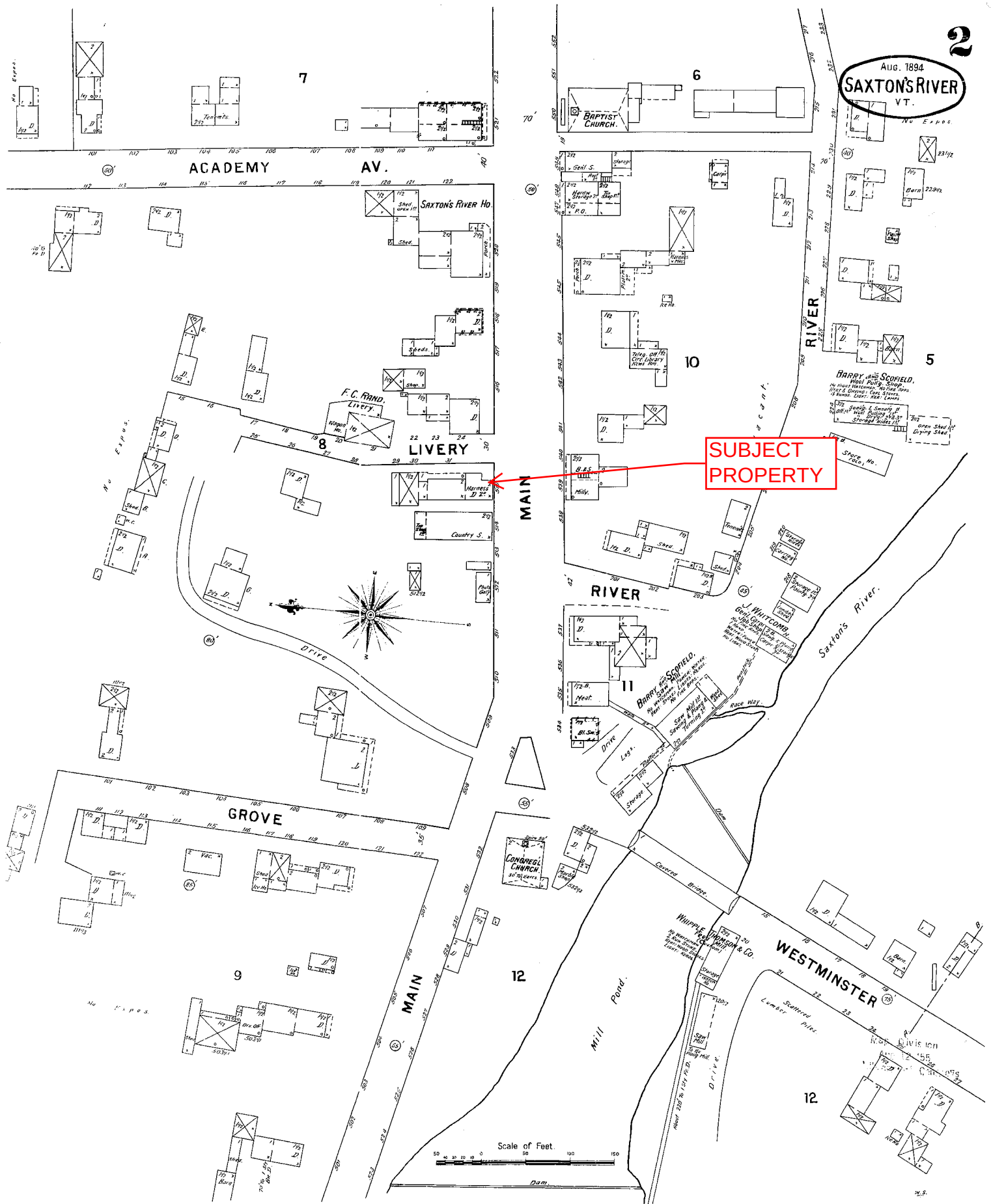


JUNE 1912
SAXTONS RIVER
VT.

SUBJECT
PROPERTY

Scale of Feet.
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150





JUNE 1885
SAXTON'S RIVER
VT.





APPENDIX E

REGULATORY RECORDS DOCUMENTATION

FirstSearch Technology Corporation

Environmental FirstSearch[™] Report

Target Property:

**33 MAIN ST
SAXTONS RIVER VT 05154**

Job Number: 508110219

PREPARED FOR:

KAS, Inc.
368 Avenue D, Suite 15
Williston, VT 05495

11-01-11



Tel: (781) 551-0470

Fax: (781) 551-0471

Environmental FirstSearch Search Summary Report

Target Site: 33 MAIN ST
SAXTONS RIVER VT 05154

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	09-30-11	1.00	0	0	0	0	0	0	0
NPL Delisted	Y	09-30-11	0.50	0	0	0	0	-	0	0
CERCLIS	Y	09-30-11	0.50	0	0	0	0	-	0	0
NFRAP	Y	09-30-11	0.50	0	0	0	0	-	0	0
RCRA COR ACT	Y	09-13-11	1.00	0	0	0	0	0	0	0
RCRA TSD	Y	09-13-11	0.50	0	0	0	0	-	0	0
RCRA GEN	Y	09-13-11	0.25	0	0	1	-	-	1	2
Federal Brownfield	Y	10-01-11	0.50	0	1	0	0	-	0	1
ERNS	Y	10-18-11	0.12	0	0	-	-	-	1	1
Tribal Lands	Y	12-01-05	1.00	0	0	0	0	0	1	1
State/Tribal Sites	Y	07-08-11	1.00	0	2	2	0	0	0	4
State Spills 90	Y	07-08-11	0.12	0	1	-	-	-	0	1
State/Tribal SWL	Y	04-15-09	0.50	0	0	0	0	-	0	0
State/Tribal LUST	Y	07-08-11	0.50	0	1	1	1	-	1	4
State/Tribal UST/AST	Y	07-08-11	0.25	0	0	2	-	-	0	2
State/Tribal EC	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal IC	Y	NA	0.25	0	0	0	-	-	0	0
State/Tribal VCP	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal Brownfields	Y	05-01-11	0.50	0	0	0	0	-	0	0
Federal IC/EC	Y	08-01-11	0.50	0	0	0	0	-	0	0
-TOTALS-				0	5	6	1	0	4	16

Notice of Disclaimer

Due to the limitations, constraints, and inaccuracies and incompleteness of government information and computer mapping data currently available to FirstSearch Technology Corp., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in FirstSearch Technology Corp.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although FirstSearch Technology Corp. uses its best efforts to research the actual location of each site, FirstSearch Technology Corp. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of FirstSearch Technology Corp.'s services proceeding are signifying an understanding of FirstSearch Technology Corp.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

***Environmental FirstSearch
Site Information Report***

Request Date: 11-01-11
Requestor Name: ANGELA EMERSON
Standard: AAI

Search Type: COORD
Job Number: 508110219

Target Site: 33 MAIN ST
SAXTONS RIVER VT 05154

Demographics

Sites:	16	Non-Geocoded:	4	Population:	NA
Radon:	NA				

Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>		<u>UTMs</u>
Longitude:	-72.508387	-72:30:30	Easting:	702641.185
Latitude:	43.138512	43:8:19	Northing:	4778995.057
Elevation:	480		Zone:	18

Comment

Comment:

Additional Requests/Services

Adjacent ZIP Codes:					Services:		
<u>ZIP</u>	<u>City Name</u>	<u>ST</u>	<u>Dist/Dir</u>	<u>Sel</u>		<u>Requested?</u>	<u>Date</u>
					Fire Insurance Maps	Yes	11-01-11
					Aerial Photographs	No	
					Historical Topos	No	
					City Directories	No	
					Title Search	No	
					Municipal Reports	No	
					Liens	No	
					Historic Map Works	No	
					Online Topos	No	

Environmental FirstSearch
Target Site Summary Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

TOTAL: 16 **GEOCODED:** 12 **NON GEOCODED:** 4 **SELECTED:** 0

<u>Map ID</u>	<u>DB Type</u>	<u>Site Name/ID/Status</u>	<u>Address</u>	<u>Dist/Dir</u>	<u>ElevDiff</u>	<u>Page No.</u>

No sites found for target address

Environmental FirstSearch

Sites Summary Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

TOTAL: 16 **GEOCODED:** 12 **NON GEOCODED:** 4 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	ElevDiff	Page No.
1	STATE	SAXTONS RIVER 770135/ACTIVE	SAXTONS RIVER ROCKINGHAM VT	0.01 NE	+ 1	1
2	STATE	KING RESIDENCE 890415/ACTIVE	0 SAXTONS RIVER RD ROCKINGHAM VT	0.02 SW	- 3	2
3	LUST	SUNOCO GASOLINE STATION 82/PULLED UST DATABASE	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT	0.02 SE	- 3	3
4	SPILLS	MAIN STREET ARTS 09-WMD448/OPEN	37 MAIN ST SAXTON RIVER VT	0.03 NW	+ 6	5
5	FEDBROWN	FORMER SANDRI PROPERTY 105962/EPA BROWNFIELD	40 MAIN ST SAXTONS RIVER VT 05154	0.03 SW	0	6
6	STATE	SAXTONS RIVER EL SCHOOL 20073647/ACTIVE	11 SCHOOL ST ROCKINGHAM VT	0.13 NW	+ 17	9
6	UST	SAXTONS RIVER ELEMENTARY SCHOOL 606/	SCHOOL ST SAXTONS RIVER VT 05154	0.13 NW	+ 17	10
6	LUST	SAXTONS RIVER ELEMENTARY SCHOOL 606/PULLED UST DATABASE	SCHOOL ST ROCKINGHAM VT 05154	0.13 NW	+ 17	11
7	RCRAGN	VERMONT ACADEMY VTR000514232/VGN	20 PLEASANT ST ROCKINGHAM VT 05154	0.23 NE	+ 11	12
8	STATE	PENTA 20063480/ACTIVE	MILL ST ROCKINGHAM VT	0.25 SE	- 50	14
9	UST	VERMONT ACADEMY 8692121/ACTIVE	PLEASANT ST ROCKINGHAM VT 05154	0.25 NE	+ 30	15
10	LUST	NEW ENGLAND KURN HATTIN HOMES 207/PULLED UST DATABASE	WESTMINSTER ST ROCKINGHAM VT 05154	0.37 SW	+ 90	16

Environmental FirstSearch

Sites Summary Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

TOTAL: 16 **GEOCODED:** 12 **NON GEOCODED:** 4 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	ElevDiff	Page No.
	RCRAGN	VT CUSTOM WOOD PRODUCTS VT5000002097/VGN	PLEASANT VALLEY RD ROCKINGHAM VT 05154	NON GC	N/A	17
	ERNS	264449/FIXED FACILITY	WESTMINISTER WEST RD SAXTONS RIVER VT	NON GC	N/A	19
	LUST	CONTEL OF VERMONT, INC. 1865/PULLED UST DATABASE	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT	NON GC	N/A	20
	TRIBALLA	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-05154/	UNKNOWN VT 05154	NON GC	N/A	21

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

STATE

SEARCH ID: 3	DIST/DIR: 0.01 NE	ELEVATION: 481	MAP ID: 1

NAME: SAXTONS RIVER ADDRESS: SAXTONS RIVER ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 770135 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: THREATENED SENSITIVE RECEPTOR (30 >= VT SITE PRIORITY SCORE <= 60)
PROJECT STATUS: CLEAN UP COMPLETE. SITE IN NATURAL ATTENUATION. PCE STILL IN SEVERAL BEDROCK WATER SUPPLY WELLS.
NEED TO CONTINUE WITH WELL SAMPLING.
DATE OF SITE DISCOVERY: 1/1/1990 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900

OWNER INFORMATION:

OWNER:
OWNER ADDRESS:

***Environmental FirstSearch
Site Detail Report***

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

STATE

SEARCH ID: 1	DIST/DIR: 0.02 SW	ELEVATION: 477	MAP ID: 2

NAME: KING RESIDENCE ADDRESS: 0 SAXTONS RIVER RD ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 890415 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: NO SENSITIVE RECEPTOR IMPACT (VT SITE PRIORITY SCORE<30)
PROJECT STATUS: DRINKING WELLS CLEAN, MONITORING ONGOING
DATE OF SITE DISCOVERY: 1/1/1989 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 UST-GASOLINE, 6900

OWNER INFORMATION:

OWNER: MARIN
OWNER ADDRESS: P O BOX 192
ST ALBANS VT 05478

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

LUST

SEARCH ID: 10 **DIST/DIR:** 0.02 SE **ELEVATION:** 477 **MAP ID:** 3

NAME:	SUNOCO GASOLINE STATION	REV:	7/8/11
ADDRESS:	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT WINDHAM	ID1:	82
CONTACT:	A R SANDRI INC	ID2:	890415
SOURCE:	VT DEC	STATUS:	PULLED UST DATABASE
		PHONE:	800-628-1900

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: CONTAMINATION FOUND ABOVE STATE STANDARD. REFERRED TO SITE MANAGEMENT

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: SERVICE STATION

OWNER NAME: A R SANDRI INC CONTACT: SHARON ABBOTT
OWNER ADDRESS: PO BOX 1578
GREENFIELD, MA

LAND OWNER: ** UNKNOWN ***
PERMITTED TO: TANK OWNER
NUM OF PULLED TANKS: 1/4
NUM OF REMOVED TANKS: 5
NUM OF GROUNDWATER MONITORING WELLS:
NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 5

TANK ID: 87 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1979-5

TANK ID: 83 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 500
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1989
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-1

TANK ID: 86 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-4

TANK ID: 85 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

LUST

SEARCH ID:	10	DIST/DIR:	0.02 SE	ELEVATION:	477	MAP ID:	3

NAME:	SUNOCO GASOLINE STATION	REV:	7/8/11
ADDRESS:	MAIN STREET, SAXTONS RIVER	ID1:	82
	ROCKINGHAM VT	ID2:	890415
	WINDHAM	STATUS:	PULLED UST DATABASE
CONTACT:	A R SANDRI INC	PHONE:	800-628-1900
SOURCE:	VT DEC		

TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-3

TANK ID: 84 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 2000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-2

***Environmental FirstSearch
Site Detail Report***

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

SPILLS

SEARCH ID: 5 **DIST/DIR:** 0.03 NW **ELEVATION:** 486 **MAP ID:** 4

NAME: MAIN STREET ARTS
ADDRESS: 37 MAIN ST
SAXTON RIVER VT
WINDHAM
CONTACT: MARY HEPBURN
SOURCE: VT DEC

REV: 7/8/11
ID1: 09-WMD448
ID2:
STATUS: OPEN
PHONE: 802-463-0000

6900
DATE OF INCIDENT:
TIME OF INCIDENT:
DATE CLOSED:
UST FACILITY ID:
DUTY OFFICER:
REPORTED BY: CHRIS COTA
REPORTER S ORGANIZATION: COTA & COTA INC.
REPORTER S WORK PHONE: 802-463-0000

TYPE OF INCIDENT: AST LEAK
PRODUCT: # 2 HEATING FUEL
QUANTITY: 200
UNIT OF MEASURE: G

RESPONSIBLE PARTY: MAIN STREET ARTS
ADDRESS:

RESPONSIBLE PARTY S PHONE: 802-869-2960

6900
SURFACE WATER AFFECTED:

CASE ASSIGNED TO:
ACTIONS TAKEN: COTA & COTA INSTALLED A TEMPORARY TANK. CHRIS COTA AGREED TO TALK WITH MARY HEPBURN OF MAIN STREET ARTS TO EXPLAIN THE PROCESS. IT WAS AGREED THAT A CONSULTANT WOULD BEGIN TO INVESTIGATE WHERE THE OIL HAS GONE.

COMMENTS: COTA & COTA FILLED THE AST IN BASEMENT IN THE SPRING. THERE WAS A STRONG FUEL ODOR IN BASEMENT. WHEN TANK WAS CHECKED IT WAS EMPTY. BASEMENT HAS A DIRT FLOOR.

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

FEDBROWNFIELD

SEARCH ID: 11 **DIST/DIR:** 0.03 SW **ELEVATION:** 480 **MAP ID:** 5

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 10/1/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

SITE INFORMATION:

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

OWNERSHIP ENTITY: PRIVATE
CURRENT OWNER: A. R. SANDRI, INC
DID OWNERSHIP CHANGE: N
SUPERFUND LANDOWNER LIABILITY CHANGE:

PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

OWNERSHIP ENTITY: PRIVATE
CURRENT OWNER: A. R. SANDRI, INC
DID OWNERSHIP CHANGE: N
SUPERFUND LANDOWNER LIABILITY CHANGE:

PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

- Continued on next page -

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

FEDBROWNFIELD

SEARCH ID: 11 **DIST/DIR:** 0.03 SW **ELEVATION:** 480 **MAP ID:** 5

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 10/1/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

DID OWNERSHIP CHANGE: N
SUPERFUND LANDOWNER LIABILITY CHANGE:
PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: START DATE:
COMPLETION DATE: SOURCE OF FUNDING:
ENTIRY PROVIDING FUNDS: AMOUNT OF FUNDING:

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: PHASE I ENVIRONMENTAL ASSESSMENT START DATE: 04-SEP-09
COMPLETION DATE: 10-OCT-09 SOURCE OF FUNDING: US EPA - BROWNFIELDS ASSESSMENT COOPERATIVE AGREEMENT
ENTIRY PROVIDING FUNDS: EPA AMOUNT OF FUNDING: 1350

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: PHASE II ENVIRONMENTAL ASSESSMENT START DATE: 28-SEP-10
COMPLETION DATE: 22-FEB-11 SOURCE OF FUNDING: US EPA - BROWNFIELDS ASSESSMENT COOPERATIVE AGREEMENT
ENTIRY PROVIDING FUNDS: EPA AMOUNT OF FUNDING: 8675

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

FEDBROWNFIELD

SEARCH ID: 11 **DIST/DIR:** 0.03 SW **ELEVATION:** 480 **MAP ID:** 5

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 10/1/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

PETROLEUM: CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

MEDIA CLEANED:
SOIL: AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:

CONTAMINATION CLEANED UP
PETROLEUM: CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

MEDIA CLEANED:
SOIL: AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:

CONTAMINATION CLEANED UP
PETROLEUM: CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

- More Details Exist For This Site; Max Page Limit Reached -

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

STATE

SEARCH ID: 4	DIST/DIR: 0.13 NW	ELEVATION: 497	MAP ID: 6

NAME: SAXTONS RIVER EL SCHOOL ADDRESS: 11 SCHOOL ST ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 20073647 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: DIRECTLY IMPACTED SENSITIVE RECEPTOR (VT SITE PRIORITY SCORE>60)
PROJECT STATUS: FUEL OIL LEAK IMPACTED SCHOOL WITH VAPORS AND STREAM NEAR SCHOOL. SCHOOL PUBLIC WELL AT RISK.
AGGRESSIVE SOIL REMOVAL TO MITIGATE MOST GROSSLY CONTAMINATED SOILS. EVALUATIONS ONGOING.
DATE OF SITE DISCOVERY: 4/26/2007 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 ABOVE GROUND STORAGE TANK, 6900

OWNER INFORMATION:

OWNER:
OWNER ADDRESS:

***Environmental FirstSearch
Site Detail Report***

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

UST

SEARCH ID: 6	DIST/DIR: 0.13 NW	ELEVATION: 497	MAP ID: 6

NAME: SAXTONS RIVER ELEMENTARY SCHOOL ADDRESS: SCHOOL ST SAXTONS RIVER VT 05154 WINDHAM CONTACT: SOURCE: VTDEC	REV: 4/10/02 ID1: 606 ID2: STATUS: PHONE:

TOTAL NUMBER OF TANKS: 1

FACILITY AND OWNER INFORMATION
TYPE OF FACILITY: TOWN

OWNER NAME: ROCKINGHAM SCHOOL DISTRICT CONTACT:
OWNER ADDRESS: 8 1/2 ATKINSON STREET
BELLOWS FALLS, VT 05101

TANK ID: 1954-1-R
SUBSTANCE STORED: FUEL OIL TANK CAPACITY IN GAL.: 3000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 2001
TANK MONITORING: /
SPILL/OVERFILL PROT.: NONE PUMP TYPE:
PIPE PROTECTION: UNPROTECTED STEEL PIPE MONITORING:

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

LUST

SEARCH ID: 9 **DIST/DIR:** 0.13 NW **ELEVATION:** 497 **MAP ID:** 6

NAME:	SAXTONS RIVER ELEMENTARY SCHOOL	REV:	7/8/11
ADDRESS:	SCHOOL ST	ID1:	606
	ROCKINGHAM VT 05154	ID2:	
	WINDHAM	STATUS:	PULLED UST DATABASE
CONTACT:	ROCKINGHAM SCHOOL DISTRICT	PHONE:	802-463-9958
SOURCE:	VT DEC		

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: NO CONTAMINATION FOUND

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: TOWN

OWNER NAME: ROCKINGHAM SCHOOL DISTRICT CONTACT: MAINTENANCE DIRECTOR
OWNER ADDRESS: 8A ATKINSON STREET
BELLOWS FALLS, VT

LAND OWNER: ROCKINGHAM SCHOOL DISTRICT

PERMITTED TO:

NUM OF PULLED TANKS: 1

NUM OF REMOVED TANKS: 1

NUM OF GROUNDWATER MONITORING WELLS:

NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 1

TANK ID: 524 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 3000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 2001
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1954-1-R

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

RCRAGN

SEARCH ID: 16 **DIST/DIR:** 0.23 NE **ELEVATION:** 491 **MAP ID:** 7

NAME: VERMONT ACADEMY ADDRESS: 20 PLEASANT ST ROCKINGHAM VT 05154 WINDHAM CONTACT: SOURCE: EPA	REV: 9/13/11 ID1: VTR000514232 ID2: STATUS: VGN PHONE:

SITE INFORMATION

CONTACT INFORMATION: RICK KUHN
LONG WALK PO BOX 500
SAXTONS RIVER VT 05154

PHONE: 8028696225

OWNER NAME: VERMONT ACADEMY
OWNER TYPE: P-PRIVATE
OPERATOR: JAMES MOONEY-HEADMASTER
OPERATOR TYPE: P-PRIVATE
MAILING ADDRESS: 10 LONG WALK PO BOX 500
SAXTONS R
UNIVERSE INFORMATION:

RECEIVED DATE: 10/08/2010

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA: N - NO
SUBJCA TSD 3004: N - NO
SUBJCA NON TSD: N - NO
SIGNIFICANT NON-COMPLIANCE(SNC): N - NO
BEGINNING OF THE YEAR SNC:
PERMIT WORKLOAD: -----
CLOSURE WORKLOAD: -----
POST CLOSURE WORKLOAD: -----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS: -----
CORRECTIVE ACTION WORKLOAD: N - NO
GENERATOR STATUS: CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF
HAZARDOUS WASTE

INSTITUTIONAL CONTROL: N-NO ENGINEERING CONTROL: N-NO
HUMAN EXPOSURE: N-NO GW CONTROLS: N-NO
LAND TYPE: P-PRIVATE SHORT TERM GEN: N-NO
TRANS FACILITY: N-NO REC WASTE FROM OFF SITE: N-NO

IMPORTER ACTIVITY: N - NO MIXED WASTE GEN: N - NO
TRANS ACTIVITY: N - NO TSD ACTIVITY: N - NO
RECYCLER ACTIVITY: N - NO ONSITE BURNER EXEMPT: N - NO
FURNACE EXEMPTION: N - NO UNDER INJECT ACTIVITY: N - NO
REC WASTE FROM OFF SITE: N - NO UNIV WASTE DEST FAC: N - NO
USED OIL TRANS: N - NO USED OIL PROCESSOR: N - NO
USED OIL REFINER: N - NO USED OIL FUEL BURNER: N - NO
UO FUEL MARKETER TO BURNER: Y - YES USED OIL SPEC MARKETER: N - NO

NAIC INFORMATION

61111 - ELEMENTARY AND SECONDARY SCHOOLS

ENFORCEMENT INFORMATION:

- Continued on next page -

***Environmental FirstSearch
Site Detail Report***

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

RCRAGN

SEARCH ID: 16	DIST/DIR: 0.23 NE	ELEVATION: 491	MAP ID: 7

NAME: VERMONT ACADEMY ADDRESS: 20 PLEASANT ST ROCKINGHAM VT 05154 WINDHAM CONTACT: SOURCE: EPA	REV: 9/13/11 ID1: VTR000514232 ID2: STATUS: VGN PHONE:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D002 - Corrosive waste

***Environmental FirstSearch
Site Detail Report***

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

STATE

SEARCH ID: 2	DIST/DIR: 0.25 SE	ELEVATION: 430	MAP ID: 8

NAME: PENTA ADDRESS: MILL ST ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 20063480 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: THREATENED SENSITIVE RECEPTOR (30 >= VT SITE PRIORITY SCORE <= 60)
PROJECT STATUS:
DATE OF SITE DISCOVERY: 1/31/2006 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 UNKNOWN, 6900

OWNER INFORMATION:

OWNER: BELLOWS FALLS HISTORICAL SOCIETY
OWNER ADDRESS: PO BOX 466
BELLOWS FALLS VT 05101

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

UST

SEARCH ID: 7	DIST/DIR: 0.25 NE	ELEVATION: 510	MAP ID: 9

NAME: VERMONT ACADEMY ADDRESS: PLEASANT ST ROCKINGHAM VT 05154 WINDHAM CONTACT: VERMONT ACADEMY SOURCE: VT DEC	REV: 7/8/11 ID1: 8692121 ID2: STATUS: ACTIVE PHONE:

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: INSTITUTIONAL

OWNER NAME: VERMONT ACADEMY CONTACT:
OWNER ADDRESS: BOX 500
SAXTONS RIVER, VT

TANK INFORMATION

TOTAL NUMBER OF TANKS: 2

TANK ID: 15098 TANK STATUS: ACTIVE
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 20000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED:
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING: TT199306
TANK LABEL: 1966-2

TANK ID: 15099 TANK STATUS: ACTIVE
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 10000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED:
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING: TT199306
TANK LABEL: 1980-1

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

LUST

SEARCH ID: 8 **DIST/DIR:** 0.37 SW **ELEVATION:** 570 **MAP ID:** 10

NAME:	NEW ENGLAND KURN HATTIN HOMES	REV:	7/8/11
ADDRESS:	WESTMINSTER ST	ID1:	207
	ROCKINGHAM VT 05154	ID2:	
	WINDHAM	STATUS:	PULLED UST DATABASE
CONTACT:	NEW ENGLAND KURN HATTIN HOMES	PHONE:	
SOURCE:	VT DEC		

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: CONTAMINATION FOUND BELOW STATE STANDARD, <20 PPM GAS OR 10 PPM DIESEL/HEATING OIL #2

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: INSTITUTIONAL

OWNER NAME: NEW ENGLAND KURN HATTIN HOMES **CONTACT:** DAVID MAYSILLES EXECUTIVE DIRECTOR
OWNER ADDRESS: PO BOX 127
WESTMINSTER, VT

LAND OWNER: ** UNKNOWN ***

PERMITTED TO:

NUM OF PULLED TANKS: 3
NUM OF REMOVED TANKS: 3
NUM OF GROUNDWATER MONITORING WELLS:
NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 3

TANK ID: 216 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-3

TANK ID: 214 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-1

TANK ID: 215 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-2

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

RCRAGN

SEARCH ID: 12	DIST/DIR: NON GC	ELEVATION:	MAP ID:

NAME: VT CUSTOM WOOD PRODUCTS
ADDRESS: PLEASANT VALLEY RD
ROCKINGHAM VT 05154

REV: 9/13/11
ID1: VT5000002097
ID2:
STATUS: VGN
PHONE:

CONTACT:
SOURCE: EPA

SITE INFORMATION

CONTACT INFORMATION: ROONE GIBBS
PO BOX 721
SAXTONS RIVER VT 05154

PHONE: 8028692994

OWNER NAME: ROONE L GIBBS
OWNER TYPE: P-PRIVATE
OPERATOR:
OPERATOR TYPE:
MAILING ADDRESS: PO BOX 721
SAXTONS RIVER, VT 05154

UNIVERSE INFORMATION:

RECEIVED DATE: 01/24/1995

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA: N - NO
SUBJCA TSD 3004: N - NO
SUBJCA NON TSD: N - NO
SIGNIFICANT NON-COMPLIANCE(SNC): N - NO
BEGINNING OF THE YEAR SNC:
PERMIT WORKLOAD: -----
CLOSURE WORKLOAD: -----
POST CLOSURE WORKLOAD: -----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS: -----
CORRECTIVE ACTION WORKLOAD: N - NO
GENERATOR STATUS: CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF
HAZARDOUS WASTE

INSTITUTIONAL CONTROL: N-NO ENGINEERING CONTROL: N-NO
HUMAN EXPOSURE: N-NO GW CONTROLS: N- NO
LAND TYPE: P-PRIVATE SHORT TERM GEN: N-NO
TRANS FACILITY: N-NO REC WASTE FROM OFF SITE: N-NO

IMPORTER ACTIVITY: N - NO MIXED WASTE GEN: N - NO
TRANS ACTIVITY: N - NO TSD ACTIVITY: N - NO
RECYCLER ACTIVITY: N - NO ONSITE BURNER EXEMPT: N - NO
FURNACE EXEMPTION: N - NO UNDER INJECT ACTIVITY: N - NO
REC WASTE FROM OFF SITE: UNIV WASTE DEST FAC: N - NO
USED OIL TRANS: N - NO USED OIL PROCESSOR: N - NO
USED OIL REFINER: N - NO USED OIL FUEL BURNER: N - NO
UO FUEL MARKETER TO BURNER: N - NO USED OIL SPEC MARKETER: N - NO

NAIC INFORMATION

ENFORCEMENT INFORMATION:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

RCRAGN

SEARCH ID: 12	DIST/DIR: NON GC	ELEVATION:	MAP ID:

NAME: VT CUSTOM WOOD PRODUCTS
ADDRESS: PLEASANT VALLEY RD
ROCKINGHAM VT 05154

REV: 9/13/11
ID1: VT5000002097
ID2:
STATUS: VGN
PHONE:

CONTACT:
SOURCE: EPA

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D001 - Ignitable waste
D035 - Methyl ethyl ketone
D039 - Tetrachloroethylene
F003 - The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/ blends containing, before use, only the above spent non- halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

ERNS

SEARCH ID: 13	DIST/DIR: NON GC	ELEVATION:	MAP ID:

NAME: ADDRESS: WESTMINISTER WEST RD SAXTONS RIVER VT WINDHAM CONTACT: SOURCE: EPA	REV: 4/19/1992 ID1: 264449 ID2: STATUS: FIXED FACILITY PHONE:

SPILL INFORMATION

DATE OF SPILL: 4/19/1992 TIME OF SPILL: 1230

PRODUCT RELEASED (1): WASTE OIL/LUBRICANTS - POSS. CO

QUANTITY (1): 1

UNITS (1): GAL

PRODUCT RELEASED (2):

QUANTITY (2):

UNITS (2):

PRODUCT RELEASED (3):

QUANTITY (3):

UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO GROUNDWATER: NO

LAND: NO FIXED FACILITY: NO

WATER: YES OTHER: NO

WATERBODY AFFECTED BY RELEASE: STORM DRAIN

CAUSE OF RELEASE

DUMPING: NO EQUIPMENT FAILURE: NO

NATURAL PHENOMENON: NO OPERATOR ERROR: NO

OTHER CAUSE: NO TRANSP. ACCIDENT: NO

UNKNOWN: NO

ACTIONS TAKEN: NONE

RELEASE DETECTION: CALLER STATED THAT SHE OBSERVED A PERSON DUMPING USED MOTOR OIL INTO SEWER SYSTEM

MISC. NOTES:

DISCHARGER INFORMATION

DISCHARGER ID: 264449 DUN & BRADSTREET #:

TYPE OF DISCHARGER: PRIVATE CITIZEN

NAME OF DISCHARGER:

ADDRESS: WESTMINISTER WEST ROAD

SAXTONS RIVER VT

Environmental FirstSearch

Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

LUST

SEARCH ID: 14 **DIST/DIR:** NON GC **ELEVATION:** **MAP ID:**

NAME:	CONTEL OF VERMONT, INC.	REV:	7/8/11
ADDRESS:	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT	ID1:	1865
		ID2:	
CONTACT:	CONTEL OF VERMONT INC	STATUS:	PULLED UST DATABASE
SOURCE:	VT DEC	PHONE:	

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: NO CONTAMINATION FOUND

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: INDUSTRIAL/COMMERCIAL

OWNER NAME: CONTEL OF VERMONT INC CONTACT:
OWNER ADDRESS: 354 RIVER STREET
SPRINGFIELD, VT

LAND OWNER: ** UNKNOWN ***
PERMITTED TO: TANK OWNER
NUM OF PULLED TANKS: 1
NUM OF REMOVED TANKS: 1
NUM OF GROUNDWATER MONITORING WELLS:
NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 1

TANK ID: 1729 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 500
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1991
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1980-1

Environmental FirstSearch
Site Detail Report

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

TRIBALLAND

SEARCH ID: 15	DIST/DIR: NON GC	ELEVATION:	MAP ID:

NAME: BUREAU OF INDIAN AFFAIRS CONTACT INFORMATION ADDRESS: UNKNOWN VT 05154 WINDHAM CONTACT: SOURCE: BIA	REV: 01/15/08 ID1: BIA-05154 ID2: STATUS: PHONE:

BUREAU OF INDIAN AFFAIRS CONTACT INFORMATION

OFFICE: Eastern Regional Office
CONTACT: FRANKLIN KEEL, REGIONAL DIRECTOR

OFFICE ADDRESS: 545 MARRIOTT DR, SUITE 700
Nashville TN 37214
OFFICE PHONE: Phone: 615-564-6700
OFFICE FAX: Fax: 615-564-6701

The Native American Consultation Database (NACD) is a tool for identifying consultation contacts for Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations. The database is not a comprehensive source of information, but it does provide a starting point for the consultation process by identifying tribal leaders and NAGPRA contacts. This database can be accessed online at the following web address <http://home.nps.gov/nacd/>

Environmental FirstSearch Descriptions

NPL: EPA NATIONAL PRIORITY LIST - The National Priorities List is a list of the worst hazardous waste sites that have been identified by Superfund. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money. A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.**FINAL** - Currently on the Final NPL**PROPOSED** - Proposed for NPL

NPL DELISTED: EPA NATIONAL PRIORITY LIST Subset - Database of delisted NPL sites. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.**DELISTED** - Deleted from the Final NPL

CERCLIS: EPA COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM (CERCLIS)- CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.**PART OF NPL**- Site is part of NPL site**DELETED** - Deleted from the Final NPL**FINAL** - Currently on the Final NPL**NOT PROPOSED** - Not on the NPL**NOT VALID** - Not Valid Site or Incident**PROPOSED** - Proposed for NPL**REMOVED** - Removed from Proposed NPL**SCAN PLAN** - Pre-proposal Site**WITHDRAWN** - Withdrawn

NFRAP: EPA COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM **ARCHIVED SITES** - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.**NFRAP** – No Further Remedial Action Plan**P** - Site is part of NPL site**D** - Deleted from the Final NPL**F** - Currently on the Final NPL**N** - Not on the NPL**O** - Not Valid Site or Incident**P** - Proposed for NPL**R** - Removed from Proposed NPL**S** - Pre-proposal Site**W** – Withdrawn

RCRA COR ACT: EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM **SITES** - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.**RCRAInfo** facilities that have reported violations and subject to corrective actions.

RCRA TSD: EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM **TREATMENT, STORAGE, and DISPOSAL FACILITIES**. - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are

required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that treat, store, dispose, or incinerate hazardous waste.

RCRA GEN: EPA/MA DEP/CT DEP RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM GENERATORS - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that generate or transport hazardous waste or meet other RCRA requirements. LGN - Large Quantity Generators SGN - Small Quantity Generators VGN - Conditionally Exempt Generator. Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities. CONNECTICUT HAZARDOUS WASTE MANIFEST - Database of all shipments of hazardous waste within, into or from Connecticut. The data includes date of shipment, transporter and TSD info, and material shipped and quantity. This data is appended to the details of existing generator records. MASSACHUSETTES HAZARDOUS WASTE GENERATOR - database of generators that are regulated under the MA DEP. VQN-MA = generates less than 220 pounds or 27 gallons per month of hazardous waste or waste oil. SQN-MA = generates 220 to 2,200 pounds or 27 to 270 gallons per month of waste oil. LQG-MA = generates greater than 2,200 lbs of hazardous waste or waste oil per month.

Fed Brownfield: EPA BROWNFIELD MANAGEMENT SYSTEM (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs. CLEANUPS IN MY COMMUNITY (subset) - Sites, facilities and properties that have been contaminated by hazardous materials and are being, or have been, cleaned up under EPA's brownfield's program.

ERNS: EPA/NRC EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) - Database of incidents reported to the National Response Center. These incidents include chemical spills, accidents involving chemicals (such as fires or explosions), oil spills, transportation accidents that involve oil or chemicals, releases of radioactive materials, sightings of oil sheens on bodies of water, terrorist incidents involving chemicals, incidents where illegally dumped chemicals have been found, and drills intended to prepare responders to handle these kinds of incidents. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: DOI/BIA INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation. BUREAU OF INDIAN AFFAIRS CONTACT - Regional contact information for the Bureau of Indian Affairs offices.

State/Tribal Sites: VT DEC ACTIVE AND CLOSED HAZARDOUS SITES LIST - database of active and closed hazardous waste sites. The data includes priority, project status, source, date of site discovery, date of site closure, and

owner information.

State Spills 90: VT DEC VERMONT SPILLS DATABASE - database of spills reported to the Vermont Department of Environmental Conservation. The data includes information regarding incident date, type of incident, reporter, responsible party, and action taken.

State/Tribal SWL: VT DEC SOLID WASTE MANAGEMENT FACILITIES LIST - database of both landfills and transfer stations for the state of Vermont. The list includes contact information for each site.

State/Tribal LUST: VT DEC PULLED UNDERGROUND STORAGE TANKS LIST - database of tanks that have been pulled/removed due to a leak. Under state law any tank that has reported a leak must be pulled/removed. The data includes owner and operator name, facility type, and tank information.

State/Tribal UST/AST: VT DEC REGISTERED UNDERGROUND STORAGE TANKS LIST - database of underground storage tanks registered with the Vermont Department of Environmental Conservation. The data includes facility type, owner contact information, and tank substance, protection, and capacity.

State/Tribal Brownfields: VT ANR BROWNFIELD SITE LIST SUBSET- database of sites that have been classified as Brownfields and have Institutional Controls. Information regarding size, response action, cleanup type, and project manager is included. Management System (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various brownfield grant programs.

State/Tribal Brownfields: VT ANR BROWNFIELD SITE LIST - database of sites that have been classified as Brownfields and/or have Institutional Controls. Information regarding size, response action, cleanup type, and project manager is included. Management System (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various brownfield grant programs.

Federal IC / EC: EPA FEDERAL ENGINEERING AND INSTITUTIONAL CONTROLS- Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated. RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES (RCRA) – RCRA site the have institutional controls.

Environmental FirstSearch Database Sources

NPL: EPA Environmental Protection Agency

Updated quarterly

NPL DELISTED: EPA Environmental Protection Agency

Updated quarterly

CERCLIS: EPA Environmental Protection Agency

Updated quarterly

NFRAP: EPA Environmental Protection Agency.

Updated quarterly

RCRA COR ACT: EPA Environmental Protection Agency.

Updated quarterly

RCRA TSD: EPA Environmental Protection Agency.

Updated quarterly

RCRA GEN: EPA/MA DEP/CT DEP Environmental Protection Agency, Massachusetts Department of Environmental Protection, Connecticut Department of Environmental Protection

Updated quarterly

Fed Brownfield: EPA Environmental Protection Agency

Updated quarterly

ERNS: EPA/NRC Environmental Protection AgencyNational Response Center.

Updated annually

Tribal Lands: DOI/BIA United States Department of the InteriorBureau of Indian Affairs

Updated annually

State/Tribal Sites: VT DEC Vermont Department of Environmental Conservation

Updated quarterly

State Spills 90: VT DEC Vermont Department of Environmental Conservation

Updated quarterly

State/Tribal SWL: VT DEC Vermont Department of Environmental Conservation, Solid Waste Management Division

Updated annually

State/Tribal LUST: VT DEC Vermont Department of Environmental Conservation, Hazardous Materials Management Division

Updated quarterly

State/Tribal UST/AST: VT DEC Vermont Department of Environmental Conservation, Hazardous Materials Management Division

Updated quarterly

State/Tribal Brownfields: VT ANR Vermont Agency of Natural Resources, Waste Management Division of Brownfields Program

Updated quarterly

State/Tribal Brownfields: VT ANR Vermont Agency of Natural Resources, Waste Management Division of Brownfields Program

Updated quarterly

Federal IC / EC: EPA Environmental Protection Agency

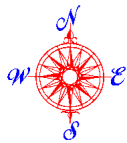
Updated quarterly

Environmental FirstSearch
Street Name Report for Streets within .25 Mile(s) of Target Property

Target Property: 33 MAIN ST
SAXTONS RIVER VT 05154

JOB: 508110219

Street Name	Dist/Dir	Street Name	Dist/Dir
Academy Ave	0.06 NE		
Burk Hill St	0.15 NW		
Cobb Ln	0.25 SW		
Frost Pl	0.16 SW		
Grove St	0.08 NW		
Hatfield Rd	0.22 NE		
Leavitt Ln	0.19 NE		
Library Way	0.23 NW		
Long Walk	0.23 NW		
MAIN ST	0.00--		
Maple St	0.13 NE		
Mill St	0.22 NE		
Plant Rd	0.11 SE		
Pleasant St	0.12 NE		
Rice Rd	0.15 NE		
River St	0.02 NE		
Saxtons River Rd	0.00--		
School St	0.00--		
School St Pl	0.05 NW		
State Hwy 121	0.00--		
Sturtevant Ln	0.18 NW		
Styrtvant St	0.17 NW		
West St	0.11 NW		
Westminster St	0.04 SW		



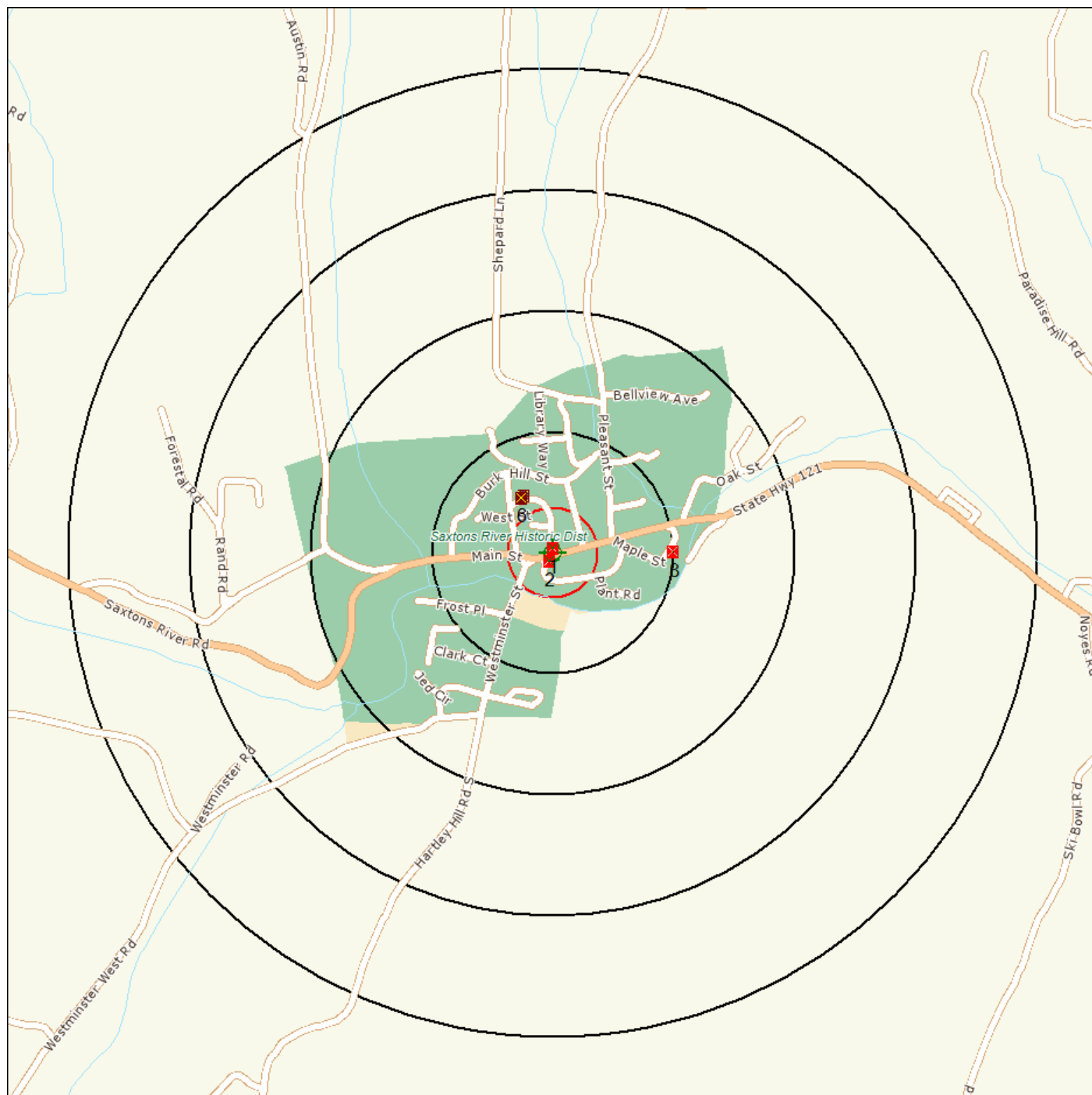
Environmental FirstSearch

1 Mile Radius

ASTM Map: NPL, RCRACOR, STATE Sites



33 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138512 Longitude: -72.508387)

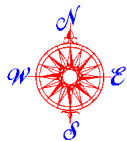
Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius





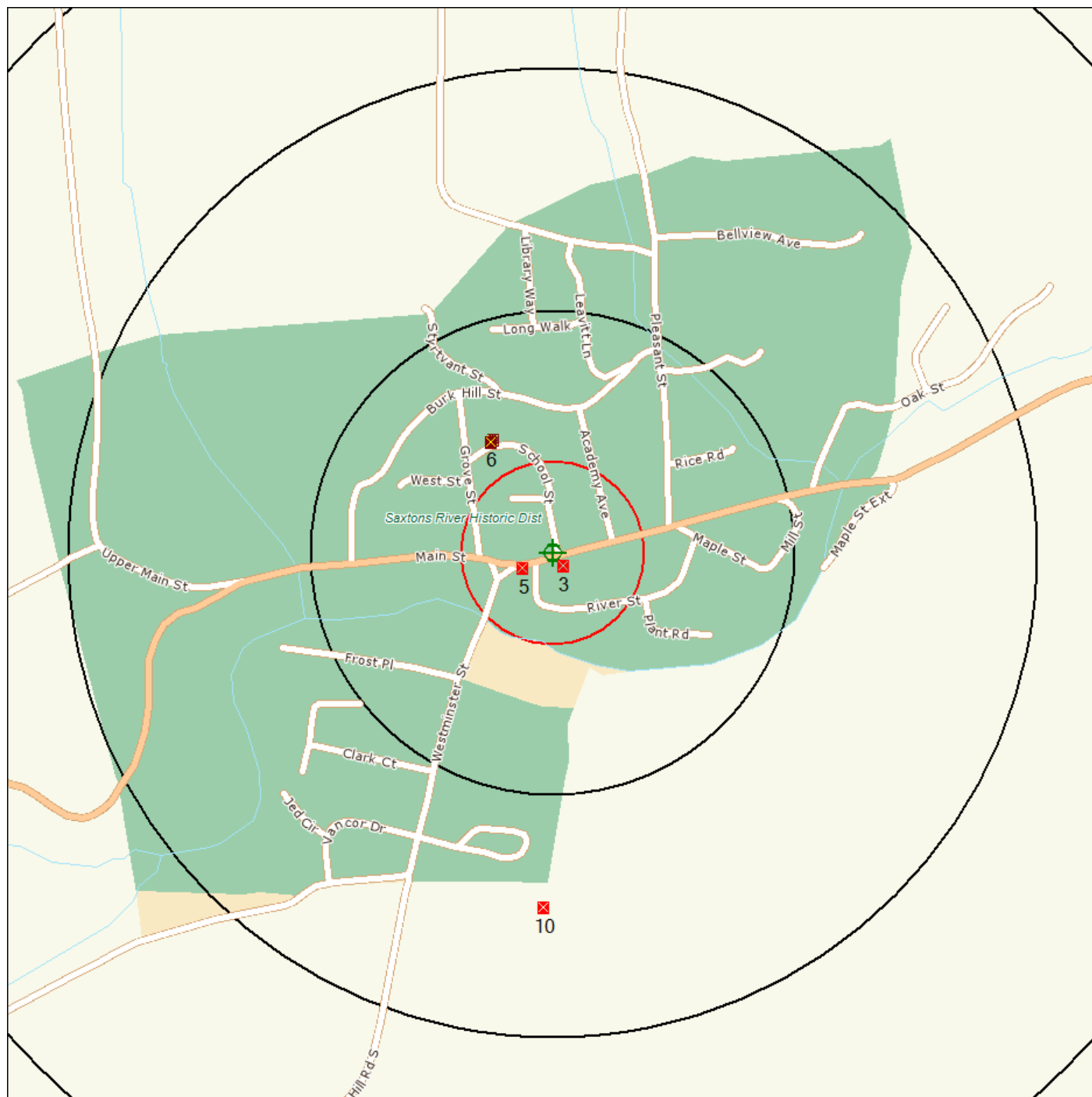
Environmental FirstSearch

.5 Mile Radius

ASTM Map: CERCLIS, RCRATSD, LUST, SWL



33 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138512 Longitude: -72.508387)

Identified Site, Multiple Sites, Receptor

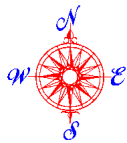
NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius



Target Site (Latitude: 43.138512 Longitude: -72.508387)	
Identified Site, Multiple Sites, Receptor	  
NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste	
Triballand.....	
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius	



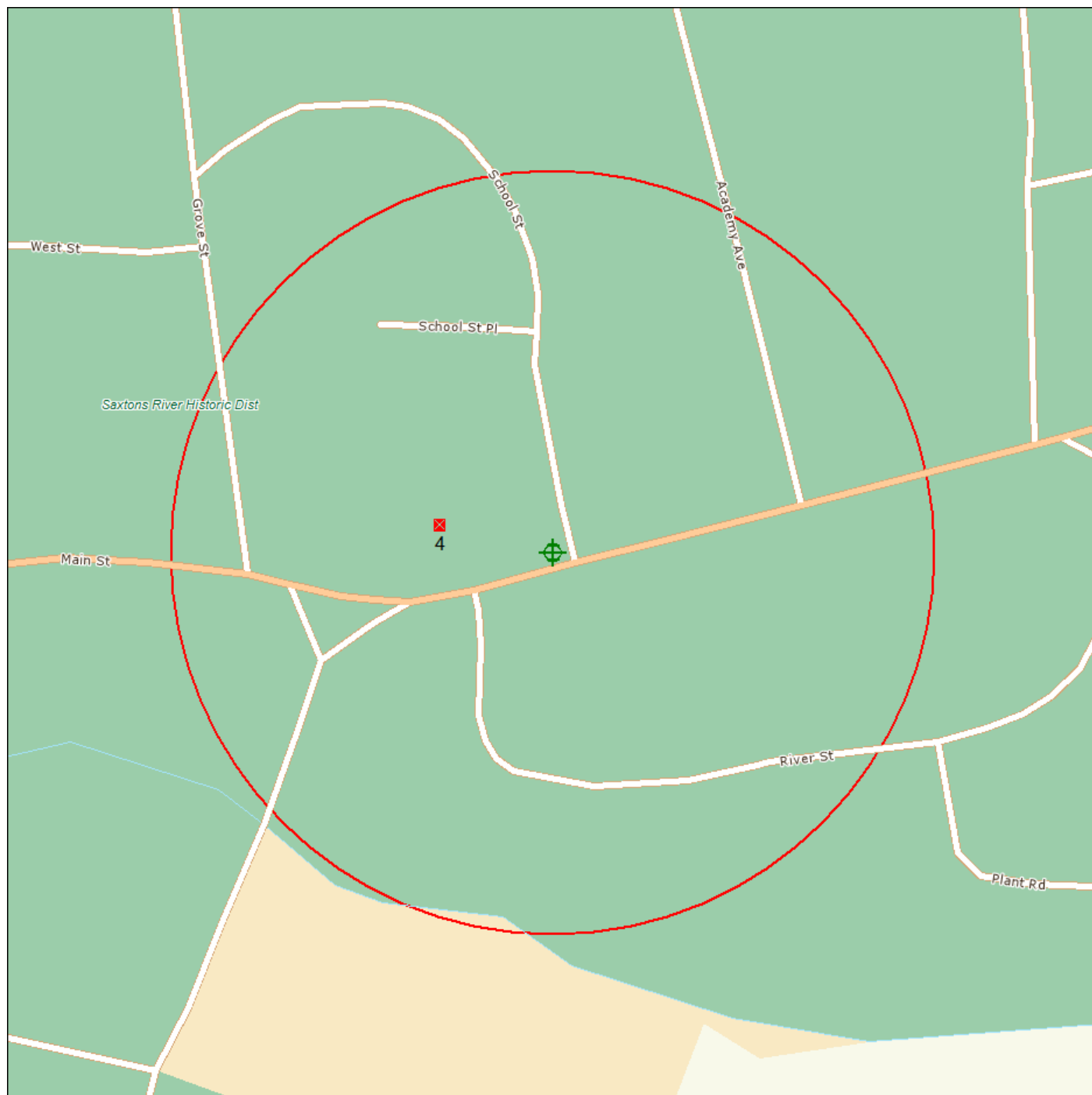
Environmental FirstSearch

.12 Mile Radius

Non-ASTM Map: Spills 90



33 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138512 Longitude: -72.508387)

Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

National Historic Sites and Landmark Sites

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius





APPENDIX F

INTERVIEW DOCUMENTATION

Owner Questionnaire Completed
By Silvestre Gallegos

RECEIVED NOV 04 2011

KAS, Inc. Page 1 of 4 Phase I Environmental Site Assessment Rev. July 2008

QUESTIONNAIRE FOR INTERVIEW Name of person being interviewed: Title and address: In person or telephone: Telephone Number: Association with Property: Date of Interview: Name of person conducting interview: **"To the Best of your Knowledge"**

1. Please provide a description of the property, its current use and past uses. *CURRENT EMPTY
PASS - SMALL COMMERCIAL SPACE WITH TWO APARTMENTS UPSTAIRS*
2. Has the property or an adjacent property ever been used for agriculture, mineral, commercial or industrial purposes? If yes, explain. *N/A*
3. Are any past or present improvements such as old building foundations, evident on the property: if yes, explain: *SUPPORT FOR THE FOUNDATION, REPLACE SOME SECTIONS,*
4. Have there been or are there any unnatural topographic features such as mounds, fill areas, depressions, etc.? If yes, explain. *N/A*
5. Has fill dirt ever been brought onto the property that originated from a contaminated site or that was of an unknown origin? If yes, explain. *N/A*
6. Have any of the following been dumped above grade, or buried and/or burned on the property: hazardous substances or petroleum products (except when burned for heating), tires, automotive or industrial batteries, vehicles, barrels, pesticide containers or other waste materials? If yes, explain. *N/A*
7. Has there been any past, present or permitted or planned mining activity or oil and gas exploration or development on the property? If yes, explain. *N/A*
8. Are there or have there ever been pipelines or utility lines, either buried or overhead, crossing the property and have there been spills or releases associated with them? If yes, explain. *N/A*
9. Are PCBs present or have PCBs ever been present in transformers, capacitors, or hydraulic equipment on the property and have there been any releases? If yes, explain. *N/A*
10. Is there or has there been any storage, mixing or disposal of pesticides on the property? Note: disposal means other than normal intended use of the product. If yes, explain. *N/A*
11. Have any monitoring wells been installed in the property? If yes, explain any the purpose of the wells and provide any analytical results. *N/A*

12. If the property is served by a private well have contaminants ever been identified in the well that exceeded acceptable levels? If yes, explain. *SOME STOMACHE TANKS CONNECTED TO THE WELL HAD SHOWN CONTAMINATION, NOT THE WELL*
13. If surface water is present, are there or have there been any unnatural characteristics such as color, sheens, odors, etc.? If yes, explain. *N/A*
14. Are there or have there been pits, ponds or lagoons associated with waste treatment or waste disposal on the property? If yes, explain. *N/A*
15. Has the property discharged waste water (not including stormwater runoff) on or adjacent to the property? If yes, explain. *N/A*
16. Is there or has there been stressed or dead vegetation present? If yes, explain. *N/A*
17. Are floor drains present? If yes, explain and indicate whether the drains are connected to municipal sewer or whether they discharge on site. *THE NORMAL DRAIN. AS EVERYBODY ELSE*
18. Are there or have there been any floors, drains or walls stained by substances other than water or which are emitting foul and/or unnatural odors? If yes, explain. *N/A*
19. Have radon, asbestos containing materials or lead based paint ever been identified in any on site structures? If yes, explain. *NOT/A*
20. Are there or were there ever above ground or underground storage tanks on the property? If yes, explain. *ABOVE IN 37 MAIN STREET*
21. Have hazardous substances been stored on the property? If yes, explain. *N/A*
22. Have there been any industrial drums, sacks or chemicals located or dumped on the property? If yes, explain. *N/A*
23. Have there been any environmental permits or licenses associated with the property? If yes, explain. *N/A*

24. Have there been any compliance / enforcement notices or environmental liens relating to past or recurrent violations of environmental laws with respect to the property or any facility on the property? If yes, explain. *THE FINE MARSHALL IN SPRINGFIELD VT*
25. Has an environmental site assessment of the property indicated the presence of hazardous substances, petroleum products or other potential environmental problems on the property, or recommended further assessments? If yes, explain. *N/A*
26. Are you aware of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substances or petroleum products on the property? If yes, explain. *NOT SURE FROM HOW OLD THE PROPERTY IS AT LEAST NOT THE LAST THREE OWNERS*
27. Have there been spills of hazardous substances or petroleum products on the property? If yes, explain and indicate whether these spills were reported to regulatory authorities. *N/A*
28. Are material safety data sheets available for the facility? If yes, attempt to view. *N/A*
29. If a purchase, does the purchase price reasonably reflect fair market value? If not, has the price been discounted due to real or perceived contamination? *N/A*
30. If not mentioned above, is there anything else that could indicate the presence of hazardous substance and petroleum products which may impact the property? If yes, explain. *N/A*

Interview Questionnaire – Phase I ESA User
Phase I Environmental Site Assessment
Page 1 of 3

Date: November 2, 2011

Site Name: 33 Main St.

Location: 33 Main St.

Saxtons River, VT

Person Interviewed: Margo Ghia

Title/ Affiliation: Managing Director

Relationship to Subject Property: Prospective Purchaser

Address: 35 Main St.

Saxtons River, VT

Telephone: (802) 869-2960

Signed: Angela Emerson

(1.) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

No - safety no occupancy order

Interview Questionnaire – Phase I ESA User

Phase I Environmental Site Assessment

Page 2 of 3

(2.) Are you aware of any Activity and Use Limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

No occupancy order

(3.) Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

- Adjacent landowner
- Empty Since April - business gone for ~ 2 years
- Bakery, Pizza Parlors, Jewelry Store, Dry Cleaner (landmark (1980's))

(4.) Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

- Structural + Lien issues discount price

(5.) (a.) Do you know the past uses of the property?

see #3

Interview Questionnaire – Phase I ESA User

Phase I Environmental Site Assessment

Page 3 of 3

(5.) (b.) Do you know of specific chemicals that are present or once were present at the property?

- Drum of perc in basement

(5.) (c.) Do you know of spills or other chemical releases that have taken place at the property?

No

(5.) (d.) Do you know of any environmental cleanups that have taken place at the property?

- Some cleanup in connection with perc

(6.) Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

No

From: Margo Ghia [mghia@mainstreetarts.org]
Sent: Tuesday, November 15, 2011 10:46 AM
To: Angela Emerson
Subject: RE: 33 Main Street
Hi Angela,

Reviewing your list of additional documentation, I do not have any knowledge of any paperwork regarding any of these items as related to 33 Main Street. Would the town have any of these items on file? Do you need me to do some digging? My opinion is that the owner probably has no written records of anything related to 33 Main.

Margo Ghia, Managing Director
MAIN STREET ARTS

P.O. Box 100, 35 Main Street Saxtons River, VT 05154
(802) 869-2960

www.MainStreetArts.org

Find us on Facebook!

<http://www.facebook.com/#!/pages/Main-Street-Arts/193990987928?ref=ts>

From: Angela Emerson [mailto:AngelaE@kas-consulting.com]
Sent: Tuesday, November 15, 2011 10:34 AM
To: 'Margo Ghia'
Subject: 33 Main Street

Hi Margo,

I need to ask you a follow-up question as the "user" of the Phase I ESA for 33 Main Street. Do you know if any of these useful documents exist for the subject property?

- Environmental Site Assessment Reports
- Environmental Compliance Audit Reports
- Environmental Permits (examples include solid waste disposal permits, hazardous waste disposal permits, wastewater permits, NPDES permits, underground injection permits)
- Registrations for underground and above-ground storage tanks
- Registrations of underground injection systems
- Material Safety Data Sheets
- Community right-to-know plan
- Safety plans, preparedness and prevention plans, spill prevention, countermeasure, and control plans etc.
- Reports regarding hydrogeologic conditions on the property or surrounding area
- Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the property or relating to environmental liens encumbering the property
- Hazardous waste generator notices or reports
- Geotechnical studies
- Risk assessments
- Recorded AULs

Please let me know if you have any questions.

Sincerely,
Angela Emerson
Senior Scientist

KAS, Inc

368 Avenue D, Suite 15
P.O. Box 787
Williston, Vermont
(802) 383-0486

angelae@kas-consulting.com

From: Margo Ghia [mghia@mainstreetarts.org]
Sent: Tuesday, November 15, 2011 11:44 AM
To: Angela Emerson
Subject: RE: 33 Main Street
Hi Angela,

Please see my answers to your questions below. I feel like I know quite a bit about the property, but when I see your questions, I realize how much I don't know!

Margo Ghia, Managing Director
MAIN STREET ARTS
P.O. Box 100, 35 Main Street Saxtons River, VT 05154
(802) 869-2960
www.MainStreetArts.org
Find us on Facebook!
<http://www.facebook.com/#!/pages/Main-Street-Arts/193990987928?ref=ts>

From: Angela Emerson [mailto:AngelaE@kas-consulting.com]
Sent: Tuesday, November 15, 2011 11:10 AM
To: 'Margo Ghia'
Subject: 33 Main Street

Hi Margo,

I have two additional questions for you regarding the 33 Main Street property (as the user of the Phase I ESA). Please answer these to the best of your ability:

1. Are you aware of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substances or petroleum products on the property? If yes, explain.

We are unaware of any lawsuits (past or present) related to any hazardous substances or petroleum products at 33 Main Street.

2. Have there been any compliance / enforcement notices or environmental liens relating to past or recurrent violations of environmental laws with respect to the property or any facility on the property? If yes, explain.

We are unaware of any compliance/enforcement notices or environmental liens relating to 33 Main Street or the businesses that have occupied the property.

Please let me know if you have any questions.

Sincerely,
Angela Emerson
Senior Scientist
KAS, Inc
368 Avenue D, Suite 15
P.O. Box 787
Williston, Vermont
(802) 383-0486
angelae@kas-consulting.com

No virus found in this message.
Checked by AVG - www.avg.com
Version: 2012.0.1869 / Virus Database: 2092/4618 - Release Date: 11/15/11

Interview Questionnaire - Official or Person Knowledgeable of Subject Property

Phase I Environmental Site Assessment

Telephone ☒X

Personal ☐

KAS Project No.: 508110219

Date: November 10, 2011 _____

Site Name: 33 Main Street, Saxtons River VT

Location: 33 Main Street, Saxtons River VT

Person Interviewed: Ellen Howard

Title/ Affiliation: Planning-Zoning Administrator/Health Officer, Town of Rockingham

Relationship to Subject Property: _____

Address: PO Box 370

Bellows Falls VT 05101

Telephone: 802-463-1229

Interviewer: Angela Emerson

Signed: Angela Emerson

A) Are you familiar with the subject property and the surrounding area? *Yes.*

In what capacity? *Due to my position as the Town of Rockingham Planning-Zoning Administrator and Health Officer.*

Range in years: *Since 1979.*

B) Are you aware of any environmental incidents, including, but not limited to leaking tanks, chemical spills, authorized or unauthorized disposal, or hazardous substance, petroleum product, pollutant, or contaminant releases on the subject property or nearby properties?

This property had a contamination issue dealing with perc from a prior use as a Laundromat.

Interview Questionnaire - Official or Person Knowledgeable of Subject Property

Phase I Environmental Site Assessment

Person Interviewed: Ellen Howard
(Continued)

KAS Project No.: 508110219

C) Other questions specific to subject property:



PO Box 787, 368 Avenue D; Suite 15
Williston, Vermont 05495
Ph: 802-383-0486

TELEPHONE CONVERSATION LOG

Incoming ☒

Outgoing ☐

Return ☐

Date: 11/7/11 Time: 9:10 Job #: 508110219

Spoke With: Richard Spiese Phone: (802) 241-3880

Representing: VTDEC

Re: Saxton's River

Notes:

- I called RS to get the status of the Saxton's River Site. He said that the only work done in the last 15 years was drinking water monitoring. They never found a direct source for PCE in the wells. No additional documents are available right now because of the flooding. Only digital files are available. He also said the concentration of PCE in the supply wells were decreasing and low.

Initials: AE



APPENDIX G

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

**KAS, INC.
PROFESSIONAL PROFILE**

ANGELA EMERSON

TITLE	Senior Scientist
EXPERTISE	Environmental project management; Brownfields investigation and remediation; geological investigations; hazardous waste site investigations and cleanup; remedial system design, installation, and operation; Phase I and Phase II Environmental Site Assessments; technical reports.
EXPERIENCE	KAS, Inc., Williston, Vermont. April 2005-Present. Project Manager 2005-2007; Brownfields project manager 2007-2010. Environmental Project Management. Brownfields investigation and remediation. Phase I and Phase II Environmental Site Assessments. Remediation design, implementation, and operation. Corrective Action Plan preparation and implementation. Bid specification preparation and construction oversight. Yu & Associates, Elmwood Park, New Jersey. September 2002-October 2003. Staff geologist on 2nd Avenue Subway Project in New York City. Managed all field and laboratory data. Created geotechnical data reports. Monitored drilling operations and geotechnical investigation budget. Sampled monitoring wells and maintained piezometers. Vermont Geological Survey, Waterbury, Vermont. Summer 2001 Interned on project with Vermont Geological Survey. Completed environmental assessments and mapped hazards along the Third Branch of the White River.
ACADMEMIC BACKGROUND	B.S., Geology, University of Vermont, 2002
PROFESSIONAL QUALIFICATIONS	40 Hour OSHA 29CFR1910.120 Hazardous Worker Training ASTM/EPA Environmental Professional

**KAS, INC.
PROFESSIONAL PROFILE**

ALAN R. LIPTAK, PG, CPG

TITLE	Vice-President/Principal
EXPERTISE	Environmental project management, solid waste site design, operations, permitting, closure and post closure; contaminated site investigation and clean up, state and local permitting, innovative test methods.
EXPERIENCE	KAS, Inc., Williston, Vermont. September 2004 – Present. Management of KAS' environmental projects/ programs, including environmental site assessments, UST removals, site investigations, and environmental clean up activities. Foster technical innovation, quality control and assurance on projects and written materials. Business development activities for environmental programs. Project Management. Griffin International, Inc., Williston, Vermont May 1999 – September 2004. Environmental Programs Manager June 2001-September 2004; Senior Staff Geologist May 1999 –June 2001. Management and supervision of Griffin's environmental programs. Supervised professional staff of scientists and engineers. Business development activities for environmental programs. Management of individual projects. The Johnson Company, Inc., Montpelier, Vermont October 1990 – May 1999. Senior Scientist. Management of hazardous and solid waste projects and business development. Assisted with company administration including insurance and retirement planning. State of Vermont Department of Environmental Conservation, Waterbury, Vermont October 1984 – October 1990. Progressively responsible positions included assistant regional wastewater engineer, solid waste engineer and supervisor of engineering and technical assistance for the Solid Waste Division.
ACADEMIC BACKGROUND	MBA, Norwich University, June 2005 M.S. Geology, Chemistry Minor, University of Montana, 1984 B.A. Geology, State University of New York at Potsdam, 1982
PROFESSIONAL QUALIFICATIONS	Certified Professional Geologist # 10166 American Institute of Professional Geologists, Arvada, CO New Hampshire Licensed Geologist #0142 ASTM/EPA Environmental Professional
OTHER	OSHA 1910.120 Hazardous Waste Site Worker President, Vermont Philharmonic Orchestra Board of Directors Williston-Richmond Rotary Club Member



APPENDIX H

ADDITIONAL ENVIRONMENTAL RECORDS

NOV 05 1990



GEI Consultants, Inc.

October 31, 1990
Project 90379

Suffolk Building
53 Regional Drive
Concord, NH 03301-8500
603 • 224 • 7979

Mr. Steve Winters
Agency of Natural Resources
103 South Main Street
Waterbury, Vermont 05676

**Subject: Source Identification and Plume Characterization
Tasks 1, 2, and 3 (Work Plan)
Saxtons River, Vermont**

Dear Mr. Winters:

The purpose of this letter is to provide a summary of background research pertaining to general conditions in Saxtons River Village. This document contains a brief overview of general background conditions as indicated in State files and contains information relative to the discovery of perchloroethylene in private water supplies in the Village of Saxtons River (Figure 1). It also provides the strategy for conducting the preliminary on-site investigation.

GEI Consultants, Inc., (GEI) entered into contractual agreement with the State of Vermont on October 12, 1990 to conduct a hazardous materials investigation in the Village of Saxtons River, Vermont. The purpose of the investigation is to collect information relative to the following:

1. Location and chemical composition of the source of the perchloroethylene contaminant plume;
2. Identity and concentration of the chemicals causing the contamination;
3. Lateral and vertical extent of the nonpetroleum constituent contaminant plume, based on ground water sampling points;
4. Direction in which the contamination is spreading and its rate of movement;
5. Identity and location of potential receptors, both environmental and human.

The investigation has six major tasks. This letter completes Task 1 (Background Research) and Task 2 (Site Safety Plan) and provides the work plan for Task 3 (Preliminary On-Site Investigation). The Site Safety Plan for the Preliminary On-site Investigation is provided in Attachment A. This will be updated for any future tasks proposed in later work plans.

The site is the Village of Saxtons River, which is an incorporated village of the Town of Rockingham, Vermont. The Village is located on the terraces of the Saxtons River which flows generally east where it enters the Connecticut River in Bellows Falls, Vermont.

The terrain in the site area varies from level river terraces immediately south and north of the River with steep slopes between terraces. The Village itself sits on these terraces and steep valley walls lie beyond the terraces. Bedrock outcrops can be seen below the bridge on Harley Hill Road and throughout the river bed. Bedrock also outcrops along the valley walls to the north along Pleasant Street and in the fields of the Vermont Academy to the north. The Village is densely populated residential properties along with small business and shops. Property parcels within the Village average approximately 100 feet by 200 feet with the majority of residences located off Main Street and the majority of businesses located along Main Street.

The Village has no public water supply but a public sewer system was completed in 1972. Prior to 1972, the waste was disposed directly into the River.

Review of well data from the State of Vermont Water Quality Department, Ground Water Management indicated that private water supplies in the area are primarily supplied by drilled bedrock wells. According to State records, bedrock water supplies in the area can have yields which range from a couple gallons per minute to 100 gallons per minute.

BACKGROUND

During July of 1989, Mrs. Bertha King of Saxtons River, Vermont notified the Vermont Health Department of a gasoline odor from her water. On July 20, 1989 the State of Vermont's Health Department analyzed a sample of Mrs. King's water. The analysis showed low levels of hydrocarbons (Appendix 1). The Petroleum Division of the State of Vermont, Agency of Natural Resources (ANR) was then notified and on August 22, 1989, Mrs. King's water was resampled and analyzed by the Petroleum Division, at which time Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) compounds were detected in the well water at levels higher than the Safe Drinking Water Act Maximum Contaminated Levels (MCLs).

The Petroleum Division expanded their sampling program to include other homes surrounding the King residence and found additional wells with BTEX contamination. ANR's Petroleum Division contracted Tri-S Environmental Consultants of Brattleboro, Vermont to investigate and remediate the source of the BTEX contamination. The source was determined to be leaking underground storage tanks (USTs) at the Sunoco gas station abutting the King residence. The property is owned by A.R. Sandri, Inc. of Greenfield, Massachusetts. Wells which have or have had BTEX contamination were identified in the ANR files as the Skovinski residence; King residence; Crispe residence

(family housing); A. Smith; Pizza, Paul and Mary; Mortensen; A.R. Sandri; Smith; Fletcher; Kimball; and, Thurlow.

The sampling of local water wells in Saxtons River by ANR's Petroleum Division on September 26, 1989 determined that the Skovinski well also contained the dry cleaning chemical perchloroethylene. After further investigation by ANR Petroleum Division, it was determined that a number of other residential water supplies in the Village contaminated with the chemical. ANR's Petroleum Division then transferred the handling of the case to ANR's Hazardous Materials Division for further investigation.

Initial review of the files indicate that the suspect chemical contamination may be originating in the basement of the "Pizza, Paul and Mary" restaurant located at the corners of Main Street and School Street. Historical information indicates the building which houses the restaurant (Lot 69, Tax Map U-15) used to house a laundromat which contained dry cleaning equipment.

During a visit to the site, Mr. Richard Spiese of the ANR's Petroleum Division was shown a tank in the basement of the "Pizza, Paul and Mary" restaurant by Mr. Paul MacIntire, current owner of the property. The tank was located below the old dry cleaning equipment and was labeled Perk Chemical Company, 217 South First Street, Elizabeth, New Jersey, 07206. This tank may contain perchloroethylene.

PRELIMINARY ON-SITE INVESTIGATION STRATEGY

Site History Research

GEI representatives will interview residents of the Village of Saxtons River Vermont who may have been impacted by the nonpetroleum chemicals. GEI plans to conduct these interviews with people who are familiar with the Town's history and land use. Our investigation will be conducted so to maximize the knowledge of the area of concern. GEI intends to conduct interviews with property owners, if available, of Lots 69, 67, 68, 78 and 37 from Tax Map U-13. These properties include: The Pizza, Paul & Mary's restaurant (location of the former laundromat) (Lot 69); an abutting property to the laundromat which formerly contained a gasoline station and engine parts store (Lot 67); an abutting property to the laundromat which contains a crafts store (Lot 68); an abutting property to the laundromat which contains the Contel Telephone Corporation (Lot 78); and an empty lot in-between the laundromat and the contaminated wells (reportedly a previously existing building on this lot burned and its foundation was filled with debris of unknown origin). The locations of all of these properties are expected to be upgradient of the contaminated wells and near the suspected source area of the contamination. GEI also plans to interview the contractor(s) who installed the sewer line in the early 1970's, if the contractor can be located. GEI also plans to review the blueprints and specifications for the sewer system to determine if any leach fields existed in the area prior to the sewer line installation.

GEI will also evaluate the five Village properties from Tax Map U-13, Lots 69, 67, 68, 78, and 37 with respect to current land use practices and historical land use practices. As part of a site history investigation, GEI will visit the five properties identified to observe surface conditions, such as fill materials, water discoloration or vegetative distress which could indicate the presence of hazardous wastes. Information gathered during our site visit will be limited by the aerial extent of pavement and by snow cover, if present. Our site visit will also include observation of building interiors to observe evidence of storage or possible releases of hazardous wastes or oil. This investigation will also identify floor drains, septic systems, dry wells, storage tanks, storm drains, and other potential pathways of contamination. GEI will attempt to gain access to the relative buildings from the property owners themselves. However, if no access is provided voluntarily, GEI may request the State's assistance to gain access to buildings which are relative to this study.

GEI plans to interview Town officials of the Village of Saxtons River, Vermont, who are familiar with Village history and land use for any information which may be relative to this investigation. GEI plans to review relevant Town documents, available plans, fire department records, building and zoning records, Board of Health records, Town Assessor's records, ground water data base records and aerial photographs of the site area, if available. Published reports and maps on site topography, surficial and bedrock geology, ground water and surface water resources will also be gathered and reviewed.

Fracture Trace Analyses

During GEI's initial background research, GEI performed remote sensing analyses of the site as a reconnaissance tool for identifying potential bedrock lineaments which could affect ground water flow and contaminant transport in the bedrock aquifer at the site.

GEI analyzed aerial photographs and other imagery to identify linear surface features (lineaments) related to bedrock fractures or faults that are potentially water-bearing. These analyses were performed by visual methods using five sets of photographs:

1. Medium altitude color infrared stereo photographs, scale 1:58,000
2. Medium altitude black and white stereo photographs, scale 1:80,000
3. High altitude black and white stereo photographs, scale 1:8000,000
(Space Shuttle Large Format camera)

Since the lineaments observed in the photographs may also be due to features other than the geologic structure of the site, GEI conducted a site visit to examine and eliminate cultural features. GEI conducted one field day of bedrock geologic mapping on October

18, 1990, which was performed on outcrops in close proximity to the site. The purpose of this work is to collect data on the strike and dip of bedrock faults, fractures, or joint systems and will be presented as a rose diagram in the Site Investigation Work Plan. GEI compared the orientation of photolineaments with the bedrock mapping data to evaluate and rank the photolineaments with regard to significant contaminant migration pathways. The results of the remote sensing analysis will be presented in more detail in the Site Investigation Work Plan. Preliminary results were used to locate an area for conducting an electromagnetic survey as described below.

GEI observed two photolineament patterns during review of aerial photos (Figure 2). One lineament pattern trends 10 degrees $\pm$ due north/south. This lineament trend is considered the primary fracture pattern for the region. A second lineament pattern trending more or less east/west was also observed. The Saxtons River Village contains two identifiable lineaments which are relative to this study. Most important is a primary north/south trending lineament which is located through the center of Town in the vicinity of Main Street. A second lineament trends east/west and is also located through the center of Town in the vicinity of Main Street. Due to cultural restrictions, GEI cannot perform geophysics to identify the east/west trending lineament. However, there is enough relatively open land area which can be traversed north and south of the center of Town to identify the major lineament of concern trending north/south.

GEI plans to focus the geophysical survey on the north/south trending lineament using the ABEM WADI. The survey will be performed in areas free of cultural interference which will eliminate the possibility of false anomalous readings. GEI will perform the surveys at two locations: on the active flood plain of the Saxtons River south of Town as well as through the center of the River and also north of Town on land owned by the Vermont Academy and Mr. and Mrs. Campbell. The survey will consist of at least two parallel traverses at each location (Figure 3). The surveys will be performed by traversing the properties approximately perpendicular to the trend of the photolineament and recording the electromagnetic signal at 10-meter intervals. GEI has previously identified these locations during a preliminary site reconnaissance and has already been given property access by the landowners to proceed. The information obtained during the geophysical survey will be used to assist in locating two bedrock monitoring wells.

On the basis of this Preliminary On-Site Investigation, GEI will examine the potential source(s) and receptor(s) of perchloroethylene detected in the wells in the Village of Saxtons River. The information gathered in Tasks 1, 2, and 3 will also be used to identify significant data gaps and direct the subsurface exploration and field sampling activities

Mr. Steve Winters

-6-

October 31, 1990

for future tasks. The information and results of the Task 3 Preliminary On-Site Investigation will be summarized in the Site Investigation Work Plan (Task 4).

Sincerely yours,

GEI CONSULTANTS, INC.

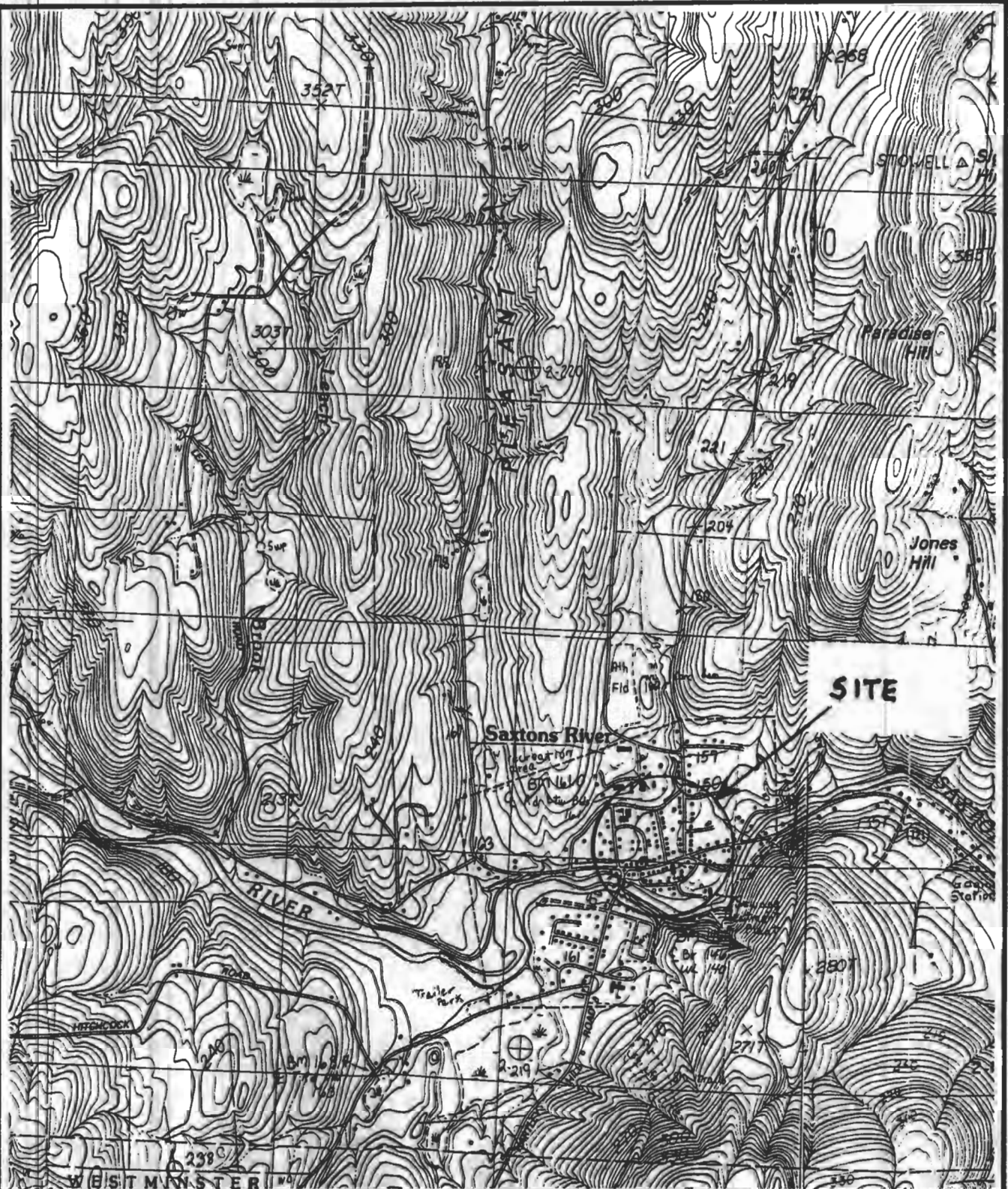
Christopher Covell
JOM

Christopher L. Covell
Geologist

Joanne O'Neill Morin

Joanne O'Neill Morin
Project Manager

JOM:CLC/pgl
Enclosures
(Copy also faxed this date.)



Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of
Natural Resources
Waterbury, Vermont

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

SITE
LOCATION
MAP



GEI Consultants, Inc.

Project 90379

October 1990 Fig. 1



Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of
Natural Resources
Waterbury, Vermont

PHOTO-
LINEAMENT
MAP

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont



GEI Consultants, Inc.

October 1990 Fig. 2

Project 90379



Source: USGS, Saxtons River and Belows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of
Natural Resources
Waterbury, Vermont

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

PROPOSED
GEOPHYSICAL
SURVEY LINES



GEI Consultants, Inc.

Project 90379

October 1990 Fig. 3

ATTACHMENT A

Site Safety Plan

GEOTECHNICAL ENGINEERS INC.
WINCHESTER, MA (617) 729-1625
CONCORD, NH (603) 224-7979

HEALTH AND SAFETY WORK PLAN

Project No. 90379
Project Name SAXTONS RIVER: VERMONT

Date 23 OCT 1990

Site: SAXTONS RIVER HAZARDOUS WASTE INVESTIGATION

Location: SAXTONS RIVER, VERMONT

Directions to Site: I 91 to Exit 5, RT 121 North/
West approximately 6 miles to Saxtons River.

Purpose of Visit: Preliminary on site investigation,
site reconnaissance, geologic and geophysical explorations

Proposed Date of Work: OCTOBER 1990 → FEBRUARY 1990

Work Party: CHRISTOPHER L. COVEL

Site Perimeter:

- ☒ Map/Sketch Attached
☐ Perimeter Identified NO
☐ Zone of Contamination Identified NO

Project Manager: Joanne O'Neill-Morin

Health and Safety Manager: Steven Lamb

Director of Field Services: Ridgo Maulk

Principal-in-Charge: Richard Murdock

Hazard Rating: ☐ High ☐ Moderate ☒ Low ☐ Unknown

BACKGROUND

Site Status: ☒ Active ☐ Inactive ☐ Unknown

Site Description: Site is a village located on terraces of the
Saxtons River. Site is residential with the outer limits containing
pasture land and wooded hills.

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

Disposal Methods Used on Site: Unknown

Unusual Features: (containers, buildings, dikes, power lines, terrain, etc.)

Glacial Potholes in outcrops below Hartley Hill Road, good outcrops of Waits River Formation - Post Pond member in River throughout village.

Pizza Paul & Mary Bldg of particular concern to this study. Abandoned Tank of Perchloroethylene in Basement

Relevant Site History: (previous injuries, complaints from public, prior agency action, etc.).

Perchloroethylene in bedrock water supplies as well as MTBE and BTEX compounds. Prior action includes removal of UGST and remediation of groundwater including installation of Monitoring Wells. PERC source not yet identified.

Waste Types: ☒ Liquid ☐ Solid ☐ Sludge ☐ Gas

Waste Characteristics: ☐ Corrosive ☐ Flammable ☐ Inert

☐ Radioactive ☐ Reactive ☒ Toxic

☒ Volatile ☒ Other Carcinogen/Hazardous Waste

Waste Categories:

<u>Sludges</u>	<u>Oils</u>	<u>Solvents</u>	<u>Chemicals</u>	<u>Other</u>
☐ Paint	☒ Gasoline	☐ Halogenated	☐ Acids	☐ Radio-
☐ Pigments	☐ Waste Oil	☐ Non-halo-	☐ Caustics	☐ active
☐ Metals	☐ Other	☐ genated	☐ PCB	☐ Laboratory
☐ Sewage	☐ (Specify)	☒ Other	☐ Heavy	☐ Pharmacy
☐ (POTW)		☐ (Specify)	☐ Metals	☐ Hospital
☐ Other		<u>Perchloroethylene</u>	☐ Dyes/Inks	☐ Municipal
☐ (Specify)			☐ Pickling	☐ Other
			☐ Liquors	☐ (Specify)
			☐ Pesticides	
			☐ Phenols	
			☐ Halogens	
			☐ Other	
			☐ (Specify)	

Amount

Units

1300

ppb

7

ug/l

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

HAZARD EVALUATION

Hazard Rating: High Moderate ✓ Low Unknown

Hazardous/Toxic Substances on Site:

A. Known	Form			Quantity (Maximum)	Units
	Solid	Liquid	Vapor		
Perchloroethylene		✓		VARIABLE CONCENTRATIONS	
Benzene		✓			
Toluene		✓			
Xylene		✓			
(MTBE) Methyl-t-Butylether		✓			

Toxic and Pharmacologic Effects: Known Carcinogens - see attached

Reactivity, Stability, Flammability: BTEX Compounds Are flammable, Perchloroethylene emits toxic Cl fumes when burnt, also
Exceptions: toxic via inhalation & depress central Nervous system
→ NO EXCEPTIONS

Operational Concerns (sampling, decontamination, etc.): Use extreme caution when sampling raw chemical, Level B protection should be used when working directly with Perchloroethylene product. Class B poison.

Geotechnical Engineers Inc.

Project No. 90379
Project Name Saxtons River

B. Suspected

	Form			Quantity (Maximum)	Units
	Solid	Liquid	Vapor		

N/A

Toxic and Pharmacologic Effects: _____

Reactivity, Stability, Flammability: _____

Exceptions: _____

Operational Concerns (sampling, decontamination, etc.): _____

Geotechnical Engineers Inc.

Project No. 90379

Project Name Sextons River

PERSONAL PROTECTION

Level of Protection Required: A B C D ✓

Rationale: Field reconnaissance will not encounter raw chemical,
Geophysics will not be in vicinity of potential source area,
interviews with Sextons River personnel will not encounter chemical
interviews with Town representatives will not encounter chemical.

Personal Protective Equipment: Boots & gloves for field use
only

Criterion for Downgrade to Lower Level: N/A

Downgrade Level: A B C D

Personal Protective Equipment: N/A

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

Criterion for Site Evacuation: IF Perchloroethylene is encountered
leave area immediately and notify state officials and
local officials

Monitoring Equipment Required on Site:

☒ HNU ☐ OVA ☐ Explosimeter ☐ Radiation Detector
☐ Other _____

Medical Surveillance:

Acute Effects of Exposure: See attached

First Aid Procedures: See attached

DECONTAMINATION AND DISPOSAL

Decontamination Procedures:

A. Personnel

Dispose of cartridges, gloves, overboots, and any other
disposable items on site to be removed by authorized
hazardous waste contractor.
Wash thoroughly all parts of exposed body, change clothes
immediately if accidental contamination occurs.

B. Equipment

Decontaminate all equipment with methanol and
distilled water prior to leaving site

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

Disposal Procedures (contaminated equipment, supplies, washwater): Dispose of all contaminated equipment on site in proper container and remove by a hazardous waste contractor

EMERGENCY PROCEDURES

RESOURCES:

	Name	Town	Telephone
Ambulance	Lefevre	Bellows Falls VT	802-463-4223
Hospital E.R.	Rockingham Hospital	Bellows Falls, VT	802 463-3903
Poison Control	VT Poison Center	Burlington VT	1-802-658-3456
Police: Local State	STATE POLICE	Windham County Sheriff	1-365-4328
	VT State Police	Rockingham Troop	1-875-2112
	Saxtons River Volunteer	Saxtons River, VT.	1-800-852-3411 82 802-254-2382
Fire	STATE POLICE	BRATTLEBORO, VT.	1-800-852-3411
Explosives Unit	Pizza Paul & Mary	Saxtons River, VT.	802-869-2222
Nearest Phone	Pizza, Paul & Mary	Main St & School St	802-869-2222
Water Supply			

CONTACTS:

* Radio Dispatched via N.H.

Physician

GEI, Winchester, MA

(617) 729-1625

Mr. Robert Stekar
GEI, Concord, NH

(603) 224-7979

Client Contact: Mr Steve Winters Hazardous Materials Division
State of Vermont 1-802-244-8702

Federal Official:

State Official: Mr Steve Winters Hazardous Materials Division 802-244-8702

Local Official: Ms. Ellen Howard Health Officer Bellows Falls Vermont
1-802-463-3964

Geotechnical Engineers Inc.

Project No. 90379

Project Name Sextons River VT

Directions to Hospital: ☒ Map Attached

Route 121 EAST/South approximately 6 miles from center
of Sextons River. Hospital on Right, Hospital Court Road, OFF
RT. 121

EMERGENCY MEDICAL INFORMATION:

<u>Employee</u>	<u>Allergies</u>	<u>Other</u>
1. <u>CHRISTOPHER L. COVEL</u>	<u>NONE</u>	
2. <u>Joanna O'Neill-Morin</u>		
3. <u>Capitol Well Drilling</u>	<u>None</u>	
4. _____		

PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS MATERIALS

Personnel Authorized to Enter HWS

Assignment

1. <u>Capitol Well Drilling</u>	<u>Drill Monitoring Wells</u>
2. <u>Mr. Steve Winters</u>	<u>State of Vermont - Supervision</u>
3. <u>Ms. Joanne O'Neill-Morin</u>	<u>Project Manager</u>
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	

Other Personnel Assigned to Handle Hazardous Materials
(decontaminate, analyze samples, etc.)

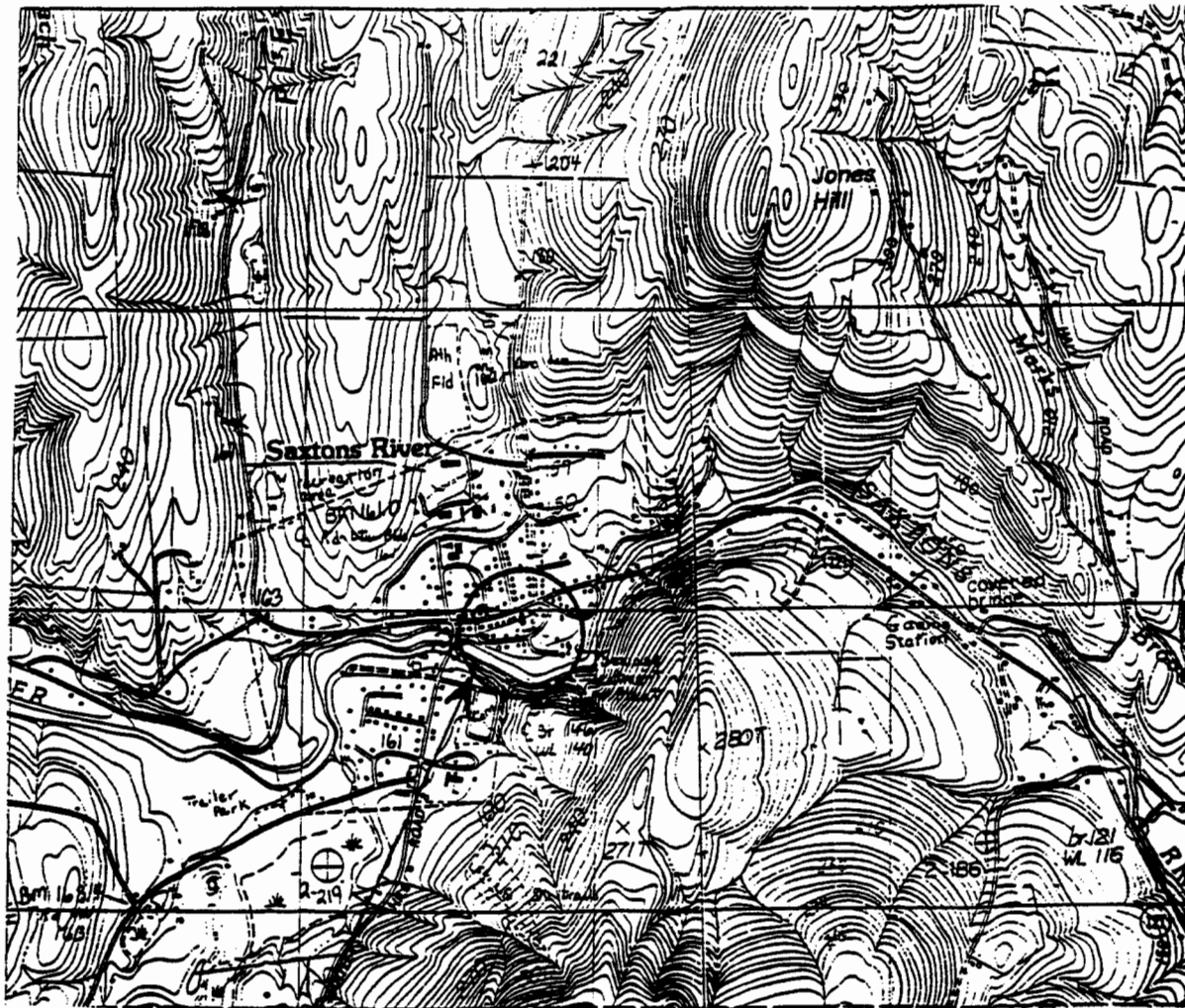
1. Aquatech Laboratory, Burlington Vermont

2. _____

Plan Prepared by CHRISTOPHER L. COVEL Date 23 OCT 90

Plan Reviewed by _____ Date _____
Health and Safety Manager

Plan Approved by _____ Date _____
Principal



SITE

Source - USGS Quadrangles
Saxtons River, VT
and
Bellows Falls V.T.-N.H.
7.5 minute series
Scale 1:25,000
1984
PROVISIONAL ED.

SAXTONS RIVER, VERMONT

HAZARDOUS MATERIALS
INVESTIGATION

SITE LOCATION MAP

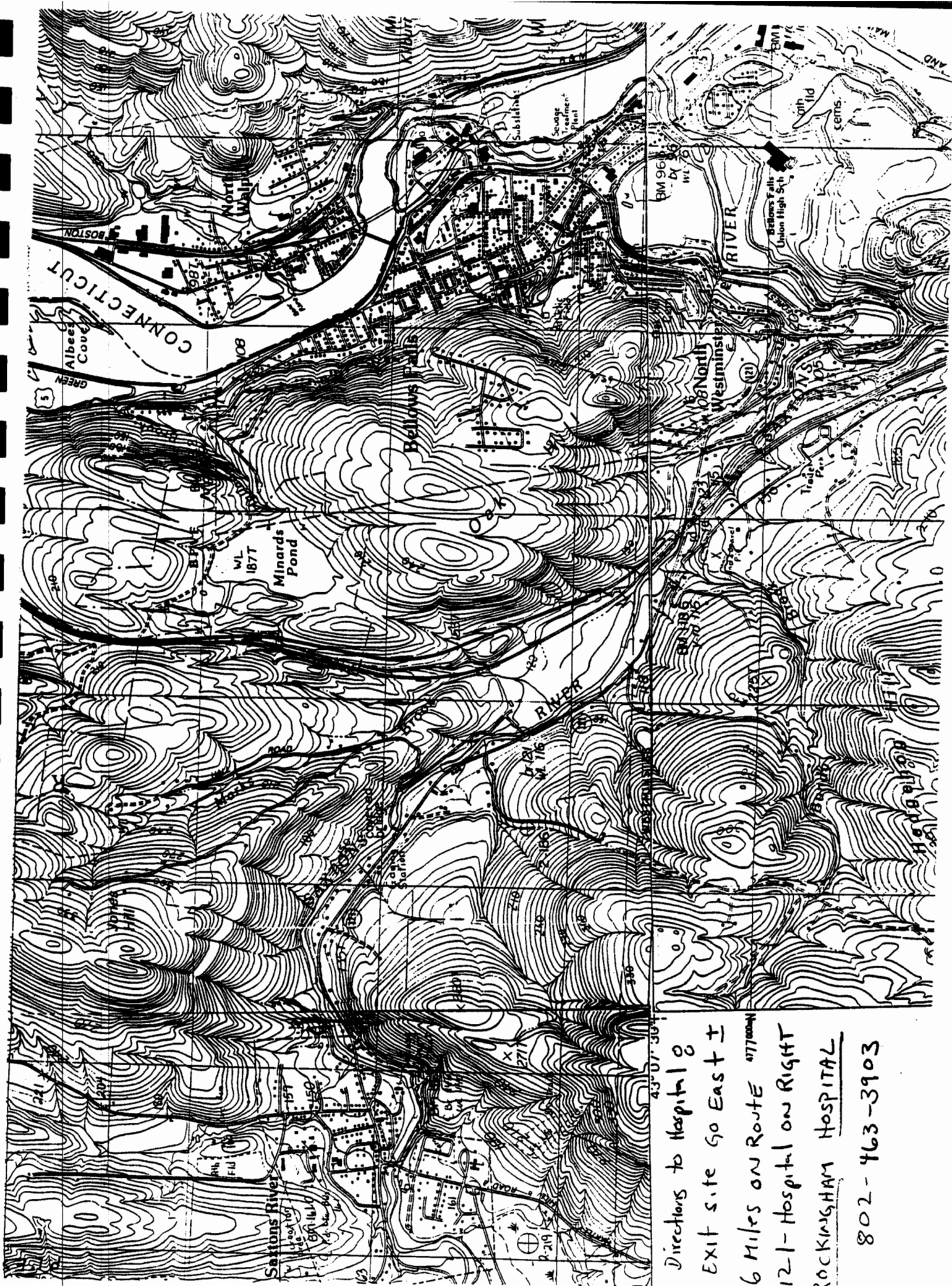


GEI Consultants, Inc.

SAXTONS RIVER, VERMONT

PROJECT 90379

OCTOBER 1990 FIG 1



Directions to Hospital 8
Exit site Go East ±
6 Miles on Route 121
121 - Hospital on RIGHT
ROCKINGHAM HOSPITAL
802-463-3903

HANDBOOK OF TOXIC AND HAZARDOUS CHEMICALS AND CARCINOGENS

Second Edition

ABOUT THE AUTHOR

Marshall Sittig, a chemical engineer, is President and Managing Director of Sittig & Noyes, International Chemical and Process Industries Consultants, and was formerly with E.I. Du Pont de Nemours & Co., Inc. in chemicals manufacturing, Ethyl Corporation in liaison between research and sales, and Princeton University as Director of Governmental Relations.

by

Marshall Sittig

Princeton University



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Foreword

In April 1980, an explosive fire broke out at an abandoned chemical dump site in Elizabeth, New Jersey. When thousands of barrels containing unidentified toxic waste erupted in flames, an ominous black cloud filled the sky. No one knew for sure whether lethal fumes would jeopardize the surrounding area—one of America's most densely populated. Fortunately, nobody was hurt seriously, perhaps in part because more than 500 pounds of such dangerous agents as nitroglycerine, picric acid and mustard gas were removed prior to the fire by the state environmental protection personnel.

That near-disaster gave the nation fresh evidence of the urgent need to control the disposal of toxic wastes. In New Jersey alone, there are 85 toxic waste sites on the Environmental Protection Agency's list of 546 worst sites identified so far, more than any other state. Of the 15 worst sites in the nation, 6 are in New Jersey.

Toxic wastes are an incredible problem in our country. They threaten our water, our air, and our lives. We must find better ways to handle toxic chemicals and dispose of our toxic wastes. Unfortunately, we have just begun to recognize the dangers posed by years of irresponsible disposal of wastes. And, too frequently our belated response has been to push pollution around from one place to another. When we recognized the danger of air pollution, we devised systems to prevent the discharge of particulates. The systems gathered soot and sludge, so we took that soot and sludge and dumped them in the ocean. When we became concerned about pollution in the ocean, we ordered the wastes buried in the ground. Now we have learned that what is buried in the ground can seep into and poison our drinking water. Our problems have only moved with each new form of disposal.

One reason for the severity of this problem is that it has only recently risen to public consciousness, and years of uncontrolled dumping have taken their toll. But incidents such as the fire at Elizabeth and the contamination of the Love Canal area in New York brought the issue national attention and forced public officials, scientists, and representatives of industry to consider its implications.

The most obvious are the potential effects on national health and the environment. Although the link is poorly understood, there is evidence that many of these chemicals can cause cancer. Just as frightening is the possibility of acute toxic effects such as brain and nerve damage, sterility, and birth defects.

may result in complaints of general malaise, drowsiness, loss of appetite, nausea, and unpleasant taste in the mouth, and abdominal discomfort. This may be followed by jaundice, mental confusion, stupor or delirium, hematemesis, convulsions, and purpuric rashes.

Pulmonary edema ascribed to capillary injury has been noted in severe cases, along with renal damage, though it is not known to what extent this contributes to the total toxic picture. Nephritis may develop and the urine may contain albumin and casts. Fatty degeneration of the myocardium has been reported only in animal experiments.

Points of Attack: Liver, kidneys, central nervous system.

Medical Surveillance: Preplacement and periodic examination should be comprehensive because of the possible involvement of many systems. Special attention should be given to liver, kidney, and bone marrow function, as well as to the central and peripheral nervous systems. Alcoholism may be a predisposing factor.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Give large quantities of salt water and induce vomiting. Do not make an unconscious person vomit.

Personal Protective Methods: Wear appropriate clothing to prevent any possibility of skin contact. Wear eye protection to prevent any possibility of eye contact. Employees should wash immediately with soap when skin is wet or contaminated. Remove nonimpervious clothing immediately if wet or contaminated. Provide emergency showers and eyewash.

Respirator Selection:

50 ppm: CCROV/SA/SCBA

150 ppm: CCROVF/GMOV/SAF/SA:PD,PP,CF/SCBAF

Escape: GMOV/SCBA

Disposal Method Suggested: Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced.

References

- (1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to 1,1,2,2-Tetrachloroethane*, NIOSH Doc. No. 77-121, Washington, DC (1977).
- (2) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: 1,1,2,2-Tetrachloroethane*, Washington, DC (1979).
- (3) U.S. Environmental Protection Agency, *Chlorinated Ethanes: Ambient Water Quality Criteria*, Washington, DC (1980).
- (4) U.S. Environmental Protection Agency, *1,1,2,2-Tetrachloroethane, Health and Environmental Effects Profile No. 157*, Washington, DC, Office of Solid Waste (April 30, 1980).
- (5) National Cancer Institute, *Bioassay of 1,1,2,2-Tetrachloroethane for Possible Carcinogenicity*, Technical Report Series No. 27, Bethesda, MD (1978).
- (6) See Reference (A-61).
- (7) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 1*, No. 5, 84-85, New York, Van Nostrand Reinhold Co. (1981).
- (8) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 2*, No. 8, 79-83, New York, Van Nostrand Reinhold Co. (1982).

- (9) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report, 3*, No. 2, 60-64, New York, Van Nostrand Reinhold Co. (1983).
- (10) See Reference (A-60).
- (11) Permezzani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2181-83, Geneva, International Labour Office (1983).
- (12) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. 1, pp VII/318-20, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TETRACHLOROETHYLENE

- Carcinogen (positive, NCI) (3)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $\text{Cl}_2\text{C}=\text{CCl}_2$, tetrachloroethylene, is a clear, colorless, non-flammable liquid with a characteristic odor. The odor is noticeable at 50 ppm, though after a short period it may become inconspicuous, thereby becoming an unreliable warning signal. It boils at 121°C .

Code Numbers: CAS 127-18-4 RTECS KX3850000 UN 1897

DOT Designation: ORM-A

Synonyms: Perchloroethylene, carbon dichloride, ethylene tetrachloride, Perclene, PCE, tetrachloroethene.

Potential Exposures: Tetrachloroethylene is a widely used solvent with particular use as a dry cleaning agent, a degreaser, a chemical intermediate, a fumigant, and medically as an anthelmintic.

By far the most significant exposure to PCE occurs in industrial environments. The major uses of PCE are in textile and dry cleaning industries (69%), metal cleaning (16%), and as a chemical intermediate (12%). As with inhalation exposures, dermal exposures of significance would be primarily confined to occupational exposure.

Incompatibilities: Strong oxidizers, chemically active metals, such as barium, lithium, beryllium. Tetrachloroethylene is quite stable. However, it reacts violently with concentrated nitric acid to give carbon dioxide as a primary product.

Permissible Exposure Limits in Air: The Federal standard is 100 ppm (670 mg/m^3), as an 8-hour TWA with an acceptable ceiling concentration of 200 ppm; acceptable maximum peaks above the ceiling of 300 ppm are allowed for 5 minutes duration in a 3-hour period. NIOSH has recommended a time-weighted average limit of 50 ppm and a ceiling limit of 100 ppm determined by 15-minute samples, twice daily. Neither of these levels may provide adequate protection from potential carcinogenic effects because they were selected to prevent toxic effects other than cancer.

The ACGIH has set a TWA of 50 ppm (335 mg/m^3) as of 1983/84 but no STEL value. An intended change, however, will involve adoption of an STEL of 200 ppm ($1,340 \text{ mg/m}^3$). The notation "skin" is added to indicate the possibility of cutaneous absorption. The IDLH level is 600 ppm. Foreign limits are lower in some cases. Thus, the German Democratic Republic has set a standard of 250 mg/m^3 and reportedly the USSR a standard of 1.0 mg/m^3 . The Dutch chemical industry has set a value of 35 ppm (240 mg/m^3) (A-60).

Determination in Air: Adsorption on charcoal, workup with CS_2 , analysis by gas chromatography. See NIOSH Methods, Set J. See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—5,280 $\mu\text{g}/\text{L}$ on an acute toxicity basis and 840 $\mu\text{g}/\text{L}$ on a chronic toxicity basis. To protect saltwater aquatic life—10,200 $\mu\text{g}/\text{L}$ on an acute toxicity basis and 450 $\mu\text{g}/\text{L}$ on a chronic toxicity basis. To protect human health—preferably zero. An additional lifetime cancer risk of 1 in 100,000 is posed by a concentration of 8.0 $\mu\text{g}/\text{L}$.

Determination in Water: Inert gas purge followed by gas chromatography with halide specific detection (EPA Method 801) or gas chromatography plus mass spectrometry (EPA Method 824).

Routes of Entry: Inhalation of vapor, percutaneous absorption of liquid, ingestion, skin and eye contact.

Harmful Effects and Symptoms: *Local* — Repeated contact may cause a dry, scaly, and fissured dermatitis. High concentrations may produce eye and nose irritation.

Systemic — Acute exposure to tetrachloroethylene may cause central nervous system depression, hepatic injury, and anesthetic death. Cardiac arrhythmias and renal injury have been produced in animal experiments. Signs and symptoms of overexposure include malaise, dizziness, headache, increased perspiration, fatigue, staggering gait, and slowing of mental ability. These usually subside quickly upon removal into the open air.

Perchloroethylene has been found to be carcinogenic.

Points of Attack: Liver, kidneys, eyes, upper respiratory system, central nervous system.

Medical Surveillance: Evaluate skin, and liver and kidney function, as well as central nervous system. Alcoholism may be a predisposing factor.

Breath analyses may be helpful in evaluating exposures. Workers with pre-employment histories of liver, kidney, or nervous disorders should be advised as to possible increased risk.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Give large quantities of salt water and induce vomiting. Do not make an unconscious person vomit.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Work clothing should be changed daily if it is possible/probable that clothing is contaminated. Remove nonimpervious clothing promptly if wet or contaminated.

Exposure to tetrachloroethylene should not be controlled with the use of respirators except: during the time period necessary to install or implement engineering or work practice controls. In work situations in which engineering and work practice controls are technically not feasible, to supplement engineering and work practice controls when such controls fail to adequately control exposure to tetrachloroethylene, for operations which require entry into tanks or closed vessels, or in emergencies.

Respirator Selection:

500 ppm: CCROVF/GMOV/SAF/SCBAF

Escape: GMOV/SCBA

Disposal Method Suggested: Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced. Alternatively, PCE may be recovered from waste gases (A-58) and reused.

References

- (1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Tetrachloroethylene*, NIOSH Doc. 76-185 (1976).
- (2) National Institute for Occupational Safety and Health, Current Intelligence Bulletin No. 20: *Tetrachloroethylene*, Washington, DC (January 20, 1978).
- (3) *Bioassay of Tetrachloroethylene for Possible Carcinogenicity*, DHEW Publication No. (NH) 77-813, U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Cancer Institute (October 1977).
- (4) U.S. Environmental Protection Agency, *Tetrachloroethylene: Ambient Water Quality Criteria*, Washington, DC (1980).
- (5) U.S. Environmental Protection Agency, *Health Assessment Document for Tetrachloroethylene*, External Review Draft No. 2 in circulation, Research Triangle Park, NC, Environmental Criteria and Assessment Office (January 1980).
- (6) U.S. Environmental Protection Agency, *Tetrachloroethylene*, Health and Environmental Effects Profile No. 158, Washington, DC, Office of Solid Waste (April 30, 1980).
- (7) See Reference (A-61).
- (8) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. II, pp VII/364-8, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TETRAETHYLLEAD

- Hazardous substance (EPA)
- Hazardous waste (EPA)

Description: $Pb(C_2H_5)_4$ is a colorless liquid with a slight musty odor. It boils at 100°C . In commerce it is usually dyed red, orange or blue. Tetraethyllead will decompose in bright sunlight yielding needlelike crystals of tri-, di-, and monoethyllead compounds, which have a garlic odor.

Code Numbers: CAS 78-00-2 RTECS TP4550000 UN 1649

DOT Designation: Poison B

Synonyms: Tetraethylplumbane (RTECS), TEL, lead tetraethyl.

Potential Exposure: Those engaged in the manufacture, transport and blending into gasoline of this antiknock compound.

Incompatibilities: Strong oxidizers, sulfuric chloride, potassium permanganate.

Permissible Exposure Limits in Air: The Federal standard is 0.075 mg/m^3 . The ACGIH as of '83/84 has set a TWA of 0.1 mg/m^3 with the notation that this is for the control of general room air and that biologic monitoring is essential for personnel control. The notation "skin" also indicates the possibility of cutaneous absorption. The STEL is 0.3 mg/m^3 . The IDLH level is 40 mg/m^3 .

Potential Exposure: BA is a contaminant and does not have any reported commercial use or application, although one producer did report the substance for the Toxic Substances Control Act Inventory.

BA has been reported present in cigarette smoke condensate, automobile exhaust gas, soot, and the emissions from coal and gas works and electric plants. BA also occurs in the aromatic fraction of mineral oil, commercial solvents, waxes, petrolatum, creosote, coal tar, petroleum asphalt, and coal tar pitch. Microgram quantities of BA can be found in various foods such as charcoal broiled, barbecued, or smoked meats and fish; certain vegetables and vegetable oils; and roasted coffee and coffee powders.

Human subjects are exposed to BA through either inhalation or ingestion. Workers at facilities with likely exposure to fumes from burning or heating of organic materials have a potential for exposure to BA. Consumers can be exposed to this chemical through ingestion of various food, with concentrations of 100 µg/kg in some instances. Cigarette smoke condensate has quantities of BA that range from 0.03 to 4.6 µg/g.

BA is found in the atmosphere at levels that vary with geography and climatology. These values can range from up to 136 µg/1,000 m³ in summer to 361 µg/1,000 m³ in winter. Drinking water samples may contain up to 23 ng/l BA, and surface waters have been found to contain 4 to 185 ng/l. The soil near industrial centers has been shown to contain as much as 390 µg/kg of BA, whereas soil near highways can have levels of up to 1,500 µg/kg, and areas polluted with coal tar pitch can reach levels of 2,500 µg/kg.

Permissible Exposure Limits in Air: NIOSH has recommended a workplace standard for coal tar products of 0.1 mg/m³ as a time-weighted average for a 10-hour workshift in a 40-hour workweek. OSHA indirectly limits exposure to BA by requiring that occupational exposure to coal tar pitch volatiles not exceed, as a time-weighted average, 0.2 mg/m³ over an 8-hour period.

Permissible Concentration in Water: Water quality criteria document for polynuclear aromatic hydrocarbons published in final 11/28/80. Total PAH addressed. A concentration of 2.8 ng PAH/l is estimated to limit cancer risk to one in a million (EPA).

Harmful Effects and Symptoms: BA given by several routes of administration has proved to be carcinogenic in the mouse. It produced hepatomas and lung adenomas following repeated oral administration to young mice (1). In a parallel experiment with methylcholanthrene, the carcinogenic effect upon the liver and lung was similar for the two compounds at the same dose level. In the same experiment, BA did not produce tumours of the gastrointestinal tract, whereas methylcholanthrene induced them consistently.

BA is a complete carcinogen for the mouse skin. The fact that the tumour yield was higher when using a dodecane solution than with toluene is related to the co-carcinogenic effect of dodecane. Benzo(a)pyrene given at a lower dose level produced more skin tumours with a shorter latency period than did BA. BA is also an initiator of skin carcinogenesis in mice.

BA produced tumours in mice following subcutaneous injections. Fifty µg BA was the lowest dose tested, and it was effective in newborn and in adult animals. It produced bladder tumours in mice following implantation.

References

- (1) See Reference (A-62). Also see Reference (A-64).

BENZENE

- Carcinogen (IARC) (5) (12)
- Hazardous substance (EPA)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: C₆H₆, benzene, is a clear, volatile, colorless, highly flammable liquid with a characteristic odor. The most common commercial grade contains 50 to 100% benzene, the remainder consisting of toluene, xylene, and other constituents which distill below 120°C.

Code Numbers: CAS 71-43-2 RTECS CY1400000 UN 1114

DOT Designation: Flammable liquid

Synonyms: Benzol, phenyl hydride, coal naphtha, phene, benxole, cyclohexatriene.

Potential Exposure: Benzene is used as a constituent in motor fuels, as a solvent for fats, inks, oils, paints, plastics, and rubber, in the extraction of oils from seeds and nuts, and in photogravure printing (1). It is also used as a chemical intermediate. By alkylation, chlorination, nitration, and sulfonation, chemicals such as styrene, phenols, and maleic anhydride are produced. Benzene is also used in the manufacture of detergents, explosives, pharmaceuticals, and dye-stuffs.

NIOSH estimates that approximately 2 million workers in the U.S. are potentially exposed to benzene. Increased concern for benzene as a significant environmental pollutant arises from public exposure to the presence of benzene in gasoline and the increased content in gasoline due to requirements for unleaded fuels for automobiles equipped with catalytic exhaust converters.

Incompatibilities: Strong oxidizers; chlorine, bromine with iron.

Permissible Exposure Limits in Air: In 1974 NIOSH published a criteria document (2) for occupational exposure to benzene which recommended adherence to an existing Federal standard of 10 ppm (30 mg/m³) as a time-weighted average with a ceiling of 25 ppm.

The Federal emergency standard for benzene effective May 21, 1977, is 1 ppm for an 8-hour TWA, with 5 ppm as a maximum peak above the acceptable ceiling for a maximum duration of 15 minutes.

OSHA again has amended its permanent standard as of mid-1978 limiting worker exposure to benzene to 1 ppm to exempt workplaces where benzene levels in liquids do not exceed 0.5%. After three years the minimum allowable level would be 0.1%. When OSHA first issued the standard no exemption for benzene mixtures was allowed. Later it amended the standard to exempt workplaces where the level of benzene in mixtures was less than 0.1%. In July 1980, the U.S. Supreme Court struck down the OSHA standard because it failed to show a cost/benefit analysis and the OSHA standard has reverted to a 10 ppm 8-hour TWA limit. In addition, ACGIH designated benzene as an "Industrial Substance Suspect of Carcinogenic Potential for Man," with a TLV of 10 ppm (30 mg/m³) and an STEL of 25 ppm (75 mg/m³) as of 1983/84. The IDLH level is 2,000 ppm.

Determination in Air: Adsorption on charcoal, workups with CS₂, analysis by gas chromatography. See NIOSH Methods, Set U. See also reference (A-10). Benzene may also be determined with long duration detector tubes (A-11).

Permissible Concentration in Water: To protect freshwater aquatic life: 6,300 µg/l on an acute basis. To protect saltwater aquatic life: 5,100 µg/l on an acute basis. To protect human health: preferably zero. An additional lifetime cancer risk of 1 in 100,000 results from a concentration of 6.6 µg/l.

Determination in Water: Gas chromatography (EPA Method 602) or gas chromatography plus mass spectrometry (EPA Method 624).

Routes of Entry: Inhalation of vapor which may be supplemented by percutaneous absorption although benzene is poorly absorbed through intact skin; ingestion; skin and eye contact.

Harmful Effects and Symptoms: *Local* – Exposure to liquid and vapor may produce primary irritation to skin, eyes, and upper respiratory tract. If the liquid is aspirated into the lung, it may cause pulmonary edema and hemorrhage. Erythema, vesiculation, and dry, scaly dermatitis may also develop from defatting of the skin.

Systemic – Acute exposure to benzene results in central nervous system depression. Headache, dizziness, nausea, convulsions, coma, and death may result. Death has occurred from large acute exposure or as a result of ventricular fibrillation, probably caused by myocardial sensitization to endogenous epinephrine.

Early reported autopsies revealed hemorrhages (nonpathognomonic) in the brain, pericardium, urinary tract, mucous membranes, and skin. Chronic exposure to benzene is well documented to cause blood changes. Benzene is basically a myelotoxic agent. Erythrocyte, leukocyte, and thrombocyte counts may first increase, and then aplastic anemia may develop with anemia, leukopenia, and thrombocytopenia. The bone marrow may become hypo- or hyperactive and may not always correlate with peripheral blood.

Recent epidemiologic studies along with case reports of benzene related blood dyscrasias and chromosomal aberrations have led NIOSH to conclude that benzene is leukemogenic (11). The evidence is most convincing for acute myelogenous leukemia and for acute erythroleukemia, but a connection with chronic leukemia has been noted by a few investigators.

Recent work has shown increases in the rate of chromosomal aberrations associated with benzene myelotoxicity. These changes in the bone marrow are stable and may occur several years after exposure has ceased. "Stable" changes may give rise to leukemic clones and seem to involve chromosomes of the G group.

Points of Attack: Blood, central nervous system, skin, bone marrow, eyes, respiratory system.

Medical Surveillance: Preplacement and periodic examinations should be concerned especially with effects on the blood and bone marrow and with a history of exposure to other myelotoxic agents or drugs or of other diseases of the blood. Preplacement laboratory exams should include: (a) complete blood count (hematocrit, hemoglobin, mean corpuscular volume, white blood count, differential count, and platelet estimation); (b) reticulocyte count; (c) serum bilirubin; and (d) urinary phenol.

The type and frequency of periodic hematologic studies should be related to the data obtained from biologic monitoring and industrial hygiene studies, as well as any symptoms or signs of hematologic effects. Recommendations for proposed examinations have been made in the criteria for a recommended standard. Examinations should also be concerned with other possible effects such as those on the skin, central nervous system, and liver and kidney functions.

Biologic monitoring should be provided to all workers subject to benzene exposure. It consists of sampling and analysis of urine for total phenol content. The objective of such monitoring is to be certain that no worker absorbs an unacceptable amount of benzene. Unacceptable absorption of benzene, posing a risk of benzene poisoning, is considered to occur at levels of 75 mg phenol per liter of urine (with urine specific gravity corrected to 1.024), when determined by methods specified in the NIOSH "Criteria for Recommended Standard—Benzene." Alternative methods shown to be equivalent in accuracy and precision may also be useful. Biological monitoring should be done at quarterly intervals. If environmental sampling and analysis are equal to or exceed accepted safe limits, the urinary phenol analysis should be conducted every two weeks. This increased monitoring frequency should continue for at least 2 months after the high environmental level has been demonstrated.

Two follow-up urines should be obtained within one week after receipt of the original results, one at the beginning and the other at the end of the work week. If original elevated findings are confirmed, immediate steps should be taken to reduce the worker's absorption of benzene by improvement in environment control, personal protection, personal hygiene, and administrative control. See also reference (7).

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly with soap when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

10 ppm: SA/SCBA
50 ppm: SAF/SCBAF
1,000 ppm: SA:PD,PP,CF
2,000 ppm: SAF:PD,PP,CF
Escape: GMS/SCBA

Disposal Method Suggested: Incineration.

References

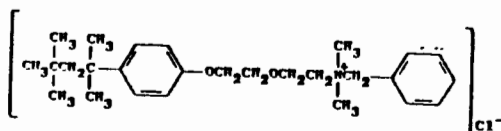
- (1) National Academy of Sciences, *A Review of Health Effects of Benzene*, National Academy of Sciences, Washington, DC (June 1976).
- (2) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Benzene*, NIOSH Doc. No. 74-137, Washington, DC (1974).
- (3) U.S. Environmental Protection Agency, *Benzene: Ambient Water Quality Criteria*, Wash., DC (1980).
- (4) U.S. Environmental Protection Agency, *Status Assessment of Toxic Chemicals: Benzene*, Report EPA-600/2-79-210D, Wash., DC (Dec. 1979).
- (5) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risk of Chemicals to Humans*, 7, 203, Lyon, France (1974) and 11, 295, Lyon, France (1978).
- (6) U.S. Environmental Protection Agency, *Benzene, Health and Environmental Effects Profile No. 15*, Wash., DC, Office of Solid Waste (April 30, 1980).
- (7) Nat. Inst. for Occup. Safety and Health, *A Guide to the Work Relatedness of Disease*,

Revised Edition, DHEW (NIOSH) Publication No. 79-116, pp 63-72, Cincinnati, OH (Jan. 1979).

- (8) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 4, 38-41, New York, Van Nostrand Reinhold Co. (1981).
- (9) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 2, No. 4, 33-38, New York, Van Nostrand Reinhold Co. (1982).
- (10) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 3, No. 3, 53-59, New York, Van Nostrand Reinhold Co. (1983).
- (11) See Reference (A-62). Also see Reference (A-84).
- (12) Mehlman, M.A., Ed., *Carcinogenicity and Toxicity of Benzene*, Princeton, N.J., Princeton Scientific Publishers (1983).
- (13) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 1, pp 257-61, Geneva, International Labour Office (1983).
- (14) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. 1, pp VII/69-73, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

BENZETHONIUM CHLORIDE

Description: $C_{27}H_{42}ClNO_2$ with the following structural formula



forms crystals which melt at 164° to 166°C.

Code Numbers: CAS 121-54-0 RTECS BO7175000

DOT Designation: —

Synonyms: Phemerol chloride®, Phemeride®, Phemerol®.

Potential Exposure: Used as topical antinflective.

Incompatibilities: Soap, anionic detergents.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Ingestion may cause vomiting, convulsions, collapse and coma.

Personal Protective Methods: Wear skin protection.

Respirator Selection: Hot conditions may necessitate use of self-contained breathing apparatus.

Disposal Method Suggested: Incineration.

References

- (1) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 1, 32-33, New York, Van Nostrand Reinhold Co. (1980).

BENZIDINE

- Carcinogen (Human positive, IARC) (3)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $NH_2C_6H_4C_6H_4NH_2$, benzidine, is a crystalline solid with a significant vapor pressure. The salts are less volatile, but tend to be dusty.

Code Numbers: CAS 92-87-5 RTECS DC9825000 UN 1885

DOT Designation: Poison B

Synonyms: 4,4'-Biphenyldiamine, p-diaminodiphenyl, 4,4'-diaminobiphenyl, 4,4'-diphenylenediamine, benzidine base.

Potential Exposures: Benzidine is used primarily in the manufacture of azo dyestuffs; there are over 250 of these produced. Other uses, including some which may have been discontinued, are in the rubber industry as a hardener, in the manufacture of plastic films, for detection of occult blood in feces, urine, and body fluids, in the detection of H_2O_2 in milk, in the production of security paper, and as a laboratory reagent in determining HCN, sulfate, nicotine, and certain sugars. No substitute has been found for its use in dyes.

Free benzidine is present in the benzidine-derived azo dyes. According to industry, quality control specifications require that the level not exceed 20 ppm, and in practice the level is usually below 10 ppm. Industry has estimated a total environmental discharge at the 300 user facility sites of 450 pounds per year or about 1.5 pounds per year per facility, assuming all of the free benzidine is discharged in the liquid effluent.

No measurements for benzidine in ambient air, surface water, or drinking water have been reported. Further, no measurements for free benzidine in finished products containing azo dyes have been reported.

Estimates of the number of people exposed to benzidine and 3,3'-dichlorobenzidine are difficult to obtain. It has been suggested that 62 people in the U.S. are exposed to the former and between 250 and 2,500 to the latter.

Permissible Exposure Limits in Air: Benzidine and its salts are included in a Federal standard for carcinogens; all contact with them should be avoided. Cutaneous absorption is possible. ACGIH (1983/84) lists benzidine as a human carcinogen with the notation that skin absorption may be significant.

Determination in Air: Collection on a filter followed by colorimetric analysis (A-12). See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—2,500 $\mu g/l$ on an acute basis; insufficient data to yield a value for saltwater aquatic life. To protect human health—preferably zero. An additional lifetime cancer risk of 1 in 100,000 results from a concentration of 0.0012 $\mu g/l$ (?).

Determination in Water: High performance liquid chromatography (EPA Method 805) or an oxidation/colorimetric method using Chloramine T (available from EPA) or a gas chromatography/mass spectrometric method (EPA Method 825).

Routes of Entry: Inhalation, percutaneous absorption, and ingestion of dust.

Harmful Effects and Symptoms: Local — Contact dermatitis to primary irritation or sensitization has been reported.

Potential Exposure: Over 75% of DMB is used as a dye and as an intermediate in the production of dyestuffs and pigments. According to the Society of Dyers and Colorists, more than 95 dyes are derived from DMB. Approximately 20% of DMB is used in the production of polyurethane-based high-strength elastomers, coatings, and rigid plastics. DMB has also been used in small quantities in chlorine test kits by water companies and swimming pool owners and in test tapes in clinical laboratories.

Workers potentially exposed to DMB include dye makers, repackagers of DMB and dyes, workers in toluene-diisocyanate production, and clinical and analytical chemistry laboratory personnel. Workers in a variety of occupations may be exposed to small quantities of DMB used for analytical purposes, among them water and sewage plant attendants, chemical test tape or kit makers, and swimming pool service representatives. NIOSH in 1978 estimated that fewer than 100 employees were exposed to large quantities of DMB in the United States, but as many as 200,000 may be exposed to small quantities. The National Occupational Hazard Survey in 1974 estimated that 420 workers were potentially exposed to DMB.

Permissible Exposure Limits in Air: There are no Federal standards but ACGIH (1983/84) has designated o-tolidine as an "industrial substance suspect of carcinogenic potential for man" with no numerical TLV value.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Skin and eye irritation.

The available test results are considered to provide sufficient evidence for the carcinogenicity of 3,3'-dimethylbenzidine in experimental animals (2). Commercial 3,3'-dimethylbenzidine (o-tolidine), when given to the rat by subcutaneous injection, caused mainly Zymbal's gland carcinomas, but mammary and forestomach tumors, and miscellaneous tumors at other sites were also present. A gastric intubation experiment with rats produced mammary carcinomas, but the result is of doubtful significance because of the small number of animals involved. In feeding experiments, the commercial product did not produce tumors in hamsters. Other experiments verified 3,3'-dimethylbenzidine as a systemic carcinogen producing multiple site tumors when given subcutaneously to the rat (1).

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, flush with water and wash contaminated areas with soap. If this chemical has been swallowed, wash with large volumes of water but do not induce vomiting (A-46).

Personal Protective Methods: Wear clothing and goggles to prevent skin and eye contact.

References

- (1) International Agency for Research on Cancer, *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, Supplement 4, Lyon, France: IARC (1982).
- (2) International Agency for Research on Cancer, *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man*, Vol 1, pp 87-91 Lyon, France: IARC (1972).

TOLUENE

- Hazardous substance (EPA)

- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $C_6H_5CH_3$, toluene, is a clear, colorless, noncorrosive liquid with a sweet, pungent, benzenelike odor. It boils at 110° to 111°C.

Code Numbers: CAS 108-88-3 RTECS XS5250000 UN 1294

DOT Designation: Flammable liquid

Synonyms: Toluol, methylbenzene, phenylmethane, methylbenzol.

Potential Exposures: Toluene may be encountered in the manufacture of benzene. It is also used as a chemical feed for toluene diisocyanate, phenol, benzyl and benzoyl derivatives, benzoic acid, toluene sulfonates, nitrotoluenes, vinyltoluene, and saccharin; as a solvent for paints and coatings; or as a component of automobile and aviation fuels.

It is estimated that 100,000 workers are potentially exposed to toluene. At present levels of exposure to toluene in the environment, available toxicological data do not suggest that any special group in the general population would be at risk. Exposure to levels of the chemical necessary to produce physiological or toxicological effects would be anticipated primarily in occupational or solvent abuse situations. Environmental contribution of toluene in such settings should be minimal.

Incompatibilities: Strong oxidizers.

Permissible Exposure Limits in Air: The Federal standard is 200 ppm as an 8-hour TWA with an acceptable ceiling concentration of 300 ppm; acceptable maximum peaks above the ceiling of 500 ppm are allowed for 10 minutes duration. NIOSH has recommended a limit of 100 ppm (TWA) with a ceiling of 200 ppm for a 10-minute sampling period. ACGIH (1983/84) cites a TWA of 100 ppm (375 mg/m³) and an STEL of 150 ppm (560 mg/m³). The IDLH level is 2,000 ppm.

Determination in Air: Adsorption on charcoal, workup with CS₂, analysis by gas chromatography. See NIOSH Methods, Set V. See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—17,500 µg/l on an acute toxicity basis. To protect saltwater aquatic life—6,300 µg/l on an acute toxicity basis and 5,000 µg/l on a chronic basis. To protect human health—14.3 mg/l.

Determination in Water: Inert gas purge followed by gas chromatography and photolization detection (EPA Method 602) or gas chromatography plus mass spectrometry (EPA Method 624).

Routes of Entry: Inhalation of vapor, percutaneous absorption of liquid, ingestion, skin and eye contact.

Harmful Effects and Symptoms: *Local* — Toluene may cause irritation of the eyes, respiratory tract, and skin. Repeated or prolonged contact with liquid may cause removal of natural lipids from the skin, resulting in dry, fissured dermatitis. The liquid splashed in the eyes may cause irritation and reversible damage.

Systemic — Acute exposure to toluene predominantly results in central nervous system depression. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness, incoordination with staggering gait, skin paresthesia, collapse, and coma.

Points of Attack: Central nervous system, liver, kidneys, skin.

Medical Surveillance: Preplacement and periodic examinations should evaluate possible effect on skin, central nervous system, as well as liver and kidney function. Hematologic studies should also be done if there is significant contamination of the solvent with benzene.

Hippuric acid levels above 5 g/l of urine may result from exposure greater than 200 ppm determined as a TWA. Blood levels can also be determined for toluene.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

- 500 ppm: CCROV/SA/SCBA
- 1,000 ppm: CCROVF
- 2,000 ppm: GMOV/SAF/SCBAF
- Escape: GMOV/SCBA

Disposal Method Suggested: Incineration.

References

- (1) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: Toluene*, Washington, DC (1979).
- (2) U.S. Environmental Protection Agency, *Toluene: Ambient Water Quality Criteria*, Washington, DC (1980).
- (3) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Toluene*, NIOSH Doc. No. 73-11023 (1973).
- (4) U.S. Environmental Protection Agency, *Toluene*, Health and Environmental Effects Profile No. 160, Washington, DC, Office of Solid Waste (April 30, 1980).
- (5) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 2, No. 6, 83-87, New York, Van Nostrand Reinhold Co. (1982).
- (6) See Reference (A-61).
- (7) See Reference (A-60).
- (8) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2184-86, Geneva, International Labour Office (1983).
- (9) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. II, pp VII/763, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TOLUENE-2,4-DIAMINE

- Carcinogen (Animal Positive, IARC) (3) (4)
- Hazardous Waste (EPA)

Description: $C_7H_{10}N_2$, $H_3CC_6H_3(NH_2)_2$ takes the form of colorless needles melting at 99°C.

Code Numbers: CAS 95-80-7 RTECS XS9675000 UN (NA 1709)

DOT Designation: ORM-A

Synonyms: 3-Amino-para-toluidine, 5-amino-ortho-toluidine, 1,3-diamino-4-

methylbenzene, 2,4-diamino-1-methylbenzene, 2,4-diaminotoluene, 2,4-diamino-toluol, 4-methyl-meta-phenylenediamine, MTD.

Potential Exposures: Toluene-2,4-diamine is a chemical intermediate for toluene diisocyanate (used in the production of flexible and rigid polyurethane foams, polyurethane coatings, cast elastomers including fabric coatings, and polyurethane and other adhesives), and for dyes used for textiles, leather, furs, and in hair-dye formulations.

Toluene-2,4-diamine can be used for the production of about 60 dyes, 28 of which are currently believed to be of commercial significance. These dyes are generally used to color silk, wool, paper and leather. Some are also used to dye cotton, fast fibers and cellulosic fibers, in spirit varnishes and wood stains, as indicators, in the manufacture of pigments, and as biological stains.

Toluene-2,4-diamine is used as a developer for direct dyes, particularly to obtain black, dark-blue and brown shades and to obtain navy-blue and black colors on leather; it is also used in dyeing furs. It was formerly used in hair-dye formulations (to produce drab-brown, drab-blond, blue and gray shades on the hair) before this use was forbidden in 1971.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Methemoglobinemia, central nervous system depression, and degeneration of the liver typically result from exposure to toluene-2,4-diamine. Eye irritation, skin blistering, nausea, vomiting, jaundice and anemia are reported (A-38).

2,4-Diaminotoluene is carcinogenic in rats and after its oral administration, producing hepatocellular carcinomas, and its subcutaneous injection, inducing local sarcomas (3) (4).

Points of Attack: Central nervous system, liver.

Medical Surveillance: Consider the points of attack in preplacement and periodic physical examinations.

First Aid: Irrigate eyes with water. Wash contaminated areas of body with soap and water.

Personal Protective Methods: Wear butyl rubber gloves and plastic coveralls.

Respirator Selection: Use self-contained breathing apparatus.

Disposal Method Suggested: Controlled incineration (oxides of nitrogen are removed from the effluent gas by scrubbers and/or thermal devices).

References

- (1) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: Toluene-2,4-Diamine*, Washington, DC (1979).
- (2) U.S. Environmental Protection Agency, *2,4-Toluenediamine*, Health and Environmental Effects Profile No. 161, Washington, DC, Office of Solid Waste (April 30, 1980).
- (3) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risk of Chemicals to Humans*, Lyon, France 16, 83 (1978).
- (4) See Reference (A-62). Also see Reference (A-64).

TOLUENE DIISOCYANATE

- Hazardous Waste (EPA)

WOOD DUST

Description: Wood dust (an ACGIH term) corresponds perhaps most closely to the industrial classification of wood flour. Wood flour is produced in 40 to 60 mesh and 70 to 80 mesh fractions, for example.

DOT Designation: —

Synonym: Sawdust.

Potential Exposures: Wood dust is produced incidentally in sawmill operations and in wood sawing and sanding operations in furniture manufacture. When produced as an industrial wood flour product, it is used as an absorbent for nitroglycerin in dynamite manufacture and as a filler in plastics, linoleum and paperboard.

Permissible Exposure Limits in Air: There are no Federal standards but ACGIH has proposed as of 1983/84 a TWA value of 1 mg/m^3 for hardwood (beech and oak, e.g.) dust, and a value of 5 mg/m^3 for softwood dust. No STEL value is given for hardwood dust; a value of 10 mg/m^3 is given for softwood dust.

Permissible Concentration in Water: No criteria set.

Route of Entry: Inhalation.

Harmful Effects and Symptoms: Dermatitis, respiratory disease and cancer are the three main categories. Dermatitis may be primary irritant dermatitis from mechanical or chemical irritation; sensitization of the skin may follow. Respiratory diseases include suberosis, maple bark disease and sequosia. Cancers of the larynx, tonsils, tongue and lung have been reported as arising from inhalation of wood dust in the furniture industry (A-34).

X

XYLENES

- Hazardous substance (EPA)
- Hazardous waste (EPA)

Description: $\text{C}_6\text{H}_4(\text{CH}_3)_2$, xylene, exists in three isomeric forms, ortho-, meta- and para-xylene. Commercial xylene is a mixture of these three isomers and may also contain ethylbenzene as well as small amounts of toluene, trimethylbenzene, phenol, thiophene, pyridine, and other nonaromatic hydrocarbons. m-Xylene is predominant in commercial xylene and shares physical properties with o-xylene in that both are mobile, colorless, flammable liquids. p-Xylene, at a low temperature (13° to 14°C), forms colorless plates or prisms.

Code Numbers: CAS 1330-20-7 RTECS ZE2100000 UN 1307

DOT Designation: Flammable liquid.

Synonyms: Xylol, dimethylbenzene.

Potential Exposures: Xylene is used as a solvent; as a constituent of paint, lacquers, varnishes, inks, dyes, adhesives, cements, cleaning fluids and aviation fuels; and as a chemical feedstock for xyldines, benzoic acid, phthalic anhydride, isophthalic, and terephthalic acids, as well as their esters (which are specifically used in the manufacture of plastic materials and synthetic textile fabrics). Xylene is also used in the manufacture of quartz crystal oscillators, hydrogen peroxide, perfumes, insect repellents, epoxy resins, pharmaceuticals, and in the leather industry.

NIOSH estimates that 140,000 workers are potentially exposed to xylene.

Incompatibilities: Strong oxidizers.

Permissible Exposure Limits in Air: The Federal standard and the ACGIH 1983/84 TWA value is 100 ppm (435 mg/m^3) for all isomers. NIOSH recommends adherence to the present Federal standard of 100 ppm as a time-weighted average for up to a 10-hour workday, 40-hour workweek. NIOSH also recommends a ceiling concentration of 200 ppm as determined by a sampling period of 10 minutes. The STEL value is 150 ppm (655 mg/m^3). The notation "skin" is added to indicate the possibility of cutaneous absorption. The IDLH level is 10,000 ppm.

Determination in Air: Adsorption on charcoal, workup with CS_2 , analysis by gas chromatography. See NIOSH Methods, Set U. See also reference (A-10).

Permissible Concentration in Water: No criteria set but EPA (A-37) has suggested a permissible ambient goal of $6,000 \mu\text{g/l}$ based on health effects.

Routes of Entry: Inhalation of vapor and, to a small extent, percutaneous absorption of liquid. Also ingestion and skin and eye contact.

Harmful Effects and Symptoms: *Local* – Xylene vapor may cause irritation of the eyes, nose, and throat. Repeated or prolonged skin contact with xylene may cause drying and defatting of the skin which may lead to dermatitis. Liquid xylene is irritating to the eyes and mucous membranes, and aspiration of a few milliliters may cause chemical pneumonitis, pulmonary edema, and hemorrhage. Repeated exposure of the eyes to high concentrations of xylene vapor may cause reversible eye damage.

Systemic – Acute exposure to xylene vapor may cause central nervous system depression and minor reversible effects upon liver and kidneys. At high concentrations xylene vapor may cause dizziness, staggering, drowsiness, and unconsciousness. Also at very high concentrations, breathing xylene vapors may cause pulmonary edema, anorexia, nausea, vomiting, and abdominal pain.

Points of Attack: Central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys, skin.

Medical Surveillance: Preplacement and periodic examinations should evaluate possible effects on the skin and central nervous system, as well as liver and kidney functions. Hematologic studies should be done if there is any significant contamination of the solvent with benzene.

Although metabolites are known, biologic monitoring has not been widely used. Hippuric acid or the ether glucuronide of o-toluic acid may be useful in diagnosis of m-, p- and o-xylene exposure, respectively.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

- 1,000 ppm: CCROVF
- 500 ppm: GMOV/SAF/SCBAF
- 10,000 ppm: SAF:PD,PP,CF
- Escape: GMOV/SCBA

Disposal Method Suggested: Incineration.

References

- (1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Xylene*, NIOSH Doc. No. 75-168 (1975).
- (2) See Reference (A-61).
- (3) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 7, 79-81, New York, Van Nostrand Reinhold Co. (1981). (m-Xylene).
- (4) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 3, No. 3, 88-92, New York, Van Nostrand Reinhold Co. (1983). (p-Xylene).
- (5) See Reference (A-60).
- (6) Perroneglioni, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2335-36, Geneva, International Labour Office (1983).

- (7) United Nations Environment Programme, *IAPTC Legal File 1983*, Vol. II, pp VII/789-94, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

m-XYLENE- α -DIAMINE

Description: $\text{H}_2\text{NCH}_2\text{C}_6\text{H}_4\text{CH}_2\text{NH}_2$ is a liquid, melting at 15°C and boiling at 200°C .

Code Numbers: CAS 1477-55-0 RTECS PF8970000

DOT Designation: –

Synonyms: m-Phenylene bis (methylemine)

Potential Exposures: Those involved in its manufacture or in its use as an intermediate, in the manufacture of polyamide resins, for example.

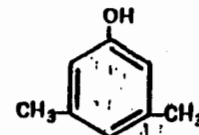
Permissible Exposure Limits in Air: There is no Federal standard but ACGIH (1983/84) has adopted a ceiling value of 0.1 mg/m^3 . They have set no tentative STEL value. The notation "skin" is added indicating the possibility of cutaneous absorption.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Acute oral and skin irritation and sensitization and gastrointestinal irritation have been observed in animals (A-34). Phenylene diamine is suggested by ACGIH as a closely related chemical worthy of comparison.

3,5-XYLENOL

Description: $\text{C}_8\text{H}_{10}\text{O}$ with the formula



is a crystalline compound melting at 64°C .

Code Numbers: CAS 108-68-9 RTECS ZE6475000

DOT Designation: –

Synonyms: 1-Hydroxy-3,5-dimethylbenzene; 3,5-dimethylphenol.

Potential Exposure: To those involved in xylenol use in pharmaceutical, pesticide, plasticizer, fuel and lubricant additive, rubber chemical and dyestuff manufacture.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: 0.25 mg/l is the maximum allowable in drinking water (A-36).

Routes of Entry: Skin absorption.

NOV 05 1990

GEI Consultants, Inc.

Suffolk Building
53 Regional Drive
Concord, NH 03301-8500
603 224 7979

LETTER OF TRANSMITTAL

Date	10/3/90	Project No.	90379
Attention	Steven Winters		
Re:	Saxons River		

TO VTANR
Dept of Envir Conservation
103 South Main St, West
Waterbury, VT 05676 Building

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Report ☐ Prints ☒ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

Copies	DATE	NO.	DESCRIPTION
1	10/3/90		Preliminary On-Site Investigation Work Plan

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

COPY TO: _____

SIGNED: _____

GEI CONSULTANTS, INC.

If enclosures are not as noted, kindly notify us at once.

REMARKS _____

ACKNOWLEDGEMENT OF RECEIPT:

Signed _____

Title _____

Date _____

White-Addressee's Copy

Yellow-Acknowledgement Copy

Pink-Project File Copy

Gold-Consecutive File Copy

RECORD OF COMMUNICATION, page 1 of 1

CONTROL NUMBER: R2-334-1505SAXRIV

FILE: Saxtons River

DATE: November 30, 1990

TIME: 3:00 p.m.

PARTICIPANTS: Bud (Harold) Carle, Retired Saxtons River Fire Chief ,
869-2389; Steve Winters, Vt HSMS

SUBJECT: Recollections of the 4/29/89 Saxtons River fire.

PHONE CALL: X DISCUSSION: OTHER:

SUMMARY OF COMMUNICATION:

Bud Carle was the Saxtons River Fire Chief at the time of the 4/29/79 fire. I asked Mr. Carle for his general recollections and if he was aware of any chemicals stored in the building that was consumed by the 4/29/79 fire. Mr. Carle said that he recalls that 6 or 8 55-gallon drums of kerosene were stored on the property. He said the kerosene was used for heating. He said that when the fire got to the kerosene it became quite large.

Mr. Carle also reported to me the following items:

- Tenneys Hardware is the site of a former gas station and garage. He said he recalls 2 underground tanks on site that, in his memory, were never removed.
- The owner of the laudromat/dry cleaner, a Mr. Dunbar, stored a large variety of electrical equipment in the basement of the laudromat/dry cleaner building (now the building that houses the pizza restaurant).
- A pit about 1.5 feet by 3 feet in area, used to catch garage waste, was located in the floor of the Sunoco Station. One day it became plugged and some strong dye was forced in the pit or drain to see where it would terminate. Mr. Carle reports that the dye failed to emerge from anywhere he could determine.

I asked Mr. Carle if he would repeat his recollections to a representative of the engineering firm the state has hired to conduct the contamination investigation in Saxtons River. He said he would be glad to assist. I told him someone from GEI will call him shortly to ask him questions about his recollections.

NOTES, CONCLUSIONS, ACTIONS TAKEN OR REQUIRED: Inform Chris Covell and Joanne Morin of GEI of conversation.

DISTRIBUTION: Saxtons River site file

SLW/slw/R2-334-1505SAXRIV, December 3, 1990

JAN 31 1991



GEI Consultants, Inc.

**SITE INVESTIGATION WORK PLAN
SAXTONS RIVER, VERMONT**

**Submitted to
Steven L. Winters
Vermont Agency of Natural Resources**

**53 Regional Drive
Concord, New Hampshire
(603) 224-7979**

**Project 90379
January 28, 1991**

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1. INTRODUCTION

GEI Consultants, Inc. (GEI) entered into contractual agreement with the State of Vermont Agency of Natural Resources (ANR) on October 12, 1990 to conduct a hazardous materials investigation in the Village of Saxtons River, Vermont. The purpose of the investigation is to collect information relative to the following:

1. Location and chemical composition of the source of the non-petroleum contaminant plume;
2. Identity and concentration of the chemicals causing the contamination;
3. Lateral and vertical extent of the non-petroleum constituent contaminant plume, based on ground water sampling points;
4. Direction in which the contamination is spreading and its rate of movement;
5. Identity and location of potential receptors, both environmental and human.

This document is GEI's Site Investigation Work Plan (Contract Task 4) for the Saxtons River investigation. It contains a summary of the findings from the Preliminary On-Site Investigation (Contract Task 3) including site history (Appendix A), and results of the geologic investigation including bedrock mapping, aerial photograph analysis and geophysical surveys (Appendix B). It also describes the subsurface explorations to be conducted in GEI's proposed site investigation. Approval of this document by the ANR represents completion of Task 4.

The site is the Village of Saxtons River, which is an incorporated village of the Town of Rockingham, Vermont. The Village is located on the terraces of the Saxtons River which flows generally east where it enters the Connecticut River in Bellows Falls, Vermont.

The terrain in the site area varies from level river terraces immediately south and north of the River to steep slopes between terraces. Bedrock outcrops can be seen below the bridge on Hartley Hill Road and throughout the river bed. Bedrock also outcrops along the valley walls to the north along Pleasant Street and in the fields of the Vermont Academy to the north. The Village is densely populated with residential properties, small businesses, and shops. Property parcels within the Village average approximately 100 feet by 200 feet with the majority of residences located off Main Street and the majority of businesses located along Main Street.

The Village has no public water supply, but a public sewer system was completed in 1972. Prior to 1972, the waste was disposed directly into the River.

Review of well data from the State of Vermont Water Quality Department, Ground Water Management indicated that private water supplies in the area are primarily supplied by drilled bedrock wells. According to State records, bedrock water supplies in the area can have yields which range from a couple gallons per minute to 100 gallons per minute.

2. BACKGROUND

During July of 1989, Mrs. Bertha King of Saxtons River, Vermont notified the Vermont Health Department of a gasoline odor from her water. On July 20, 1989 the State of Vermont's Health Department analyzed a sample of Mrs. King's water. The analysis showed low levels of hydrocarbons. The Petroleum Division of the ANR was then notified and on August 22, 1989, Mrs. King's water was resampled and analyzed by the Petroleum Division, at which time Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) compounds were detected in the well water at levels higher than the Safe Drinking Water Act Maximum Contaminant Levels (MCLs).

The Petroleum Division expanded their sampling program to include other homes surrounding the King residence and found additional wells with BTEX contamination. ANR's Petroleum Division contracted Tri-S Environmental Consultants of Brattleboro, Vermont to investigate and remediate the source of the BTEX contamination. The source was determined to be leaking underground storage tanks (USTs) at the Sunoco gas station abutting the King residence. The property is owned by A.R. Sandri, Inc. of Greenfield, Massachusetts. Wells which have or have had BTEX contamination were identified in the ANR files as the Skovinski residence; King residence; Crispe residence (family housing); A. Smith; Pizza, Paul and Mary; Mortensen; A.R. Sandri; Smith; Fletcher; Kimball; and, Thurlow.

The sampling of local water wells in Saxtons River by ANR's Petroleum Division on September 26, 1989 determined that the Skovinski well also contained the chemical perchloroethylene (PCE). After further investigation by ANR Petroleum Division, it was determined that a number of other residential water supplies in the Village were contaminated with the chemical. ANR's Petroleum Division then transferred the handling of the case to ANR's Hazardous Materials Division for further investigation.

Initial review of the files by the ANR indicated that the suspect chemical contamination may be originating in the basement of the "Pizza, Paul and Mary" restaurant located at the corners of Main Street and School Street. Historical information indicates the building which houses the restaurant (Lot 69, Tax Map U-15) used to house a laundromat which contained dry cleaning equipment that may have utilized PERC.

During a visit to the site, Mr. Richard Spiese of the ANR's Petroleum Division was shown a tank in the basement of the "Pizza, Paul and Mary" restaurant by Mr. Paul MacIntire, current owner of the property. The tank was located below the old dry cleaning equipment and was labeled Perk Chemical Company, 217 South First Street, Elizabeth, New Jersey, 07206. This tank may contain perchloroethylene.

3. SITE INVESTIGATION WORK PLAN

3.1 Study Objectives

The objectives of GEI's proposed Site Investigation are to:

- Collect soil samples from potential source areas and test them for volatile organic chemicals (VOCs).
- Examine potential source areas of non-petroleum ground water contamination by installing three overburden ground water monitoring wells, and sampling and testing ground water for volatile organic chemicals (VOCs).
- Locate bedrock fractures which may be acting as conduits for contaminated ground water movement in the bedrock aquifer by drilling (2) two bedrock wells in areas identified by photolineaments and geophysical anomalies to potentially contain significant bedrock fractures. Ground water will be sampled and tested for volatile organic chemicals (VOCs).
- Estimate specific yields of individual fractures during drilling of bedrock wells by blow testing the significant fractures encountered.
- Estimate the in-situ hydraulic conductivity of the surficial aquifer by performing falling head conductivity tests during drilling of overburden wells.
- Based on the information collected estimate the direction and velocity of ground water flow and contaminant migration, and identify possible future receptors.

3.2 Findings of the Preliminary On-Site Investigation

Based on the results of a site history investigation presented in Appendix A, three potential source areas of non-petroleum ground water contamination were identified:

- The Tenny's Hardware Store used to be a Texaco Service Station which may have used solvents in the degreasing and cleaning of engine parts and vehicle parts.
- The Pizza, Paul and Mary restaurant used to be a laundromat containing one dry cleaning machine which may have used tetrachloroethene (PERC), one of the chemicals detected in ground water samples collected in the Village of Saxtons River.

- The former Moore apartment building (where a fire of suspicious origin destroyed the building in 1979) may have had chemicals stored in the basement of the building at the time of the fire, according to reports from local residents of the village.

Other significant findings of the preliminary On-Site Investigation are:

- Review of past information indicates ground water flow in the site area surficial aquifer is generally southeast. Surficial deposits are highly permeable sands and gravel of alluvial origin.
- Bedrock mapping completed by GEI indicates two major sets of joint systems: a predominant system with a north/south strike and a steep easterly dip, and an orthogonal system with an east/west strike with a steep south and north dip.
- Photolineament analysis completed by GEI detects two major lineaments trending through the site. One north/south trending lineament projects directly through the site area in the vicinity of Pizza, Paul and Mary restaurant. An east/west lineament also projects through the site area running just south of Main Street (Figure 1).
- Geophysical surveys (electromagnetic) completed by GEI indicate a major anomaly indicative of a water bearing fracture along four of the five geophysical profiles performed by GEI. The fracture indicated by these anomalies coincides with the location of the major north/south trending lineament.
- Several of the residential bedrock wells which have been found by the ANR to contain contamination appear to be located along the two major lineaments in the site area.

3.3 Soil Sampling Program

GEI will collect soil samples from four suspected source areas: in the basement of the Pizza, Paul and Mary restaurant; behind the Pizza, Paul and Mary building; and behind the Tenny Hardware store (Figure 1).

A hand auger hole will be advanced at each of these locations to a maximum depth of 5 feet, if possible. Hand auger probes will be performed at locations where chemicals were formerly stored, or at locations where chemicals may have been discharged, such as below dry cleaning equipment and locations of stained surface soils. Volatile organic chemical vapors will be measured with an HnU photoionization detector (PID) in the auger hole and in headspaces above auger samples as it is advanced. If elevated PID readings are detected, samples of soil with the highest PID readings will be collected for possible VOC analysis. Soil will be placed immediately in 40-ml glass vials with Teflon^R septum-lined screw caps, inverted, and stored on ice in a cooler. If VOCs are detected

with the PID above background at the outside locations or within the basement of the Pizza, Paul, and Mary building, then sampling will be continued radially at 5-foot intervals north, south, east and west until PID readings reduce to background levels.

GEI anticipates submitting at least three soil samples with the highest PID reading from the basement of the Pizza Paul and Mary restaurant for VOC analysis. If no PID readings are obtained, one soil sample collected at an approximate depth of 3 to 5 feet from beneath the former locations of the PERC tank and dry cleaning machine will be submitted. GEI anticipates also submitting at least one soil sample from behind the Pizza, Paul and Mary restaurant in the back parking area near the rear entrance, if elevated readings are detected. The soil sample locations from the parking area will be selected based on possible disposal location in the vicinity of rear entrances.

GEI anticipates collecting one soil sample from possible disposal areas in the rear of the Tenny Hardware Store. Samples will be selected for analysis based on PID readings. If no readings are obtained, at least one soil sample will be collected from each area from an approximate depth of 3 to 5 feet.

During hand auger sampling, the hand auger will be decontaminated between sampling stations with methanol and distilled water rinses, and will be decontaminated between samples in a hole if elevated PID readings are detected. Based on PID readings, soil samples will be selected for VOC analysis using EPA Method 8240. Samples will be stored on ice in a light-tight cooler for delivery to the analytical laboratory. Chain-of-custody documentation of sample handling will be maintained. It is GEI's understanding that the State of Vermont Agency of Natural Resources Hazardous Materials Division will obtain site access if necessary for soil sampling.

3.4 Boring and Monitoring Well Program

3.4.1 Proposed Locations

Five ground monitoring wells are proposed for this study. Proposed well locations are presented in Figure 1. Monitoring wells will provide ground water sampling points to investigate the concentrations of chemicals in the overburden and bedrock aquifers and will provide data on overburden and bedrock geology, and direction of ground water flow. It is GEI's understanding that the State of Vermont Agency of Natural Resources Hazardous Materials Division will obtain site access if necessary for well drilling.

The rationale for each well location is as follows:

Overburden Wells:

- MW1: • potential source area
• located near the southeast corner of the Tenny Hardware Store
• former underground storage tank (UST) location
• no confirmation that UST was removed
• former garage may have used solvents as degreasers
• suspected to be upgradient of known contaminated residential wells
- MW2: • potential source area
• located near the southeast corner of Pizza, Paul and Mary restaurant
• former laundromat containing dry cleaning equipment which used PERC
• suspected to be upgradient of known contaminated residential wells
- MW3: • located near the former Moore apartment building, which is now a vacant lot
• suspected to be upgradient of known contaminated residential wells
• suspected to be downgradient of MW1 and MW2
• Fire of suspicious origin destroyed the building in 1979; local residents allege that chemicals may have been stored in basement

Bedrock Wells

- BRX1: • located on the Simonds property south of River Road and north of the Saxtons River
• location of well is on north/south trending lineament identified in photolineament analysis
• location of significant geophysical anomaly indicating water bearing fracture
• well may intercept fractures which could provide a pathway for contaminant migration in bedrock to contaminated water supply wells
- BRX2: • located along the Right-of-Way in Lot 31/25 of the Christ Church
• recent sampling by the ANR indicates that contamination is migrating in an easterly direction, consistent with an east/west striking joint system which may provide a pathway for contaminant migration in bedrock parallel to the river

3.4.2 Drilling and Monitoring Well Installation Procedures

Borings for overburden wells will be advanced with 6-5/8 ID hollow stem augers. Split-spoon soil samples will be obtained at 5-foot-intervals from each boring for visual classification and headspace screening for VOCs vapors using a PID. The split-spoon sample barrel will be rinsed with methanol and distilled water between each sampling drive. All down-hole drilling equipment will be steam-cleaned prior to drilling each well.

The monitoring wells installed in the overburden borings will consist of 2-inch ID Schedule 40 PVC and will screen (0.010-inch slots). The PVC will be cleaned with methanol and distilled water rinses prior to installation. The annular space around the slotted section of the well will be backfilled with an Ottawa sand filter. Bentonite surface seals will be installed at each well. Down-hole seals will also be installed to avoid cross-contamination between permeable strata separated by a low permeability soil layer. The monitoring wells will have either protective locking standpipes or road boxes, depending upon location. Upon completion of the installation of each monitoring well, the previous screen section of the well will be developed by surging or water jetting. The overburden wells will extend 30 feet with the well screen extending above the water table.

Falling head permeability tests will be performed at selected depths in the borings and in the completed well to estimate aquifer permeability and enable estimation of ground water flow velocity. Estimates may be biased high in the borings due to the use of large diameter augers and in the completed wells due to the well screen extending above the water table and into the unsaturated zone. GEI will provide an experienced engineer or geologist to observe the borings, log the samples, monitor ambient air quality during drilling, and perform field tests. Soil description shall follow the method of the Unified Soil Classification System.

The bedrock wells will be installed with a rotary rig to facilitate achieving target depths for monitoring. The wells will be drilled until a significant fracture is encountered based on blow tests (maximum depth 150 feet). Rock chip samples will be collected and analyzed for the presence of fractures and blow tests will be run to determine selected downhole permeabilities. A geologic log will be kept of all lithological changes and fractures will be noted at the particular depth they are encountered. Water samples will be collected at each fracture and will be provided to ANR personnel for VOC analysis. The samples will be collected by filling 40-ml glass vials with discharge from the borehole.

Bedrock wells will consist of 6-inch open-hole with 6-7/8-inch ID steel casing through the overburden. The well will be sealed through the overburden by a hardened steel drive shoe driven into competent bedrock and a grout seal.

Standardized boring and monitoring well installation logs will be completed in the field. VOC vapor concentrations detected during screening of split-spoon soil samples will be recorded on the boring log.

3.5 Surveying and Water Level Measurements

Upon completion of the three overburden monitoring wells and the two bedrock monitoring wells, GEI will survey ground water levels and surface water levels at two location in Saxtons River to the nearest 0.01 foot to estimate ground water flow gradients in the site area. GEI will use the bench mark listed on the USGS Saxtons River 15 minute quadrangle map. According to the map, this bench mark is located on the center line of the Hartley Hill Bridge (146 meters). The elevations of the monitoring wells installed for this investigation shall be referenced in elevation to the monitoring wells adjacent to the Sunoco gasoline station. Access to the monitoring wells adjacent to the Sunoco gasoline station may be limited by snow cover. It is GEI's understanding that the ANR will provide keys to the wells and locate them in the field, if needed. GEI will also survey the spring identified on Figure 1. The bedrock monitoring well recently installed by others at the King residence will also be surveyed.

GEI will measure ground water levels to the nearest 0.01 foot in each of the monitoring wells installed for this investigation and in appropriate and accessible monitoring wells installed for the petroleum release investigation in the Saxtons River Village. Water-level measuring instruments shall be decontaminated prior to use in each well.

3.6 Ground Water Sampling Plan

3.6.1 Sampling Procedures

The ground water sampling program will include collecting samples from the five monitoring wells proposed by GEI. The monitoring wells will be sampled in order anticipated decreasing contaminant levels. Prior to sampling, a minimum of three standing well volumes of water will be purged from the wells using a clean TeflonTM bailer, submersible pump or Waterra Sampler. Sampling equipment will be decontaminated prior to use with methanol and distilled water rinses.

Ground water samples will be stored on ice in a light-tight cooler immediately after sampling and until delivery to the laboratory. Each ground water sample will be analyzed for VOCs using EPA Method 601/602.

3.6.2 Documentation and Sample Handling

All pertinent observations and occurrences during the exploration and sampling programs will be recorded in a field book. Information entered in the field book

will include descriptions of the general progress of work, ambient air monitoring data, sampling dates, times and procedures, and modifications, if required to the exploration and sampling program. All entries into the field book will be in ink with each page numbered, dated, and signed by GEI's field representative.

Chain-of-custody documentation will be maintained and sample analysis assignment forms will be completed for all samples. All environmental samples will be labelled and immediately stored on ice until delivery to the laboratory for analysis. Labels will include the following information:

Project Name and GEI Project Number
Sample ID
Date and Time
Analysis Required
Sampler's Initials

All samples will be delivered to the laboratory within 48 hours after collection. Analyses will be performed by Eastern Analytical, Incorporated of Concord, New Hampshire.

3.7 Health and Safety Plan

A Health and Safety Plan for GEI personnel working at the site is provided in Appendix C. The drilling subcontractor will be responsible for the health and safety of its personnel.

Work will be performed using modified Level D Personnel Protective Equipment. Use of chemical-resistant gloves and boots is required during the drilling and sampling programs. Use of chemical-resistant coveralls is not anticipated to be required.

VOC vapors in ambient air will be monitored using a PID. Work will be discontinued in affected areas if VOC vapor concentrations exceed 5 ppm in ambient air.

APPENDIX A

Summary of Preliminary Site History Investigation

1. SUMMARY OF PRELIMINARY ON-SITE INVESTIGATION

1.1 Summary of Interviews

As part of the Preliminary On-Site Investigation, GEI Consultants, Inc. (GEI) reviewed town files, conducted interviews with residents owning contaminated wells, and conducted interviews with the towns health officer, zoning and planning departments, assessor's office and fire chief. GEI also conducted interviews with people who were familiar with the Town's history and land use. GEI attempted to conduct interviews with property owners of Lots 69, 67, 68, 78 and 37 from Tax Map U-13. These properties include: The Pizza, Paul & Mary restaurant (location of the former laundromat)(Lot 69); an abutting property to the laundromat which formerly contained a gasoline station and engine parts store (Lot 67); an abutting property to the laundromat which contains a crafts store (Lot 68); an abutting property to the laundromat which contains the Contel Telephone Corporation (Lot 78); and an empty lot in-between the laundromat and the contaminated wells (reportedly a previously existing building on this lot burned and its foundation was filled with debris of unknown origin). The locations of all of these properties are expected to be upgradient of the contaminated residential water supply wells identified by the Vermont Agency of Natural Resources (ANR) and near the suspected source area of the contamination. The following is a summary of the information collected.

Pizza, Paul and Mary Restaurant (Lot 69)

Conversations with Mr. Paul McIntire, current owner of "Pizza, Paul and Mary" restaurant (Tax Map U13, Lot 69) located on Main Street in Saxtons River indicated that the building used to be a laundromat which also contained one self-service dry cleaning machine which was in operation prior to his ownership of the property. Mr. McIntire indicated that when he initially leased the building (prior to purchasing), the dry cleaning equipment was still in the building but had been out of service for a number of years. Mr. McIntire indicated that while he was leasing the building he requested that the owner of the building (Mr. Patrick Boyland of A & B Associates) remove the old equipment to provide more room for his restaurant. Mr. McIntire indicated that in early 1988 Mr. Boyland's son and himself along with a MacIntyre Fuel employee (no relation to the current owner) removed the equipment along with a 55-gallon drum of the chemical perchloroethylene (PERC). Mr. McIntire indicated that conversations he had with Mr. Richard Smith seemed to indicate that the machine was not in use for at least 15 years, probably more, prior to being removed. At the time of removal of the dry cleaning machine, a tank of perchloroethylene (PERC) was still in the earthen basement of the building. GEI personnel, along with Mr. McIntire, observed an abandoned tank (approximate capacity of 100 gallons) in the basement on October 18, 1990 and October 31, 1990. The tank contained valves which had been wired shut, and it appeared to contain some type of brown precipitate on the top surface of the tank. It appeared that

some liquid was still in the tank. GEI also observed a pump which at one time appeared to have been connected to the tank. Both the tank and the pump were labelled with the address of Perk Chemical Co. in Elizabeth, New Jersey.

Mr. McIntire indicated that in order to install a central vacuuming unit in the building he had recently moved the tank approximately 10 feet to the north of its current location. Upon inspection of the tank, it was observed that the two openings on the top of the tank had been safety wired shut with thin wire rope and sealed with crimped lead seals. The safety wire crumbled upon touch. The tank did not appear to be leaking any type of liquid. The floor of the basement is still dirt.

GEI interviewed two former owners of the building, Mr. Patrick Boyland (owner from August 1, 1981 through September 20, 1988) of A & B Associates, and Mr. Richard Smith (owner from May 28, 1975 through August 1, 1981). Mr. Boyland indicated he bought the building at tax sale in 1981 and at the time he sold it to Mr. McIntire, "there was no equipment in the building that had anything to do with dry cleaning." Mr. Boyland also said that there had been no tanks or any other dry cleaning equipment in the basement. Mr. Boyland indicated that Mr. Donat Perrault of Bellows Falls, Vermont ran the laundromat for him during the mid-1980's and that no dry cleaning operations took place on the premises during the time he owned the building. This is contrary to information received from Mr. McIntire, who indicated he and Mr. Boyland's son removed dry cleaning equipment to Rockingham Hospital just prior to the McIntire purchase in 1988.

GEI personnel interviewed Mr. Donat Perrault and his wife Marie, former operators of the laundromat, at his current place of business, Perrault's Appliance, Inc., 58 Williams Street in Bellows Falls, Vermont. Mr. and Mrs. Perrault indicated that they had operated the laundromat in the Pizza Paul & Mary building from April 1985 to Spring 1988. Mr. and Mrs. Perrault indicated that no dry cleaning operations took place during the time they operated the laundromat. However, Mr. Perrault did confirm the existence of the dry cleaning equipment in the building during the period of time he operated the laundromat. However, Mr. and Mrs. Perrault said the equipment was not used. Mr. Perrault indicated that Richard Smith of Saxtons River was the previous site operator.

During review of deeds for the site, GEI determined that Mr. Richard Smith owned the property from May 28, 1975 to August 1, 1981. According to deeds on file at the Bellows Falls, Vermont Town Clerk's office on Main Street in Bellows Falls, Mr. Richard Smith acquired the property for the sum of one dollar (\$1.00) on May 28, 1975 subject to the mortgage of Bellows Falls Trust Company. The property was formerly owned by Donald and Iris Dunbar.

Mr. Smith indicated he used to work for Mr. Donald Dunbar during the late 1960s. During the period Mr. Dunbar owned the property (October 10, 1967 to May 1975), Mr.

Smith maintained the daily business of the laundromat and dry cleaning operation. According to Mr. Smith, a Mr. Dick Stevens was the first person to put in the self-service dry cleaning machine around 1960 or soon after. Mr. Smith indicated that during the early years of operation, the chemical perchloroethylene (PERC) was delivered in 55-gallon drums and was pumped by hand into the machine from the drums. When the chemical was saturated with dye and dirt, the waste product was drained and Mr. Smith "believes" put into 55-gallon drums. Mr. Smith could not recall what happened to the waste chemical once it was removed from the machine. Mr. Smith indicated that from time to time, red dye would permeate the dry cleaning fluid (perchloroethylene) and the red dye would have to be removed along with the chemical because it would stain other clothes if it was left in the machine.

Tenny Hardware Store (Lot 67)

Ms. Pat Tenney, current owner of Tenney Hardware Store, indicated that she owned the building for 14 years. She purchased the property from the former owners who ran a Texaco gas station which contained two service bays or pits for repairs. The "pits" had been filled in with cement when the hardware store was built. Her water supply is from the property behind her building, which is owned by Mr. Randy Billmier (Map 13, Lot 71). Ms. Tenney indicated she has no knowledge as to any use of PERC in the building during her ownership. Ms. Tenney indicated that in approximately April of 1978 underground storage tanks were removed from the property. GEI attempted to confirm the removal of the underground storage tanks with Ms. Ellen Howard, Bellows Falls Health Officer. According to Ms. Howard there is no record of the underground storage tanks ever being removed.

GEI contacted Mr. Richard Smith, Saxtons River Fire Chief, about the possibility of underground storage tanks at the Tenney Lumber Hardware site. Mr. Smith could not confirm the removal of the tanks at the site. The hardware store does have a 1,000-gallon underground storage tank and a 275-gallon storage tank on the property which are used for fuel oil.

Vacant Lot - Former Moore Apartment Building (Lot 37)

GEI interviewed Mr. Steven Moore on November 7, 1990 via telephone relative to his property on Main Street (Map U13, Lot 37). Mr. Moore indicated that the property used to be an apartment building. Prior to the apartment building it was also a grocery store, a post office and a "bar room." Mr. Moore indicated the building burned down in the late 1970s and that it contained a three-car garage and one other out-building.

According to conversations with Lt. Glenn Cutting of the Vermont State Police, the fire occurred on April 29, 1979 and was investigated by the Arson Division of the Vermont State Police. The investigation (Case #552-263) was conducted by Detective David B.

Sargent (retired). According to Lt. Cutting the fire was determined to be arson by Detective Sargent. GEI requested to review the file but was told by Lt. Cutting that the file had been sealed and could not be accessed by the public. Through a request by the ANR Hazardous Materials Division, GEI has been given permission to review the file. This will occur during the Site Investigation.

Skovinski Residence (Lot 36)

GEI conducted an interview with Ms. Wilma Skovinski (Map U13, Lot 36) on October 31, 1990 relative to ground water contamination of her private residence well. Ms. Skovinski complained of problems of extreme dry skin with her children, and frequent nose bleeds and cracked skin on his hands and feet and in the vicinity of his nostrils with her son. Ms. Skovinski feels this is because of the ground water contamination. Previously Ms. Skovinski was told it was due to the hardness of her water.

Contel Telephone - Block Building Containing Telephone Equipment (Lot 78)

GEI interviewed Mr. Don Randall, supervisor of CONTEL Telephone on October 31, 1990 and viewed the inside of the building, which is an operations building for the phone system. CONTEL is located at Lot 78, adjacent to the Pizza, Paul and Mary restaurant. GEI observed approximately 25 batteries which, according to Mr. Randall, are used in case of power failure to keep the phone system operating until the generator starts. Mr. Randall indicated that a 250-gallon underground diesel tank was located on the property and contained diesel fuel to run the generator in case of power failure. Mr. Randall indicated the 250-gallon diesel tank was to be leak-tested that day (October 31, 1990) by Ground Water Technology of Rhode Island. At this time the results are unavailable to GEI.

Truslow Residence (Lot 79)

GEI interviewed Mr. Truslow on October 31, 1990 (Map 13, Lot 79, a private residence). Mr. Truslow indicated he has a 500-gallon underground storage tank for heating oil. Mr. Truslow also indicated that approximately two years ago he observed an excavation in front of the Tenney Lumber Company Hardware store, the site of the former Texaco service station. Mr. Truslow indicated that when he questioned the operator of the excavator as to why they were digging, the operator replied that they were trying to determine if there was any underground storage tanks still in the ground at the location which used to be a Texaco gas station. Mr. Truslow indicated he believes that the tanks were removed but could not be certain.

1.2 Other Information Sources

GEI Consultants, Inc. interviewed other people who contributed to information gathered for this report. The following is a brief summary of their statements:

- Mrs. Mortensen (Map 13, Lot 35) indicated during an interview with GEI on November 1, 1990 that she was aware of the ground water contamination in the village and to her water supply. Mrs. Mortensen indicated she shares a well with the Arthur Smith residence Map 13, Lot 22.
- Mrs. Simonds (Map 13, Lot 18) indicated during a conversation with GEI on October 31, 1990 she was aware of the ground water contamination and the State had provided her with bottled water to drink. Mrs. Simonds indicated that she was eager to assist the State in any way if need be.
- Mr. Jeff Jewett, Saxtons River Village Trustee (president) was interviewed on October 30, 1990 by GEI via phone. Mr. Jewett indicated he would be of assistance if needed, and was aware of the non-petroleum ground water contamination.
- Mr. Peter Stolley, Saxtons River Village Trustee, was interviewed by GEI on October 30, 1990 by phone. Mr. Stolley indicated he was aware of the non-petroleum ground water problem. Mr. Stolley indicated the Moore lot had been known as the "frost block" and after the fire the cellar hole was backfilled with bank run gravel. Mr. Stolley also indicated it had been reported the cellar hole contained a large amount of paint cans and other domestic household cleaners and chemicals.
- Ms. Paulette Lynch of the Saxtons River Inn was interviewed November 7, 1990 via phone. Ms. Lynch indicated she owned several of the properties affected by the non-petroleum ground water contamination. Ms. Lynch indicated that three wells served the properties as follows: the Pretzel Factory and hardware store are serviced by a well which also services two residences behind the two Main Street buildings, which according to the tax map would be the Boyd Property (Map 13, Lot 23) and the Simonds residence (Map 13, Lot 24). Ms. Lynch indicated the well is buried and she believes it is located on the Boyd residence property. The Colvin House (Map 13, Lot 34) has its own well, and according to Ms. Lynch showed contamination first. The Saxtons River Inn (Map 13, Lot 80) has its own well located on the property of the Inn.
- GEI review plans at the Saxtons River Waste Water Treatment Plant on October 31, 1990. The plans reviewed were titled: Village of Saxtons River, Vermont, New Sewage Works Project 2, Sewer Plan and Profile, Main Street, dated January 1970. The plans were prepared by Dufresne-Henry of Precision Park, North Springfield, Vermont and were stamped "AS BUILT PLANS." The plans were reviewed to locate

any possible former leach fields and to locate any underground utilities. The plans show the old location of the 8-inch clay tile pipe as well as the location of tie-ins to the new sewer line. The plans indicate the old Texaco station and its gas pumps and show the Pizza, Paul and Mary building to be a laundromat.

According to Mr. Richard Smith, Waste Water Treatment Plant Manager, the sewer line was completed in 1972. Prior to completion of the sewer line in 1972, approximately 90 percent of all the village's sewer waste went directly into the Saxtons River, according to Mr. Richard Smith. GEI personnel observed 8-inch clay tile pipes along the north edge of the Saxtons River during a reconnaissance of the site. The clay pipes appeared to be weathering out of the embankment and appeared to extend northward toward the residences along Main Street and River Street (Figure 2). GEI believes these pipes are the remnants of the old sewer lines which discharged into the river.

After interviews with local residents and officials and review of the plans, GEI believes, based on the information to date, that no septic systems existed prior to the installation of the sewer line in 1972.

- GEI reviewed well information in the files of Cushing & Sons Water Well Drilling in Westmoreland, New Hampshire. Well logs were obtained that provided geologic information for the area.

1.3 Deed Research

GEI reviewed historical documents to develop a history of ownership of the former laundromat at the Pizza, Paul and Mary restaurant. The current deed for the property is recorded in the Town of Rockingham, Vermont Bellows Falls District Registry of Deeds Book 208 Page 513. Information obtained from the Bellows Falls Office Registry of Deeds indicates the following ownership history for the site:

September 1988 to present	Mr. Paul McIntire and Ms. Mary Pitman
August 1981 to September 1988	A & B Associates
May 1975 to August 1981	Mr. Richard Smith
October 1967 to May 1975	Donald and Iris Dunbar
April 1960 to October 1967	Richard and Nellie Stevens

January 1954 to April 1960

Edward E. Freeman

April 1951 to January 1954

Anne and Ralph Edwards

June 1947 to April 1951

James E. Bigelow

June 1938 to June 1947

Lislye Bascom

April 1938 to June 1938

John Bryant

December 1926 to April 1938

Charles Stone

September 1922 to December 1926

Saxtons River Lodge
No. 33 I.O.O.F.
(parcel split in 1926)

APPENDIX B

SUMMARY OF PRELIMINARY GEOLOGIC INVESTIGATION

1. BEDROCK GEOLOGIC MAPPING

GEI conducted one day of bedrock mapping on October 18, 1990. Mapping was performed at three outcrops in the vicinity of the site. Outcrop A is located in the village of Saxtons River downstream of the Hartley Hill Road. Outcrop B is located along the southern bank of Saxtons River downstream of Outcrop A. Outcrops A and B are shown on Figure 1 in the Site Investigation Work Plan. Outcrop C is located north of the village, approximately 1/2 mile along the eastern embankment of Pleasant Street. The results of the bedrock mapping indicate two predominant joint systems: a north/south striking system which dips steeply east and an east/west striking system dipping steeply north and south.

The Geologic Map of Vermont (1961) indicates bedrock in the Saxtons River Village consists of the Standing Pond Volcanics member of the Waits River Formation, which is a amphibolite garnet schist, and the Gile Mountain formation, which is a quartz muscovite phyllite schist. At this location, the Gile Mountain formation is stratigraphically below the standing Pond Volcanics member. Generally this area is considered to be on the west flank of the Brattleboro syncline and the major structural features in the area trend North/South.

2. FRACTURE TRACE ANALYSES

During GEI's initial background research, GEI performed remote sensing analyses of the site as a reconnaissance tool for identifying potential bedrock discontinuities which could affect ground water flow and contaminant transport in the bedrock aquifer at the site.

GEI analyzed aerial photographs and other imagery to identify linear surface features (lineaments) that could be related to bedrock fractures or faults that are potentially water-bearing. These analyses were performed by visual methods using three sets of photographs:

1. Medium altitude color infrared stereo photographs, scale 1:58,000
2. Medium altitude black and white stereo photographs, scale 1:80,000
3. High altitude black and white stereo photographs, scale 1:8,000,000 (Space Shuttle Large Format camera)

GEI compared the orientation of photolineaments with the bedrock mapping data to evaluate and rank the photolineaments with regard to significant contaminant migration pathways.

GEI observed two photolineament patterns during review of aerial photos. One lineament pattern trends 10 degrees $\pm$ due north. This lineament trend is considered the primary fracture pattern for the region. A secondary lineament pattern trending more or less east/west was also observed. Two distinct lineaments pass through the Saxtons River Village. Most important is a primary north/south trending lineament which passes through the center of Town in the vicinity of Main Street. A second lineament trends east/west and is also located through the center of Town just south of Main Street. Due to cultural restrictions, GEI could not perform a geophysical survey to identify the east/west trending lineament. Geophysical surveys were conducted north and south of the center of Town to examine the major north trending lineament.

3. GEOPHYSICAL INVESTIGATION

3.1 Theory

GEI conducted a geophysical investigation utilizing a ABEM WADI (WADI) electromagnetic instrument. This instrument measures very low frequency (VLF) radio waves (15 to 30 kilohertz) which are generated by military radio transmitters around the world. The instrument is used to identify geological discontinuities, such as fractures or contacts between rock types. At Saxtons River, the WADI survey was performed by making traverses more or less perpendicular to an anticipated fracture identified as a photolineament. Fractures may be more conductive than the surrounding rock and will be detected by the WADI to have a higher conductivity at the location along the profile where it is traversed. This higher conductivity value will give an anomalous reading and the location can be noted for further investigations, such as drilling.

3.2 Geophysical Survey

Based on interpretation of aerial photographs, GEI selected locations north and south of the Saxtons River Village to perform five geophysical lines of exploration (Lines 100, 200, 300, 400 and 500). These lines are shown on Figure B-1. The major lineaments identified in aerial photographs of the site trend north/south and east/west. Due to cultural restrictions which interfere with the WADI readings, only surveys on the portions of the north/south trending lineaments outside of developed areas could be performed. After obtaining site access, geophysical lines were laid out using hipchain (a type measuring tool for distance) and compass bearings from known features. Readings were collected on November 20 and 21, 1991 at spacings of 10 meters along each geophysical line.

3.3 Results

Anomalies were detected along survey lines 100, 200, 400 and 500. WADI output for these lines are shown in Figures B2, B3, B4, B5 and B6, respectively. These results indicate that a major joint system may be associated with the north/south lineament identified in aerial photographs.

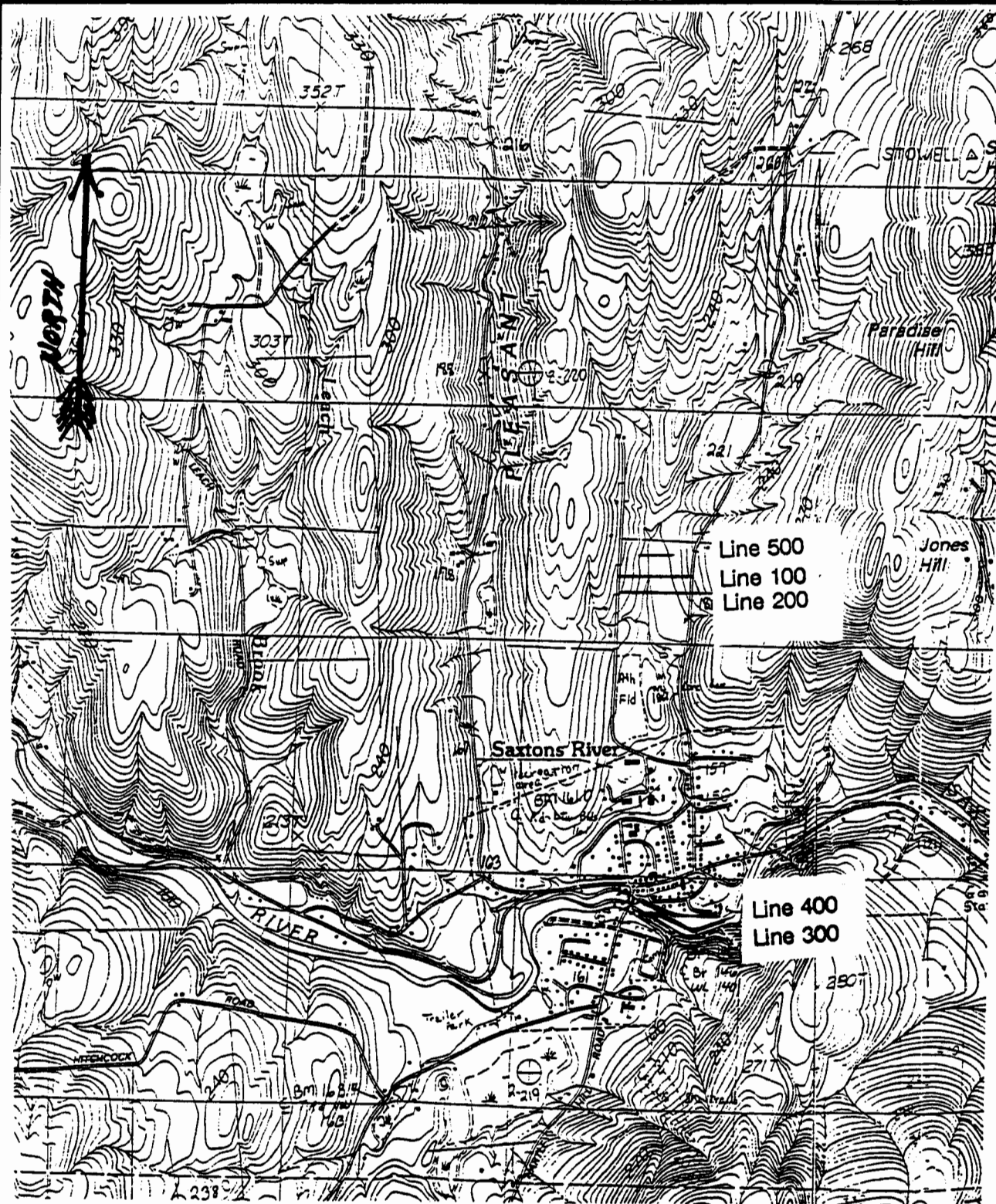
The strongest anomalies were measured along Line 400 in the Village of Saxtons River. The most significant anomaly was located at Station 185 meters (indicates station was 185 meters from beginning of line). This anomaly could be the subsurface expression of the north/south photolineament identified in the aerial photographs for the site. It also appears this anomaly may indicate a near vertical contact zone between the Standing Pond Volcanics member of the Waits River formation and the Gile Mountain formation. This contact is clearly evident on the Bedrock Geologic Map of Vermont (1961) and is

believed to be the result of folding which occurred during the formation of the Brattleboro Syncline. The Saxtons River Village is located on the western flank of this feature. Significant anomalies were not measured along Line 300.

3.4 Summary

A large anomaly was measured on Line 400 and may indicate a water-bearing fracture (Figure B5). Further reduction of this data presented in Figure B7 further confirmed the anomaly. GEI also used a software program, SECTOR, which is used to interpret a vertical cross-section of a line profile. The results of the SECTOR interpretation (Figure B8) also confirmed the anomaly at 185 meters. These results indicate the possible presence of a water-bearing fracture. The photolineament analysis indicates that a strong photolineament strikes through the Saxtons River Village in the vicinity of the geophysical anomaly along Line 400. In addition, bedrock mapping indicates a north/south striking joint system which dips steeply eastward. GEI recommends that these data be used to locate a bedrock monitoring well that could intercept this potential fracture and detect a preferred pathway of contaminant migration.

Bedrock mapping and aerial photograph analysis indicate that a major lineament strikes east/west through the Saxtons River Village. Due to severe cultural restrictions, GEI was unable to perform a geophysical survey in this area. However, GEI recommends that a bedrock monitoring well be located along this lineament in the vicinity of residential wells with detected contamination to examine potential contaminant migration in bedrock in a direction parallel to the river.



Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of
Natural Resources
Waterbury, Vermont

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

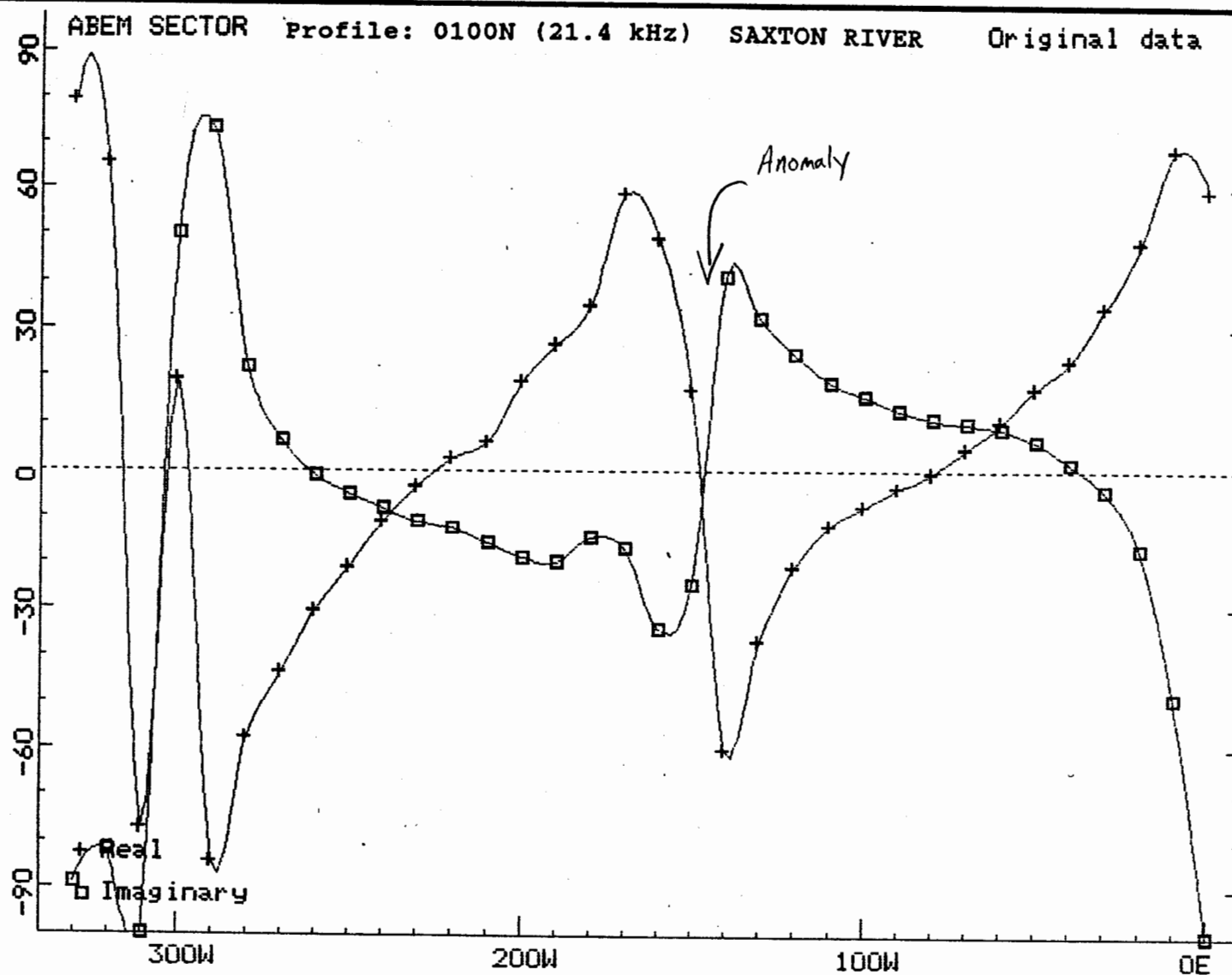
GEOPHYSICAL
SURVEY LINES



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Project 90379

January 1991 Fig. B-1



Vermont Agency of
Natural Resources
Waterbury, Vermont



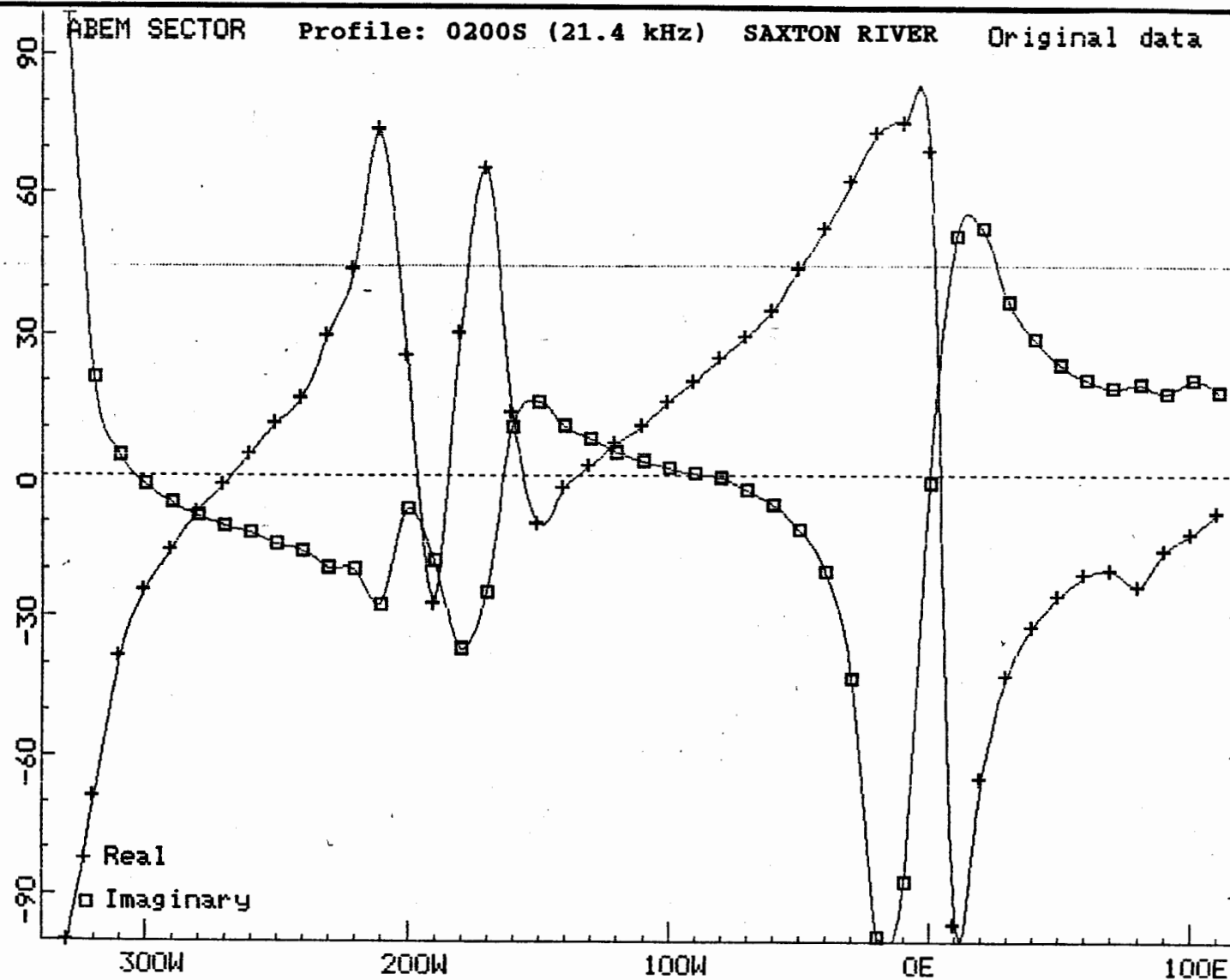
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GEOPHYSICAL PROFILE
ABEM WADI
LINE 100
UNFILTERED DATA

January 1991 Fig.B2



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Waterbury, Vermont



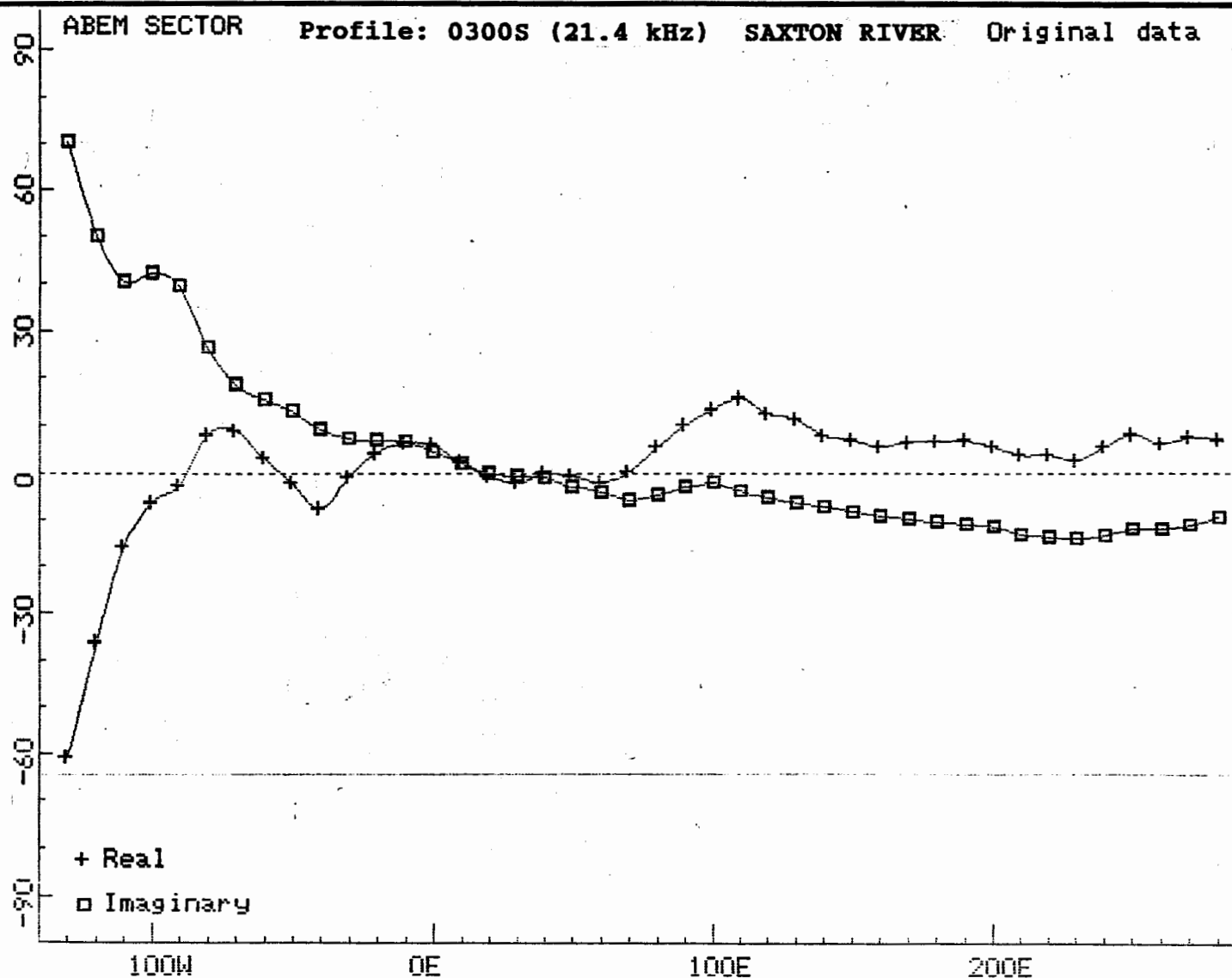
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Saxtons River, Vermont

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GEOPHYSICAL PROFILE
ABEM WADI
LINE 200
UNFILTERED DATA

January 1991 Fig.B3



Vermont Agency of
Natural Resources
Waterbury, Vermont



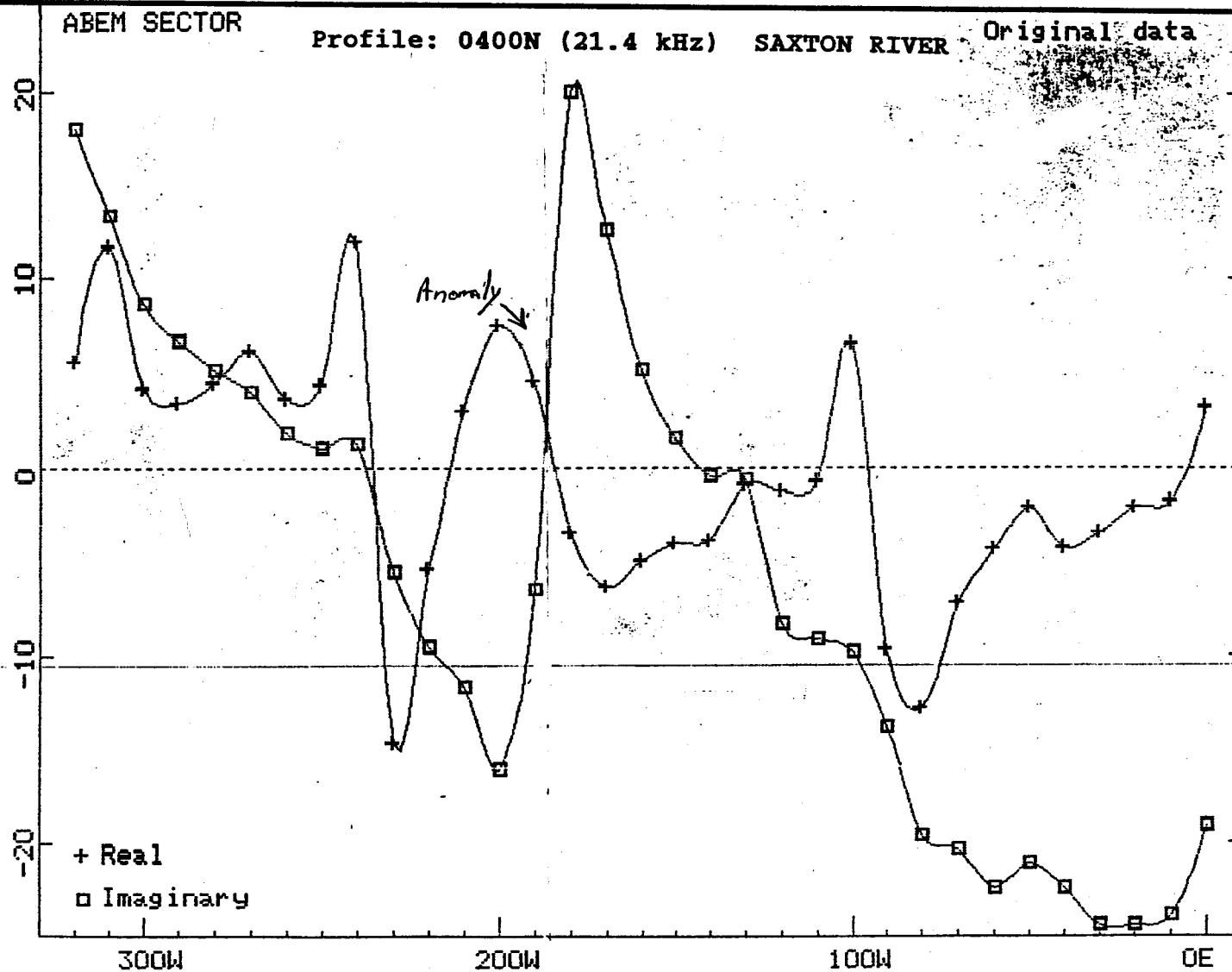
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Saxtons River, Vermont

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GEOPHYSICAL PROFILE
ABEM WADI
LINE 300
UNFILTERED DATA

January 1991 Fig.B4



Vermont Agency of
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Waterbury, Vermont



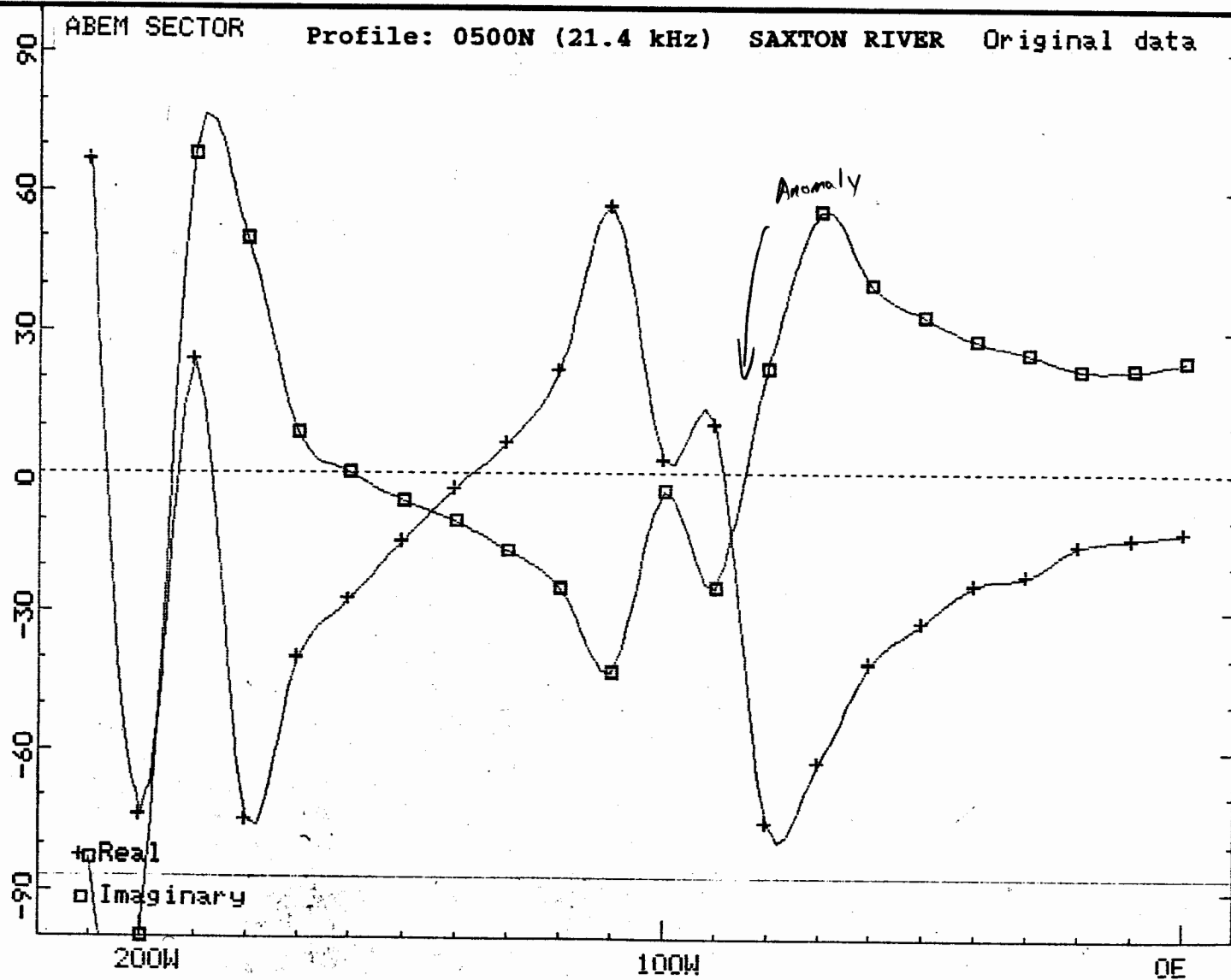
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Site Investigation
Saxtons River, Vermont

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GEOPHYSICAL PROFILE
ABEM WADI
LINE 400
UNFILTERED DATA

January 1991 Fig.B5



Vermont Agency of
Natural Resources
Waterbury, Vermont



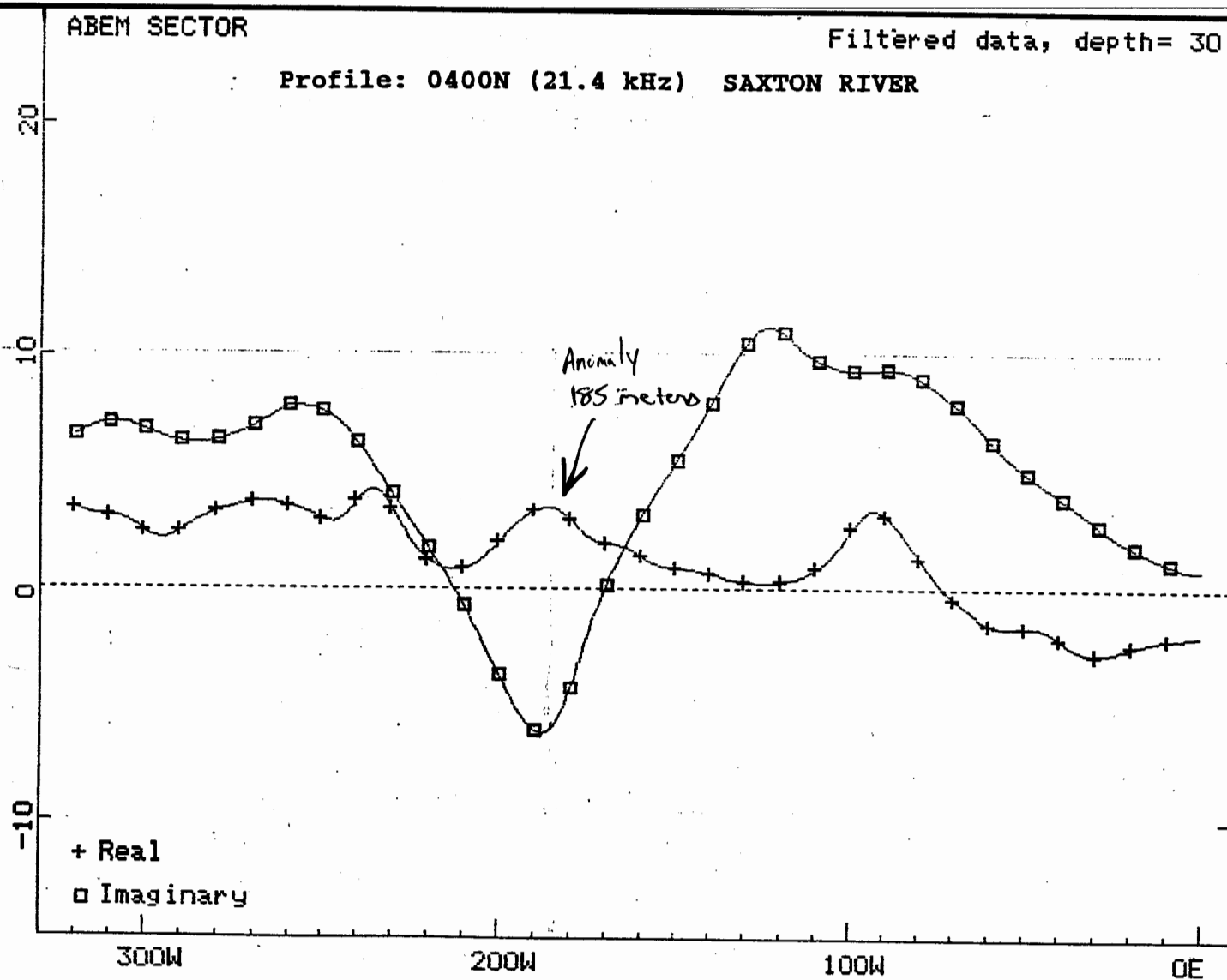
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Hazardous Waste
Site Investigation
Saxtons River, Vermont

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GEOPHYSICAL PROFILE
ABEM WADI
LINE 500
UNFILTERED DATA

January 1991 Fig.B6



Vermont Agency of
Natural Resources
Waterbury, Vermont



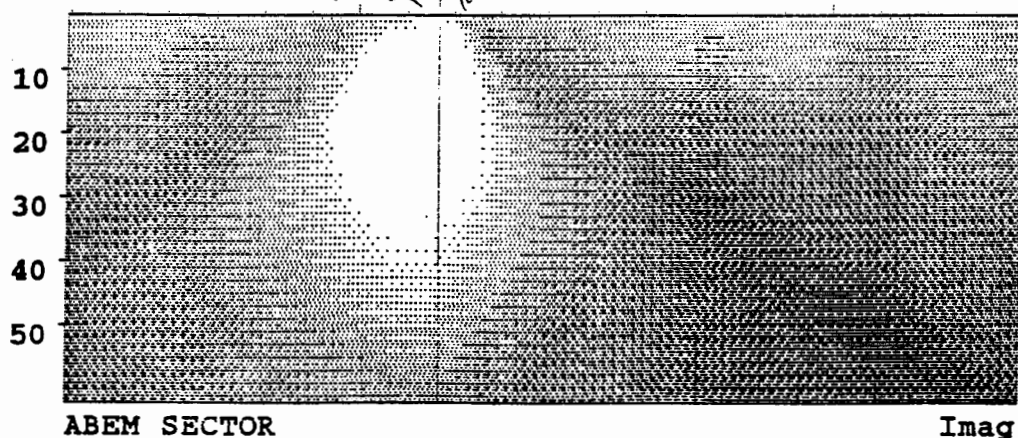
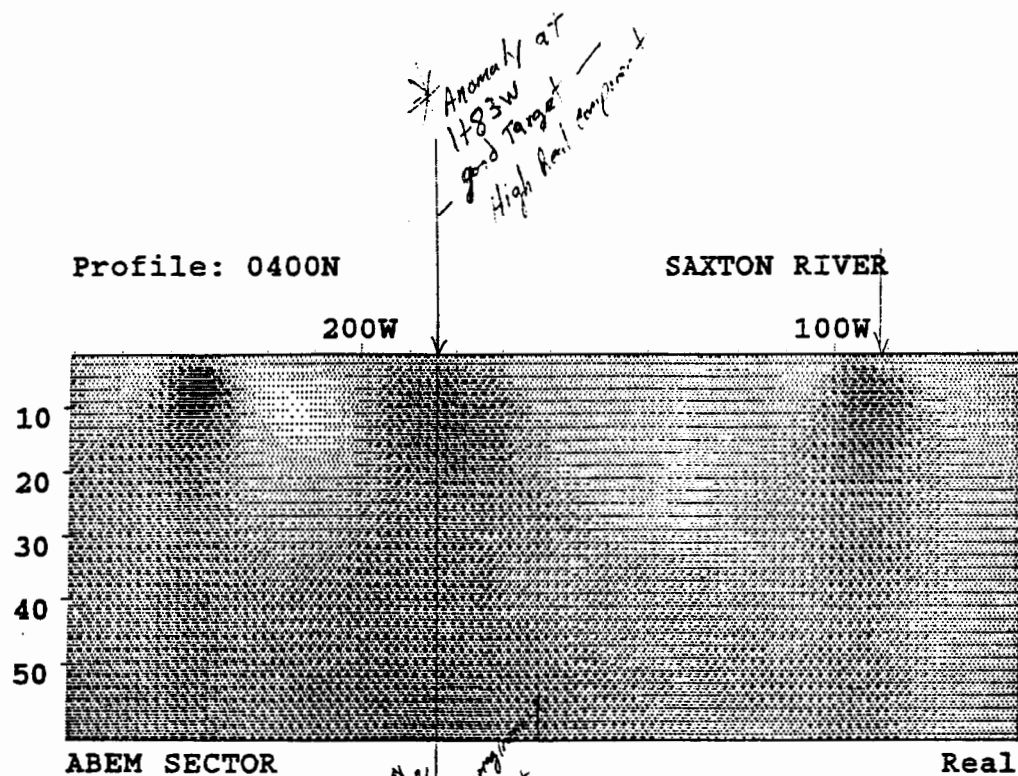
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Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 400 - FILTERED DATA
30 METERS

January 1991 Fig.B7



Vermont Agency of
Natural Resources
Waterbury, Vermont



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Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

SECTOR SOFTWARE
CURRENT DENSITY
GEOPHYSICAL
CROSS-SECTION LINE 400

January 1991 Fig.B8

APPENDIX C
HEALTH AND SAFETY PLAN

HEALTH AND SAFETY WORK PLAN

Project No. 90379
Project Name SAXTONS RIVER VERMONT

Date February 1991

Site: SAXTONS RIVER HAZARDOUS WASTE INVESTIGATION

Location: SAXTONS RIVER, VERMONT

Directions to Site: I 91 to Exit 5, RT 121 North /
West approximately 6 miles to Saxtons River.

Purpose of Visit: _____

Drilling of Bedrock and overburden Wells

Proposed Date of Work: February 1991

Work Party: CHRISTOPHER L. COVEL

Site Perimeter:

☒ Map/Sketch Attached

☐ Perimeter Identified No

☐ Zone of Contamination Identified No

Project Manager: Joanne O'Neill-Morin

Health and Safety Manager: Steven Lamb

Director of Field Services: _____

Principal-in-Charge: _____

Hazard Rating: ☐ High ☐ Moderate ☒ Low ☐ Unknown

BACKGROUND

Site Status: ☒ Active ☐ Inactive ☐ Unknown

Site Description: Site is a Village located on terraces of the
Saxtons River. Site is residential with the outer limits containing
pasture land and wooded hills.

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

Disposal Methods Used on Site: Unknown

Unusual Features: (containers, buildings, dikes, power lines, terrain, etc.)

Glacial Potholes in outcrops below Hartley Hill Road, good outcrops of Waits River Formation - Post Pond member in River throughout village.

Pizza Paul & Mary Bida of particular concern to this study. Abandoned Tank of Perchloroethylene in Basement

Relevant Site History: (previous injuries, complaints from public, prior agency action, etc.).

Perchloroethylene in bedrock water supplies as well as HTBE and

BTEX compounds. Prior action includes removal of UGST and remediation

of groundwater including installation of Monitoring Wells. PERC source not yet identified.

Waste Types: ☒ Liquid ☐ Solid ☐ Sludge ☐ Gas

Waste Characteristics: ☐ Corrosive ☐ Flammable ☐ Inert

☐ Radioactive ☐ Reactive ☒ Toxic

☒ Volatile ☒ Other Carcinogen/Hazardous Waste

Waste Categories:

<u>Sludges</u>	<u>Oils</u>	<u>Solvents</u>	<u>Chemicals</u>	<u>Other</u>
☐ Paint	☒ Gasoline	☐ Halogenated	☐ Acids	☐ Radio-
☐ Pigments	☐ Waste Oil	☐ Non-halo-	☐ Caustics	☐ active
☐ Metals	☐ Other	☐ genated	☐ PCB	☐ Laboratory
☐ Sewage	☐ (Specify)	☒ Other	☐ Heavy	☐ Pharmacy
☐ (POTW)		☐ (Specify)	☐ Metals	☐ Hospital
☐ Other		<u>Perchloroethylene</u>	☐ Dyes/Inks	☐ Municipal
☐ (Specify)			☐ Pickling	☐ Other
			☐ Liquors	☐ (Specify)
			☐ Pesticides	
			☐ Phenols	
			☐ Halogens	
			☐ Other	
			☐ (Specify)	

Amount _____
Units _____

1300
ppb

7
4/1

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

HAZARD EVALUATION

Hazard Rating: High Moderate ✓ Low Unknown

Hazardous/Toxic Substances on Site:

A. Known	Form			Quantity (Maximum)	Units
	Solid	Liquid	Vapor		
Perchloroethylene		✓		CONDENSATION VARIBLE	
Benzene		✓			
Toluene		✓			
Xylene		✓			
(MTBE) Methyl-t-Butylether		✓			

Toxic and Pharmacologic Effects: Known Carcinogens - See attached

Reactivity, Stability, Flammability: BTEX Compounds Are flammable, Perchloroethylene emits toxic Cl fumes when burnt, also

Exceptions: toxic via inhalation & depress central Nervous system
→ NO EXCEPTIONS

Operational Concerns (sampling, decontamination, etc.): Use extreme caution when sampling Raw Chemical, Level B protection should be used when working directly with Perchloroethylene product. Class B poison.

Level C can be used in presence of BTEX/MTBE compound with proper guidelines.

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

B. Suspected

	Form			Quantity (Maximum)	Units
	Solid	Liquid	Vapor		

Toxic and Pharmacologic Effects: _____

Reactivity, Stability, Flammability: _____

Exceptions: _____

Operational Concerns (sampling, decontamination, etc.): _____

Geotechnical Engineers Inc.

Project No. 90379

Project Name Sextons River

PERSONAL PROTECTION

Level of Protection Required: A B C D ☒

Rationale: GEI personnel will not be in direct contact
with chemical

Personal Protective Equipment: Boots & gloves for field use
only

Criterion for Downgrade to Lower Level: N/A

Downgrade Level: A B C D

Personal Protective Equipment: N/A

Geotechnical Engineers Inc.

Project No. 90379

Project Name Sextons River

Criterion for Site Evacuation: IF Perchloroethylene is encountered,
leave area immediately and notify state officials and
local officials

Monitoring Equipment Required on Site:

☒ HNU ☐ OVA ☐ Explosimeter ☐ Radiation Detector
☐ Other _____

Medical Surveillance:

Acute Effects of Exposure: See attached

First Aid Procedures: See attached

DECONTAMINATION AND DISPOSAL

Decontamination Procedures:

A. Personnel

Dispose of cartridges, gloves, overboots, and any other
disposable items on site to be removed by authorized
hazardous waste contractor.
Wash thoroughly all parts of exposed body, change clothes
immediately if accidental contamination occurs.

B. Equipment

Decontaminate all equipment with methanol and
distilled water prior to leaving site

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River

Disposal Procedures (contaminated equipment, supplies, washwater): Dispose of all contaminated equipment on site in proper container and remove by a hazardous waste contractor

EMERGENCY PROCEDURES

RESOURCES:

	Name	Town	Telephone
Ambulance	Lefevre	Bellows Falls VT	802-463-4223
Hospital E.R.	Rockingham Hospital	Bellows Falls, VT	802 463-3903
Poison Control	VT Poison Center	Burlington VT	1-802-658-3456
Police: Local State	STATE POLICE	Windham County Sheriff	1-365-4328
	VT State Police	Rockingham Troop	1-875-2112
	Saxtons River Volunteer	Saxtons River, VT.	1-800-852-3411 802-254-2382
Fire	STATE POLICE	BRATTLEBORO, VT.	1-800-852-3411
Explosives Unit	Pizza Paul & Mary	Saxtons River, VT. MAIN ST & School ST	802-869-2222
Nearest Phone	Pizza, Paul & Mary	Saxtons River VT Main St & School St	802-869-2222
Water Supply			

CONTACTS: * Radio Dispatched via N.H.

Physician

GEI, Winchester, MA

(617) 729-1625

M.A. Robert Stekar
GEI, Concord, NH

(603) 224-7979

Client Contact: Mr Steve Winters Hazardous Materials Division
State of Vermont 1-802-244-8702

Federal Official:

State Official: Mr Steve Winters Hazardous Materials Division 802-244-8702

Local Official: MS. Ellen Howard Health Officer Bellows Falls Vermont
1-802-463-3964

Geotechnical Engineers Inc.

Project No. 90379

Project Name Saxtons River VT

Directions to Hospital: ☒ Map Attached

Route 121 EAST/South approximately 6 miles from center
of Saxtons River. Hospital on Right, Hospital Court Road, OFF
RT. 121

EMERGENCY MEDICAL INFORMATION:

<u>Employee</u>	<u>Allergies</u>	<u>Other</u>
1. <u>CHRISTOPHER L. COVEL</u>	<u>NONE</u>	
2. <u>Joanna Oneill-Marin</u>		
3. <u>Capitol Well Drilling</u>	<u>None</u>	
4. _____		

PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS MATERIALS

<u>Personnel Authorized to Enter HWS</u>	<u>Assignment</u>
1. <u>Capitol Well Drilling</u>	<u>Drill Monitoring Wells</u>
2. <u>Mr. Steve Winters</u>	<u>State of Vermont - Supervision</u>
3. <u>Mrs. Joanne Oneill-Marin</u>	<u>Project Manager</u>
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	

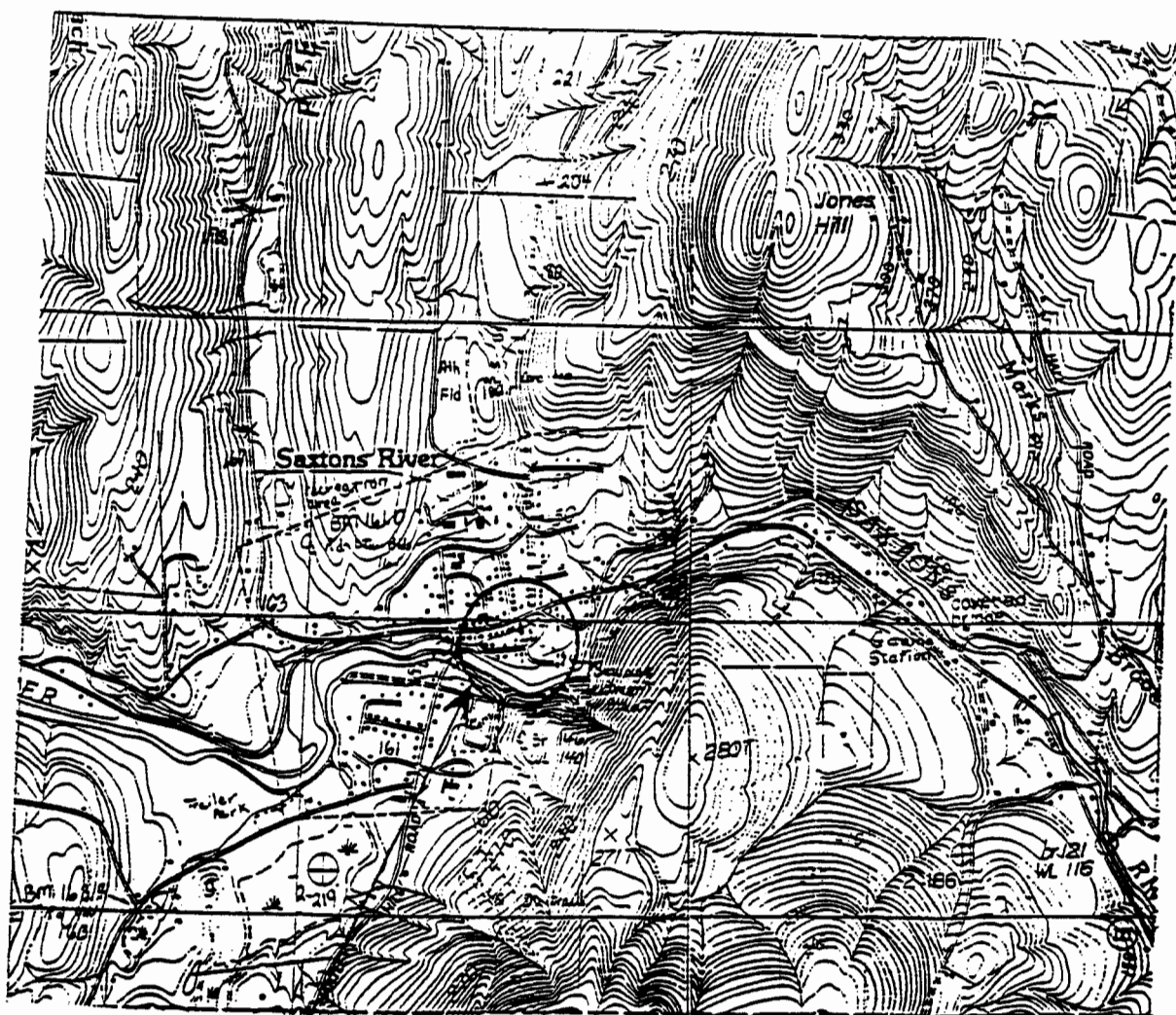
Other Personnel Assigned to Handle Hazardous Materials
(decontaminate, analyze samples, etc.)

1. Aquatech Laboratory, Burlington Vermont
2. CAPITOL WELL DRILLING CONCORD NH.

Plan Prepared by CHRISTOPHER L. COVEL Date 23 OCT 90

Plan Reviewed by _____ Date _____
Health and Safety Manager

Plan Approved by _____ Date _____
Principal



SITE

Source - USGS Quadrangles
 Saxtons River, VT
 and
 Bellows Falls VT.-N.H.
 7.5 minute series
 Scale 1:25,000
 1984
 PROVISIONAL ED.

SAXTONS RIVER, VERMONT	HAZARDOUS MATERIALS INVESTIGATION	SITE LOCATION MAP
 GEI Consultants, Inc.	SAXTONS RIVER VERMONT PROJECT 90379	OCTOBER 1990 FIG 1



Directions to Hospital @
Exit site Go East ±
6 Miles on Route 477
121-Hospital on RIGHT
ROCKINGHAM HOSPITAL
802-463-3903

HANDBOOK OF TOXIC AND HAZARDOUS CHEMICALS AND CARCINOGENS

Second Edition

ABOUT THE AUTHOR

Marshall Sittig, a chemical engineer, is President and Managing Director of Sittig & Noyes, International Chemical and Process Industries Consultants, and was formerly with E.I. Du Pont de Nemours & Co., Inc. in chemicals manufacturing, Ethyl Corporation in liaison between research and sales, and Princeton University as Director of Governmental Relations.

by

Marshall Sittig

Princeton University



NOYES PUBLICATIONS
Park Ridge, New Jersey, U.S.A.

Foreword

In April 1980, an explosive fire broke out at an abandoned chemical dump site in Elizabeth, New Jersey. When thousands of barrels containing unidentified toxic waste erupted in flames, an ominous black cloud filled the sky. No one knew for sure whether lethal fumes would jeopardize the surrounding area—one of America's most densely populated. Fortunately, nobody was hurt seriously, perhaps in part because more than 500 pounds of such dangerous agents as nitroglycerine, picric acid and mustard gas were removed prior to the fire by the state environmental protection personnel.

That near-disaster gave the nation fresh evidence of the urgent need to control the disposal of toxic wastes. In New Jersey alone, there are 85 toxic waste sites on the Environmental Protection Agency's list of 546 worst sites identified so far, more than any other state. Of the 15 worst sites in the nation, 6 are in New Jersey.

Toxic wastes are an incredible problem in our country. They threaten our water, our air, and our lives. We must find better ways to handle toxic chemicals and dispose of our toxic wastes. Unfortunately, we have just begun to recognize the dangers posed by years of irresponsible disposal of wastes. And, too frequently our belated response has been to push pollution around from one place to another. When we recognized the danger of air pollution, we devised systems to prevent the discharge of particulates. The systems gathered soot and sludge, so we took that soot and sludge and dumped them in the ocean. When we became concerned about pollution in the ocean, we ordered the wastes buried in the ground. Now we have learned that what is buried in the ground can seep into and poison our drinking water. Our problems have only moved with each new form of disposal.

One reason for the severity of this problem is that it has only recently risen to public consciousness, and years of uncontrolled dumping have taken their toll. But incidents such as the fire at Elizabeth and the contamination of the Love Canal area in New York brought the issue national attention and forced public officials, scientists, and representatives of industry to consider its implications.

The most obvious are the potential effects on national health and the environment. Although the link is poorly understood, there is evidence that many of these chemicals can cause cancer. Just as frightening is the possibility of acute toxic effects such as brain and nerve damage, sterility, and birth defects.

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may result in complaints of general malaise, drowsiness, loss of appetite, nausea, and unpleasant taste in the mouth, and abdominal discomfort. This may be followed by jaundice, mental confusion, stupor or delirium, hematemesis, convulsions, and purpuric rashes.

Pulmonary edema ascribed to capillary injury has been noted in severe cases, along with renal damage, though it is not known to what extent this contributes to the total toxic picture. Nephritis may develop and the urine may contain albumin and casts. Fatty degeneration of the myocardium has been reported only in animal experiments.

Points of Attack: Liver, kidneys, central nervous system.

Medical Surveillance: Preplacement and periodic examination should be comprehensive because of the possible involvement of many systems. Special attention should be given to liver, kidney, and bone marrow function, as well as to the central and peripheral nervous systems. Alcoholism may be a predisposing factor.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Give large quantities of salt water and induce vomiting. Do not make an unconscious person vomit.

Personal Protective Methods: Wear appropriate clothing to prevent any possibility of skin contact. Wear eye protection to prevent any possibility of eye contact. Employees should wash immediately with soap when skin is wet or contaminated. Remove nonimpervious clothing immediately if wet or contaminated. Provide emergency showers and eyewash.

Respirator Selection:

50 ppm: CCROV/SA/SCBA

150 ppm: CCROVF/GMOV/SAF/SA:PD,PP,CF/SCBAF

Escape: GMOV/SCBA

Disposal Method Suggested: Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced.

References

- (1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to 1,1,2,2-Tetrachloroethane*, NIOSH Doc. No. 77-121, Washington, DC (1977).
- (2) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: 1,1,2,2-Tetrachloroethane*, Washington, DC (1979).
- (3) U.S. Environmental Protection Agency, *Chlorinated Ethanes: Ambient Water Quality Criteria*, Washington, DC (1980).
- (4) U.S. Environmental Protection Agency, *1,1,2,2-Tetrachloroethane*, Health and Environmental Effects Profile No. 167, Washington, DC, Office of Solid Waste (April 30, 1980).
- (5) National Cancer Institute, *Bioassay of 1,1,2,2-Tetrachloroethane for Possible Carcinogenicity*, Technical Report Series No. 27, Bethesda, MD (1978).
- (6) See Reference (A-61).
- (7) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 6, 84-86, New York, Van Nostrand Reinhold Co. (1981).
- (8) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 2, No. 6, 79-83, New York, Van Nostrand Reinhold Co. (1982).

Tetrachloroethylene

843

- (9) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 3, No. 2, 60-64, New York, Van Nostrand Reinhold Co. (1983).
- (10) See Reference (A-60).
- (11) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2181-63, Geneva, International Labour Office (1983).
- (12) United Nations Environment Programme, *IAPTC Legal File 1983*, Vol. 1, pp VII/318-20, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TETRACHLOROETHYLENE

- Carcinogen (positive, NCI) (3)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $\text{Cl}_2\text{C}=\text{CCl}_2$, tetrachloroethylene, is a clear, colorless, non-flammable liquid with a characteristic odor. The odor is noticeable at 50 ppm, though after a short period it may become inconspicuous, thereby becoming an unreliable warning signal. It boils at 121°C .

Code Numbers: CAS 127-18-4 RTECS KX3850000 UN 1897

DOT Designation: ORM-A

Synonyms: Perchloroethylene, carbon dichloride, ethylene tetrachloride, Perclene, PCE, tetrachloroethene.

Potential Exposures: Tetrachloroethylene is a widely used solvent with particular use as a dry cleaning agent, a degreaser, a chemical intermediate, a fumigant, and medically as an anthelmintic.

By far the most significant exposure to PCE occurs in industrial environments. The major uses of PCE are in textile and dry cleaning industries (69%), metal cleaning (16%), and as a chemical intermediate (12%). As with inhalation exposures, dermal exposures of significance would be primarily confined to occupational exposure.

Incompatibilities: Strong oxidizers, chemically active metals, such as barium, lithium, beryllium. Tetrachloroethylene is quite stable. However, it reacts violently with concentrated nitric acid to give carbon dioxide as a primary product.

Permissible Exposure Limits in Air: The Federal standard is 100 ppm (670 mg/m^3), as an 8-hour TWA with an acceptable ceiling concentration of 200 ppm; acceptable maximum peaks above the ceiling of 300 ppm are allowed for 5 minutes duration in a 3-hour period. NIOSH has recommended a time weighted average limit of 50 ppm and a ceiling limit of 100 ppm determined by 15-minute samples, twice daily. Neither of these levels may provide adequate protection from potential carcinogenic effects because they were selected to prevent toxic effects other than cancer.

The ACGIH has set a TWA of 50 ppm (335 mg/m^3) as of 1983/84 but no STEL value. An intended change, however, will involve adoption of an STEL of 200 ppm (1,340 mg/m^3). The notation "skin" is added to indicate the possibility of cutaneous absorption. The IDLH level is 600 ppm. Foreign limits are lower in some cases. Thus, the German Democratic Republic has set a standard of 250 mg/m^3 and reportedly the USSR a standard of 1.0 mg/m^3 . The Dutch chemical industry has set a value of 35 ppm (240 mg/m^3) (A-60).

Determination in Air: Adsorption on charcoal, workup with CS_2 , analysis by gas chromatography. See NIOSH Methods, Set J. See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—5,280 $\mu\text{g}/\text{L}$ on an acute toxicity basis and 840 $\mu\text{g}/\text{L}$ on a chronic toxicity basis. To protect saltwater aquatic life—10,200 $\mu\text{g}/\text{L}$ on an acute toxicity basis and 450 $\mu\text{g}/\text{L}$ on a chronic toxicity basis. To protect human health—preferably zero. An additional lifetime cancer risk of 1 in 100,000 is posed by a concentration of 0.0 $\mu\text{g}/\text{L}$.

Determination in Water: Inert gas purge followed by gas chromatography with halide specific detection (EPA Method 601) or gas chromatography plus mass spectrometry (EPA Method 624).

Routes of Entry: Inhalation of vapor, percutaneous absorption of liquid, ingestion, skin and eye contact.

Harmful Effects and Symptoms: *Local* — Repeated contact may cause a dry, scaly, and fissured dermatitis. High concentrations may produce eye and nose irritation.

Systemic — Acute exposure to tetrachloroethylene may cause central nervous system depression, hepatic injury, and anesthetic death. Cardiac arrhythmias and renal injury have been produced in animal experiments. Signs and symptoms of overexposure include malaise, dizziness, headache, increased perspiration, fatigue, staggering gait, and slowing of mental ability. These usually subside quickly upon removal into the open air.

Perchloroethylene has been found to be carcinogenic.

Points of Attack: Liver, kidneys, eyes, upper respiratory system, central nervous system.

Medical Surveillance: Evaluate skin, and liver and kidney function, as well as central nervous system. Alcoholism may be a predisposing factor.

Breath analyses may be helpful in evaluating exposures. Workers with pre-employment histories of liver, kidney, or nervous disorders should be advised as to possible increased risk.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Give large quantities of salt water and induce vomiting. Do not make an unconscious person vomit.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Work clothing should be changed daily if it is possible/probable that clothing is contaminated. Remove nonimpermeable clothing promptly if wet or contaminated.

Exposure to tetrachloroethylene should not be controlled with the use of respirators except: during the time period necessary to install or implement engineering or work practice controls. In work situations in which engineering and work practice controls are technically not feasible, to supplement engineering and work practice controls when such controls fail to adequately control exposure to tetrachloroethylene, for operations which require entry into tanks or closed vessels, or in emergencies.

Respirator Selection:

500 ppm: CCROVF/GMOV/SAF/SCBAF
Escape: GMOV/SCBA

Disposal Method Suggested: Incineration, preferably after mixing with another combustible fuel. Care must be exercised to assure complete combustion to prevent the formation of phosgene. An acid scrubber is necessary to remove the halo acids produced. Alternatively, PCE may be recovered from waste gases (A-68) and reused.

References

- (1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Tetrachloroethylene*, NIOSH Doc. 76-185 (1976).
- (2) National Institute for Occupational Safety and Health, Current Intelligence Bulletin No. 20: *Tetrachloroethylene*, Washington, DC (January 20, 1978).
- (3) *Bioassay of Tetrachloroethylene for Possible Carcinogenicity*, DHEW Publication No. (NIH) 77-813, U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Cancer Institute (October 1977).
- (4) U.S. Environmental Protection Agency, *Tetrachloroethylene: Ambient Water Quality Criteria*, Washington, DC (1980).
- (5) U.S. Environmental Protection Agency, *Health Assessment Document for Tetrachloroethylene*, External Review Draft No. 2 in circulation, Research Triangle Park, NC, Environmental Criteria and Assessment Office (January 1980).
- (6) U.S. Environmental Protection Agency, *Tetrachloroethylene, Health and Environmental Effects Profile No. 158*, Washington, DC, Office of Solid Waste (April 30, 1980).
- (7) See Reference (A-61).
- (8) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. II, pp VII/364-6, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TETRAETHYLLEAD

- Hazardous substance (EPA)
- Hazardous waste (EPA)

Description: $\text{Pb}(\text{C}_2\text{H}_5)_4$ is a colorless liquid with a slight musty odor. It boils at 100°C . In commerce it is usually dyed red, orange or blue. Tetraethyllead will decompose in bright sunlight yielding needlelike crystals of tri-, di-, and monoethyllead compounds, which have a garlic odor.

Code Numbers: CAS 78-00-2 RTECS TP4560000 UN 1649

DOT Designation: Poison B

Synonyms: Tetraethylplumbane (RTECS), TEL, lead tetraethyl.

Potential Exposure: Those engaged in the manufacture, transport and blending into gasoline of this antiknock compound.

Incompatibilities: Strong oxidizers, sulfuryl chloride, potassium permanganate.

Permissible Exposure Limits in Air: The Federal standard is 0.075 mg/m^3 . The ACGIH as of '83/84 has set a TWA of 0.1 mg/m^3 with the notation that this is for the control of general room air and that biologic monitoring is essential for personnel control. The notation "skin" also indicates the possibility of cutaneous absorption. The STEL is 0.3 mg/m^3 . The IDLH level is 40 mg/m^3 .

Potential Exposure: BA is a contaminant and does not have any reported commercial use or application, although one producer did report the substance for the Toxic Substances Control Act Inventory.

BA has been reported present in cigarette smoke condensate, automobile exhaust gas, soot, and the emissions from coal and gas works and electric plants. BA also occurs in the aromatic fraction of mineral oil, commercial solvents, waxes, petrolatum, creosote, coal tar, petroleum asphalt, and coal tar pitch. Microgram quantities of BA can be found in various foods such as charcoal broiled, barbecued, or smoked meats and fish; certain vegetables and vegetable oils; and roasted coffee and coffee powders.

Human subjects are exposed to BA through either inhalation or ingestion. Workers at facilities with likely exposure to fumes from burning or heating of organic materials have a potential for exposure to BA. Consumers can be exposed to this chemical through ingestion of various food, with concentrations of 100 µg/kg in some instances. Cigarette smoke condensate has quantities of BA that range from 0.03 to 4.6 µg/g.

BA is found in the atmosphere at levels that vary with geography and climatology. These values can range from up to 136 µg/1,000 m³ in summer to 361 µg/1,000 m³ in winter. Drinking water samples may contain up to 23 ng/L BA, and surface waters have been found to contain 4 to 185 ng/L. The soil near industrial centers has been shown to contain as much as 390 µg/kg of BA, whereas soil near highways can have levels of up to 1,500 µg/kg, and areas polluted with coal tar pitch can reach levels of 2,500 mg/kg.

Permissible Exposure Limits in Air: NIOSH has recommended a workplace standard for coal tar products of 0.1 mg/m³ as a time-weighted average for a 10-hour workshift in a 40-hour workweek. OSHA indirectly limits exposure to BA by requiring that occupational exposure to coal tar pitch volatiles not exceed, as a time-weighted average, 0.2 mg/m³ over an 8-hour period.

Permissible Concentration in Water: Water quality criteria document for polynuclear aromatic hydrocarbons published in final 11/28/80. Total PAH addressed. A concentration of 2.8 ng PAH/L is estimated to limit cancer risk to one in a million (EPA).

Harmful Effects and Symptoms: BA given by several routes of administration has proved to be carcinogenic in the mouse. It produced hepatomas and lung adenomas following repeated oral administration to young mice (1). In a parallel experiment with methylcholanthrene, the carcinogenic effect upon the liver and lung was similar for the two compounds at the same dose level. In the same experiment, BA did not produce tumours of the gastrointestinal tract, whereas methylcholanthrene induced them consistently.

BA is a complete carcinogen for the mouse skin. The fact that the tumour yield was higher when using a dodecane solution than with toluene is related to the co-carcinogenic effect of dodecane. Benzo(a)pyrene given at a lower dose level produced more skin tumours with a shorter latency period than did BA. BA is also an initiator of skin carcinogenesis in mice.

BA produced tumours in mice following subcutaneous injections. Fifty µg BA was the lowest dose tested, and it was effective in newborn and in adult animals. It produced bladder tumours in mice following implantation.

References

- (1) See Reference (A-62). Also see Reference (A-64).

BENZENE

- Carcinogen (IARC) (5) (12)
- Hazardous substance (EPA)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: C₆H₆, benzene, is a clear, volatile, colorless, highly flammable liquid with a characteristic odor. The most common commercial grade contains 50 to 100% benzene, the remainder consisting of toluene, xylene, and other constituents which distill below 120°C.

Code Numbers: CAS 71-43-2 RTECS CY1400000 UN 1114

DOT Designation: Flammable liquid

Synonyms: Benzol, phenyl hydride, coal naphtha, phene, benxole, cyclohexatriene.

Potential Exposure: Benzene is used as a constituent in motor fuels, as a solvent for fats, inks, oils, paints, plastics, and rubber, in the extraction of oils from seeds and nuts, and in photogravure printing (1). It is also used as a chemical intermediate. By alkylation, chlorination, nitration, and sulfonation, chemicals such as styrene, phenols, and maleic anhydride are produced. Benzene is also used in the manufacture of detergents, explosives, pharmaceuticals, and dye-stuffs.

NIOSH estimates that approximately 2 million workers in the U.S. are potentially exposed to benzene. Increased concern for benzene as a significant environmental pollutant arises from public exposure to the presence of benzene in gasoline and the increased content in gasoline due to requirements for unleaded fuels for automobiles equipped with catalytic exhaust converters.

Incompatibilities: Strong oxidizers; chlorine, bromine with iron.

Permissible Exposure Limits in Air: In 1974 NIOSH published a criteria document (2) for occupational exposure to benzene which recommended adherence to an existing Federal standard of 10 ppm (30 mg/m³) as a time-weighted average with a ceiling of 25 ppm.

The Federal emergency standard for benzene effective May 21, 1977, is 1 ppm for an 8-hour TWA, with 5 ppm as a maximum peak above the acceptable ceiling for a maximum duration of 15 minutes.

OSHA again has amended its permanent standard as of mid-1978 limiting worker exposure to benzene to 1 ppm to exempt workplaces where benzene levels in liquids do not exceed 0.5%. After three years the minimum allowable level would be 0.1%. When OSHA first issued the standard no exemption for benzene mixtures was allowed. Later it amended the standard to exempt workplaces where the level of benzene in mixtures was less than 0.1%. In July 1980, the U.S. Supreme Court struck down the OSHA standard because it failed to show a cost/benefit analysis and the OSHA standard has reverted to a 10 ppm 8-hour TWA limit. In addition, ACGIH designated benzene as an "Industrial Substance Suspect of Carcinogenic Potential for Man," with a TLV of 10 ppm (30 mg/m³) and an STEL of 25 ppm (75 mg/m³) as of 1983/84. The IDLH level is 2,000 ppm.

Determination in Air: Adsorption on charcoal, workups with CS₂, analysis by gas chromatography. See NIOSH Methods, Set U. See also reference (A-10). Benzene may also be determined with long duration detector tubes (A-11).

Permissible Concentration in Water: To protect freshwater aquatic life: 5,300 µg/L on an acute basis. To protect saltwater aquatic life: 5,100 µg/L on an acute basis. To protect human health: preferably zero. An additional lifetime cancer risk of 1 in 100,000 results from a concentration of 6.6 µg/L.

Determination in Water: Gas chromatography (EPA Method 602) or gas chromatography plus mass spectrometry (EPA Method 624).

Routes of Entry: Inhalation of vapor which may be supplemented by percutaneous absorption although benzene is poorly absorbed through intact skin; ingestion; skin and eye contact.

Harmful Effects and Symptoms: *Local* — Exposure to liquid and vapor may produce primary irritation to skin, eyes, and upper respiratory tract. If the liquid is aspirated into the lung, it may cause pulmonary edema and hemorrhage. Erythema, vesiculation, and dry, scaly dermatitis may also develop from defatting of the skin.

Systemic — Acute exposure to benzene results in central nervous system depression. Headache, dizziness, nausea, convulsions, coma, and death may result. Death has occurred from large acute exposure or as a result of ventricular fibrillation, probably caused by myocardial sensitization to endogenous epinephrine.

Early reported autopsies revealed hemorrhages (nonpathognomonic) in the brain, pericardium, urinary tract, mucous membranes, and skin. Chronic exposure to benzene is well documented to cause blood changes. Benzene is basically a myelotoxic agent. Erythrocyte, leukocyte, and thrombocyte counts may first increase, and then aplastic anemia may develop with anemia, leukopenia, and thrombocytopenia. The bone marrow may become hypo- or hyperactive and may not always correlate with peripheral blood.

Recent epidemiologic studies along with case reports of benzene related blood dyscrasias and chromosomal aberrations have led NIOSH to conclude that benzene is leukemogenic (11). The evidence is most convincing for acute myelogenous leukemia and for acute erythroleukemia, but a connection with chronic leukemia has been noted by a few investigators.

Recent work has shown increases in the rate of chromosomal aberrations associated with benzene myelotoxicity. These changes in the bone marrow are stable and may occur several years after exposure has ceased. "Stable" changes may give rise to leukemic clones and seem to involve chromosomes of the G group.

Points of Attack: Blood, central nervous system, skin, bone marrow, eyes, respiratory system.

Medical Surveillance: Preplacement and periodic examinations should be concerned especially with effects on the blood and bone marrow and with a history of exposure to other myelotoxic agents or drugs or of other diseases of the blood. Preplacement laboratory exams should include: (a) complete blood count (hematocrit, hemoglobin, mean corpuscular volume, white blood count, differential count, and platelet estimation); (b) reticulocyte count; (c) serum bilirubin; and (d) urinary phenol.

The type and frequency of periodic hematologic studies should be related to the data obtained from biologic monitoring and industrial hygiene studies, as well as any symptoms or signs of hematologic effects. Recommendations for proposed examinations have been made in the criteria for a recommended standard. Examinations should also be concerned with other possible effects such as those on the skin, central nervous system, and liver and kidney functions.

Biologic monitoring should be provided to all workers subject to benzene exposure. It consists of sampling and analysis of urine for total phenol content. The objective of such monitoring is to be certain that no worker absorbs an unacceptable amount of benzene. Unacceptable absorption of benzene, posing a risk of benzene poisoning, is considered to occur at levels of 75 mg phenol per liter of urine (with urine specific gravity corrected to 1.024), when determined by methods specified in the NIOSH "Criteria for Recommended Standard—Benzene." Alternative methods shown to be equivalent in accuracy and precision may also be useful. Biological monitoring should be done at quarterly intervals. If environmental sampling and analysis are equal to or exceed accepted safe limits, the urinary phenol analysis should be conducted every two weeks. This increased monitoring frequency should continue for at least 2 months after the high environmental level has been demonstrated.

Two follow-up urines should be obtained within one week after receipt of the original results, one at the beginning and the other at the end of the work week. If original elevated findings are confirmed, immediate steps should be taken to reduce the worker's absorption of benzene by improvement in environment control, personal protection, personal hygiene, and administrative control. See also reference (7).

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly with soap when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

- 10 ppm: SA/SCBA
- 50 ppm: SAF/SCBAF
- 1,000 ppm: SA:PD,PP,CF
- 2,000 ppm: SAF:PD,PP,CF
- Escape: GMS/SCBA

Disposal Method Suggested: Incineration.

References

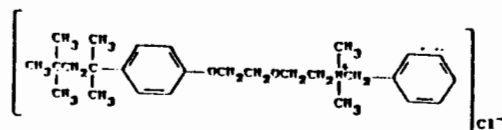
- (1) National Academy of Sciences, *A Review of Health Effects of Benzene*, National Academy of Sciences, Washington, DC (June 1976).
- (2) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Benzene*, NIOSH Doc. No. 74-137, Washington, DC (1974).
- (3) U.S. Environmental Protection Agency, *Benzene: Ambient Water Quality Criteria*, Wash., DC (1980).
- (4) U.S. Environmental Protection Agency, *Status Assessment of Toxic Chemicals: Benzene*, Report EPA-600/2-79-210D, Wash., DC (Dec. 1979).
- (5) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risk of Chemicals to Humans*, 7, 203, Lyon, France (1974) and 11, 295, Lyon, France (1978).
- (6) U.S. Environmental Protection Agency, *Benzene, Health and Environmental Effects Profile No. 15*, Wash., DC, Office of Solid Waste (April 30, 1980).
- (7) Nat. Inst. for Occup. Safety and Health, *A Guide to the Work Relatedness of Disease*,

Revised Edition, DHEW (NIOSH) Publication No. 78-116, pp 63-72, Cincinnati, OH (Jan. 1979).

- (8) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 4, 38-41, New York, Van Nostrand Reinhold Co. (1981).
- (9) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 2, No. 4, 33-38, New York, Van Nostrand Reinhold Co. (1982).
- (10) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 3, No. 3, 53-59, New York, Van Nostrand Reinhold Co. (1983).
- (11) See Reference (A-62). Also see Reference (A-64).
- (12) Mehlman, M.A., Ed., *Carcinogenicity and Toxicity of Benzene*, Princeton, N.J., Princeton Scientific Publishers (1983).
- (13) Parmeggiani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 1, pp 257-61, Geneva, International Labour Office (1983).
- (14) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. 1, pp VII/69-73, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

BENZETHONIUM CHLORIDE

Description: $C_{27}H_{42}ClNO_2$ with the following structural formula



forms crystals which melt at 164° to 166°C.

Code Numbers: CAS 121-54-0 RTECS BO7175000

DOT Designation: —

Synonyms: Phemerol chloride®, Phemeride®, Phemerol®.

Potential Exposure: Used as topical antinfecitive.

Incompatibilities: Soap, anionic detergents.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Ingestion may cause vomiting, convulsions, collapse and coma.

Personal Protective Methods: Wear skin protection.

Respirator Selection: Hot conditions may necessitate use of self-contained breathing apparatus.

Disposal Method Suggested: Incineration.

References

- (1) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 1, 32-33, New York, Van Nostrand Reinhold Co. (1980).

BENZIDINE

- Carcinogen (Human positive, IARC) (3)
- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $NH_2C_6H_4C_6H_4NH_2$, benzidine, is a crystalline solid with a significant vapor pressure. The salts are less volatile, but tend to be dusty.

Code Numbers: CAS 92-87-5 RTECS DC9825000 UN 1885

DOT Designation: Poison B

Synonyms: 4,4'-Biphenyldiamine, p-diaminodiphenyl, 4,4'-diaminobiphenyl, 4,4'-diphenylenediamine, benzidine base.

Potential Exposures: Benzidine is used primarily in the manufacture of azo dyestuffs; there are over 250 of these produced. Other uses, including some which may have been discontinued, are in the rubber industry as a linerener, in the manufacture of plastic films, for detection of occult blood in feces, urine, and body fluids, in the detection of H_2O_2 in milk, in the production of security paper, and as a laboratory reagent in determining HCN, sulfate, nicotine, and certain sugars. No substitute has been found for its use in dyes.

Free benzidine is present in the benzidine-derived azo dyes. According to industry, quality control specifications require that the level not exceed 20 ppm, and in practice the level is usually below 10 ppm. Industry has estimated a total environmental discharge at the 300 user facility sites of 450 pounds per year or about 1.5 pounds per year per facility, assuming all of the free benzidine is discharged in the liquid effluent.

No measurements for benzidine in ambient air, surface water, or drinking water have been reported. Further, no measurements for free benzidine in finished products containing azo dyes have been reported.

Estimates of the number of people exposed to benzidine and 3,3'-dichlorobenzidine are difficult to obtain. It has been suggested that 62 people in the U.S. are exposed to the former and between 250 and 2,500 to the latter.

Permissible Exposure Limits in Air: Benzidine and its salts are included in a Federal standard for carcinogens; all contact with them should be avoided. Cutaneous absorption is possible. ACGIH (1983/84) lists benzidine as a human carcinogen with the notation that skin absorption may be significant.

Determination in Air: Collection on a filter followed by colorimetric analysis (A-12). See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—2,500 $\mu g/l$ on an acute basis; insufficient data to yield a value for saltwater aquatic life. To protect human health—preferably zero. An additional lifetime cancer risk of 1 in 100,000 results from a concentration of 0.0012 $\mu g/l$ (?).

Determination in Water: High performance liquid chromatography (EPA Method 806) or an oxidation/colorimetric method using Chloramine T (available from EPA) or a gas chromatography/mass spectrometric method (EPA Method 625).

Routes of Entry: Inhalation, percutaneous absorption, and ingestion of dust.

Harmful Effects and Symptoms: Local — Contact dermatitis to primary irritation or sensitization has been reported.

Potential Exposure: Over 75% of DMB is used as a dye and as an intermediate in the production of dyestuffs and pigments. According to the Society of Dyes and Colorists, more than 95 dyes are derived from DMB. Approximately 0% of DMB is used in the production of polyurethane-based high-strength elastomers, coatings, and rigid plastics. DMB has also been used in small quantities in chlorine test kits by water companies and swimming pool owners and in test tapes in clinical laboratories.

Workers potentially exposed to DMB include dye makers, repackagers of DMB and dyes, workers in toluene-diisocyanate production, and clinical and analytical chemistry laboratory personnel. Workers in a variety of occupations may be exposed to small quantities of DMB used for analytical purposes, among them water and sewage plant attendants, chemical test tape or kit makers, and swimming pool service representatives. NIOSH in 1978 estimated that fewer than 100 employees were exposed to large quantities of DMB in the United States, but as many as 200,000 may be exposed to small quantities. The National Occupational Hazard Survey in 1974 estimated that 420 workers were potentially exposed to DMB.

Permissible Exposure Limits in Air: There are no Federal standards but ACGIH (1983/84) has designated o-toluidine as an "industrial substance suspected of carcinogenic potential for man" with no numerical TLV value.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Skin and eye irritation.

The available test results are considered to provide sufficient evidence for the carcinogenicity of 3,3'-dimethylbenzidine in experimental animals (2). Commercial 3,3'-dimethylbenzidine (o-toluidine), when given to the rat by subcutaneous injection, caused mainly Zymbal's gland carcinomas, but mammary and forestomach tumors, and miscellaneous tumors at other sites were also present. Gastric intubation experiment with rats produced mammary carcinomas, but the result is of doubtful significance because of the small number of animals involved. In feeding experiments, the commercial product did not produce tumors in hamsters. Other experiments verified 3,3'-dimethylbenzidine as a systemic carcinogen producing multiple site tumors when given subcutaneously to the rat.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, flush with water and wash contaminated areas with soap. If this chemical has been swallowed, wash with large volumes of water but not induce vomiting (A-46).

Personal Protective Methods: Wear clothing and goggles to prevent skin and eye contact.

References
International Agency for Research on Cancer, *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, Supplement 4, Lyon, France: IARC (1982).

International Agency for Research on Cancer, *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man*, Vol 1, pp 87-91 Lyon, France: IARC (1972).

TOLUENE

Hazardous substance (EPA)

- Hazardous waste (EPA)
- Priority toxic pollutant (EPA)

Description: $C_6H_5CH_3$, toluene, is a clear, colorless, noncorrosive liquid with a sweet, pungent, benzenelike odor. It boils at 110° to $111^\circ C$.

Code Numbers: CAS 108-88-3 RTECS XS5250000 UN 1294

DOT Designation: Flammable liquid

Synonyms: Toluol, methylbenzene, phenylmethane, methylbenzol.

Potential Exposures: Toluene may be encountered in the manufacture of benzene. It is also used as a chemical feed for toluene diisocyanate, phenol, benzyl and benzoyl derivatives, benzoic acid, toluene sulfonates, nitrotoluenes, vinyltoluene, and saccharin; as a solvent for paints and coatings; or as a component of automobile and aviation fuels.

It is estimated that 100,000 workers are potentially exposed to toluene. At present levels of exposure to toluene in the environment, available toxicological data do not suggest that any special group in the general population would be at risk. Exposure to levels of the chemical necessary to produce physiological or toxicological effects would be anticipated primarily in occupational or solvent abuse situations. Environmental contribution of toluene in such settings should be minimal.

Incompatibilities: Strong oxidizers.

Permissible Exposure Limits in Air: The Federal standard is 200 ppm as an 8-hour TWA with an acceptable ceiling concentration of 300 ppm; acceptable maximum peaks above the ceiling of 500 ppm are allowed for 10 minutes duration. NIOSH has recommended a limit of 100 ppm (TWA) with a ceiling of 200 ppm for a 10-minute sampling period. ACGIH (1983/84) cites a TWA of 100 ppm (375 mg/m^3) and an STEL of 150 ppm (560 mg/m^3). The IDLH level is 2,000 ppm.

Determination in Air: Adsorption on charcoal, workup with CS_2 , analysis by gas chromatography. See NIOSH Methods, Set V. See also reference (A-10).

Permissible Concentration in Water: To protect freshwater aquatic life—17,500 $\mu\text{g/l}$ on an acute toxicity basis. To protect saltwater aquatic life—6,300 $\mu\text{g/l}$ on an acute toxicity basis and 5,000 $\mu\text{g/l}$ on a chronic basis. To protect human health—14.3 mg/l .

Determination in Water: Inert gas purge followed by gas chromatography and photolization detection (EPA Method 802) or gas chromatography plus mass spectrometry (EPA Method 824).

Routes of Entry: Inhalation of vapor, percutaneous absorption of liquid, ingestion, skin and eye contact.

Harmful Effects and Symptoms: *Local*—Toluene may cause irritation of the eyes, respiratory tract, and skin. Repeated or prolonged contact with liquid may cause removal of natural lipids from the skin, resulting in dry, fissured dermatitis. The liquid splashed in the eyes may cause irritation and reversible damage.

Systemic—Acute exposure to toluene predominantly results in central nervous system depression. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness, incoordination with staggering gait, skin paresthesia, collapse, and coma.

Points of Attack: Central nervous system, liver, kidneys, skin.

Medical Surveillance: Preplacement and periodic examinations should evaluate possible effect on skin, central nervous system, as well as liver and kidney function. Hematologic studies should also be done if there is significant contamination of the solvent with benzene.

Hippuric acid levels above 5 g/l of urine may result from exposure greater than 200 ppm determined as a TWA. Blood levels can also be determined for toluene.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

- 500 ppm: CCROV/SA/SCBA
- 1,000 ppm: CCROVF
- 2,000 ppm: GMOV/SAF/SCBAF
- Escape: GMOV/SCBA

Disposal Method Suggested: Incineration.

References

- (1) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: Toluene*, Washington, DC (1979).
- (2) U.S. Environmental Protection Agency, *Toluene: Ambient Water Quality Criteria*, Washington, DC (1980).
- (3) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Toluene*, NIOSH Doc. No. 73-11023 (1973).
- (4) U.S. Environmental Protection Agency, *Toluene, Health and Environmental Effects Profile No. 160*, Washington, DC, Office of Solid Waste (April 30, 1980).
- (5) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 2, No. 6, 83-87, New York, Van Nostrand Reinhold Co. (1982).
- (6) See Reference (A-61).
- (7) See Reference (A-60).
- (8) Pameggiani, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2184-86, Geneva, International Labour Office (1983).
- (9) United Nations Environment Programme, *IRPTC Legal File 1983*, Vol. II, pp VII/763, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

TOLUENE-2,4-DIAMINE

- Carcinogen (Animal Positive, IARC) (3) (4)
- Hazardous Waste (EPA)

Description: $C_7H_{10}N_2$, $H_3CC_6H_3(NH_2)_2$ takes the form of colorless needles melting at 99°C.

Code Numbers: CAS 95-80-7 RTECS XS9675000 UN (NA 1709)

DOT Designation: ORM-A

Synonyms: 3-Amino-para-toluidine, 5-amino-ortho-toluidine, 1,3-diamino-4-

methylbenzene, 2,4-diamino-1-methylbenzene, 2,4-diaminotoluene, 2,4-diamino-toluol, 4-methyl-meta-phenylenediamine, MTD.

Potential Exposures: Toluene-2,4-diamine is a chemical intermediate for toluene diisocyanate (used in the production of flexible and rigid polyurethane foams, polyurethane coatings, cast elastomers including fabric coatings, and polyurethane and other adhesives), and for dyes used for textiles, leather, furs, and in hair-dye formulations.

Toluene-2,4-diamine can be used for the production of about 60 dyes, 28 of which are currently believed to be of commercial significance. These dyes are generally used to color silk, wool, paper and leather. Some are also used to dye cotton, fast fibers and cellulosic fibers, in spirit varnishes and wood stains, as indicators, in the manufacture of pigments, and as biological stains.

Toluene-2,4-diamine is used as a developer for direct dyes, particularly to obtain black, dark-blue and brown shades and to obtain navy-blue and black colors on leather; it is also used in dyeing furs. It was formerly used in hair-dye formulations (to produce drab-brown, drab-blond, blue and gray shades on the hair) before this use was forbidden in 1971.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Methemoglobinemia, central nervous system depression, and degeneration of the liver typically result from exposure to toluene-2,4-diamine. Eye irritation, skin blistering, nausea, vomiting, jaundice and anemia are reported (A-38).

2,4-Diaminotoluene is carcinogenic in rats and after its oral administration, producing hepatocellular carcinomas, and its subcutaneous injection, inducing local sarcomas (3) (4).

Points of Attack: Central nervous system, liver.

Medical Surveillance: Consider the points of attack in preplacement and periodic physical examinations.

First Aid: Irrigate eyes with water. Wash contaminated areas of body with soap and water.

Personal Protective Methods: Wear butyl rubber gloves and plastic coveralls.

Respirator Selection: Use self-contained breathing apparatus.

Disposal Method Suggested: Controlled incineration (oxides of nitrogen are removed from the effluent gas by scrubbers and/or thermal devices).

References

- (1) U.S. Environmental Protection Agency, *Chemical Hazard Information Profile: Toluene-2,4-Diamine*, Washington, DC (1979).
- (2) U.S. Environmental Protection Agency, *2,4-Toluenediamine, Health and Environmental Effects Profile No. 161*, Washington, DC, Office of Solid Waste (April 30, 1980).
- (3) International Agency for Research on Cancer, *IARC Monographs on the Carcinogenic Risk of Chemicals to Humans*, Lyon, France 16, 83 (1978).
- (4) See Reference (A-62). Also see Reference (A-64).

TOLUENE DIISOCYANATE

- Hazardous waste (EPA)

WOOD DUST

Description: Wood dust (an ACGIH term) corresponds perhaps most closely to the industrial classification of wood flour. Wood flour is produced in 40 to 60 mesh and 70 to 80 mesh fractions, for example.

DOT Designation: —

Synonym: Sawdust.

Potential Exposures: Wood dust is produced incidentally in sawmill operations and in wood sawing and sanding operations in furniture manufacture. When produced as an industrial wood flour product, it is used as an absorbent for nitroglycerin in dynamite manufacture and as a filler in plastics, linoleum and paperboard.

Permissible Exposure Limits in Air: There are no Federal standards but ACGIH has proposed as of 1983/84 a TWA value of 1 mg/m³ for hardwood (beech and oak, e.g.) dust, and a value of 5 mg/m³ for softwood dust. No STEL value is given for hardwood dust; a value of 10 mg/m³ is given for softwood dust.

Permissible Concentration in Water: No criteria set.

Route of Entry: Inhalation.

Harmful Effects and Symptoms: Dermatitis, respiratory disease and cancer are the three main categories. Dermatitis may be primary irritant dermatitis from mechanical or chemical irritation; sensitization of the skin may follow. Respiratory diseases include suberosis, maple bark disease and sequiosis. Cancers of the larynx, tonsils, tongue and lung have been reported as arising from inhalation of wood dust in the furniture industry (A-34).

XYLENES

- Hazardous substance (EPA)
- Hazardous waste (EPA)

Description: C₆H₄(CH₃)₂, xylene, exists in three isomeric forms, ortho-, meta- and para-xylene. Commercial xylene is a mixture of these three isomers and may also contain ethylbenzene as well as small amounts of toluene, trimethylbenzene, phenol, thiophene, pyridine, and other nonaromatic hydrocarbons. m-Xylene is predominant in commercial xylene and shares physical properties with o-xylene in that both are mobile, colorless, flammable liquids. p-Xylene, at a low temperature (13° to 14°C), forms colorless plates or prisms.

Code Numbers: CAS 1330-20-7 RTECS ZE2100000 UN 1307

DOT Designation: Flammable liquid.

Synonym: Xylol, dimethylbenzene.

Potential Exposures: Xylene is used as a solvent; as a constituent of paint, lacquers, varnishes, inks, dyes, adhesives, cements, cleaning fluids and aviation fuels; and as a chemical feedstock for xyldines, benzoic acid, phthalic anhydride, isophthalic, and terephthalic acids, as well as their esters (which are specifically used in the manufacture of plastic materials and synthetic textile fabrics). Xylene is also used in the manufacture of quartz crystal oscillators, hydrogen peroxide, perfumes, insect repellants, epoxy resins, pharmaceuticals, and in the leather industry.

NIOSH estimates that 140,000 workers are potentially exposed to xylene.

Incompatibilities: Strong oxidizers.

Permissible Exposure Limits in Air: The Federal standard and the ACGIH 1983/84 TWA value is 100 ppm (435 mg/m³) for all isomers. NIOSH recommends adherence to the present Federal standard of 100 ppm as a time-weighted average for up to a 10-hour workday, 40-hour workweek. NIOSH also recommends a ceiling concentration of 200 ppm as determined by a sampling period of 10 minutes. The STEL value is 160 ppm (655 mg/m³). The notation "skin" is added to indicate the possibility of cutaneous absorption. The IDLH level is 10,000 ppm.

Determination in Air: Adsorption on charcoal, workup with CS₂, analysis by gas chromatography. See NIOSH Methods, Set U. See also reference (A-10).

Permissible Concentration in Water: No criteria set but EPA (A-37) has suggested a permissible ambient goal of 6,000 µg/l based on health effects.

Routes of Entry: Inhalation of vapor and, to a small extent, percutaneous absorption of liquid. Also ingestion and skin and eye contact.

Harmful Effects and Symptoms: *Local* – Xylene vapor may cause irritation of the eyes, nose, and throat. Repeated or prolonged skin contact with xylene may cause drying and defatting of the skin which may lead to dermatitis. Liquid xylene is irritating to the eyes and mucous membranes, and aspiration of a few milliliters may cause chemical pneumonitis, pulmonary edema, and hemorrhage. Repeated exposure of the eyes to high concentrations of xylene vapor may cause reversible eye damage.

Systemic – Acute exposure to xylene vapor may cause central nervous system depression and minor reversible effects upon liver and kidneys. At high concentrations xylene vapor may cause dizziness, staggering, drowsiness, and unconsciousness. Also at very high concentrations, breathing xylene vapors may cause pulmonary edema, anorexia, nausea, vomiting, and abdominal pain.

Points of Attack: Central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys, skin.

Medical Surveillance: Preplacement and periodic examinations should evaluate possible effects on the skin and central nervous system, as well as liver and kidney functions. Hematologic studies should be done if there is any significant contamination of the solvent with benzene.

Although metabolites are known, biologic monitoring has not been widely used. Hippuric acid or the ether glucuronide of o-toluic acid may be useful in diagnosis of m-, p- and o-xylene exposure, respectively.

First Aid: If this chemical gets into the eyes, irrigate immediately. If this chemical contacts the skin, wash with soap promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once and perform artificial respiration. When this chemical has been swallowed, get medical attention. Do not induce vomiting.

Personal Protective Methods: Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear eye protection to prevent any reasonable probability of eye contact. Employees should wash promptly when skin is wet or contaminated. Remove clothing immediately if wet or contaminated to avoid flammability hazard.

Respirator Selection:

- 1,000 ppm: CCROVF
- 500 ppm: GMOV/SAF/SCBAF
- 10,000 ppm: SAF-PD, PP, CF
- Escape: GMOV/SCBA

Disposal Method Suggested: Incineration.

References

- 1) National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Xylene*, NIOSH Doc. No. 75-168 (1975).
- 2) See Reference (A-61).
- 3) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 1, No. 7, 79-81, New York, Van Nostrand Reinhold Co. (1981). (m-Xylene).
- 4) Sax, N.I., Ed., *Dangerous Properties of Industrial Materials Report*, 3, No. 3, 88-92, New York, Van Nostrand Reinhold Co. (1983). (p-Xylene).
- 5) See Reference (A-60).
- 6) Pommeroy, L., Ed., *Encyclopedia of Occupational Health & Safety*, Third Edition, Vol. 2, pp 2335-36, Geneva, International Labour Office (1983).

- (7) United Nations Environment Programme, *IARC Legal File 1983*, Vol. II, pp VII/789-84, Geneva, Switzerland, International Register of Potentially Toxic Chemicals (1984).

m-XYLENE- α -DIAMINE

Description: $H_2NCH_2C_6H_4CH_2NH_2$ is a liquid, melting at $15^\circ C$ and boiling at $200^\circ C$.

Code Numbers: CAS 1477-55-0 RTECS PF8970000.

DOT Designation: –

Synonyms: m-Phenylene bis (methylamine)

Potential Exposures: Those involved in its manufacture or in its use as an intermediate, in the manufacture of polyamide resins, for example.

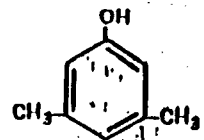
Permissible Exposure Limits in Air: There is no Federal standard but ACGIH (1983/84) has adopted a ceiling value of 0.1 mg/m^3 . They have set no tentative STEL value. The notation "skin" is added indicating the possibility of cutaneous absorption.

Permissible Concentration in Water: No criteria set.

Harmful Effects and Symptoms: Acute oral and skin irritation and sensitization and gastrointestinal irritation have been observed in animals (A-34). Phenylene diamine is suggested by ACGIH as a closely related chemical worthy of comparison.

3,5-XYLENOL

Description: $C_8H_{10}O$ with the formula



is a crystalline compound melting at $84^\circ C$.

Code Numbers: CAS 108-88-9 RTECS ZE8476000

DOT Designation: –

Synonyms: 1-Hydroxy-3,5-dimethylbenzene; 3,5-dimethylphenol.

Potential Exposure: To those involved in xylene use in pharmaceutical, pesticide, plasticizer, fuel and lubricant additive, rubber chemical and dyestuff manufacture.

Permissible Exposure Limits in Air: No standards set.

Permissible Concentration in Water: 0.25 mg/l is the maximum allowable in drinking water (A-36).

Routes of Entry: Skin absorption.

JUN 06 1991



GEI Consultants, Inc.

**HAZARDOUS MATERIALS INVESTIGATION
SAXTONS RIVER, VERMONT**

Submitted to
Steven L. Winters
Vermont Agency of Natural Resources

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Project 90379
June 3, 1991

EXECUTIVE SUMMARY

GEI Consultants, Inc. (GEI) entered into contractual agreement with the State of Vermont Agency of Natural Resources (ANR) on October 12, 1990 to conduct a hazardous materials investigation in the Village of Saxtons River, Vermont. The purpose of this investigation is to collect information relative to the following: location and chemical composition of the source of the non-petroleum contaminant plume; identity and concentration of the chemicals causing the contamination; lateral and vertical extent of the non-petroleum constituent contaminant plume based on ground water sampling points; direction in which the contamination is spreading and its estimated rate of movement; identity and location of potential receptors, both environmental and human.

The scope of the investigation included Background Research (Contract Task 1), preparing a Site Safety Plan (Contract Task 2), a Preliminary On-Site Investigation (Contract Task 3), an On-Site Investigation (Contract Task 4), collecting elevation and water level measurements (Contract Task 5), and preparing a Final Technical Report (Contract Task 6). The Preliminary On-Site Investigation included site history research, bedrock mapping, aerial photograph analysis, and geophysical surveys.

Based on the results of the Preliminary On-Site Investigation, three potential source areas of non-petroleum ground water contamination were identified:

- The Tenney Hardware Store (Lot 67), a former Texaco Service Station which may have used solvents in the degreasing and cleaning of engine parts and vehicle parts.
- The Pizza, Paul and Mary restaurant (Lot 69), formerly a laundromat containing one dry cleaning machine which may have used perchloroethylene (Perc), one of the chemicals detected in ground water samples collected in the Village of Saxtons River.
- The former Moore apartment building (Lot 37) was destroyed by a fire of suspicious origin in 1979. According to reports from local residents of the Village, chemicals may have been stored in the basement of the building at the time of the fire.

Photolineament analysis completed by GEI detected two major lineaments trending through the site. One north/south trending lineament projects directly through the site area in the vicinity of the Pizza, Paul and Mary restaurant. An east/west lineament also projects through the site area running just south of Main Street. Geophysical surveys (electromagnetic) completed by GEI indicated a major anomaly indicative of a water bearing fracture along four of the five geophysical profiles performed by GEI. The fracture indicated by these anomalies coincides with the location of the major north/south trending lineament. The residential bedrock wells which have been found by the ANR to contain contamination appear to be located along the two major lineaments in the site area.

GEI's Site Investigation summarized in this document included:

- Collecting soil samples from potential source areas and testing them for volatile organic chemicals (VOCs).
- Examining potential source areas of non-petroleum ground water contamination by installing three overburden ground water monitoring wells and one boring, and sampling and testing ground water for VOCs.
- Locating bedrock fractures which may be acting as conduits for contaminated ground water movement in the bedrock aquifer by drilling two bedrock wells in areas identified by photolineaments and geophysical anomalies which potentially contain significant bedrock fractures, and sampling and testing ground water for VOCs.

Two potential sources areas of ground water contamination were indicated by the analytical data collected during this study. Soils contaminated with Perc (9 to 440 ppb) appear to exist in the basement of the Pizza, Paul, and Mary restaurant. Based on the soil samples collected, the extent of residual soil contaminated with Perc in the basement of the Pizza, Paul, and Mary restaurant appeared to be limited in area. The liquid contained in a tank labeled "Perk Chemical Co." located in the basement of the Pizza, Paul, and Mary restaurant was confirmed by both GEI and the ANR by gas chromatography/ mass spectroscopy (EPA Method 624) to be Perc.

Petroleum-contaminated soils appear to exist in the basement of the Tenney Hardware Store. Petroleum hydrocarbons were detected in soils from the basement of the Tenney Hardware Store (1,000 ppb) in soils from B1 (50,000 ppb) located in front of the Tenney Hardware Store. Previous activities at this site associated with the former Texaco service bays and/or underground storage tanks may be a source of petroleum contamination in this area.

Perc was not detected in the ground water from the overburden well MW1 located cross- and potentially up-gradient of the Pizza, Paul, and Mary restaurant. Perc was detected at low levels (5 ppb) in ground water from MW3, located downgradient from the Pizza, Paul, and Mary restaurant. Based on the analytical data collected for this study and the ANR residential well sampling data, it appears that the most significant pathway of Perc migration at the site is through fractured bedrock. However, Perc was not detected in the bedrock monitoring wells BRX1 and BRX2 installed for this study. This may indicate that Perc is migrating through deeper fractures encountered in the residential wells, which range from 200 to 500 feet in depth. However, given the low levels detected in the study area, BRX1 and BRX2 may require substantially more pumping before Perc is detected.

The presence of Perc identified in the bedrock residential wells and the low levels of Perc detected would likely make ground water remediation by pump and treat technologies technically difficult and cost-prohibitive. It is GEI's opinion, based on data collected during this study, that the levels and extent of soil contamination in the basement of the Pizza, Paul and Mary restaurant do not warrant removal at this time. Levels of Perc

contamination would be expected to decrease overall with time. However, additional soil sampling with depth is recommended. If significantly higher levels of contamination are detected with further sampling, soil remediation may be warranted. Soil remediation could include soil removal and/or soil venting with vapor extraction techniques. GEI recommends that ground water sampling of residential wells in the study area be continued.

Evaluating the location and extent of petroleum-contaminated soils or the extent of petroleum contamination of ground water was beyond the scope of this investigation. GEI recommends that this potential source area of petroleum contamination be included in the on-going study of petroleum contamination in the study area.

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1. INTRODUCTION

GEI Consultants, Inc. (GEI) entered into contractual agreement with the State of Vermont Agency of Natural Resources (ANR) on October 12, 1990 to conduct a hazardous materials investigation in the Village of Saxtons River, Vermont. The purpose of this investigation is to collect information relative to the following:

1. Location and chemical composition of the source of the non-petroleum contaminant plume;
2. Identity and concentration of the chemicals causing the contamination;
3. Lateral and vertical extent of the non-petroleum constituent contaminant plume, based on ground water sampling points;
4. Direction in which the contamination is spreading and its rate of movement;
5. Identity and location of potential receptors, both environmental and human.

The scope of the investigation included Background Research (Contract Task 1), a Preliminary On-Site Investigation (Contract Task 3) and an On-Site Investigation (Contract Task 4).

The Preliminary On-Site Investigation included site history research, bedrock mapping, aerial photograph analysis, and geophysical surveys.

The On-Site Investigation included:

- Collecting soil samples from potential source areas and testing them for volatile organic chemicals (VOCs).
- Examining potential source areas of non-petroleum ground water contamination by installing three overburden ground water monitoring wells, and sampling and testing ground water for VOCs.
- Locating bedrock fractures which may be acting as conduits for contaminated ground water movement in the bedrock aquifer by drilling two bedrock wells in areas identified by photolineaments and geophysical anomalies which potentially contain significant bedrock fractures. Sample and test ground water for VOCs.
- Estimating specific yields of individual fractures during drilling of bedrock wells by blow testing the significant fractures encountered.
- Estimating the in-situ hydraulic conductivity of the surficial aquifer by performing falling head conductivity tests during drilling of overburden wells.

This document is GEI's Final Technical Report (Contract Task 6) for the Saxtons River investigation. It contains a summary of the findings from the Background Research, Preliminary On-Site Investigation and Site Investigation including site history, results of geophysical investigation, subsurface exploration information, and analytical results from soil and ground water quality sampling.

Work on this project was conducted by Joanne O. Morin (Project Manager), Christopher Covell (Geologist), and Joanne McLaughlin (Geologist).

2. PRELIMINARY ON-SITE INVESTIGATION

2.1 Background

The site is the Village of Saxtons River, which is an incorporated village of the Town of Rockingham, Vermont (Figure 1). The Village is located on the terraces of the Saxtons River which flows generally east where it enters the Connecticut River in Bellows Falls, Vermont.

The terrain in the site area varies from level river terraces immediately south and north of the River to steep slopes between terraces. Bedrock outcrops can be seen below the bridge on Hartley Hill Road and throughout the river bed. Bedrock also outcrops along the valley walls to the north along Pleasant Street and in the fields of the Vermont Academy to the north. The Village is densely populated with residential properties, small businesses, and shops. Property parcels within the Village average approximately 100 feet by 200 feet, with the majority of residences located off Main Street and the majority of businesses located along Main Street. The Village has no public water supply, but a public sewer system was completed in 1972. Prior to 1972, the waste was disposed directly into the River.

During July of 1989, Mrs. Bertha King (Lot 39) of Saxtons River, Vermont notified the Vermont Health Department of a gasoline odor from her water. On July 20, 1989 the State of Vermont's Health Department analyzed a sample of Mrs. King's water and detected low levels of hydrocarbons. The Petroleum Management Section (Petroleum Section) of the ANR was then notified and on August 22, 1989, Mrs. King's water was resampled and analyzed. Benzene, toluene, ethylbenzene, and xylene (BTEX) compounds were detected in the well water at levels higher than the Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs).

The Petroleum Section expanded their sampling program to include other homes surrounding the King residence and found additional wells with BTEX contamination. The source was suspected to be leaking underground storage tanks (USTs) at the Sunoco gas station abutting the King residence. Tri-S Environmental Consultants of Brattleboro, Vermont was contracted by A.R. Sandri, owner of the Sunoco Station, to investigate and remediate the source of the BTEX contamination. Wells which have or have had BTEX contamination were identified in the ANR files as the Skovinski residence; King residence; Crispe residence (family housing); A. Smith; Pizza, Paul and Mary; Mortensen; A.R. Sandri; Smith; Fletcher; Kimball; and Trulow.

The sampling of local water wells in Saxtons River by ANR's Petroleum Section on September 26, 1989 determined that the Skovinski well also contained the chemical perchloroethylene (Perc). After further investigation by the ANR Petroleum Section, it was determined that a number of other residential water supplies in the Village were contaminated with Perc. ANR's Petroleum Section then transferred the handling of the case to ANR's Hazardous Sites Management Section for further investigation.

Initial review of the files by the ANR indicated that the suspect chemical contamination may be originating in the basement of the Pizza, Paul and Mary restaurant located at the corners of Main Street and School Street. Historical information indicates that the building which houses the restaurant (Lot 69, Tax Map U-13) used to house a laundromat which contained dry cleaning equipment that may have utilized Perc.

During a visit to the site, Mr. Richard Spiese of the ANR's Petroleum Section was shown a tank in the basement of the Pizza, Paul and Mary restaurant by Mr. Paul MacIntire, current owner of the property. The tank was allegedly located below the old dry cleaning equipment and was labeled "Perk Chemical Co., 217 South First Street, Elizabeth, New Jersey, 07206." This tank was suspected to contain perchloroethylene.

2.2 Site History Research

As part of the Preliminary On-Site Investigation, GEI Consultants, Inc. (GEI) reviewed Town files, conducted interviews with residents owning contaminated wells, and conducted interviews with the Town's health officer, zoning and planning departments, assessor's office and fire chief. GEI also conducted interviews with people who were familiar with the Town's history and land use. GEI attempted to conduct interviews with property owners of Lots 69, 67, 68, 78 and 37 from Tax Map U-13. These properties include: The Pizza, Paul and Mary restaurant (location of the former laundromat)(Lot 69); an abutting property to the laundromat which formerly contained a gasoline station and engine parts store (Lot 67); an abutting property to the laundromat which contains a crafts store (Lot 68); an abutting property to the laundromat which contains the Contel Telephone Corporation (Lot 78); and an empty lot (Lot 37) in-between the laundromat and the contaminated wells (reportedly a previously existing building on this lot burned and its foundation was filled with debris of unknown origin). The locations of all of these properties are expected to be upgradient of the contaminated residential water supply wells identified by the ANR and near the suspected source area of the contamination. The results of the site history research were presented in the Site Investigation Work Plan. The summary of the information collected is presented in Appendix A.

2.3 Bedrock Geologic Mapping

GEI conducted one day of bedrock mapping on October 18, 1990. Mapping was performed at three outcrops in the vicinity of the site (Figure 2). Outcrop A is located in the Village of Saxtons River downstream of the Hartley Hill Road. Outcrop B is

located along the southern bank of Saxtons River downstream of Outcrop A. Outcrop C is located north of the village, approximately 1/2 mile along the eastern embankment of Pleasant Street. Bedrock mapping results were presented in the Site Investigation Work Plan. The results of the bedrock mapping indicated two predominant joint systems: a north/south striking system which dips steeply east and an east/west striking system dipping steeply north and south.

As reported in the Site Investigation Work Plan, the Geologic Map of Vermont (1961) indicated bedrock in the Village of Saxtons River consists of the Standing Pond Volcanics member of the Waits River Formation, which is an amphibolite garnet schist, and the Gile Mountain formation, which is a quartz muscovite phyllite schist. At this location, the Gile Mountain formation is stratigraphically below the Standing Pond Volcanics member. Generally this area is considered to be on the west flank of the Brattleboro syncline and the major structural features in the area trend North/South.

2.4 Fracture Trace Analyses

During initial background research, GEI performed remote sensing analyses of the site as a reconnaissance tool for identifying potential bedrock discontinuities which could affect ground water flow and contaminant transport in the bedrock aquifer at the site.

GEI analyzed aerial photographs and other imagery to identify linear surface features (lineaments) that could be related to bedrock fractures or faults that are potentially water-bearing. These analyses were performed by visual methods using three sets of photographs obtained from EROS Data Center in Sioux Falls, South Dakota:

1. Medium altitude color infrared stereo photographs, scale 1:58,000
2. Medium altitude black and white stereo photographs, scale 1:80,000
3. High altitude black and white stereo photographs, scale 1:8,000,000
(Space Shuttle Large Format camera)

GEI compared the orientation of photolineaments with the bedrock mapping data to evaluate and rank the photolineaments with regard to significant contaminant migration pathways.

GEI observed two photolineament patterns during review of aerial photos (Figure 3). One lineament pattern trends 10 degrees $\pm$ due north. This lineament trend is considered the primary fracture pattern for the region. A secondary lineament pattern trending more or less east/west was also observed (Figure 3). Two distinct lineaments pass through the Village of Saxtons River. Most important is a primary north/south trending lineament which passes through the center of town in the vicinity of Main Street. A second lineament trends east/west and is also located through the center of town just

south of Main Street. Due to expected interference from cultural features (e.g., power lines, underground piping, etc.), GEI could not perform a geophysical survey to identify the east/west trending lineament. Geophysical surveys were conducted during the Preliminary On-Site Investigation north and south of the center of town to examine the major north trending lineament.

2.5 Geophysical Investigation

GEI conducted geophysical surveys utilizing an ABEM WADI (WADI) electromagnetic instrument. Based on interpretation of aerial photographs, GEI selected locations north and south of the Village of Saxtons River to perform five geophysical lines of exploration along portions of the north/south trending lineaments (Lines 100, 200, 300, 400 and 500). Geophysical lines were laid out using hip-chain (a type of measuring tool for distance) and compass bearings from known features. Readings were collected on November 20 and 21, 1990 at spacings of 10 meters along each geophysical line.

As presented in the Site Investigation Work Plan, significant anomalies were detected along survey lines 100, 200, 400 and 500. WADI output for these lines are shown in Figures B2, B3, B4, B5 and B6, respectively included in Appendix C. The strongest anomalies were measured along Line 400 in the Village of Saxtons River. The most significant anomaly was located at Station 185 meters (indicates station was 185 meters from beginning of line). Further reduction of this data presented in Figure B7 and B8 (further interpretation using the software program SECTOR) further confirms the anomaly. This anomaly could be the subsurface expression of the north/south photolineament identified in the aerial photographs for the site and may indicate a water bearing fracture. It also appears this anomaly may indicate a near vertical contact zone between the Standing Pond Volcanics member of the Waits River formation and the Gile Mountain formation. This contact is clearly evident on the Bedrock Geologic Map of Vermont (1961) and is believed to be the result of folding which occurred during the formation of the Brattleboro Syncline. The Village of Saxtons River is located on the western flank of this feature.

2.6 Findings of the Preliminary On-Site Investigation

Based on the results of the site history investigation presented in Appendix A, three potential source areas of non-petroleum ground water contamination were identified:

- The Tenney Hardware Store (Lot 67), a former Texaco Service Station which may have used solvents in the degreasing and cleaning of engine parts and vehicle parts.
- The Pizza, Paul and Mary restaurant (Lot 69), formerly a laundromat containing one dry cleaning machine which may have used Perc, one of the chemicals detected in ground water samples collected in the Village of Saxtons River.

- The former Moore apartment building (Lot 37) was destroyed by a fire of suspicious origin in 1979. According to reports from local residents of the Village, chemicals may have been stored in the basement of the building at the time of the fire.

Other significant findings of the Preliminary On-Site Investigation were:

- Review of past information indicated ground water flow in the site area surficial aquifer is generally southeast. Surficial deposits are highly permeable sands and gravel of alluvial origin.
- Bedrock mapping completed by GEI indicated two major sets of joint systems: a predominant system with a north/south strike and a steep easterly dip, and an orthogonal system with an east/west strike with a steep southerly dip.
- Photolineament analysis completed by GEI detected two major lineaments trending through the site. One north/south trending lineament projects directly through the site area in the vicinity of Pizza, Paul and Mary restaurant. An east/west lineament also projects through the site area running just south of Main Street.
- Geophysical surveys (electromagnetic) completed by GEI indicated a major anomaly indicative of a water bearing fracture along four of the five geophysical profiles performed by GEI. The fracture indicated by these anomalies coincides with the location of the major north/south trending lineament.
- The residential bedrock wells which have been found by the ANR to contain contamination appear to be located along the two major lineaments in the site area.

3. SITE INVESTIGATION

3.1 Soil Sampling Program

Pizza, Paul and Mary Restaurant

GEI collected soil samples from the basement of the Pizza Paul & Mary restaurant and from the basement of Tenney Hardware Store on March 7, 1991. Soil sampling was not conducted at the locations behind these properties as originally planned in the Site Investigation Work Plan. This decision was made jointly, in the field, by GEI and the ANR representative in order to concentrate efforts in the basements where potential source areas were suspected.

Shallow borings were advanced with a hand auger in the basements of both buildings to a maximum depth of approximately 24 inches. Borings were not advanced to 5 feet as planned due to the presence of significant amounts of cobbles and boulders. Hand auger locations were chosen based on historical information obtained during the Preliminary On-Site Investigation and locations of stained surface soils. Volatile organic chemical vapors were measured with an HnU photoionization detector (PID) in the boring as it is advanced. When elevated PID readings were measured, soil was removed with the hand auger and placed in 40-ml glass vials with Teflon^R septum-lined screw caps.

Nine (9) borings were advanced with an hand auger in the basement of the Pizza, Paul and Mary restaurant (Figure 4). Boring PM1 was advanced at the original location of the Perc tank associated with the previous dry-cleaning operations. At the time of sampling, the Perc tank was located approximately 10 feet north of this location. Borings were then advanced approximately 5 feet north, west, and south from PM1. Due to the cement cistern located just east of PM1, boring PM5 was advanced less than 5 feet away (eastern direction). Two borings (PM6 and PM7) were advanced in the southern portion of the basement which were expected to downgradient of the suspected source area. Boring PM9 was advanced at a location expected to be upgradient (background location). PID readings ranged from 0 parts per million (ppm) in PM9 (background) to 2 ppm in PM5 (suspected source area).

GEI submitted two soil samples from the basement of the Pizza, Paul, and Mary restaurant to Eastern Analytical Incorporated (EAI) of Concord, New Hampshire for VOC analysis by EPA Method 8240. Samples were selected on the basis of PID readings for each boring. PID readings are presented on Figure 4. Soil was collected from an approximate depth of 7 inches in PM1 and from an approximately depth of 21 inches in PM5. GEI also submitted three (3) soil samples to the ANR representative for VOC analysis (EPA Method 8240) by the ANR laboratories. These samples included soil collected from approximately 12 inches in PM1, and soil collected from approximately 12 and 23 inches in PM5.

Tenney Hardware Store

The original scope of the investigation did not include borings in the basement of Tenney Hardware Store. During GEI's drilling program, analytical data provided by Tri-S Consultants indicated that Perc had been detected in soil samples collected from AR6 located in front of the Tenney Hardware Store. Due to the past use of the property for auto repairs and the new analytical data, GEI and the ANR conducted additional soil sampling in the basement of the Tenney Hardware Store. Four borings were advanced with a hand auger in the basement after the concrete floor had been penetrated with a hammer (Figure 5). The borings were screened with a PID and advanced to a maximum depth of 18 inches. Boring TH1 was advanced at location suspected to be downgradient within the previous 2-bay garage. Three additional borings were advanced west and north of TH1 to examine extent of potential contamination. PID readings ranged from 11 ppm in TH2 and TH3 to 25 ppm in TH1.

GEI submitted two soil samples from the basement of the Tenney Hardware Store to EAI of Concord, New Hampshire for VOC analysis by EPA Method 8240. Samples were selected on the basis of PID readings. PID readings for each boring are presented on Figure 5. Soil was collected from a depth of 18 inches in TH1 and from a depth of 13 inches from TH4. GEI also submitted 4 soil samples to the ANR representative for VOC analysis (EPA Method 8240) by the ANR laboratories. These samples included soil collected from 8 and 14 inches in TH1, and soil collected from 9 and 15 inches in TH4.

The hand auger was decontaminated between borings with methanol and distilled water rinses. Samples were stored on ice in a cooler until delivery to EAI. Chain-of-custody documentation was maintained.

3.2 Boring and Monitoring Well Program

Five ground water monitoring wells (MW1, MW2, and MW3; BRX1 and BRX2) and one boring (B1) were installed for this study (Figure 6). In addition, GEI observed the drilling of a bedrock residential water supply well on the King residence (Lot 39) on December 11, 1990 by Wragg Brothers of Ascutney, Vermont. The King bedrock well was installed under the supervision of Tri-S Consultants as a part of the investigation of the petroleum contamination in the area. The driller's logs for the three overburden wells and the boring, GEI well installation reports and GEI bedrock well logs (including the King bedrock well) are presented in Appendix D.

The original scope of the investigation included three overburden wells and two bedrock wells. An additional boring was drilled adjacent to existing monitoring well AR6 (installed previously by Tri-S Consultants), located in front of the Tenney Hardware Store. Analytical data provided by Tri-S Consultants during GEI's drilling program indicated that Perc had been detected in soil samples collected from AR6. These data are provided in Appendix F.

The rationale for each well location was as follows:

Overburden Wells:

- MW1:
- potential source area
 - located near the southeast corner of the Tenney Hardware Store
 - former underground storage tank (UST) location
 - no confirmation that UST was removed
 - former garage may have used solvents as degreasers
 - suspected to be upgradient of known contaminated residential wells
- MW2:
- potential source area
 - located near the southeast corner of Pizza, Paul and Mary restaurant
 - former laundromat containing dry cleaning equipment which used Perc
 - suspected to be upgradient of known contaminated residential wells
- MW3:
- located near the former Moore apartment building, which is now a vacant lot
 - suspected to be upgradient of known contaminated residential wells
 - suspected to be downgradient of MW1 and MW2
 - Fire of suspicious origin destroyed the building in 1979; local residents allege that chemicals may have been stored in basement

Borings

- B1:
- located in front of Tenney Hardware Store along Main Street adjacent to the previously installed well AR6
 - analytical data information obtained from Tri-S Consultants indicated concentrations of Perc in soils collected from AR6

Bedrock Wells

- BRX1:
- located on the Simonds property south of River Road and north of the Saxtons River
 - location of well is on north/south trending lineament identified in photolineament analysis
 - location of significant geophysical anomaly indicating water bearing fracture
 - well may intercept fractures which could provide a pathway for contaminant migration in bedrock to contaminated water supply wells

- BRX2:
- located along the Right-of-Way in Lot 31/25 of the Christ Church
 - recent sampling by the ANR indicates that contamination is migrating in an easterly direction, consistent with an east/west striking joint system which may provide a pathway for contaminant migration in bedrock parallel to the river

Borings for overburden wells were advanced until reaching refusal with 6-5/8 ID hollow stem augers. Split-spoon soil samples were obtained at a minimum of 5-foot intervals from each boring for visual classification and headspace screening for VOCs vapors using a PID. Soil descriptions followed the method of the Unified Soil Classification System. The split-spoon sample barrel was rinsed with methanol and distilled water between each sample. All down-hole drilling equipment was steam-cleaned prior to drilling each well.

GEI placed a portion of the following split-spoon soil samples in 40-ml vials and submitted them to the ANR representative for VOC analysis (EPA Method 8240) by the State laboratory:

<u>Boring/Well</u>	<u>Depth (ft.)</u>
B1	1-3
B1	3-5
B1	5-7
B1	7-9
B1	9-11
B1	11-13
MW1	0-2
MW1	5-7
MW2	0-2
MW2	5-7
MW3	0-3
MW3	5-7
MW3	15-17
MW3	20-22
MW3	25-27

GEI also placed a portion of the split-spoon sample from 9 to 10 feet in B1 in a 40-ml vial and submitted it to EAI for VOC analysis by Method 8240.

The monitoring wells installed in the overburden borings consist of 2-inch ID Schedule 40 PVC and well screen (0.010-inch slots). The PVC was steam cleaned in the field prior to installation. The annular space around the slotted section of the well was backfilled with an Ottawa sand filter. Bentonite seals were installed at the top of each sand pack and at the surface of each well. Protective locking standpipes or road boxes were installed at each location. Upon completion of the installation of each monitoring well, the previous screen section of the well was developed by surging or water jetting.

Upon the completion of borings and well installation, falling head hydraulic conductivity tests were performed in MW1 and MW3. MW2 was dry at the time of testing. Analysis of the data indicated that the hydraulic conductivity estimates were inaccurate due to the extension of the well screens above the water table. Therefore, a rising head hydraulic conductivity test was performed in MW3 on April 6, 1991 by removing a bailer-full of water. MW1 and MW2 were dry at the time of this additional testing.

The bedrock wells were drilled with a rotary rig until a significant fracture was encountered based on blow tests. BRX1 and BRX2 were advanced to 140 feet and 120 feet, respectively. Rock chip samples were collected and analyzed for the presence of fractures and blow tests were run to determine selected downhole permeabilities. Water samples were collected at depths of 81 feet, 120 feet and 140 feet in BRX1, and at depths of 100 feet and 120 feet in BRX2, and were provided to ANR personnel for VOC analysis (EPA Method 8240). The samples were collected by filling 40-ml glass vials with discharge from the borehole.

Bedrock wells consist of 6-inch open-holes with 6-7/8-inch ID steel casing advanced through the overburden. The well casing was sealed into rock by driving a steel drive shoe into competent bedrock and pumping a grout seal around the bottom 3 feet of casing.

3.3 Surveying and Water Level Measurements

Upon completion of the three overburden monitoring wells, the boring, and the two bedrock monitoring wells, GEI surveyed surface water levels at two location in Saxtons River and all wells to the nearest 0.01 foot. The original scope of the investigation included surveying a spring tentatively identified on site. Upon closer examination at the time of surveying, the "spring" was actually a culvert covered by leaves and debris and, therefore, was not included in the survey.

All elevations were measured to top of PVC wells and to top of steel casing in bedrock wells. All elevations are relative to a temporary benchmark established by GEI in the northeast corner of the Hartley Hill Road Bridge abutment (assumed elevation 100 ft.) The elevations of the monitoring wells installed for this investigation were tied to the elevations of the monitoring wells installed for the petroleum contamination study by including well AR6, located in front of the Tenney Hardware Store.

GEI measured ground water levels to the nearest 0.01 foot in each of the monitoring wells installed for this investigation on March 8 and April 18, 1991 to estimate ground water flow direction and gradients in the site area. Water-level measuring instruments were decontaminated prior to use in each well with methanol and distilled water.

3.4 Ground Water Sampling Program

Ground water samples were collected from all GEI monitoring wells, except BRX1, on March 8, 1991. Due to apparent silting-in of the well, GEI was not able to remove the submersible pump from BRX 2 upon completion of sampling. GEI therefore returned to the site with new equipment to complete ground water sampling of BRX1 on March 29, 1991.

To remove the pump lodged in BRX2, water needs to be jetted into the well to loosen the silt in order to free the pump. Smaller casing can then be sleeved into the existing casing. The boring should be drilled with a rotary rig until the new casing can be advanced into more competent bedrock. The presence of the submersible pump lodged in BRX2 does not pose a threat to ground water quality in Saxton's River.

The monitoring wells were sampled in order of anticipated decreasing contaminant levels. Prior to sampling, a minimum of three standing well volumes of water were purged from the wells using a clean Teflon™ bailer, or submersible pump. Sampling equipment was decontaminated prior to use with methanol and distilled water rinses.

Ground water samples were stored on ice in a light-tight cooler immediately after sampling and submitted to EAI for VOC analysis using EPA Method 601/602.

3.5 Perchloroethylene Tank Removal

GEI observed the removal of an approximately 120-gallon steel tank located in the basement of the Pizza, Paul and Mary restaurant on Main Street, Saxtons River, Vermont on April 15, 1991 by Twin State Environmental of Windsor, Vermont. The tank was labeled "property of Perk Chemical Co., Elizabeth, New Jersey." The removal of the tank was completed in Level C respiratory protection under the observation of an ANR representative.

The tank was drained of approximately 8 gallons of liquid, carried outside, cut up, and placed in a 55-gallon drum for proper disposal. The liquid was placed in a 30-gallon drum. PID readings measured at the top of the tank at the filler cap ranged from 0 ppm to 100 ppm. PID readings measured at the valve located at the bottom of the tank ranged from 200 to 250 ppm. A sample of the liquid was collected by Twin State Environmental in a 40-ml vial and provided to GEI and the ANR representative. GEI submitted the sample to Aquarian Analytical of Canterbury, New Hampshire for VOC analysis by Method 624.

A pump labeled "property of Perk Chemical Co." was also removed from the basement and included with the remains of the tank. One 30-gallon drum of liquid, one 55-gallon drum containing the remains of the tank, and the pump were removed by Pollution Solutions of Williston, Vermont. Photographs were taken to document tank sampling and removal and are on file with the ANR.

4. SUBSURFACE CONDITIONS

4.1 Generalized Subsurface Conditions

The site is underlain by a wide range of fluvial material from silts to high energy gravel and cobbles. The majority of the village is situated on a series of river terraces which were formed during the retreat of the last glacial period approximately 14,000 years ago. The upper terrace is located along Main Street and contains MW1, MW2, AR6, B1 and BRX2. The middle terrace is located immediately south of Main Street in the vicinity of MW3 and the lower terrace is located adjacent to the river and contains BRX1. Driller's well logs, GEI well installation reports, and GEI's bedrock well logs are provided in Appendix D. The well installation report for AR6 (provided by Tri-S Consultants) is also provided in Appendix D.

The following soils were encountered in borings:

Sand with Gravel

Soils along the upper terrace in the vicinity of the Pizza, Paul and Mary restaurant and the Tenney Hardware Store consist of a wide range of sand with gravel to sand gravel with cobbles and boulders. This upper terrace is highly permeable and contains little silt based on the split-spoon samples collected from MW1, MW2, B1, and a number of hand auger borings completed by GEI in the basements of the Pizza, Paul & Mary restaurant and the Tenney Hardware Store. The basement of the Pizza, Paul and Mary restaurant contained medium to coarse sand throughout the basement in varying thickness. This sand in the basement of the Pizza, Paul and Mary restaurant is interpreted by GEI to be fill based on field observations.

Narrowly Graded Sand with Silt

Soils located in the middle terrace immediately south of Main Street consist of narrowly graded fine sand and silts with some silty clay based split-spoon samples collected from MW3. Some gravel was encountered at this location at depths of approximately 25 feet. This middle terrace appears to be substantially less permeable, based on soil types, than the upper terrace and would restrict the flow of ground water in the overburden relative to the upper terrace.

Widely Graded Gravel with Sand

The lowest terrace immediately north of the Saxtons River appears to consist of widely graded gravel with sand. These deposits can be observed along the river bank in the Simonds backyard (Lot 18) and were observed in soils at BRX1.

Bedrock depths in the upper terrace along Main Street are estimated to range from 8 feet to 12 feet based on depth of refusal in borings in the basement of Pizza, Paul, and Mary, the Tenney Hardware Store, and MW3. Bedrock at MW3 is estimated to be at 29 feet based on depth of refusal. Bedrock was encountered at 16 feet in BRX2, and 15 feet in the King bedrock monitoring well. Bedrock was encountered at 36 feet south of these wells at BRX1. A highly weathered bedrock surface was encountered in BRX1, BRX2, and the King well.

Glacial potholes were observed just below the Hartley Hill Bridge in the Saxtons River (Figure 6). These suggest a high-energy environment where bedrock elevations may vary tens of feet over short distances. Bedrock outcrops in the Saxtons River with a distinct linear pattern trending north/south and dipping very steeply east also indicate that bedrock elevations may vary widely in the study area.

4.2 Hydraulic Conductivity Estimates

A rising head hydraulic conductivity test was performed by GEI in boring MW3 to estimate the hydraulic conductivity of the subsurface soils. The hydraulic conductivity of the soils was calculated using a procedure developed by Cooper (1967) and presented in Ground Water Hydrology (1978, McGraw-Hill). The data collected during conductivity testing are contained in Appendix E.

The hydraulic conductivity of the lower silty stratum in MW3 is estimated to be 8.93×10^{-5} cm/sec. This value indicates a relatively low hydraulic conductivity in the silts and fine sands in the vicinity of MW3. However, this value is not indicative of the upper terrace area where highly permeable sand and gravel was observed. The hydraulic conductivity of the upper terrace would be expected to be substantially more permeable.

Blow tests were performed on bedrock wells during drilling to estimate hydraulic conductivities. Blow tests were performed by injecting air into the borehole for five to ten minutes. Measurements of discharge were made after the standing water in the borehole had been evacuated. Yields of the three bedrock wells were as follows:

King residence	± 15 gallons per minute
BRX1	± 2.5 gallons per minute
BRX2	± 6 gallons per minute

These results indicate a large amount of variability in the water bearing capacity of fractures and/or the degree of fracturing in bedrock in the study area. This variability could potentially influence contaminant migration in the bedrock aquifer.

4.3 Ground Water Flow

Ground water and surface water levels were measured on March 8, 1991 and ground water levels were measured again on April 18, 1991. Ground water and surface water elevations were referenced by a temporary benchmark established on the northeast corner of the Hartley Hill Road bridge and are listed in Table 1. Ground water flow in the overburden is estimated to be generally southeast based on interpretation of water levels measured on March 8, 1991 and April 18, 1991. Ground water levels ranged from dry (MW2) to 6 feet (MW1) and to 10 feet below ground surface in MW3 on March 8, 1991. Ground water levels in the overburden ranged from dry wells at MW2 and MW1 to approximately 10 feet below ground surface in MW3 on March 18, 1991.

Ground water levels in the bedrock wells range from approximately 16.31 feet below ground surface in BRX2 to 3.65 feet below ground surface in BRX1. The existence of the higher ground water elevation in BX1 appears to indicate discharge of ground water in the bedrock to the Saxtons River and the overburden in this area.

Based on ground water elevations measured in the overburden monitoring wells on March 8, 1991, topography and river flow, ground water is anticipated to flow in a southeasterly direction beneath the site at a gradient ranging from approximately .025 to .040. It must be noted that ground water flow in the site area is substantially dependent on the time of year and the amount of precipitation. Property owners in the Village of Saxtons River indicated that, at certain times of the year or during high precipitation periods, water floods the basements of some of the properties, including the Pizza, Paul and Mary restaurant.

In the middle terrace area, the velocity of ground water flow in the silt stratum encountered in MW3 is estimated to range from approximately 7 feet to 11 feet per year (based on a hydraulic conductivity of 8.93×10^{-5} cm/sec, a gradient of .025 to .040, and a porosity of .35). The velocity of ground water flow in the upper terrace is believed to be many orders of magnitude greater due to more permeable soils encountered during drilling of B1, MW1 and MW2.

5. ANALYTICAL RESULTS

5.1 Soil Sampling

GEI and ANR analytical results and chain-of-custody records are provided in Appendix F. Perc was detected in concentrations ranging from 9 ppb to 440 ppb in soil samples collected from boring PM1 in the basement of the Pizza, Paul and Mary restaurant where a tank labeled "Perk Chemical Co." had been located (Table 2). Except for the presence of bromodichloromethane in the ANR data, (a common laboratory contaminant), no other VOCs were detected. Perc was detected at 440 ppb at a depth of approximately 7 inches and decreased to 9 ppb at a depth of approximately 12 inches. VOCs were not detected in soil samples from boring PM5.

The soil sample collected from the basement of the Tenney Hardware Store from a depth of approximately 18 inches in boring TH1 contained 1,000 ppb volatile petroleum hydrocarbons (Table 2). The ANR also noted the presence of "many hydrocarbon peaks" in the soil sample TH4-15 collected from a depth of approximately 15 inches from boring TH4. Except for the presence of bromodichloromethane in the ANR data (a common laboratory contaminant), no other VOCs were detected.

Volatile petroleum hydrocarbons were also detected by EAI at concentrations of 50,000 ppb in a soil sample collected from 9 to 10 feet in B1 located in front of the Tenney Hardware Store (Table 2). The ANR detected 7 ppb toluene in the soil sample from 1 to 3 feet, 6 ppb toluene and 9 ppb ethylbenzene in the soil sample from 3 to 5 feet, and 7 ppb ethylbenzene in the soil sample from 7 to 9 feet collected from boring B1. Note that the ANR did not analyze for volatile petroleum hydrocarbons other than the individual VOCs listed for EPA Method 8240. According to data provided by Tri-S Consultants, 1,100 ppb trichloroethylene, 320 ppb perchloroethylene, and 150 ppb toluene were detected previously in a soil sample collected from AR6, a monitoring well located in from the Tenney Hardware Store. These data are also included in Appendix F. Boring B1 was performed adjacent to AR6.

No VOCs were detected by the ANR in soil samples collected from MW1 and MW3 (Table 2). Perc was detected at concentrations of 6 ppb in the soil sample collected from 0 to 2 feet in MW2. Chloroform was also detected at concentrations less than 10 ppb in soil samples from MW2, but is likely attributable to laboratory contamination. No other VOCs were detected in soil samples collected from MW2.

5.2 Ground Water Sampling

Perc was detected by EAI at concentrations of 5 ppb in MW3 (Table 3). The laboratory results and chain-of-custody records are provided in Appendix F. No VOCs were detected by EAI in ground water from MW1, BRX1 or BRX2. MW2 was dry at the time of sampling. Volatile petroleum hydrocarbons were detected at concentrations of 100 ppb in ground water from AR6. No other VOCs were detected in ground water from AR6. The ANR did not detect VOCs in ground water samples collected during blow testing of BRX1 and BRX2.

5.3 Residential Well Sampling

Analytical data from periodic residential well sampling by the ANR is presented in Appendix G. The highest concentrations of Perc detected in residential wells by the ANR and are presented on Figure 6. Low levels of Perc (< 10 ppb) have been detected in a number of residential drilled bedrock wells in the Village of Saxtons River (Figure 6). The residential wells are located along the lineaments identified by GEI during the Preliminary On-Site Investigation.

The most recent sampling of residential wells conducted on April 11, 1991 indicated trace levels (< 2 ppb) of Perc in the Burgess well (Lot 29). Perc was not detected in this well previously. Perc is currently detected at concentrations of 3 ppb in the Catholic Church well just west of the Burgess well. Perc has been detected previously in the Catholic Church well at concentrations of 2 ppb. Over the time period that the ANR has conducted residential well sampling, Perc was initially not detected in either the Catholic Church or Burgess wells.

5.4 Tank Sampling

Essentially pure perchloroethylene was detected by both Aquarian Analytical, Inc. and the ANR in the liquid sample collected from the tank located in the basement of the Pizza, Paul, and Mary restaurant (Table 3 and Appendix F). Aquarian Analytical, Inc. estimated 99.5 percent Perc containing approximately 0.3 percent trichloroethylene.

6. DISCUSSION AND RECOMMENDATIONS

Two potential source areas of ground water contamination were indicated by the analytical data collected during this study. Perc-contaminated soils appear to exist in the basement of the Pizza, Paul, and Mary restaurant and petroleum-contaminated soils appear to exist in the basement of the Tenney Hardware Store.

Perc was detected at concentrations of 440 ppb in soil from what is believed to be the original location of a tank labelled "Perk Chemical Co." The liquid contained in this tank was confirmed by both GEI and ANR (EPA Method 624) to be Perc. Soil contamination appeared to decrease to a concentration of 9 ppb at an approximate depth of 12 inches. Perc was not detected at a location approximately 5 feet away. Based on these data, the amount of residual soil contamination appears to be limited.

Perc was not detected in the ground water from the overburden well MW1 located cross- and potentially up-gradient of the Pizza, Paul, and Mary restaurant. Perc was detected at low levels (5 ppb) in ground water from MW3, located downgradient from the Pizza, Paul, and Mary restaurant. The location of MW3 was also downgradient of the location of the former apartment building that burned (Lot 37). It had been reported that the cellar hole of this building contained a large number of paint cans and other domestic household cleaners and chemicals. Subsurface explorations within the cellar were not conducted. However, the levels of Perc detected in MW3 and analysis of soils from MW3 do not indicate a significant source of Perc from the location of the former apartment building (Lot 37). If the former apartment building had been a source of Perc, higher levels of ground water contamination would have been expected in MW3. However, the levels detected in MW3 were similar to the low levels detected elsewhere in the study area. In addition, the State Police arson report did not indicate the presence of hazardous materials (except for a drum of kerosene) in the building remains.

Based on photolineament analysis, two major lineaments appeared to trend through the site. One north/south trending lineament projects directly through the site area in the vicinity of the Pizza, Paul, and Mary restaurant. An east/west lineament also projects through the site area running to just south of Main Street. Residential wells containing Perc contamination are located along these lineaments. ANR analytical data from residential well sampling indicate the migration of Perc in wells east along Main Street. In earlier sampling rounds, Perc was not detected in either the Catholic Church well or the Burgess well. Perc was later detected in only the Catholic Church well and, more recently, in both the Catholic Church and Burgess wells. These data indicate that Perc contamination is migrating along the expected predominant fracture pattern in bedrock.

It appears the most significant pathway of Perc migration at the site is through fractured bedrock. However, Perc was not detected in the GEI bedrock monitoring wells BRX1 and BRX2 or the water samples collected during blow testing BRX1 and BRX2. This may indicate that Perc is migrating predominantly through the deeper fractures encountered in the residential wells. Residential wells in the study area range from 200 to 500 feet in depth. However, BRX1 and BRX2 may need substantially more pumping before Perc is detected in these wells, especially considering the low levels of Perc detected in the study area. Perc contamination would be expected to continue to migrate along the lineaments identified in the area.

Migration of Perc-contaminated ground water in the soils near MW3 would be expected to be slow. Ground water velocity in this area was estimated to be 7 to 11 feet per year. Migration of Perc-contaminated ground water through the soils near MW2 would be an order of magnitude or more higher due to the presence of more permeable sands and gravel. Bedrock in the vicinity of the Pizza, Paul, and Mary restaurant is estimated at between 8 to 12 feet. A source of Perc in the basement of the Pizza, Paul, and Mary restaurant would initially percolate through soil until it reached ground water. It appears that, depending on the season, ground water may be encountered within the soils or in bedrock. Ground water levels appear to be highly variable at the site as indicated by water levels measured in MW1 and the indication of seasonal flooding of basements in the area. Perc-contaminated ground water would migrate from the source area at a slower rate in overburden and at a much faster rate in fractured bedrock.

The presence of Perc identified in the bedrock residential wells and the low levels of Perc detected would likely make ground water remediation by pump and treat technologies technically difficult and cost-prohibitive. It is GEI's opinion, based on the data collected during this study, that the levels and extent of soil contamination in the basement of the Pizza, Paul and Mary restaurant do not warrant removal at this time. Levels of Perc contamination would be expected to decrease overall with time. However, additional soil sampling with depth is recommended. If significantly higher levels of soil contamination are detected with further sampling, soil remediation may be warranted. Soil remediation could include soil removal and/or soil venting with vapor extraction techniques.

GEI recommends that ground water sampling of residential wells in the study area be continued. Sampling should include those wells that Perc has been detected in previously as well as the newly installed monitoring wells. Based on the photolineament analysis conducted from this study, wells east of the Burgess well along Main Street and wells south of River Street should be included in future monitoring. In addition, the residential well on Lot 37 (which is currently not functioning and, therefore, has not been sampled) should also be included in future monitoring, if possible.

Petroleum hydrocarbons at concentrations of 1,000 ppb were detected in soils from the basement of the Tenney Hardware Store. Concentrations of petroleum hydrocarbons of 50,000 ppb were detected in soils from B1 located in front of the Tenney Hardware Store. In addition, ground water collected from AR6, located adjacent to B1, contained petroleum hydrocarbons at concentrations of 100 ppb. Previous activities at this site associated with the former Texaco service bays and/or underground storage tanks may have been a source of petroleum contamination in this area. Previous data reported by Tri-S Consultants indicating Perc-contaminated soils at AR6 have not been confirmed by this investigation. Evaluating the location and extent of petroleum-contaminated soils or the extent of petroleum contamination of ground water was beyond the scope of this investigation. GEI recommends that this potential source area of petroleum contamination be included in the on-going study of petroleum contamination in the study area.

7. LIMITATIONS

This report was prepared for the use of the Vermont Agency of Natural Resources. The conclusions provided by GEI in this report are based solely on the information contained and referenced within this document. Conclusions reached in this report are based upon technical analyses of soil and water samples collected at the stated locations. While we are unaware of any facts or circumstances which could cause us to suspect that the conclusions drawn herein are incorrect or misleading, it is always possible that additional quantitative information on the site could require refinement or modification of the conclusions of this report.

This report has been prepared in accordance with generally-accepted hydrogeologic practices, and in accordance with the terms and conditions set forth in the Contract and subsequent Amendments between GEI and the State of Vermont (Contract No. 0963247).

TABLE 1 - WATER LEVEL MEASUREMENTS
Hazardous Materials Investigation
Saxtons River, Vermont

Well No.	Elevation*	March 8, 1991 Water Level (ft.)	March 8, 1991 Water Level Elevation	April 18, 1991 Water Level (ft.)	April 18, 1991 Water Level Elevation
MW1	98.72	7.70	91.02	Dry	Dry
MW2	97.8	Dry	Dry	Dry	Dry
MW3	88.89	12.16	76.73	11.58	86.73
AR6	98.31	8.15	90.16	8.30	90.01
BRX1	72.54	3.65	68.89	2.62	69.92
BRX2	89.18	16.31	72.87	17.94	71.24
River Low Shot	61.15	61.15	61.15	--	--
River Middle Shot	66.37	66.37	66.37	--	--

Notes:

All elevations were measured to top of PVC in overburden wells (MW) and to top of steel casing in bedrock wells (BRX).

All elevations are relative to a temporary bench mark established at the site by GEI in the northeast corner of the Hartley Hill Road Bridge abutment (assumed elevation 100 feet).

"--" indicates water level not measured.

TABLE 2 - SOIL ANALYTICAL RESULTS
Hazardous Materials Investigation
Saxton River, Vermont

Compound	Concentrations (ppb)											
	Boring Location	PM1	PM1*	PM5*	PM5	PM5*	TH1*	TH1*	TH1	TH4*	TH4	TH4*
	Boring Sample Depth	7"	12"	12"	21"	23"	8"	14"	18"	9"	13"	15"
Perchloroethylene		440	9	-	-	-	-	-	-	-	-	-
Bromodichloromethane		-	6	-	-	-	-	-	-	11	-	14
Volatile Petroleum Hydrocarbons		-	NA	NA	-	NA	NA	NA	1,000	NA	-	NA
Toluene		-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene		-	-	-	-	-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-	-	-	-	-

Notes:

* Indicates samples were analyzed by the VT ANR utilizing EPA Method 8240.
The remainder of the samples were analyzed by Eastern Analytical Incorporated of Concord, New Hampshire utilizing EPA Method 8240.

NA Parameter not analyzed for

- Indicates not detected above laboratory quantitation limit

TABLE 2 - SOIL ANALYTICAL RESULTS
Hazardous Materials Investigation
Saxton River, Vermont

Compounds	Concentrations (ppb)											
	Boring Location	B1	B1*	B1*	B1*	B1*	B1*	B1*	MW1*	MW1*	MW2*	MW2*
	Boring Sample Depth	9-10'	0-3'	3-5'	5-7'	7-9'	9-11'	11-13'	0-2'	5-7'	0-2'	5-7'
Perchloroethylene		-	-	-	-	-	-	-	-	-	6	-
Bromodichloromethane		-	-	-	-	-	-	-	-	-	-	-
Volatile Petroleum Hydrocarbons		50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene		-	7	6	-	-	-	-	-	-	-	-
Ethylbenzene		-	-	9	-	7	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-	-	-	7	6

Notes:

- * Indicates samples were analyzed by the VT ANR utilizing EPA Method 8240.
The remainder of the samples were analyzed by Eastern Analytical Incorporated of Concord, New Hampshire utilizing EPA Method 8240.
- NA Parameter not analyzed for
- Indicates not detected above laboratory quantitation limit

TABLE 2 - SOIL ANALYTICAL RESULTS
Hazardous Materials Investigation
Saxton River, Vermont

Compound	Concentrations (ppb)					
	Boring Location	MW3*	MW3*	MW3*	MW3*	MW3*
	Boring Sample Depth	0-2'	3-5'	5-7'	15-17'	20-22'
Perchloroethylene		-	-	-	-	-
Bromodichloromethane		-	-	-	-	-
Volatile Petroleum Hydrocarbons		NA	NA	NA	NA	NA
Toluene		-	-	-	-	-
Ethylbenzene		-	-	-	-	-
Chloroform		-	-	-	-	-

Notes:

- * Indicates samples were analyzed by the VT ANR utilizing EPA Method 8240.
The remainder of the samples were analyzed by Eastern Analytical Incorporated of Concord, New Hampshire utilizing EPA Method 8240.
- NA Parameter not analyzed for
- Indicates not detected above laboratory quantitation limit

TABLE 3 - AQUEOUS ANALYTICAL RESULTS
Hazardous Materials Investigation
Saxtons River, Vermont

Compound	Concentrations (ppb)											
	Sample Location											
	MW1	MW2	MW3	AR6	BRX1	BRX2	BRX1*	BRX1*	BRX1*	BRX2*	BRX2*	TANK
							81'	120'	140'	100'	120'	
Perchloroethylene	-	-	5	-	-	-	-	-	-	-	-	99.5%
Trichloroethylene	-	-	-	-	-	-	-	-	-	-	-	0.3%
Volatile Petroleum Hydrocarbons	-	-	-	100	-	-	NA	NA	NA	NA	NA	-

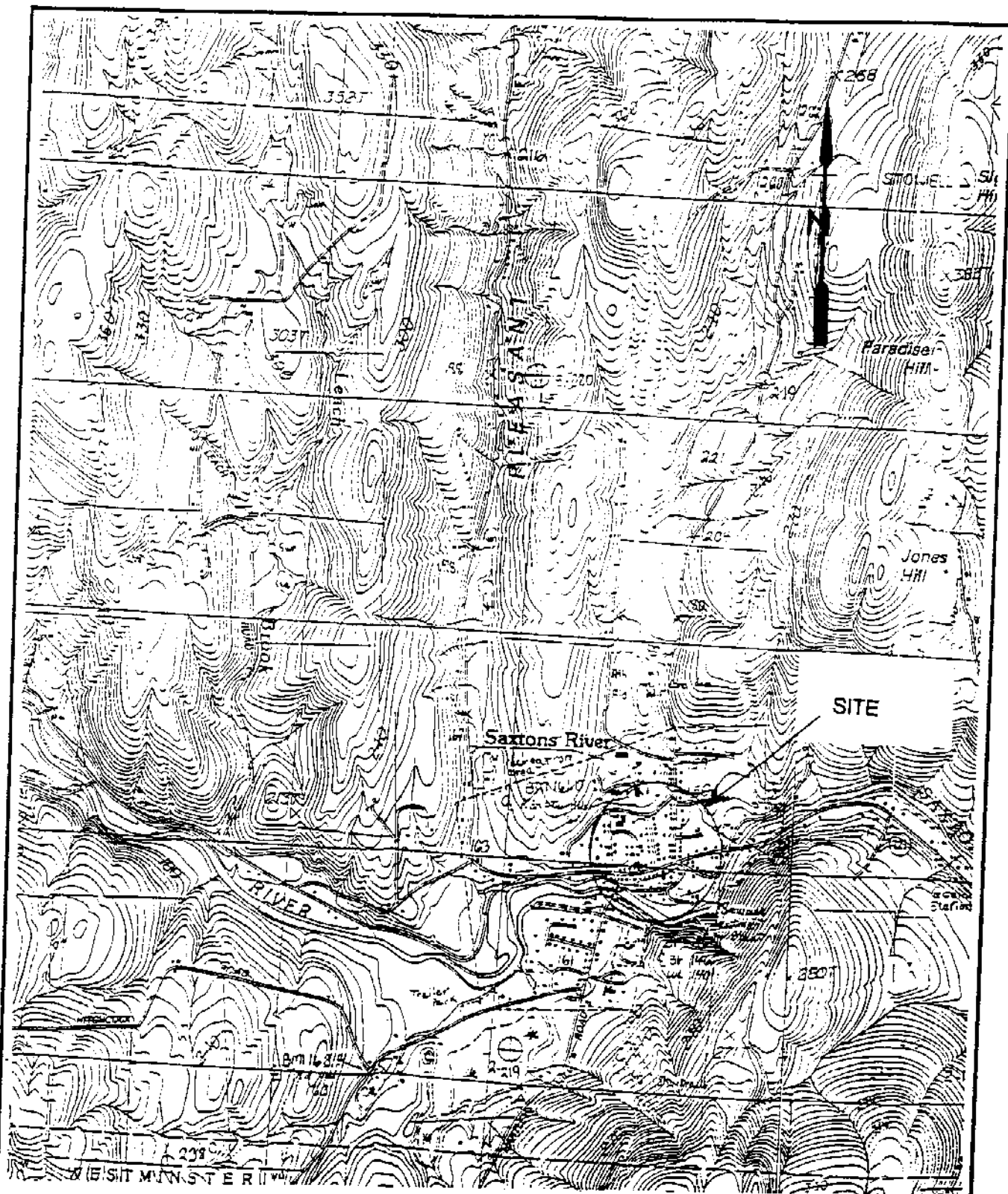
Notes:

Ground water samples were analyzed by Eastern analytical Incorporated of Concord, New Hampshire utilizing EPA Method 601/602.

The tank sample was analyzed by Aquarian Analytical of Canterbury, New Hampshire utilizing EPA Method 624.

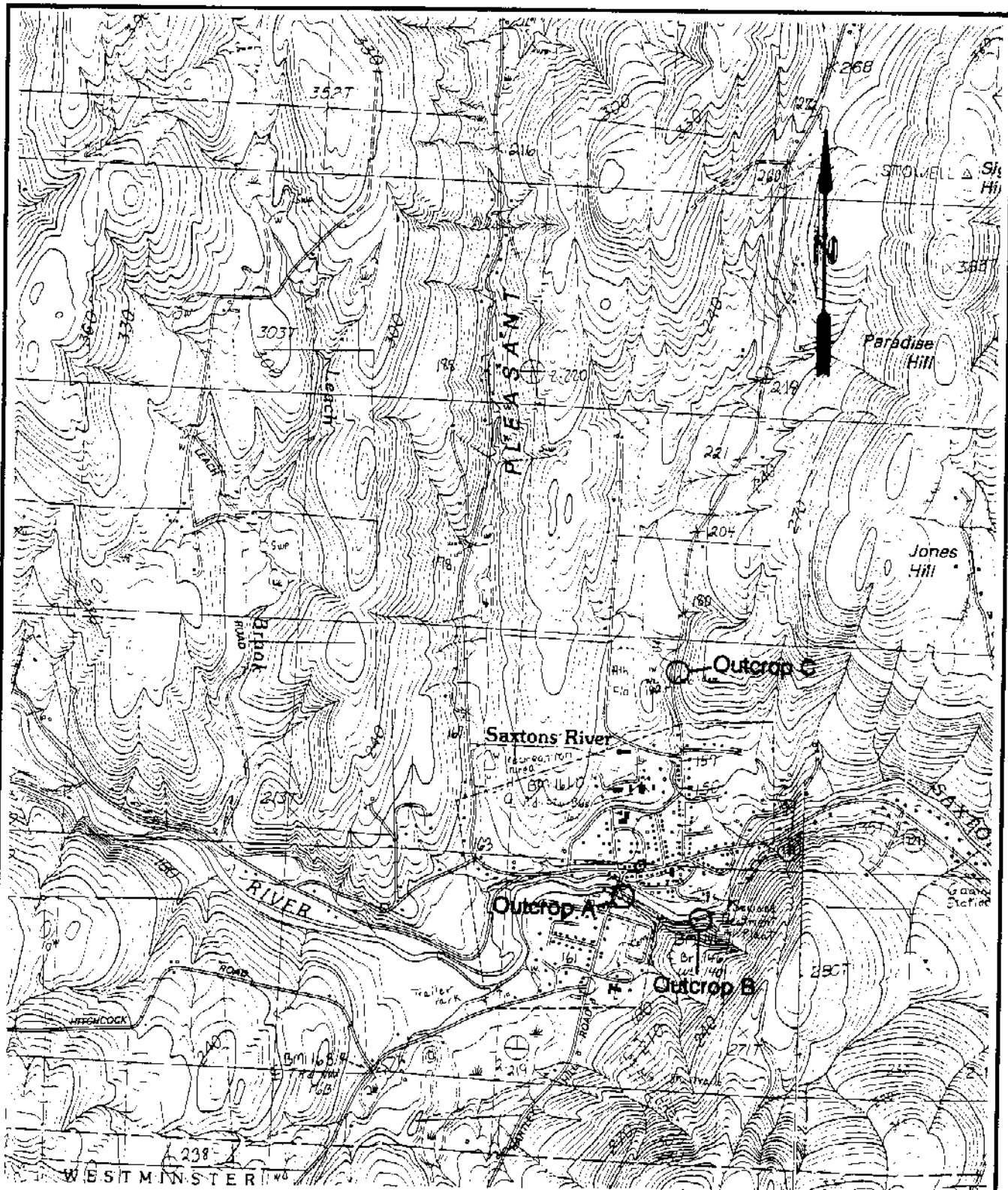
* Collected from discharge from borehole at specified depth of drilling and analyzed by the VT ANR utilizing EPA Method 601/602.

- Indicates not detected above laboratory quantitation limits.

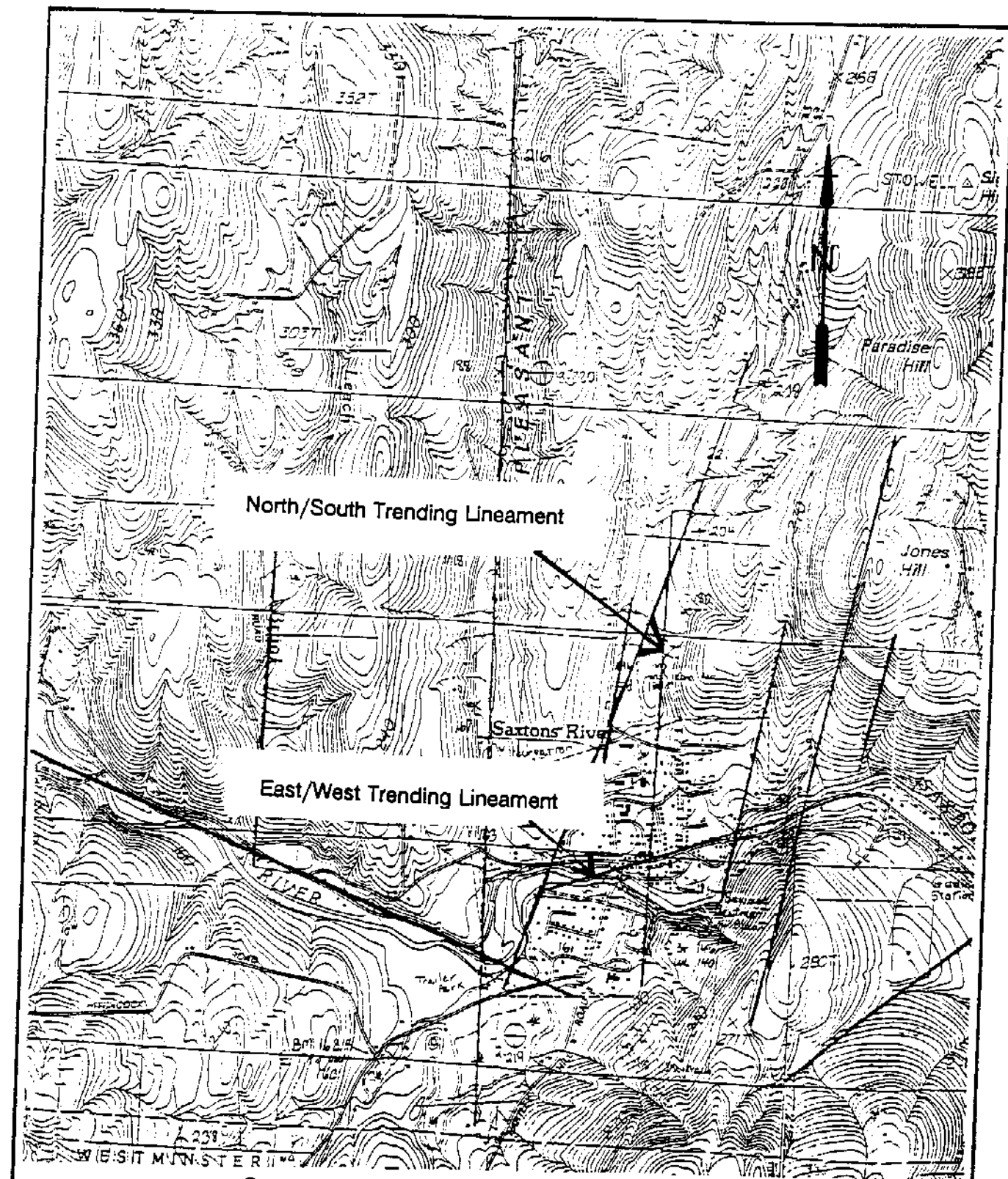


Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of Natural Resources Waterbury, Vermont	Saxtons River Hazardous Waste Site Investigation Saxtons River, Vermont	SITE LOCATION MAP
 GEI Consultants, Inc.	Project 90379	May 1991 Fig. 1



Vermont Agency of Natural Resources Waterbury, Vermont	Saxtons River Hazardous Waste Site Investigation Saxtons River, Vermont	MAPPED BEDROCK OUTCROP LOCATIONS	
 GEI Consultants, Inc.			
	Project 90379	May 1991	Fig.2



Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of
Natural Resources
Waterbury, Vermont

PHOTO-
LINEAMENT
MAP

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont



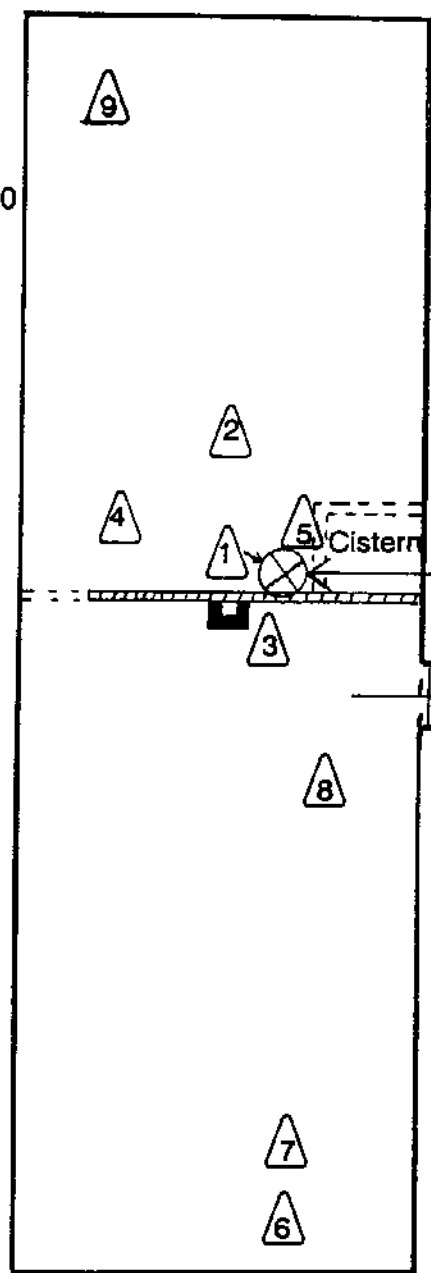
GEI Consultants, Inc.

Project 90379

May 1991 Fig. 3

Auger
Hole # PID Reading
(PPM) w/Depth

PM1	1, .5
PM2	.5
PM3	.5
PM4	.5
PM5	1, 1.8, 2.0
PM6	1
PM7	0
PM8	1
PM9	0



Original Location
Perc Tank

Cistern

SCHOOL STREET

LEGEND



Boring Location with Auger
Hole Number



Monitoring Well Location

0' 10'
Scale
1" = 10'

MAIN STREET



MW2

Vermont Agency of
Natural Resources
Waterbury, Vermont

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Sketch
HAND AUGER LOCATIONS
BASEMENT OF
PIZZA PAUL & MARY



GEI Consultants, Inc.

Project 90379

May 1991

Fig. 4

Auger
Hole # 2

PID Reading
(PPM) w/Depth

TH1

15, 21, 20, 15, 25, 20

TH2

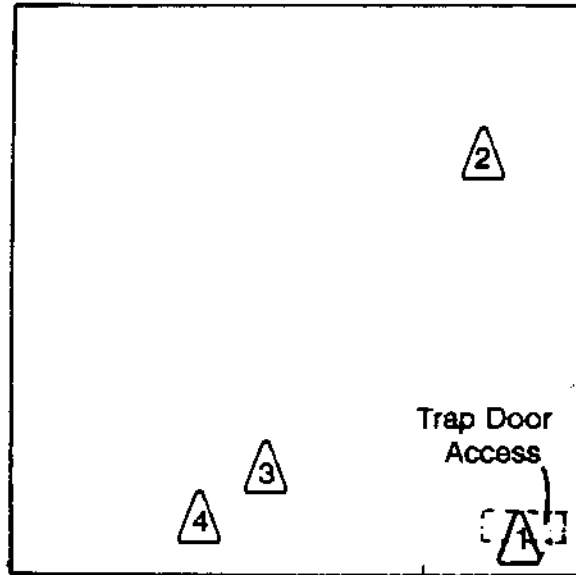
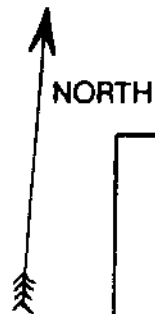
12, 11.5, 11

TH3

Aborted Due to Boulder

TH4

19, 15, 17, 11



MAIN STREET

LEGEND



Monitoring Well Location



Boring Location



Boring Location with
Auger Hole Number

NOT TO SCALE

Vermont Agency of
Natural Resources
Waterbury, Vermont

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Sketch
HAND AUGER LOCATIONS
BASEMENT OF
TENNY HARDWARE



GEI Consultants, Inc.

Project 90379

May 1991

Fig. 5

APPENDIX A

Summary of Preliminary Site History Investigation

1. SUMMARY OF PRELIMINARY ON-SITE INVESTIGATION

1.1 Summary of Interviews

As part of the Preliminary On-Site Investigation, GEI Consultants, Inc. (GEI) reviewed town files, conducted interviews with residents owning contaminated wells, and conducted interviews with the towns health officer, zoning and planning departments, assessor's office and fire chief. GEI also conducted interviews with people who were familiar with the Town's history and land use. GEI conducted interviews with property owners of Lots 69, 67, 78 and 37 from Tax Map U-13. These properties include: The Pizza, Paul & Mary restaurant (location of the former laundromat)(Lot 69); an abutting property to the laundromat which formerly contained a gasoline station and engine parts store (Lot 67); an abutting property to the laundromat which contains the Contel Telephone Corporation (Lot 78) and an empty lot in-between the laundromat and the contaminated wells (reportedly a previously existing building on this lot burned and its foundation was filled with debris of unknown origin). GEI was not able to contact the owner of the abutting property to the laundromat which contains a crafts store (Lot 68). The locations of all of these properties are expected to be upgradient of the contaminated residential water supply wells identified by the Vermont Agency of Natural Resources (ANR) and near the suspected source area of the contamination. The following is a summary of the information collected.

Pizza, Paul and Mary Restaurant (Lot 69)

Conversations with Mr. Paul McIntire, current owner of "Pizza, Paul and Mary" restaurant (Tax Map U13, Lot 69) located on Main Street in Saxtons River indicated that the building used to be a laundromat which also contained one self-service dry cleaning machine which was in operation prior to his ownership of the property. Mr. McIntire indicated that when he initially leased the building (prior to purchasing), the dry cleaning equipment was still in the building but had been out of service for a number of years. Mr. McIntire indicated that while he was leasing the building he requested that the owner of the building (Mr. Patrick Boyland of A & B Associates) remove the old equipment to provide more room for his restaurant. Mr. MacIntire indicated that in early 1988 Mr. Boyland's son and himself along with a MacIntire Fuel employee (no relation to the current owner) removed the equipment along with a 55-gallon drum of the chemical perchloroethylene (Perc). Mr. McIntire indicated that conversations he had with Mr. Richard Smith seemed to indicate that the machine was not in use for at least 15 years, probably more, prior to being removed. At the time of removal of the dry cleaning machine, a tank of perchloroethylene (Perc) was still in the earthen basement of the building. GEI personnel, along with Mr. McIntire, observed an abandoned tank (approximate capacity of 100 gallons) in the basement on October 18, 1990 and October

31, 1990. The tank contained valves which had been wired shut, and it appeared to contain some type of brown precipitate on the top surface of the tank. It appeared that some liquid was still in the tank. GEI also observed a pump which at one time appeared to have been connected to the tank. Both the tank and the pump were labelled with the address of Perk Chemical Co. in Elizabeth, New Jersey.

Mr. McIntire indicated that in order to install a central vacuuming unit in the building he had recently moved the tank approximately 10 feet to the north of its original location. Upon inspection of the tank, it was observed that the two openings on the top of the tank had been safety wired shut with thin wire rope and sealed with crimped lead seals. The safety wire crumbled upon touch. The tank did not appear to be leaking any type of liquid. The floor of the basement is still dirt.

GEI interviewed two former owners of the building, Mr. Patrick Boyland (owner from August 1, 1981 through September 20, 1988) of A & B Associates, and Mr. Richard Smith (owner from May 28, 1975 through August 1, 1981). Mr. Boyland indicated he bought the building at tax sale in 1981 and at the time he sold it to Mr. McIntire, "there was no equipment in the building that had anything to do with dry cleaning." Mr. Boyland also said that there had been no tanks or any other dry cleaning equipment in the basement. Mr. Boyland indicated that Mr. Don Perrault of Bellows Falls, Vermont ran the laundromat for him during the mid-1980s and that no dry cleaning operations took place on the premises during the time he owned the building. This is contrary to information received from Mr. McIntire, who indicated he and Mr. Boyland's son removed dry cleaning equipment to Rockingham Hospital just prior to the McIntire purchase in 1988.

GEI personnel interviewed Mr. Don Perrault and his wife Marie, former operators of the laundromat, at their current place of business, Perrault's Appliance, Inc., 58 Williams Street in Bellows Falls, Vermont. Mr. and Mrs. Perrault indicated that they had operated the laundromat in the Pizza Paul & Mary building from April 1985 to Spring 1988. Mr. and Mrs. Perrault indicated that no dry cleaning operations took place during the time they operated the laundromat. However, Mr. Perrault did confirm the existence of the dry cleaning equipment in the building during the period of time he operated the laundromat. However, Mr. and Mrs. Perrault said the equipment was not used. Mr. Perrault indicated that Richard Smith of Saxtons River was the previous site operator.

During review of deeds for the site, GEI determined that Mr. Richard Smith owned the property from May 28, 1975 to August 1, 1981. According to deeds on file at the Bellows Falls, Vermont Town Clerk's office on Main Street in Bellows Falls, Mr. Richard Smith acquired the property for the sum of one dollar (\$1.00) on May 28, 1975 subject to the mortgage of Bellows Falls Trust Company. The property was formerly owned by Donald and Iris Dunbar.

Mr. Smith indicated he used to work for Mr. Donald Dunbar during the late 1960s. During the period Mr. Dunbar owned the property (October 10, 1967 to May 1975), Mr. Smith maintained the daily business of the laundromat and dry cleaning operation. According to Mr. Smith, a Mr. Dick Stevens was the first person to put in the self-service dry cleaning machine around 1960 or soon after. Mr. Smith indicated that during the early years of operation, the chemical perchloroethylene (Perc) was delivered in 55-gallon drums and was pumped by hand into the machine from the drums. When the chemical was saturated with dye and dirt, the waste product was drained and Mr. Smith "believes" put into 55-gallon drums. Mr. Smith could not recall what happened to the waste chemical once it was removed from the machine. Mr. Smith indicated that from time to time, red dye would permeate the dry cleaning fluid (perchloroethylene) and the red dye would have to be removed along with the chemical because it would stain other clothes if it was left in the machine.

Tenney Hardware Store (Lot 67)

Ms. Pat Tenney, current owner of Tenney Hardware Store, indicated that she owned the building for 14 years. She purchased the property from the former owners who ran a Texaco gas station which contained two service bays or pits for repairs. The "pits" had been filled in with cement when the hardware store was built. Her water supply is from the property behind her building, which is owned by Mr. Randy Billmier (Map 13, Lot 71). Ms. Tenney indicated she has no knowledge as to any use of Perc in the building during her ownership. Ms. Tenney indicated that in approximately April of 1978 underground storage tanks were removed from the property. GEI attempted to confirm the removal of the underground storage tanks with Ms. Ellen Howard, Bellows Falls Health Officer. According to Ms. Howard there is no record of the underground storage tanks ever being removed.

GEI contacted Mr. Richard Smith, Saxtons River Fire Chief, about the possibility of underground storage tanks at the Tenney Hardware Store. Mr. Smith could not confirm the removal of the tanks at the site. The hardware store currently has a 1,000-gallon underground storage tank and a 275-gallon above-ground storage tank on the property which are both used for fuel oil.

Vacant Lot - Former Moore Apartment Building (Lot 37)

GEI interviewed Mr. Steven Moore on November 7, 1990 via telephone relative to his property on Main Street (Map U13, Lot 37). Mr. Moore indicated that the property used to be an apartment building. Prior to the apartment building it was also a grocery store, a post office and a "bar room." Mr. Moore indicated the building burned down in the late 1970s and that it contained a three-car garage and one other out-building.

According to conversations with Lt. Glenn Cutting of the Vermont State Police, the fire occurred on April 29, 1979 and was investigated by the Arson Division of the Vermont State Police. The investigation (Case #552-263) was conducted by Detective David B. Sargent (retired). According to Lt. Cutting the fire was determined to be arson by Detective Sargent. GEI requested to review the file but was told by Lt. Cutting that the file had been sealed and could not be accessed by the public. Through a request by the ANR Hazardous Materials Division, GEI was given permission to review the file. Except for the possible presence of a drum of kerosene, the report did not indicate the presence of hazardous materials in the building.

Skovinski Residence (Lot 36)

GEI conducted an interview with Ms. Wilma Skovinski (Map U13, Lot 36) on October 31, 1990 relative to ground water contamination of her private residence well. Ms. Skovinski complained of problems with her children's health, including extreme dry skin, frequent nose bleeds, and cracked skin on hands and feet and in the vicinity of the nostrils. Ms. Skovinski feels this is because of the ground water contamination. Previously Ms. Skovinski was told it was due to the hardness of her water.

Contel Telephone - Block Building Containing Telephone Equipment (Lot 78)

GEI interviewed Mr. Don Randall, supervisor of CONTEL Telephone on October 31, 1990 and viewed the inside of the building, which is an operations building for the phone system. CONTEL is located at Lot 78, adjacent to the Pizza, Paul and Mary restaurant. GEI observed approximately 25 batteries which, according to Mr. Randall, are used in case of power failure to keep the phone system operating until the generator starts. Mr. Randall indicated that a 250-gallon underground diesel tank was located on the property and contained diesel fuel to run the generator in case of power failure. Mr. Walter Rauchiski indicated that the 250-gallon diesel tank failed a recent leak-test and that the tank would be excavated at the end of May.

Truslow Residence (Lot 79)

GEI interviewed Mr. Truslow on October 31, 1990 (Map 13, Lot 79, a private residence). Mr. Truslow indicated he has a 500-gallon underground storage tank for heating oil. Mr. Truslow also indicated that approximately two years ago he observed an excavation in front of the Tenney Lumber Company Hardware store, the site of the former Texaco service station. Mr. Truslow indicated that when he questioned the operator of the excavator as to why they were digging, the operator replied that they were trying to determine if there was any underground storage tanks still in the ground at the location which used to be a Texaco gas station. Mr. Truslow indicated he believes that the tanks were removed but could not be certain.

1.2 Other Information Sources

GEI Consultants, Inc. interviewed other people who contributed to information gathered for this report. The following is a brief summary of their statements:

- Mrs. Mortensen (Map 13, Lot 35) indicated during an interview with GEI on November 1, 1990 that she was aware of the ground water contamination in the village and to her water supply. Mrs. Mortensen indicated she shares a well with the Arthur Smith residence Map 13, Lot 22.
- Mrs. Simonds (Map 13, Lot 18) indicated during a conversation with GEI on October 31, 1990 she was aware of the ground water contamination and the State had provided her with bottled water to drink. Mrs. Simonds indicated that she was eager to assist the State with their investigation.
- Mr. Jeff Jewett, Village of Saxtons River Trustee (president) was interviewed on October 30, 1990 by GEI via phone. Mr. Jewett indicated he would be of assistance if needed, and was aware of the non-petroleum ground water contamination.
- Mr. Peter Stolley, Village of Saxtons River Trustee, was interviewed by GEI on October 30, 1990 by phone. Mr. Stolley indicated he was aware of the non-petroleum ground water problem. Mr. Stolley indicated the Moore lot had been known as the "frost block" and after the fire the cellar hole was backfilled with bank run gravel. Mr. Stolley also indicated it had been reported the cellar hole contained a large amount of paint cans and other domestic household cleaners and chemicals.
- Ms. Paulette Lynch of the Saxtons River Inn was interviewed November 7, 1990 via phone. Ms. Lynch indicated she owned several of the properties affected by the non-petroleum ground water contamination. Ms. Lynch indicated that three wells served the properties as follows: the Pretzel Factory and hardware store are serviced by a well which also services two residences behind the two Main Street buildings, which according to the tax map would be the Boyd Property (Map 13, Lot 23) and the Simonds residence (Map 13, Lot 24). Ms. Lynch indicated the well is buried and she believes it is located on the Boyd residence property. The Colvin House (Map 13, Lot 34) has its own well, and according to Ms. Lynch showed contamination first. The Saxtons River Inn (Map 13, Lot 80) has its own well located on the property of the Inn.
- GEI reviewed plans at the Saxtons River Waste Water Treatment Plant on October 31, 1990. The plans reviewed were titled: Village of Saxtons River, Vermont, New Sewage Works Project 2, Sewer Plan and Profile, Main Street, dated January 1970. The plans were prepared by Dufresne-Henry of Precision Park, North Springfield, Vermont and were stamped "AS BUILT PLANS." The plans were reviewed to locate any possible former leach fields and to locate any underground utilities. The plans

show the old location of the 8-inch clay tile pipe as well as the location of tie-ins to the new sewer line. The plans indicate the old Texaco station and its gas pumps and show the Pizza, Paul and Mary building to be a laundromat.

According to Mr. Richard Smith, Waste Water Treatment Plant Manager, the sewer line was completed in 1972. Prior to completion of the sewer line in 1972, approximately 90 percent of all the village's sewer waste went directly into the Saxtons River, according to Mr. Richard Smith. GEI personnel observed 8-inch clay tile pipes along the north edge of the Saxtons River during a reconnaissance of the site. The clay pipes appeared to be weathering out of the embankment and appeared to extend northward toward the residences along Main Street and River Street (Figure 2). GEI believes these pipes are the remnants of the old sewer lines which discharged into the river.

After interviews with local residents and officials and review of the plans, GEI believes, based on the information to date, that no septic systems existed prior to the installation of the sewer line in 1972.

- GEI reviewed well information in the files of Cushing & Sons Water Well Drilling in Westmoreland, New Hampshire. Well logs were obtained that provided geologic information for the area.

1.3 Deed Research

GEI reviewed historical documents to develop a history of ownership of the former laundromat at the Pizza, Paul and Mary restaurant. The current deed for the property is recorded in the Town of Rockingham, Vermont Bellows Falls District Registry of Deeds Book 208 Page 513. Information obtained from the Bellows Falls Office Registry of Deeds indicates the following ownership history for the site:

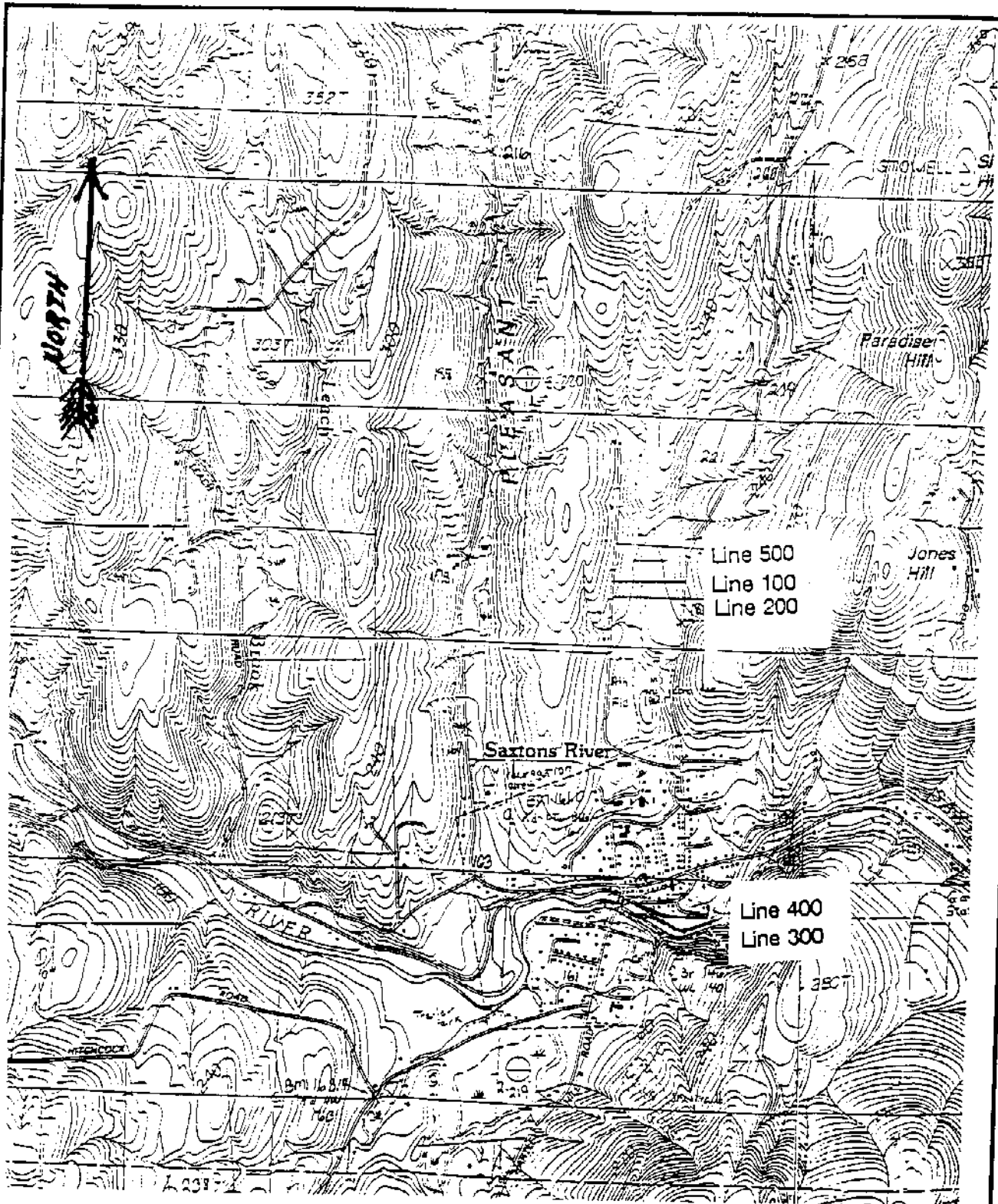
September 1988 to present	Mr. Paul McIntire and Ms. Mary Pitman
August 1981 to September 1988	A & B Associates
May 1975 to August 1981	Mr. Richard Smith
October 1967 to May 1975	Donald and Iris Dunbar
April 1960 to October 1967	Richard and Nellie Stevens
January 1954 to April 1960	Edward E. Freeman

April 1951 to January 1954	Anne and Ralph Edwards
June 1947 to April 1951	James E. Bigelow
June 1938 to June 1947	Lislye Bascom
April 1938 to June 1938	John Bryant
December 1926 to April 1938	Charles Stone
September 1922 to December 1926	Saxtons River Lodge No. 33 I.O.O.F. (parcel split in 1926)

APPENDIX B

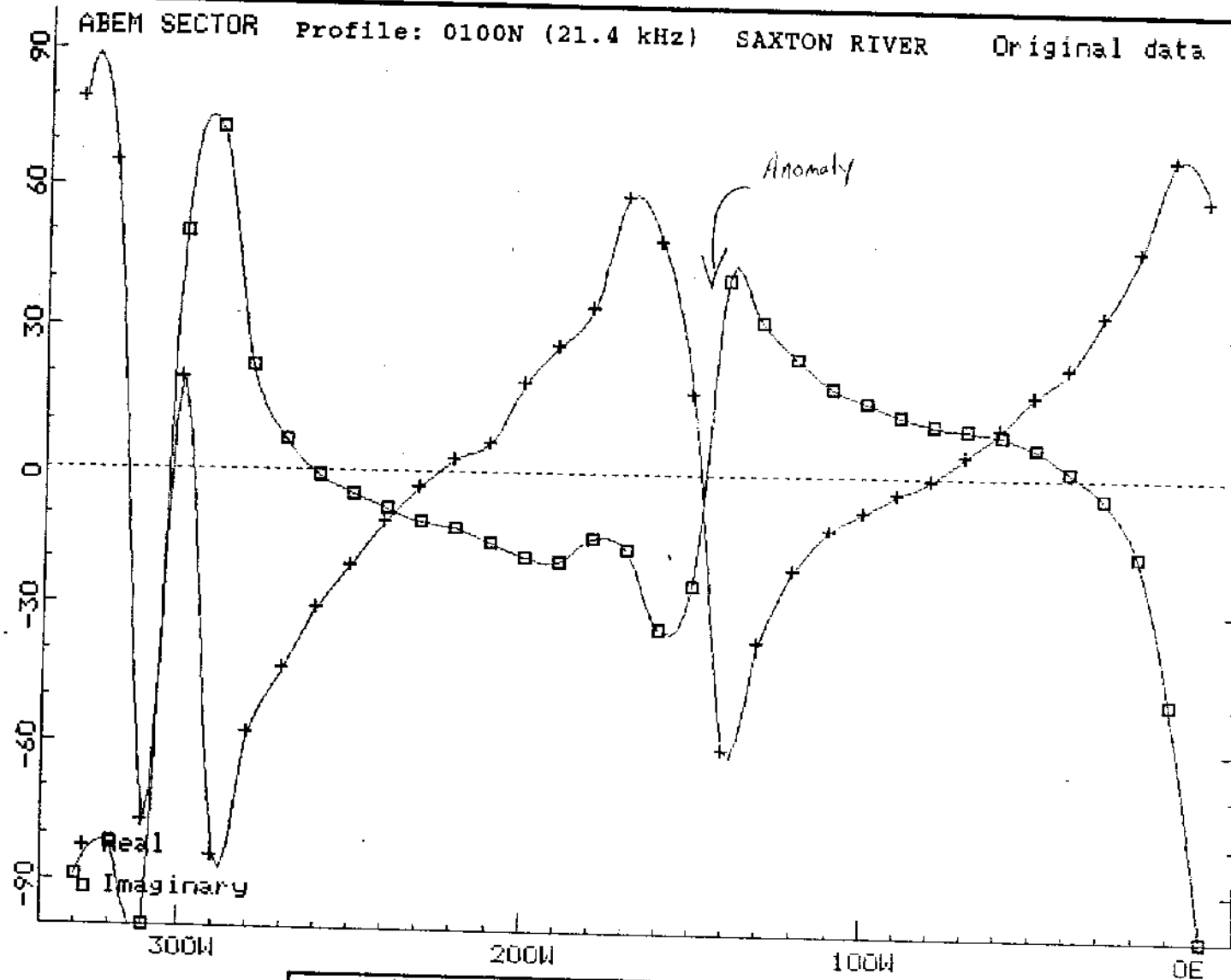
AERIAL PHOTOGRAPHS (Contents of Appendix B Provided in Attached Envelope)

APPENDIX C
GEOPHYSICAL SURVEY RESULTS



Source: USGS, Saxtons River and Bellows Falls
15 Minute Quadrangle
Scale: 1:25,000
1984 Provisional Edition

Vermont Agency of Natural Resources Waterbury, Vermont	Saxtons River Hazardous Waste Site Investigation Saxtons River, Vermont	GEOPHYSICAL SURVEY LINES
 GEI Consultants, Inc.	Project 90379	January 1991 Fig. B-1



Vermont Agency of
Natural Resources
Waterbury, Vermont

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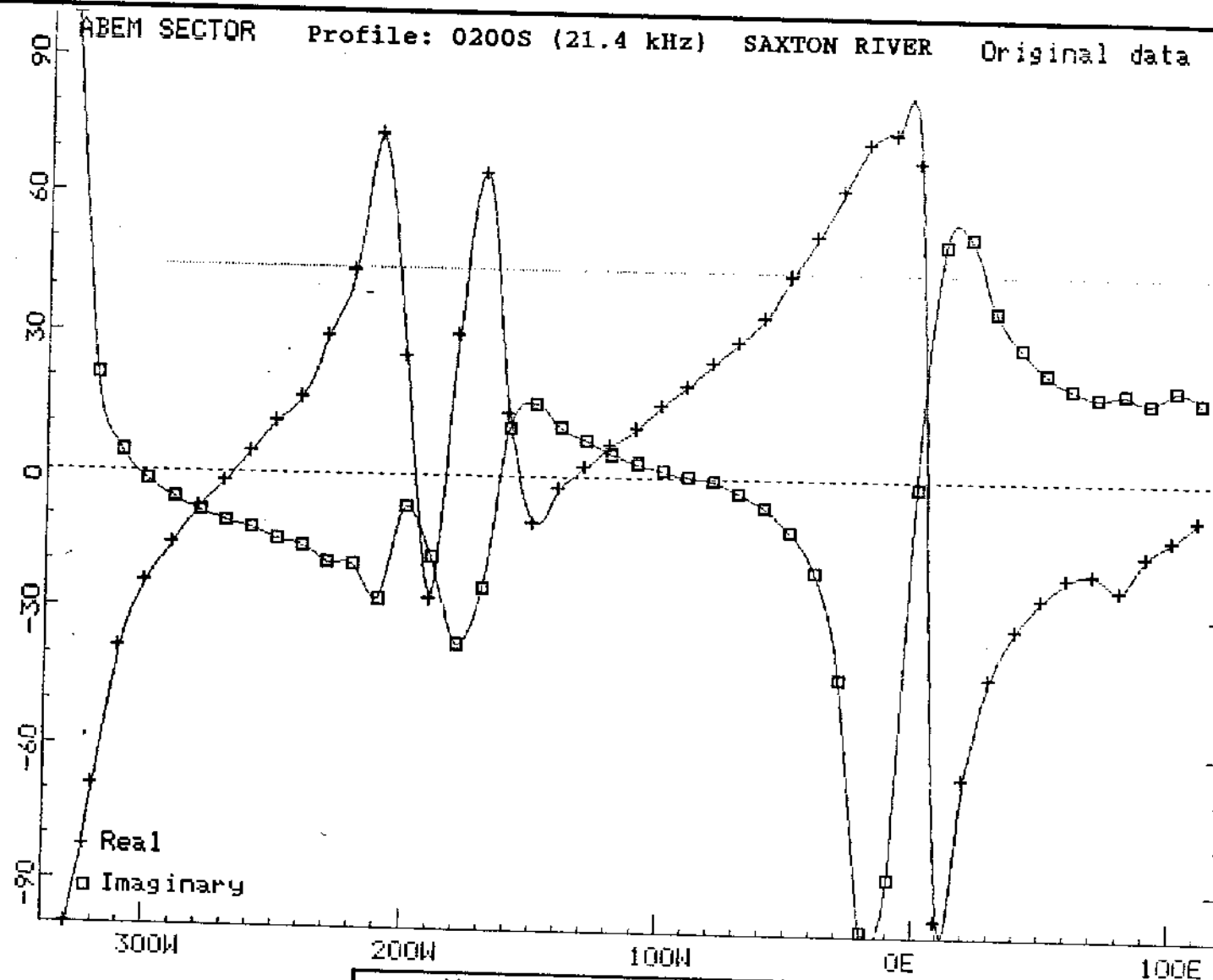
GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 100
UNFILTERED DATA

January 1991 Fig.B2



Vermont Agency of
Natural Resources
Waterbury, Vermont



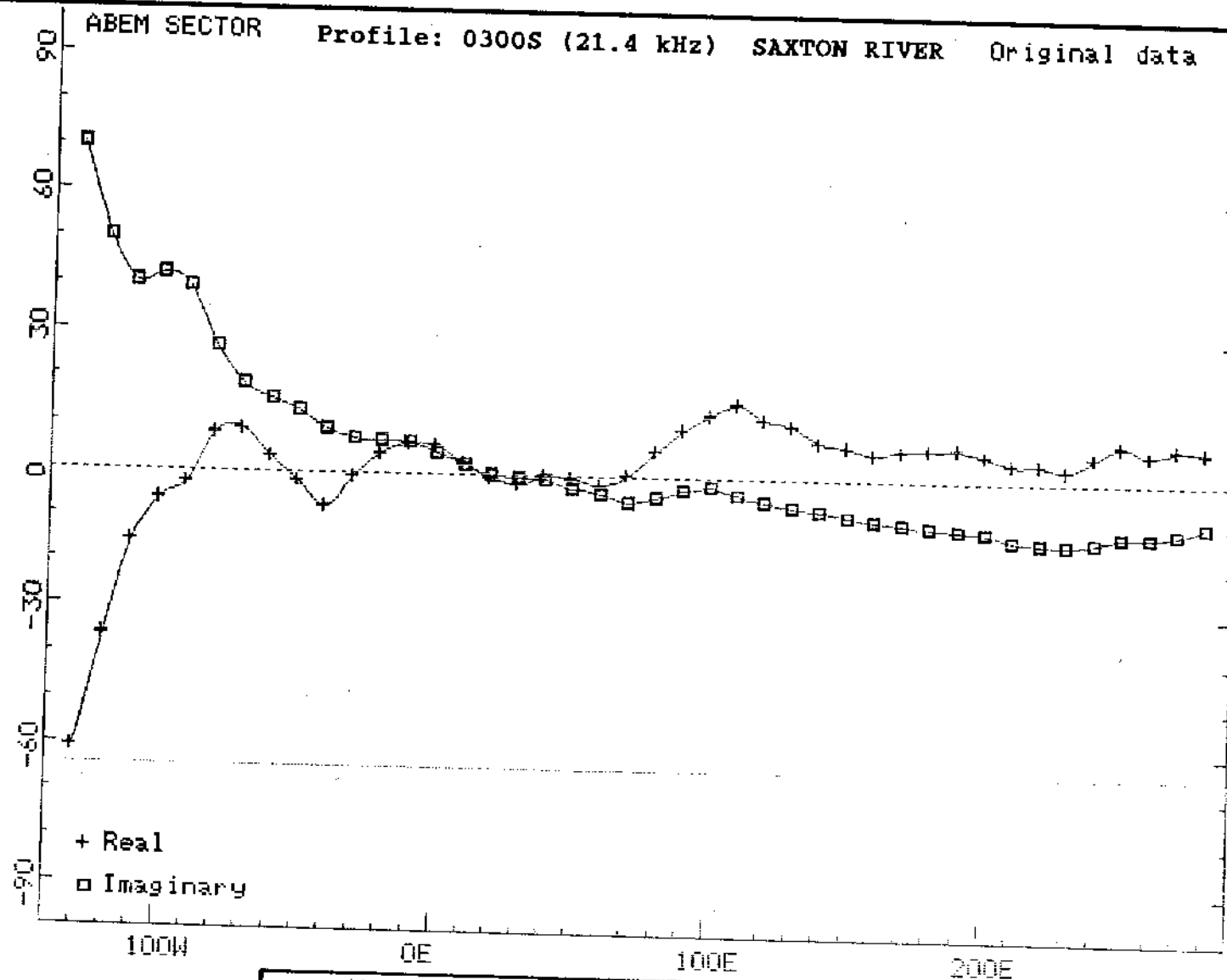
GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 200
UNFILTERED DATA

January 1991 Fig.B3



Vermont Agency of
Natural Resources
Waterbury, Vermont



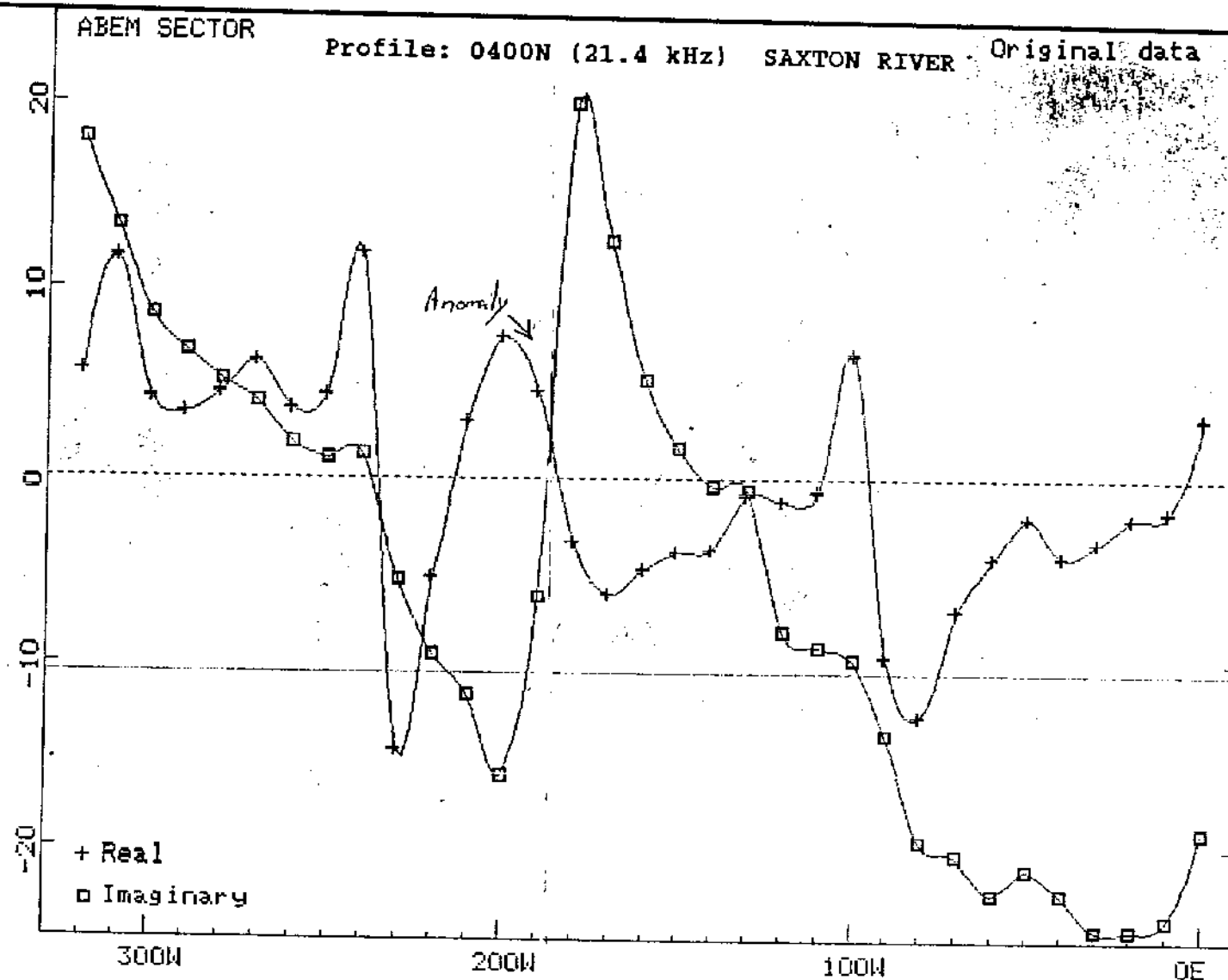
GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 300
UNFILTERED DATA

January 1991 Fig.B4



Vermont Agency of
Natural Resources
Waterbury, Vermont



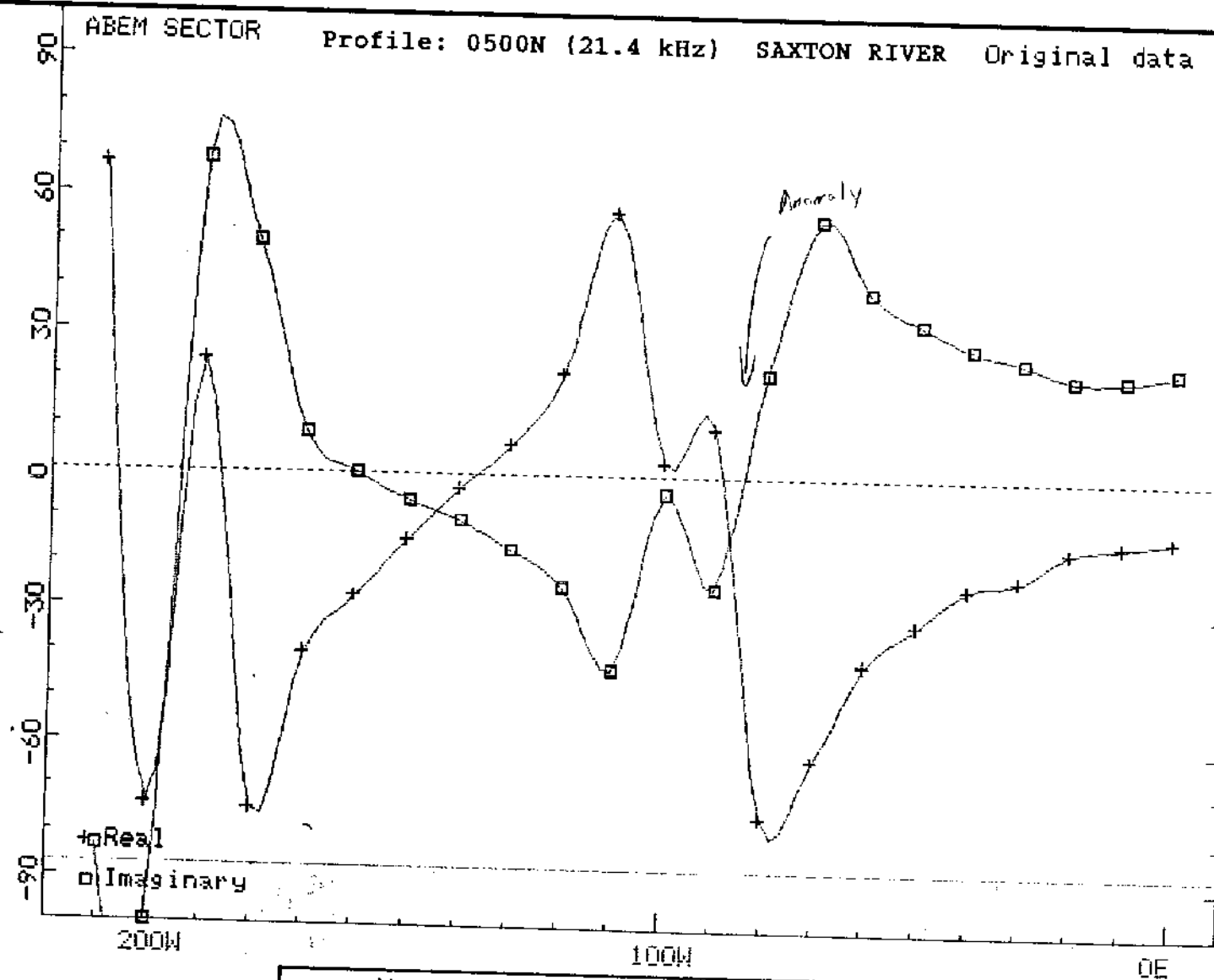
GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 400
UNFILTERED DATA

January 1991 Fig.B5



Vermont Agency of
Natural Resources
Waterbury, Vermont

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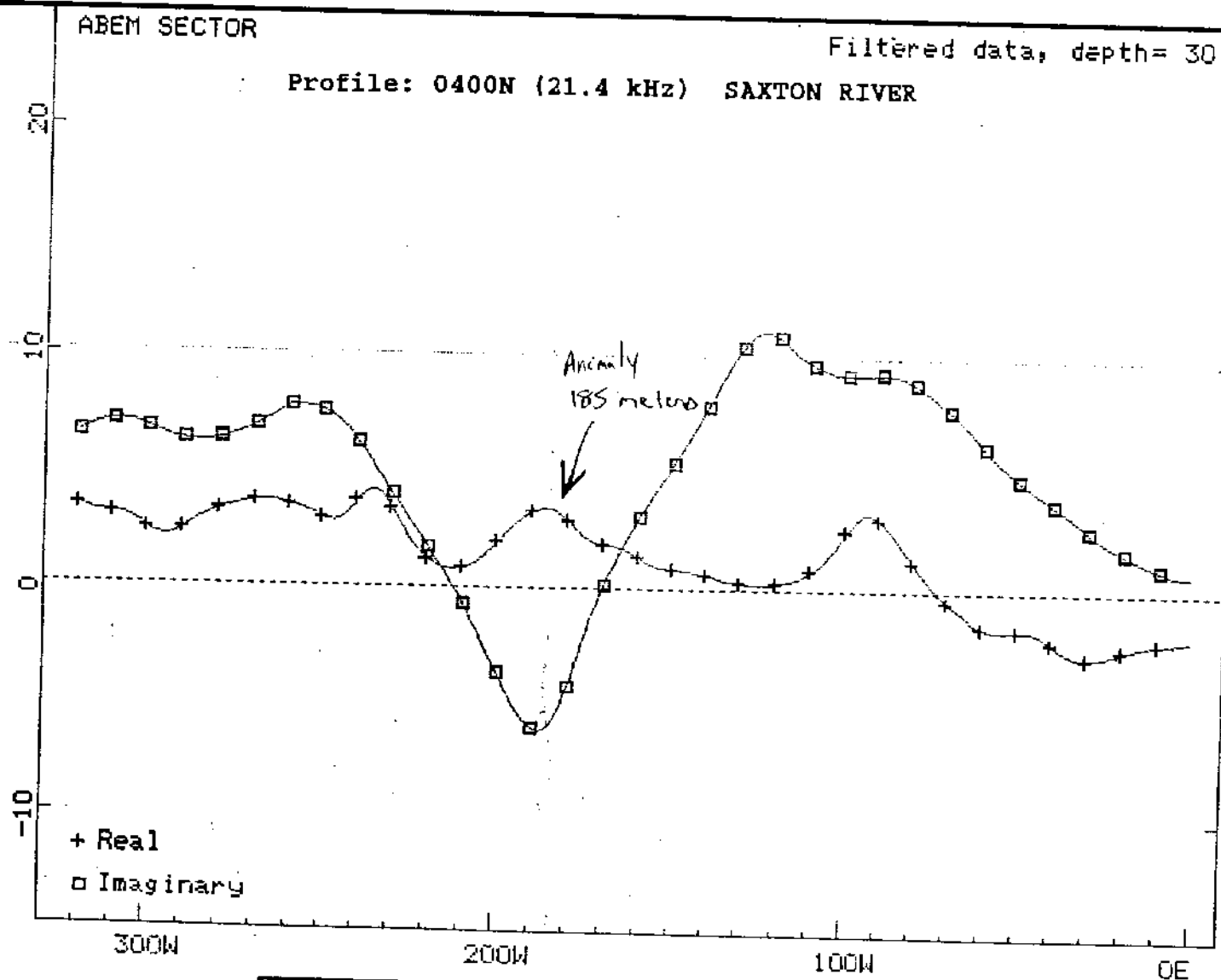
GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 500
UNFILTERED DATA

January 1991 Fig.B6



Vermont Agency of
Natural Resources
Waterbury, Vermont



GEI Consultants, Inc.

Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

GEOPHYSICAL PROFILE
ABEM WADI
LINE 400 - FILTERED DATA
30 METERS

January 1991 Fig.B7

SAXTON RIVER

100W.

10
20
30
40
50

ABEM SECTOR

Real

10
20
30
40
50

ABEM SECTOR

Imag

Vermont Agency of
Natural Resources
Waterbury, Vermont

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Saxtons River
Hazardous Waste
Site Investigation
Saxtons River, Vermont

Project 90379

SECTOR SOFTWARE
CURRENT DENSITY
GEOPHYSICAL
CROSS-SECTION LINE 400

January 1991. Fig.B8

APPENDIX D

DRILLERS LOGS AND GEI WELL INSTALLATION REPORTS

TEST BORING LOG

**CAPITAL ENVIRONMENTAL
DRILLING SERVICES INC.**

RFD 2 - Box 132B

Concord, NH 03301

(603) 774-4920

Fax (603) 774-6165

PROJECT GEI Consultants

LOCATION Saxton's River, Vermont

DATE STARTED 03/05/91

COMPLETED 03/05/91

HOLE NO. MW1

GROUND WATER approx. 7'

SURF. ELEV.

N-NO. OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

JOB NO. 90379

C-NO. OF BLOWS TO DRIVE CASING 12" W/300 LB. WEIGHT FALLING 24"

SHEET 1 OF 1

DEPTH	C.	N.	SPL. NO.	SAMPLE DEPTH	DESCRIPTION OF MATERIAL
0'		10	S-1	2'	Recovery 14" Fine-Medium Sand with Angular & Sub Angular Gravel, some Broken Glass and Wood Debris.
		14			
		10			
		8			
5'		19	S-2	7'	Recovery 8" Fine-Medium Sand, with Angular & Sub Angular Gravel.
		19			
		15			
		12			
8'9"			S-3		Refusal Well set at this depth.
					5' Screen 3' Riser

TEST BORING LOG

**CAPITAL ENVIRONMENTAL
DRILLING SERVICES INC.**

RFD 2 - Box 132B

Concord, NH 03301

(603) 774-4920

Fax (603) 774-6165

PROJECT GEI Consultants

LOCATION Saxton's River, Vermont

DATE STARTED 03/05/91

COMPLETED 03/05/91

HOLE NO. MW-2

GROUND WATER None

SURF. ELEV.

N-NO. OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

JOB NO. 90379

C-NO. OF BLOWS TO DRIVE

CASING 12" W/300 LB. WEIGHT FALLING 24"

SHEET 1 **OF** 1

DEPTH	C.	N.	SPL NO.	SAMPLE DEPTH	DESCRIPTION OF MATERIAL
0'		3	S-1	2'	Recovery 8" Mostly Fine- Medium Sands with Fine to Medium Gravel.
		4			
		4			
		2			
5'		5	S-2	7'	Recovery 15" Coarse Sand to Medium Angular & Sub Angular Gravel with a Layer of Fine Brown Sand near Bottom.
		23			
		23			
		100-4"			
					Refusal Well set at 7' 6"
					5' Screen 2' Riser

TEST BORING LOG

**CAPITAL ENVIRONMENTAL
DRILLING SERVICES INC.**

RFD 2 - Box 132B
Concord, NH 03301

(603) 774-4920

Fax (603) 774-6165

PROJECT GEI Consultants

LOCATION Saxton's River, Vermont

DATE STARTED 03/05/91

COMPLETED 03/05/91

HOLE NO. MW-3

GROUND WATER 10'

SURF. ELEV.

N-NO. OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

JOB NO. 90379

C-NO. OF BLOWS TO DRIVE

CASING 12" W/300 LB. WEIGHT FALLING 24"

SHEET 1 OF 1

DEPTH	C.	N.	SPL NO.	SAMPLE DEPTH	DESCRIPTION OF MATERIAL
0'		10	S-1	2'	Recovery 13" Mostly Fine Sands.
		3			
		3			
		3			
5'		4	S-2	7'	Recovery 15" Mostly Fine Sands, Bottom Sample 6½", changing into Fine to Medium Sub Angular Gravel.
		4			
		13			
		14			
10'		4	S-3	12'	Recovery 17" Fine Silty Sand with some Fine Layers of Clay sample is Wet.
		7			
		4			
		6			
15'		8	S-4	17'	Recovery 7" Very Fine Silty Clay with some Angular Rock.
		11			
		19			
		10			
20'		6	S-5	22'	Recovery 16" Top sample Silty Clay Changing approx. 21' into Fine Sands.
		11			
		12			
		16			
25'		9	S-6	27'	Recovery 18" Fine Sands- Fine Sub Angular & Angular Gravel Well Sorted.
		9			
		9			
		11			
30'		100-3"	S-7	32'	No Recovery
					Well was installed
					25' Screen
					7' Riser

TEST BORING LOG

CAPITAL ENVIRONMENTAL
DRILLING SERVICES INC.

RFD 2 - Box 132B
Concord, NH 03301

(603) 774-4920

Fax (603) 774-6165

PROJECT GEI Consultants

LOCATION Saxton's River, Vermont

DATE STARTED 03/05/91

COMPLETED 03/05/91

HOLE NO. B-1

GROUND WATER approx. 10'

SURF. ELEV.

N-NO. OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

JOB NO. 90379

C-NO. OF BLOWS TO DRIVE CASING 12" W/300 LB. WEIGHT FALLING 24"

SHEET 1 OF 1

DEPTH	C.	N.	SPL NO.	SAMPLE DEPTH	DESCRIPTION OF MATERIAL
0'				1'	Concrete
1'		4		3'	Recovery 8"
		3			Silty sand
		2	S-1		
		2			
3'		6	S-2	5'	Recovery 10"
		6			Widely graded Sands and Gravels some Cobles.
		16			
		21			
5'		8	S-3	7'	Recovery 16"
		15			Same As Above.
		23			
		47			
7'		35	S-4	9'	Recovery 8"
		31			Widely Graded Gravel with Sand.
		21			
		20			
9'		8	S-5	11'	Recovery 14"
		10			Silty Sand Widely Graded Sand with Gravel,
		8			Oil Smell with Sample.
		8			
11'		14		13'	Recovery 12"
		55			Widely Graded Sand with Gravel and Decomposed
		30			Bedrock.
		30			
					No Well Installed

GROUNDWATER OBSERVATION WELL REPORT			
Project <u>SAXTONS RIVER VT</u>		MW # <u>1</u>	
Location <u>SAXTONS RIVER VT</u>		PG. <u>1</u> OF <u>1</u>	
Client <u>STATE OF VERMONT</u>		Boring No. <u>MW # 1</u>	
Contractor <u>CAPITOL WELL</u>	Driller <u>MIKE DRAGON</u>	Location <u>Tenny Hardware</u>	
Inspected by <u>C. L. COVEL</u>	Date <u>5 MARCH 91</u>	<u>Alley</u>	
Checked by _____	Date _____	Project No. <u>90379</u>	

SURVEY DATUM _____		LENGTH OF SURFACE CASING ABOVE GROUND SURFACE.		<u>0</u>
GROUND ELEVATION _____		LENGTH OF RISER PIPE ABOVE GROUND SURFACE		<u>0</u>
GENERAL SOIL CONDITIONS (Not to Scale)		THICKNESS OF SURFACE SEAL BELOW GROUND SURFACE, IF ANY		<u>1.5'</u>
		TYPE OF SURFACE SEAL (indicate any additional seals)		<u>Grout</u>
		ID OF SURFACE CASING		<u>8"</u>
		TYPE OF SURFACE CASING		<u>ROAD BOX</u>
		DEPTH BOTTOM OF CASING		<u>1.5'</u>
		ID and OD OF RISER PIPE		<u>2" PVC</u>
		TYPE OF RISER PIPE		<u>SCH 40</u>
		DIAMETER OF BOREHOLE		<u>7.25"</u>
		TYPE OF BACKFILL AROUND RISER PIPE		<u>Grout</u>
		DEPTH TOP OF SEAL, IF ANY		<u>1.0</u>
		TYPE OF SEAL		<u>Bentonite</u>
		DEPTH BOTTOM OF SEAL		<u>2.0</u>
		DEPTH TOP OF PERVIOUS SECTION		<u>3.5'</u>
		TYPE OF PERVIOUS SECTION		<u>0.010 slots</u>
		DESCRIBE OPENINGS		<u>2" PVC</u>
ID and OD OF PERVIOUS SECTION		<u>SCH 40</u>		
TYPE OF BACKFILL AROUND PERVIOUS SECTION		<u>other Sand</u>		
DEPTH BOTTOM OF PERVIOUS SECTION		<u>8.5</u>		
DEPTH BOTTOM OF SAND COLUMN		_____		
ELEV./DEPTH TOP OF SEAL, IF ANY		_____		
TYPE OF SEAL		_____		
ELEV./DEPTH BOTTOM OF SEAL		_____		
TYPE OF BACKFILL BELOW PERVIOUS SECTION, IF ANY		_____		

NOTES: well in Alley of Tenny Hardware Store
west side in corner near 275 gal oil Tank (above ground)

Φ G E I

GROUNDWATER OBSERVATION WELL REPORT			
Project	SAXTONS RIVER VT		MW # 2
Location	SAXTONS RIVER VT		PG. <u>1</u> OF <u>1</u>
Client	STATE OF VERMONT		Boring No. <u>MW 2</u>
Contractor	CAPITOL WELL	Driller	MIKE DRAGON
Inspected by	C. L. COVEL	Date	5 MARCH 91
Checked by		Date	
			Location <u>PIZZA PAUL & MARY SIDEWALK</u>
			Project No. <u>90379</u>

SURVEY DATUM _____	GROUND ELEVATION _____		
GENERAL SOIL CONDITIONS (Not to Scale)		LENGTH OF SURFACE CASING ABOVE GROUND SURFACE.	<u>0</u>
		LENGTH OF RISER PIPE ABOVE GROUND SURFACE	<u>0</u>
		THICKNESS OF SURFACE SEAL BELOW GROUND SURFACE, IF ANY	<u>~ 1.5'</u>
		TYPE OF SURFACE SEAL (indicate any additional seals)	<u>GROUT</u>
		ID OF SURFACE CASING	<u>8"</u>
		TYPE OF SURFACE CASING	<u>ROAD BOY</u>
		DEPTH BOTTOM OF CASING	<u>1.5'</u>
		ID and OD OF RISER PIPE	<u>2" PVC</u>
		TYPE OF RISER PIPE	<u>SCH 40</u>
		DIAMETER OF BOREHOLE	<u>7.25"</u>
		TYPE OF BACKFILL AROUND RISER PIPE	<u>GROUT</u>
		DEPTH TOP OF SEAL, IF ANY	<u>1.5'</u>
		TYPE OF SEAL	<u>Grout</u>
		DEPTH BOTTOM OF SEAL	<u>2.2'</u>
		DEPTH TOP OF PERVIOUS SECTION	<u>2.5'</u>
	TYPE OF PERVIOUS SECTION	<u>0.10 slots</u>	
	DESCRIBE OPENINGS	<u>2" ID</u>	
	ID and OD OF PERVIOUS SECTION	<u>SCH 40 PVC</u>	
	TYPE OF BACKFILL AROUND PERVIOUS SECTION	<u>Ottawa Sand</u>	
	DEPTH BOTTOM OF PERVIOUS SECTION	<u>7.5'</u>	
	DEPTH BOTTOM OF SAND COLUMN	<u>7.5'</u>	
	ELEV. / DEPTH TOP OF SEAL, IF ANY		
	TYPE OF SEAL		
	ELEV. / DEPTH BOTTOM OF SEAL		
	TYPE OF BACKFILL BELOW PERVIOUS SECTION, IF ANY		

NOTES: Well location is in front of PIZZA Paul & Mary on sidewalk North side of Main St.



GROUNDWATER OBSERVATION WELL REPORT			
Project	SAXTONS RIVER, VERMONT		MW # 3
Location	SAXTONS RIVER, VERMONT		PG. 1 OF 1
Client	STATE OF VERMONT		Boring No. MW # 3
Contractor	CAPITAL WELL	Driller	MIKE DRAGON
Inspected by	C. L. COVEL	Date	5 MARCH 91
Checked by		Date	
			Location SKOVINSKI Back Yard
			Project No. 90379

SURVEY DATUM _____	GROUND ELEVATION _____		
GENERAL SOIL CONDITIONS (Not to Scale)		LENGTH OF SURFACE CASING ABOVE GROUND SURFACE.	2.0
		LENGTH OF RISER PIPE ABOVE GROUND SURFACE	2.0
		THICKNESS OF SURFACE SEAL BELOW GROUND SURFACE, IF ANY	2.0'
		TYPE OF SURFACE SEAL (indicate any additional seals)	GROUT
		ID OF SURFACE CASING	4"
		TYPE OF SURFACE CASING	STAND PIPE
		DEPTH BOTTOM OF CASING	2.0
		ID and OD OF RISER PIPE	2" PVC
		TYPE OF RISER PIPE	SCH 40
		DIAMETER OF BOREHOLE	7.25"
		TYPE OF BACKFILL AROUND RISER PIPE	GROUT
		DEPTH TOP OF SEAL, IF ANY	2.00'
		TYPE OF SEAL	Bentonite
		DEPTH BOTTOM OF SEAL	3.00'
		DEPTH TOP OF PERVIOUS SECTION	5.00'
	TYPE OF PERVIOUS SECTION	1015 slots	
	DESCRIBE OPENINGS	2" PVC	
	ID and OD OF PERVIOUS SECTION	SCH 40	
	TYPE OF BACKFILL AROUND PERVIOUS SECTION	otawa Sand	
	DEPTH BOTTOM OF PERVIOUS SECTION	30.00'	
	DEPTH BOTTOM OF SAND COLUMN		
	ELEV./DEPTH TOP OF SEAL, IF ANY		
	TYPE OF SEAL		
	ELEV./DEPTH BOTTOM OF SEAL		
	TYPE OF BACKFILL BELOW PERVIOUS SECTION, IF ANY		

NOTES: WELL LOCATED IN SKOVINSKI BACK YARD
 EAST EDGE OF PROPERTY LINE

Φ G E I

Client: STATE OF VERMONT		ANR		Project No. 90379		Boring No. BRX #1	
Ground El.		Bottom El.		Hole Depth (ft.) 140		Water El. \ Date	
Type/Diam. Boring: 6"		Drill Equip. AIR HAMMER ROTARY		Drilled by: CAPITOL WELL COMPANY		Logged by: C. L. COVEL	
Boring Location: SIMONDS		BACK YARD		Date:		Sheet / of /	
Feet	WELL YIELD (gpm)		Log	Rock Descriptions	Remarks		
	Blow Test	Packer Test					
16			0.0 0.0 0.0 0.0	OVERBURDEN SW - widely Graded sand w/ Gravel	FLUVIAL DEPOSITS		
20				Brown Weathered Schist w/ Biotite, Muscovite, Hornblende, Chlorite, Qtz and amphiboles, also Kaolinite from weathered zones	STANDING POND VOLCANICS		
40				50' more competent	55' Fracture		
60	0gpm			green/gray Schist w/ chlorite, Biotite, Muscovite, Qtz & hornblende some feldspar	61'-81' Series of minor fractures throughout zone.		
80	2.5gpm						
100							
117'				Kaolinite zone ~ 110'	110'-117' soft / quick Drilling		
120				Black Schist - Hornblende, Biotite, Muscovite, Calcite, Pyrite	GILE MOUNTAIN FORMATION		
140	2.5gpm				Fracture 132'		
				BOTTOM OF BORING, 140'	FINAL BLOW TEST 2.5 gpm		
160							
180							
NOTES: LEGEND							
SSD: Overburden Deposits						Dike	
XXXX Gile Mountain						Standing Pond Volcanics	
						Fracture	
						GEI CONSULTANTS, Inc.	

Client: STATE OF VERMONT		ANR	Project No. 90379	Boring No. BRX #2
Ground El.		Bottom El.	Hole Depth (ft.) 120	Water El. \ Date
Type/Diam. Boring: 6"		Drill Equip. AIR HAMMER ROTARY	Drilled by: CAPITOL WELL COMPANY	Logged by: C. L. COVEL
Boring Location: CHAIST CHURCH R.O.W.			Date: 6 MARCH 91	Sheet 1 of 1

Feet	WELL YIELD (gpm)		Log	Rock Descriptions	Remarks
	Blow Test	Packer Test			
20			0-20'	OVERBURDEN SW - widely graded Sand w/ gravel	FLUVIAL DEPOSITS Lower Terrace Saxtons River
36			20-36'		CASING SET 0 - 40'
40			36-40'	Brown weathered Schist w/ Hornblende Chlorite, Biotite, Muscovite Calcite, Qtz, Trace K-spar	<u>STANDING POND</u> <u>VOLCANICS?</u>
60	0 GPM		40-60'	Gray schist w/ Hornblende, Biotite, Muscovite, Qtz, Calcite	65' More competent water Gray
80			60-80'		
100	5 GPM		80-100'	Black/gray Schist w/ Hornblende Biotite, Muscovite, Qtz, Calcite Garnet and Feldspar?	FRACTURE 88'-90' WATER BEARING GILE MOUNTAIN?
120	6 GPM		100-120'		FINAL BLOW TEST 6 GPM
140			120-140'	BOTTOM OF BORING, 120'	
160			140-160'		
180			160-180'		

NOTES: LEGEND

0-20'	Overburden Deposits	Dike	Fracture
XXX	Gile Mountain		Standing Pond Volcanics

© GEI CONSULTANTS, Inc.

Client: TRIS Consultants		Project No. 90379		Boring No. KING WELL	
Ground El.		Bottom El.		Hole Depth (ft.) 225	
Type/Diam. Boring: 6" Rock		Drill Equip. AIR HAMMER ROTARY		Drilled by: WRAGG Brothers	
Boring Location: KING RESIDENCE		Date: 11 DEC 90		Logged by: C. L. COVEL / PAUL MILLER	
				Sheet / of /	
Feet	WELL YIELD (gpm)		Log	Rock Descriptions	Remarks
	Blow test	Packer test			
15			0.0	OVERBURDEN Sw - widely graded sand w/ Gravel	FLUVIAL DEPOSITS
20			0.0		LOWER TERRACE OF SARANS RIVER
	0 gpm			Gray Schist w/ Biotite, Muscovite Hornblnd, Qtz, Garnet Trace Pyrite, chlorite? - WEATHERED -	STANDING POND VOLCANICS MEMBER FRACTURE 35'-37'
40					
60				MORE COMPETENT ROCK	Minor Fracture 60' large chips 2" dia.
80					
100	0 gpm			Gray Phyllite schist w/ Biotite, Muscovite, Hornblnd Qtz, Garnet	CASING SET 0' - 100'
120	0 gpm			Gray Phyllite schist w/ Biotite Muscovite, Hornblnd Qtz, Garnet, chlorite	FRACTURE 132' Slickensides on some chips
140					
150'					150' CHANGE IN ROCK
160	0.5 gpm			Black/Gray Schist w/ Biotite Muscovite, Hornblnd, Garnet, Pyrite, Graphite?	GILE MOUNTAIN FORMATION
180				Fe staining on chips, Yuggy Quartz ~ 190'	FRACTURE WATER BEARING 190' ± 2" CHIPS
225	15 gpm				FINAL BLOW TEST 15 gpm
BOTTOM OF BORING 225'					
NOTES: LEGEND Overburden Deposits Dike Fracture Gile Mountain Standing Pond Volcanics					
GEI CONSULTANTS, Inc.					

TRI-S, INCORPORATED
ENVIRONMENTAL SERVICES
25 PINNEY ST.
ELLINGTON, CT 06029

CLIENT A.R. S. ORI
PROJECT NAME SANDOKI SUNOCO
LOCATION SAXTONS RIVER, VT.

BORING
NUMBER
AR-6
SHEET
No. 1
of 1

DRILLER NEIL FALKNER

ARCHITECT
ENGINEER

FILE NO. 924

INSPECTOR PAUL MILLER

Casing PVC Sampler — Core Barrel AIR ROTARY
TYPE — SIZE I.D. 2" 8 3/4" O.D.
HAMMER W.T. — HAMMER FALL —

SURFACE ELEV. 103.56

DATE START 11/9/89

LINE & STATION

DATE FINISH 11/9/89

OFFSET

DEPTH	SAMPLE					REC. (INCHES)	STRATA CHANGE	FIELD CLASSIFICATION AND REMARKS	
	NO.	DEPTH RANGE	BLOWS PER 6" ON SAMPLER						
			0-6	6-12	12-18				18-24
5'								SIDEWALK (CONCRETE) 0.3'	
10'								BLACK GRAY COARSE SAND AND FINE GRAVEL, SOME SILT (DRY)	
15'								HYDROCARBON ODR (11.5-12.0') (WET)	
								GRAY SLATE (END OF BORING) SCHIST	

NOTES: 1) The stratification lines represent the approximate boundary between soil types. Transitions may be gradual.
2) Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. Fluctuations in the level of groundwater may occur due to some factors like rain or snow at the time of measurement.

SAMPLE PENETRATION RESISTANCE
140 lb. Wt. falling 30" on 2" O.D. Sampler

Coneless Density	Coneless Consistency
0-4 Very Loose	0-2 Very Soft
5-9 Loose	3-4 Soft
10-29 Med. Dense	5-8 M/Stiff
30-49 Dense	9-15 Stiff
50+ Very Dense	16-30 V-Stiff

PROPORTIONS
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

REMARKS: NO SPLIT-SPOON SAMPLES TAKEN

COL. A

WELL INSTALLATION RECORD

CLIENT: AR. SANDRI PROJECT: SAXTONS RIVER, VT. FILE NO: 924

STATION NO: WELL NO. AR-6

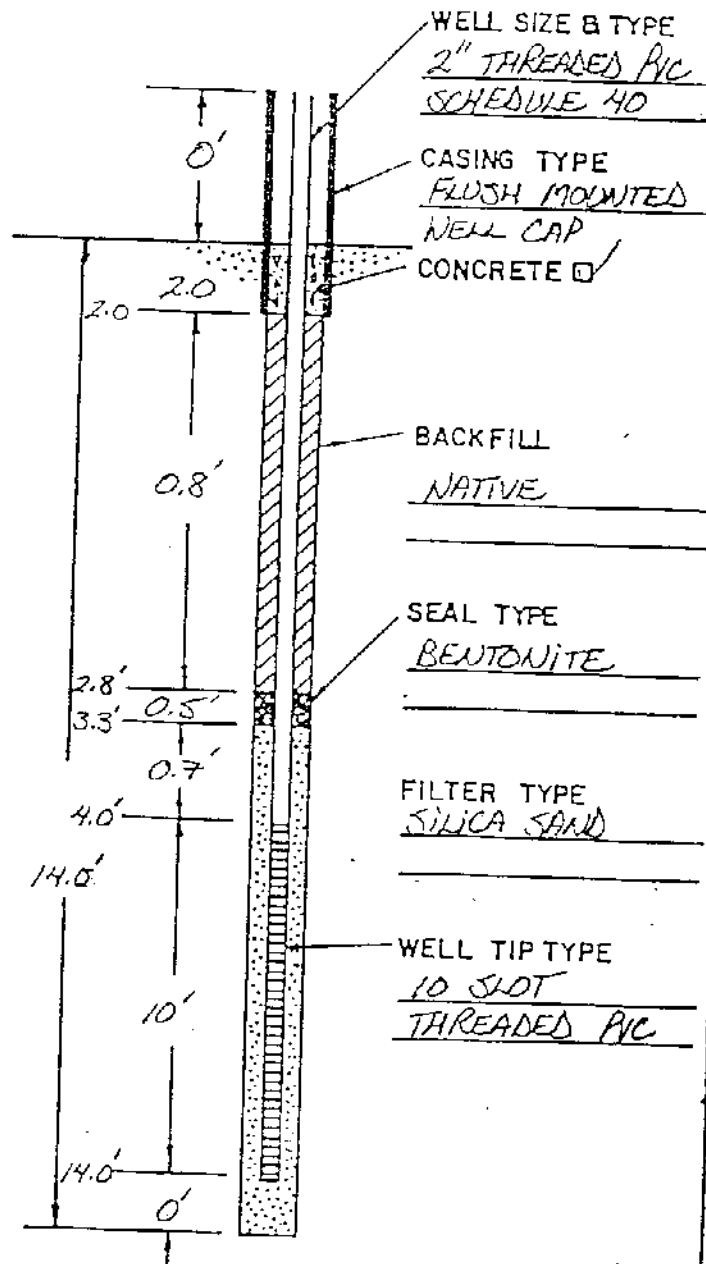
CREW SUPERVISOR: PAUL MILLER DATE INSTALLED: 11/9/89

WELL LOCATION: SIDEWALK SOUTH OF TENNEY'S LUMBER (SEE SITE MAP)

GROUND ELEV: 103.56 WELL TOP ELEV: 103.56
PVC ELEV: 103.31

DEPTH-
FEET SOIL PROFILE

(SEE SOIL BORING LOG)



APPENDIX E
HYDRALIC CONDUCTIVITY ESTIMATES



GEI Consultants, Inc.

Project 90379

Page 1

Client STATE OF VERMONT

Date 18 APRIL 91 By C. L. COVEL

Subject SLUG TEST CALCULATIONS MW #3

Checked SWL

By 4-10-91

Approved

By

Elapsed Time Seconds	Water Level feet	y/t Change in H ₂ O Level
0	11.70	—
20	12.25	.55
30	12.15	.45
50	12.10	.40
60	12.07	.37
80	12.04	.34
90	12.02	.32
100	11.99	.29
110	11.98	.28
120	11.96	.26
135	11.94	.24
150	11.93	.23
165	11.92	.22
180	11.89	.19 ←
210	11.87	.17
255	11.86	.16
270	11.84	.14
300	11.82	.12
330	11.81	.11
360	11.80	.10
420	11.77	.07
600	11.75	.05

$$\ln R_e/r_w = \frac{1.1}{\ln L_w/r_w} + \frac{A+B \ln \left[\frac{(H-L_w)}{r_w} \right]}{L_e/r_w} =$$

$$= \ln R_e/r_w = \left(\frac{1.1}{\ln 18.27/.3} \right) + \frac{3.25 + .6 \ln \left[\frac{(29.97-18.27)}{.3} \right]}{18.27/.3}$$

$$\left(\frac{1.1}{4.11} \right) + \frac{3.25 + .6 (3.66)}{60.90} =$$

$$\frac{.2676 + .0894}{1} = 2.80$$

$$L_w = 18.27$$

$$L_e = 18.27 \text{ Screen}$$

$$H = 29.97$$

$$r_c = .083 \text{ (2" ID)}$$

$$\ln R_e/r_w = 2.80$$

$$y_0 = .52$$

$$y_t = .19$$

$$t = 180 \text{ sec}$$

$$L_e/r_w = \frac{18.27}{.3} = 60.90$$

$$A = 3.25$$

$$B = .6$$

$$r_w = .3 \text{ Disturbed Auger}$$

$$L_w = 72.00 - 71.70 = 20.3 - 2.03 = 18.27$$



Client STATE OF VERMONT

Date 18 APRIL 91 By C. L. Co-EL

Subject PERMEABILITY CALCULATIONS

Checked JNL By 4-17-91

Approved

By

$$K = \frac{r_c^2 \ln(R_c/r_w)}{2 L_e} \cdot \frac{1}{t} \cdot \ln\left(\frac{y_o}{y_t}\right) =$$

$$\frac{(.083)^2 (2.80)}{2 (18.27)} \cdot \frac{1}{180} \cdot \ln\left(\frac{.52}{.19}\right) =$$

$$\frac{.0193}{36.54} \cdot (.0055) \cdot (1.01) = 2.93 \times 10^{-6} \text{ ft/sec}$$

or

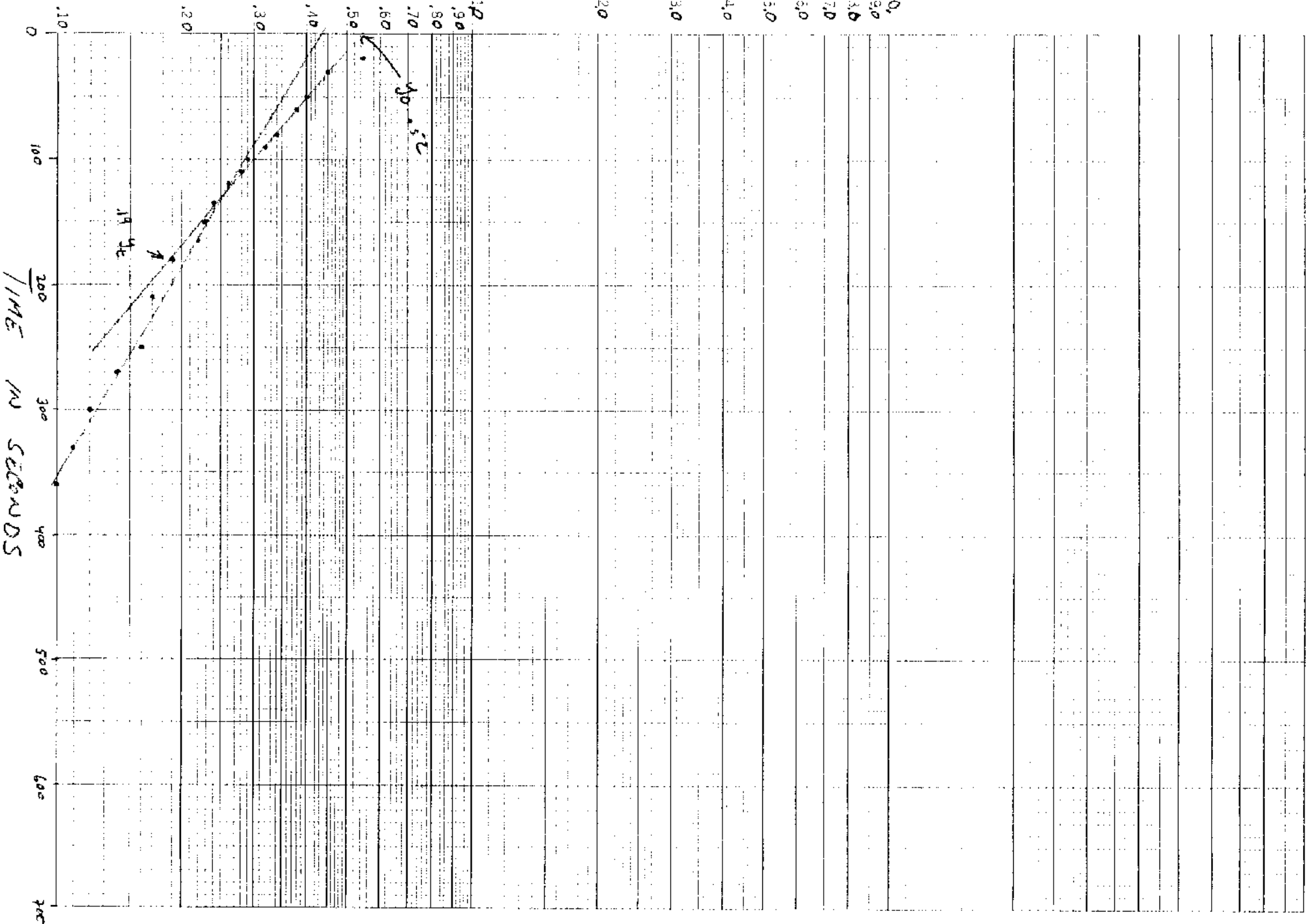
$$8.93 \times 10^{-5} \text{ cm/sec}$$

SLOPE TEST H-1 #3 SKMIT N. CV 1 WELL

46 5492

12/7

CHANGE IN WATER LEVEL (FEET)



APPENDIX F

**SOIL ANALYTICAL RESULTS
FROM AR6**

GEI Analytical Results

VTANR Analytical Results

BEDLOCK (A) 14'



STEVENS ANALYTICAL LABORATORIES, INC.

38 Montvale Avenue, Stonham, MA 02180, (617) 438-6114

FAX (617) 438-0173

SUBMITTED BY:
TRI-S, INC.
214 MAIN STREET
BRATTLEBORO, MA. 02254-3677

LABORATORY NUMBER: 8773
SAMPLE DATE: 11/09/89
DATE RECEIVED: 11/14/89
ANALYSIS DATE: 11/17/89
SAMPLE MATRIX: SOIL
SAMPLE CONTAINER: VOA Vial
EPA METHOD 8240

ATTN: DAVID GAGNON

SAMPLE SOURCE: A.R. SANDRI #1

(WELL AR-6
IN FRONT OF TENNEY'S LUMBER)

<u>COMPOUND</u>	<u>CONCENTRATION</u> ug/kg	<u>DETECTION LIMIT</u> ug/kg
Chloromethane	ND	250
Bromomethane	ND	250
Vinyl Chloride	ND	250
Chloroethane	ND	250
Methylene Chloride	ND	250
Trichlorofluoromethane	ND	250
1,1 Dichloroethene	ND	125
1,1 Dichloroethane	ND	125
trans-1,2 Dichloroethene	ND	125
Chloroform	ND	125
1,2 Dichloroethane	ND	125
1,1,1 Trichloroethane	ND	125
Carbon Tetrachloride	ND	125
Bromodichloromethane	ND	125
1,2 Dichloropropane	ND	125
1,3 Dichloropropane(cis & trans)	ND	125
Trichloroethene	1,100	125
Dibromochloromethane	ND	125
1,1,2 Trichloroethane	ND	125
Benzene	ND	125
Bromoform	ND	125
1,1,2,2 Tetrachloroethane	ND	125
Tetrachloroethene	320	125
Toluene	150	125
Chlorobenzene	ND	125
Ethylbenzene	ND	125
1,3 Dichlorobenzene	ND	125
1,2 Dichlorobenzene	ND	125
1,4 Dichlorobenzene	ND	125
Total Xylenes	ND	125

Authorized by:

Katharine S. Walker
Katharine S. Walker, General Manager

ND - NONE DETECTED

Sample results are reported on a wet weight basis.



STEVENS ANALYTICAL LABORATORIES, INC.

38 Montvale Avenue, Stoneham, MA 02180, (617) 438-6114

FAX (617) 438-0173

LABORATORY NUMBER: 8773

SAMPLE DATE: 11/09/89

DATE RECEIVED: 11/14/89

SUBMITTED BY: TRI-S, INC.
214 MAIN STREET
BRATTLEBORO, VT 02254-3677

ATTN: DAVID GAGNON

SAMPLE SOURCE: A. R. SANDRI

REFERENCE: According to Standard Methods of Water and Wastewater Analysis, 16th Ed.

SAMPLE SOURCE

TPH (IR)

#1

5.8 mg/kg

Wet Weight Basis

Authorized by: _____

Katharine S. Walker, General Manager

GEI ANALYTICAL RESULTS

April 2, 1991

RECEIVED

APR 04 1991

Chris Covell
GEI Consultants, Inc.
123 Sheep Davis Road, Suite C
Concord, NH 03301

Sample Identification:

Client ID: 90379/Saxtons River, Vermont
Sample Qty/Type: 4 aqueous, 5 soil
Date Recv'd: March 12, 1991
EAI ID: 1599 GEI

Dear Mr. Covell:

Enclosed, please find the results of the analysis of the sample(s) identified above. This report contains the following sections:

ANALYSIS TYPE

- Hazardous Substance List (HSL) VOCs

NO. OF PAGES

2

The following standard abbreviations and conventions apply throughout all Eastern Analytical, Inc. reports:

- < = "Less than" followed by the detection limit
- TNR = Testing Not Requested
- ND = None detected, no established detection limits

If you have any questions regarding the results contained within, feel free to directly contact the chemist who performed the analysis. We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,



William Brunkhorst
QA/QC Coordinator

APPROVED FOR PAYMENT	
GEI CONSULTANTS, INC.	
CONCORD, NH	
BY:	<u>4-11-91 JAM</u>
DATE:	<u>4-11-91</u>
PROJECT:	<u>90379</u>
PO:	<u>3590</u>

LABORATORY REPORT

Eastern Analytical, Inc. Designation: 1599 GEI

Client: GEI Consultants, Inc.
Sample Qty/Type: 4 aqueous, 5 soil

Client Designation: 90379/Saxtons River, Vermont
Date Received: March 12, 1991

Hazardous Substance List Volatile Organic Compounds

Page 2 of 2

Sample ID:	B1-9	PM-1-7	PM-5-21	TH-1-18	TH-4-13	
Matrix:	Soil	Soil	Soil	Soil	Soil	
Date of Analysis:	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	
Units:	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	
Analyst:	NZ	NZ	NZ	NZ	NZ	EPA
Dilution factor:	10	1	1	1	1	Method
Chloromethane	< 500	< 50	< 50	< 50	< 50	8240
Bromomethane	< 500	< 50	< 50	< 50	< 50	8240
Vinyl Chloride	< 500	< 50	< 50	< 50	< 50	8240
Chloroethane	< 500	< 50	< 50	< 50	< 50	8240
Methylene Chloride	< 100	< 10	< 10	< 10	< 10	8240
Acetone	< 1000	< 100	< 100	< 100	< 100	8240
Carbon Disulfide	< 100	< 10	< 10	< 10	< 10	8240
1,1-Dichloroethene	< 100	< 10	< 10	< 10	< 10	8240
1,1-Dichloroethane	< 100	< 10	< 10	< 10	< 10	8240
Trans-1,2-Dichloroethene	< 100	< 10	< 10	< 10	< 10	8240
Cis-1,2-Dichloroethene	< 100	< 10	< 10	< 10	< 10	8240
Chloroform	< 100	< 10	< 10	< 10	< 10	8240
1,2-Dichloroethane	< 100	< 10	< 10	< 10	< 10	8240
2-Butanone (MEK)	< 1000	< 100	< 100	< 100	< 100	8240
1,1,1-Trichloroethane	< 100	< 10	< 10	< 10	< 10	8240
Carbon Tetrachloride	< 100	< 10	< 10	< 10	< 10	8240
Vinyl Acetate	< 1000	< 100	< 100	< 100	< 100	8240
Bromodichloromethane	< 100	< 10	< 10	< 10	< 10	8240
1,2-Dichloropropane	< 100	< 10	< 10	< 10	< 10	8240
Trans-1,3-Dichloropropene	< 100	< 10	< 10	< 10	< 10	8240
Trichloroethene	< 100	< 10	< 10	< 10	< 10	8240
Dibromochloromethane	< 100	< 10	< 10	< 10	< 10	8240
1,1,2-Trichloroethane	< 100	< 10	< 10	< 10	< 10	8240
Benzene	< 100	< 10	< 10	< 10	< 10	8240
Cis-1,3-Dichloropropene	< 100	< 10	< 10	< 10	< 10	8240
2-Chloroethylvinylether	< 100	< 10	< 10	< 10	< 10	8240
Bromoform	< 100	< 10	< 10	< 10	< 10	8240
4-Methyl-2-Pentanone (MIBK)	< 1000	< 100	< 100	< 100	< 100	8240
2-Hexanone	< 1000	< 100	< 100	< 100	< 100	8240
Tetrachloroethene	< 100	440	< 10	< 10	< 10	8240
1,1,2,2-Tetrachloroethane	< 100	< 10	< 10	< 10	< 10	8240
Toluene	< 100	< 10	< 10	< 10	< 10	8240
Chlorobenzene	< 100	< 10	< 10	< 10	< 10	8240
Ethylbenzene	< 100	< 10	< 10	< 10	< 10	8240
Styrene	< 100	< 10	< 10	< 10	< 10	8240
Total Xylenes	< 100	< 10	< 10	< 10	< 10	8240
Volatile Petroleum						
Hydrocarbons (C4-C16)	50,000	< 500	< 500		< 500	8015
(C10-C16)				1,000		8015

Approved By :

William Brunkhorst

William Brunkhorst, Organics Supervisor

LABORATORY REPORT

Eastern Analytical, Inc. Designation: 1599 GEI

Client: GEI Consultants, Inc.
Sample Qty/Type: 4 aqueous, 5 soil

Client Designation: 90379/Saxtons River, Vermont
Date Received: March 12, 1991

Hazardous Substance List Volatile Organic Compounds

Page 1 of 2

Sample ID:	AR6	BRX2	MW1	MW3	
Matrix:	Aqueous	Aqueous	Aqueous	Aqueous	
Date of Analysis:	3/15/91	3/15/91	3/15/91	3/15/91	
Units:	µg/L	µg/L	µg/L	µg/L	
Analyst:	NZ	NZ	NZ	NZ	EPA Method
Chloromethane	< 5	< 5	< 5	< 5	601
Bromomethane	< 5	< 5	< 5	< 5	601
Vinyl Chloride	< 5	< 5	< 5	< 5	601
Chloroethane	< 5	< 5	< 5	< 5	601
Methylene Chloride	< 2	< 2	< 2	< 2	601
Acetone	< 10	< 10	< 10	< 10	8015
Carbon Disulfide	< 2	< 2	< 2	< 2	601
1,1-Dichloroethene	< 2	< 2	< 2	< 2	601
1,1-Dichloroethane	< 2	< 2	< 2	< 2	601
Trans-1,2-Dichloroethene	< 2	< 2	< 2	< 2	601
Cis-1,2-Dichloroethene	< 2	< 2	< 2	< 2	601
Chloroform	< 2	< 2	< 2	< 2	601
1,2-Dichloroethane	< 2	< 2	< 2	< 2	601
2-Butanone (MEK)	< 10	< 10	< 10	< 10	8015
1,1,1-Trichloroethane	< 2	< 2	< 2	< 2	601
Carbon Tetrachloride	< 2	< 2	< 2	< 2	601
Vinyl Acetate	< 10	< 10	< 10	< 10	8015
Bromodichloromethane	< 2	< 2	< 2	< 2	601
1,2-Dichloropropane	< 2	< 2	< 2	< 2	601
Trans-1,3-Dichloropropene	< 2	< 2	< 2	< 2	601
Trichloroethene	< 2	< 2	< 2	< 2	601
Dibromochloromethane	< 2	< 2	< 2	< 2	601
1,1,2-Trichloroethane	< 2	< 2	< 2	< 2	601
Benzene	< 1	< 1	< 1	< 1	602
Cis-1,3-Dichloropropene	< 2	< 2	< 2	< 2	601
2-Chloroethylvinylether	< 2	< 2	< 2	< 2	601
Bromoform	< 2	< 2	< 2	< 2	601
4-Methyl-2-Pentanone (MIBK)	< 10	< 10	< 10	< 10	8015
2-Hexanone	< 10	< 10	< 10	< 10	8015
Tetrachloroethene	< 2	< 2	< 2	5	601
1,1,2,2-Tetrachloroethane	< 2	< 2	< 2	< 2	601
Toluene	< 1	< 1	< 1	< 1	602
Chlorobenzene	< 2	< 2	< 2	< 2	602
Ethylbenzene	< 1	< 1	< 1	< 1	602
Styrene	< 1	< 1	< 1	< 1	602
Total Xylenes	< 1	< 1	< 1	< 1	602
Volatile Petroleum Hydrocarbons (C4-C14)	100	< 20	< 20	< 20	8015

Approved By :



William Brunkhorst, Organics Supervisor



Eastern Analytical, Inc.

130 Hall St., Concord, NH 03301 (603) 228-0525

April 18, 1991

RECEIVED
APR 19 1991
GEI CONSULTANTS, INC.

Chris Covell
GEI Consultants, Inc.
123 Sheep Davis Road, Suite C
Concord, NH 03301

Sample Identification:
Client ID: 90379/Saxtons River, Vermont
Sample Qty/Type: 1 aqueous
Date Recv'd: April 1, 1991
EAI ID: 1693 GEI

Dear Mr. Covell:

Enclosed, please find the results of the analysis of the sample(s) identified above. This report contains the following sections:

ANALYSIS TYPE

- Hazardous Substance List (HSL) VOCs

NO. OF PAGES

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Sincerely,



William Brunkhorst
QA/QC Coordinator



LABORATORY REPORT

Eastern Analytical, Inc. Designation: 1693 GEI

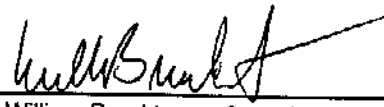
Client: GEI Consultants, Inc.
Sample Qty/Type: 1 aqueous

Client Designation: 90379/Saxtons River, Vermont
Date Received: April 1, 1991

Hazardous Substance List Volatile Organic Compounds

Sample ID:	BRX1	
Matrix:	Aqueous	
Date of Analysis:	4/5/91	
Units:	µg/L	
Analyst:	NZ	EPA Method
Chloromethane	< 5	601
Bromomethane	< 5	601
Vinyl Chloride	< 5	601
Chloroethane	< 5	601
Methylene Chloride	< 2	601
Acetone	< 10	8015
Carbon Disulfide	< 2	601
1,1-Dichloroethene	< 2	601
1,1-Dichloroethane	< 2	601
Trans-1,2-Dichloroethene	< 2	601
Cis-1,2-Dichloroethene	< 2	601
Chloroform	< 2	601
1,2-Dichloroethane	< 2	601
2-Butanone (MEK)	< 10	8015
1,1,1-Trichloroethane	< 2	601
Carbon Tetrachloride	< 2	601
Vinyl Acetate	< 10	8015
Bromodichloromethane	< 2	601
1,2-Dichloropropane	< 2	601
Trans-1,3-Dichloropropene	< 2	601
Trichloroethene	< 2	601
Dibromochloromethane	< 2	601
1,1,2-Trichloroethane	< 2	601
Benzene	< 1	602
Cis-1,3-Dichloropropene	< 2	601
2-Chloroethylvinylether	< 2	601
Bromoform	< 2	601
4-Methyl-2-Pentanone (MIBK)	< 10	8015
2-Hexanone	< 10	8015
Tetrachloroethene	< 2	601
1,1,2,2-Tetrachloroethane	< 2	601
Toluene	< 1	602
Chlorobenzene	< 2	602
Ethylbenzene	< 1	602
Styrene	< 1	602
Total Xylenes	< 1	602
Volatile Petroleum Hydrocarbons	< 20	8015

Approved By :


William Brunkhorst, Organics Supervisor

**AQUARIAN ANALYTICAL INC.**

Laboratory Services

P.O. Box 186

Canterbury, N.H. 03224

603-783-9097

Volatile Organic Report

04-16-91, 21:25

Sample 1343

Date Sampled = 04-15-91, 10:10
Date Logged In = 04-16-91, 08:27
Date Completed = 04-16-91

Sampler = C. COVEL
Location = #90379 TANK SAMPLE #2
Town = SAXTON RIVER

Organic Compound	Result	percent	Det. Lim.	percent
Bromodichloromethane	BD		0.10	
Chlorodibromomethane	BD		0.10	
Bromoform	BD		0.10	
Chloroform	BD		0.10	
Carbon Tetrachloride	BD		0.10	
dichloromethane	BD		0.20	
1,1-dichloroethane	BD		0.10	
1,2-dichloroethane	BD		0.10	
1,1,1-trichloroethane	BD		0.10	
1,1-dichloroethylene	BD		0.10	
Trichloroethylene	BD		0.10	
Tetrachloroethylene	>	0.30	0.10	
1,2-Dichloroethylene (c)		99.50	0.10	
1,2-Dichloroethylene (t)	BD		0.10	
Chloroethane	BD		0.10	
Vinylchloride	BD		0.10	
Bromomethane	BD		0.50	
Chloromethane	BD		0.50	
Trichlorofluoromethane	BD		0.10	
Trichlorotrifluoroethane	BD		0.10	
Benzene	BD		0.10	
Toluene	BD		0.10	
Ethylbenzene	BD		0.10	
m&p-Xylene	BD		0.10	
o-Xylene	BD		0.10	
Chlorobenzene	BD		0.10	
1,2-dichlorobenzene	BD		0.20	
1,3-dichlorobenzene	BD		0.20	
1,4-dichlorobenzene	BD		0.20	
Styrene	BD		0.10	
Acetone	BD		5.00	
Tetrahydrofuran	BD		2.50	
Diethylether	BD		1.50	
Methyl t-butyl ether	BD		0.30	
Methyl isobutyl ketone	BD		2.50	
Methyl ethyl ketone	BD		2.50	
Carbon Disulfide	BD		0.20	

Comments:

In addition to the two solvents listed above, the sample contained traces of water, and what appeared to be rust. Tetrachloroethylene was confirmed by a library search.

Method of Analyses = Modified EPA-8260

Certified - N.H., Conn., Mass. Maine EPA-624/524

BD = Below Detection Limit

All Results are in percent.

Page 1 of 1

[illegible]



GE! Consultants, Inc. 53 Regional Drive Concord, NH 03301-8500

CHAIN OF CUSTODY RECORD
DOCUMENT NUMBER

PROJECT NAME AND NUMBER:

SAXTONS River/Vermont 90379

SAMPLERS:

C.L. POVEL / Joanne McLoughlin

STATION NO.	DATE	TIME (hours)	COMP	CRAB	SAMPLE NUMBER	NO. OF CONTAINERS	1502	1503	1504	REMARKS
AK6	3/8/91	18:20		✓	AK6	2	✓			Tenney Hardware old well possible PERC.
MW 1	3/8/91	18:27		✓	MW#1	2	✓			Alloy Tenney Hardware
BRX2	3/8/91	12:33		✓	BRX#2	2	✓			Bedrock Well #2
MW3	3/8/91	17:44		✓	MW#3	2	✓			Christ Church Alley
TH-4-13	3/7/91	13:48		✓	TH-4-13	1	✓			Wilbur Skowinski overburden well
TH-1-18	3/7/91	10:55		✓	TH-1-18	1	✓			Tenney Hardware Basement Test Hole 4
PM-5-21	3/2/91	15:35		✓	PM-5-21	1	✓			Tenney Hardware Basement Test Hole 1
PM-1-7	3/7/91	14:30		✓	PM-1-7	1	✓			Pizza Paul & Mary Basement Test Hole 5
B1-9					B1-9	2	✓			Pizza Paul & Mary Basement Test Hole 1 (Below Tank)
										Tenney Hardware Basement @ 4 to 10 feet

RELINQUISHED BY (SIGNATURE):

DATE/TIME (hours):

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

DATE/TIME:

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

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DATE/TIME:

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

DATE/TIME:

RECEIVED FOR LABORATORY BY (SIGNATURE):

DATE/TIME:

REMARKS:

PROJECT NAME AND NUMBER: SAXTONS RIVER, VT

SAMPLERS: OWEN FERNALD / CHRIS COVEL

NO.
OF
CON-
TAINERS

EPA 624
VOCS

REMARKS

STATION NO. DATE TIME (hours) COMP GRAB SAMPLE NUMBER

TANK SAMPLE #2 4/15/91 10:10 V TANK SAMPLE #2

3

SUSPECTED PURE PERC
USE EXTREME CAUTION
WHEN ANALYSING!

RELINQUISHED BY (SIGNATURE):

DATE/TIME: (hours)

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

DATE/TIME:

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

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DATE/TIME:

RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):

DATE/TIME:

RECEIVED FOR LABORATORY BY (SIGNATURE):

DATE/TIME:

REMARKS:

[illegible]

VTANR ANALYTICAL RESULTS

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

SAMPLE NUMBER: 59855

DATE RUN: 03-20-91

SITE: PM 1-12

ANALYST: LVV REMARKS CODE 824S: S

SAMPLE WT: 2.3g

METHOD: 8240S

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethene	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	ND
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	50	6
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	ND
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	ND
VS36	Dibromochloromethane	5	9
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	ND
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....

Results recalculated based on dry weight (SRL).

GD\180-LOW

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

LAB ID 59855 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION PM-1-12 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	S	03/20/91
28	BROMODICHLOROMETHANE	5	UG/KG WW		03/20/91
135	TETRACHLOROETHENE (PCE)	8	UG/KG WW		03/20/91

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

LAB ID 59851 REPORT TO S/WINTERS DUE DATE 04/11/91
SOURCE LOCATION PM-5-12 COLLECTION DATE 03/07/91
PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES
SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
3245	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/20/91

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

LAB ID 59852 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION PM-5-23 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
8245	METHOD 8240 TESTS, SOIL	0	NONE	2	03/20/91

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

LAB ID 59853 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION TH-1-8 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/20/91

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

AB ID 59849 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION TH-1-14 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/20/91

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

LAB ID 59850 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION TH-4-9 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
3-4S	METHOD 8240 TESTS, SOIL	0	NONE	T	03/20/91
7-28	1-BROMODICHLOROMETHANE	11	UG/KG WW		03/20/91

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

ADP 28 8

SAMPLE NUMBER: 59854

DATE RUN: 03-20-91

SITE: TH 4-15

ANALYST: LVV REMARKS CODE 824S: T

SAMPLE WT: 0.9g

METHOD: 8240S

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethene	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	ND
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	14
VS29	4-Methyl-2-Pentanone	50	ND
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	ND
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	ND
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	ND
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....

Results recalculated based on dry weight (SRL). Many hydrocarbon peaks present. TVH = 1150 ug/kg (estimated).

GD\180-LOW

MAR 27 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/25/91

AB ID 59854 REPORT TO S/WINTERS DUE DATE 04/11/91

SOURCE LOCATION TH-4-15 COLLECTION DATE 03/07/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/11/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
624S	METHOD 8240 TESTS, SOIL	0	NONE	T	03/20/91
128	BROMODICHLOROMETHANE	13	UG/KG WW		03/20/91

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

APR 20

SAMPLE NUMBER: 59782

DATE RUN: 03-18-91

SITE: B1 1-3 ft.

ANALYST: LVV REMARKS CODE 824S: S

SAMPLE WT: 4.1g

METHOD: 8240S

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/kg
VS07	Vinylchloride		
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
		10	ND
VS11	Trichlorofluoromethane		
VS12	Acetone	10	ND
VS13	1,1-Dichloroethene	100	ND
VS14	Carbondisulfide	5	ND
		5	ND
VS15	Methylene Chloride		
VS16	Methyl-t-Butylether (MTBE)	5	ND
VS17	1,2-Dichloroethene	---	ND
VS18	1,1-Dichloroethane	5	ND
		5	ND
VS19	Vinyl Acetate		
VS20	2-Butanone	50	ND
VS21	Chloroform	100	ND
VS22	1,1,1-Trichloroethane	5	ND
		5	ND
VS23	Carbon Tetrachloride		
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
		5	ND
VS27	1,2-Dichloropropane		
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	5	ND
VS30	Cis-1,3-Dichloropropene	50	ND
		5	ND
VS31	Toluene		
VS32	Trans-1,3-Dichloropropene	5	7
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	5	ND
		50	ND
VS35	Tetrachloroethene		
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	ND
		5	ND
VS39	Xylenes	---	
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND
		5	ND

REMARKS.....

Revised calculations based on dry weight (SRL).
GD\180-LOW

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

AN ID 59782 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-B1,1-3* COLLECTION DATE 03/05/91

NOGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
45	METHOD 8240 TESTS, SOIL	0	NONE	S	03/19/91
31	TOLUENE	6	UG/KG WW		03/19/91

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

SAMPLE NUMBER: 59783

DATE RUN: 03-18-91

SITE: B1 3-5ft.

ANALYST: LVV

SAMPLE WT: 3.9g

METHOD: 8240S

REMARKS CODE

824S: S

APR 20 1991

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/Kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethene	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	ND
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	50	ND
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	6
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	ND
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	9
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....
Revised calculations based on dry weight (SRL).
GD\180-LOW

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59783 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-B1,3-5 COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
8245	METHOD 8240 TESTS, SOIL	0	NONE	S	03/19/91
S31	:TOLUENE	6	UG/KG WW		03/19/91
VS38	:ETHYLBENZENE	9	UG/KG WW		03/19/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59784 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-B1,5-7' COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/19/91

APR 26 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

SAMPLE NUMBER: 59785 ANALYST: LVV REMARKS CODE 824S: S

DATE RUN: 03-13-91 SAMPLE WT: 5.1g

SITE: B1 7-9ft. METHOD: 8240S

		Practical Quant. Limits Low-Level Soil (EPA)	TEST RESULTS ug/kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethene	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	ND
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	50	ND
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	ND
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	ND
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	7
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....

Revised calculations based on dry weight (SRL).

GD\180-LOW

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59785 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-81.7-9 COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
245	METHOD 8240 TESTS, SOIL	0	NGNE	S	03/19/91
S38	:ETHYLBENZENE	7	UG/KG WW		03/19/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59786 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-B1,9-11' COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	U	03/19/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59787

REPORT TO S/WINTERS

DUE DATE 04/06/91

SOURCE LOCATION 135-81,11-13

COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE)

AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS

PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NCNE	U	03/19/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59777

REPORT TO S/WINTERS

DUE DATE 04/06/91

SOURCE LOCATION 135-MW1,0-2'

COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE)

AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS

PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST
CODE

TEST NAME

RESULT

UNIT OF
MEASURE

REMARKS
CODE

PROCESS
DATE

TEST METHOD 8240 TESTS, SOIL

0

NONE

Z

03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

3 ID 59778 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-MW1, 5-7' COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

EST CDE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
24S	METHOD 8240 TESTS, SOIL	0	NCNE	2	03/14/91

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

APR 26 1991

SAMPLE NUMBER: 59775

DATE RUN: 03-14-91

SITE: MW2 0-2ft.

ANALYST: LVV REMARKS CODE 824S: T

SAMPLE WT: 4.9g

METHOD: 8240S

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethane	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	7
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	50	ND
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	ND
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	6
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	ND
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....
Revised calculations based on dry weight (SRL). Some aromatic hydrocarbons present,
naphthalene present at about 17ppb.
GD\180-LCW

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59775 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-MW2,0-2' COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	T	03/14/91
V 21	:CHLOROFORM	6	UG/KG WW		03/14/91
VS35	:TETRACHLOROETHENE (PCE)	5	UG/KG WW		03/14/91

APR 26 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR METHOD 8240 GC/MS FOR VOLATILE ORGANICS - SOILS

SAMPLE NUMBER: 59774

ANALYST: LVV

REMARKS CODE 824S,

DATE RUN: 03-14-91

SAMPLE WT: 4.2g

SITE: MW2 5-7 ft.

METHOD: 8240S

		Practical Quant. Limits	TEST
		Low-Level Soil (EPA)	RESULTS ug/kg
VS07	Vinylchloride	10	ND
VS08	Chloromethane	10	ND
VS09	Bromomethane	10	ND
VS10	Chloroethane	10	ND
VS11	Trichlorofluoromethane	10	ND
VS12	Acetone	100	ND
VS13	1,1-Dichloroethene	5	ND
VS14	Carbondisulfide	5	ND
VS15	Methylene Chloride	5	ND
VS16	Methyl-t-Butylether (MTBE)	---	ND
VS17	1,2-Dichloroethene	5	ND
VS18	1,1-Dichloroethane	5	ND
VS19	Vinyl Acetate	50	ND
VS20	2-Butanone	100	ND
VS21	Chloroform	5	6
VS22	1,1,1-Trichloroethane	5	ND
VS23	Carbon Tetrachloride	5	ND
VS24	Benzene	5	ND
VS25	1,2-Dichloroethane	5	ND
VS26	Trichloroethene	5	ND
VS27	1,2-Dichloropropane	5	ND
VS28	Bromodichloromethane	5	ND
VS29	4-Methyl-2-Pentanone	50	ND
VS30	Cis-1,3-Dichloropropene	5	ND
VS31	Toluene	5	ND
VS32	Trans-1,3-Dichloropropene	5	ND
VS33	1,1,2-Trichloroethane	5	ND
VS34	2-Hexanone	50	ND
VS35	Tetrachloroethene	5	ND
VS36	Dibromochloromethane	5	ND
VS37	Chlorobenzene	5	ND
VS38	Ethylbenzene	5	ND
VS39	Xylenes	5	ND
VS40	Styrene	5	ND
VS41	Bromoform	5	ND
VS42	1,1,2,2,-Tetrachloroethane	5	ND

REMARKS.....

Revised Calculations for dry weight (SRL). Some aromatic hydrocarbons present; naphthalene present at about 50 ppb; traces of tetrachloroethylene present (4ug/kg - the detection limit is 5ug/kg).

GD\180-LCW

MAR 13 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM

PAGE 01

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59774 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-MW2,5-7' COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
8245	METHOD 8240 TESTS, SOIL	0	NONE	T	03/14/91
V 121	=CHLOROFORM	6	UG/KG WW		03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59776 REPORT TO S/WINTERS DUE DATE 04/06/91
SOURCE LOCATION 135-MW3,0-2 COLLECTION DATE 03/04/91
PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES
SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
3.45	METHOD 8240 TESTS, SOIL	0	NONE	2	03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59773

REPORT TO S/WINTERS

DUE DATE 04/06/91

SOURCE LOCATION 135-MW3,5-3*

COLLECTION DATE 03/04/91

PROGRAM 022-HAZARDOUS WASTE (STATE)

AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS

PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
6245	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59772 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-MW3, 5-7 COLLECTION DATE 03/04/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

AB ID 59771 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-MW3, 15-17' COLLECTION DATE 03/04/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
624S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59770 REPORT TO S/WINTERS DUE DATE 04/06/91
SOURCE LOCATION 135-MW3,20-22' COLLECTION DATE 03/04/91
PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES
AMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
24S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/14/91

MAR 19 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/18/91

LAB ID 59769 REPORT TO S/WINTERS DUE DATE 04/06/91
SOURCE LOCATION 135-MW3,25-27' COLLECTION DATE 03/04/91
PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE N
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824S	METHOD 8240 TESTS, SOIL	0	NONE	Z	03/14/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

AB ID 59779 REPORT TO S/WINTERS DUE DATE 04/06/91

SOURCE LOCATION 135-BRX1,81* COLLECTION DATE 03/05/91

PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE Y

SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824W	METHOD 8240 TESTS, WATER	0	NCNE	Z	03/19/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59780 REPORT TO S/WINTERS DUE DATE 04/06/91
SOURCE LOCATION 135-BRX1, 120 COLLECTION DATE 03/05/91
PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE Y
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES
AMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824W	METHOD 824G TESTS, WATER	0	NONE	Z	03/19/91

MAR 22 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/21/91

LAB ID 59781 REPORT TO S/WINTERS DUE DATE 04/06/91
SOURCE LOCATION 135-BRX1,140 COLLECTION DATE 03/05/91
PROGRAM 022-HAZARDOUS WASTE (STATED) AMBIENT WATER SAMPLE Y
SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/06/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
824W	METHOD 8240 TESTS, WATER	0	NCNE	Z	03/19/91

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/14/91

LAB ID 59819 REPORT TO S/WINTERS DUE DATE 04/08/91
 SOURCE LOCATION 135-BRX2-100 COLLECTION DATE 03/06/91
 PROGRAM 022-HAZARDOUS WASTE (STATE) AMBIENT WATER SAMPLE Y
 SUBMITTED BY S/WINTERS PHONE 244-8702 SUBMIT DATE 03/08/91 LEGAL YES
 SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
124W	METHOD 8240 TESTS, WATER	0	NGNE	Z	03/14/91

MAR 18 1991

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 03/14/91

LAB ID 59820

REPORT TO S/WINTERS

DUE DATE 04/08/91

SOURCE LOCATION I35-BRX2-120*

COLLECTION DATE 03/06/91

PROGRAM 022-HAZARDOUS WASTE (STATE)

AMBIENT WATER SAMPLE Y

SUBMITTED BY S/WINTERS

PHONE 244-8702 SUBMIT DATE 03/08/91 LEGAL YES

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS- DATE
24W	METHOD 8240 TESTS, WATER	0	NONE	2	03/14/91

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

APR 30 1991

SAMPLE NUMBER: 60358

DATE RUN: 04-25-91

SITE: Saxton's River

DATE COLLECTED: 04-15-91

ANALYST: SRL

DILUTION FACTOR:

REMARKS CODE

004W: S

Approximate Detection Limit

Detected at

		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

Sample was essentially pure tetrachloroethene.

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 100%

D8-Toluene: 104%

4-BromoFluorobenzene: 104%

GD\VW01

E O RMC
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

PROJECT NAME/NUMBER: <u>Saxby River (135)</u>	SAMPLER(S): (signature) <u>[Signature]</u>	LABORATORY:

Samples sealed at collection	Seals broken & remade for addition of preservative	DESCRIPTION AND NUMBER OF CONTAINERS															Samples sealed on receipt by laboratory			
Y or N	Initial	Y or N	Initial																Y or N	Initials
SAMPLE LOCATION	COLLECTION DATE	TIME	COMP/ GRAB																REMARKS	
BRX1, 81'	3/5/91	10:45	6v1p	2															Z	824W requested HCl added
BRX1, 120'	3/5/91	11:25		2															Z	
BRX1, 140'	3/5/91	12:00	✓	2															Z	
B1, 1-3'	3/5/91	14:30			1														1	824S
B1, 3-5'	3/5/91	14:35			1														1	
B1, 5-7'	3/5/91	14:40	✓		1														1	
B1, 7-9'	3/5/91	14:50			1														1	
B1, 9-11'	3/5/91	14:55			1														1	oily odor 3/5/91
B1, 11-13'	3/5/91	15:15	✓		1														1	oily odor
																			1	oily odor

RELINQUISHED BY: [Signature] 5 MARCH 7 / 3:37
(signature) (date/time)

RECEIVED BY: [Signature] 5 Mar. 91 3:37
(signature) (date/time)

REMARKS:

RELINQUISHED BY: _____
(signature) (date/time)

RECEIVED BY: _____
(signature) (date/time)

REMARKS:

RELINQUISHED BY: _____
(signature) (date/time)

RECEIVED AT LABORATORY BY: _____
(signature) (date/time)

REMARKS:

THE OFFICE OF THE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

PROJECT NAME/NUMBER: <u>Saxtons River (135)</u>	SAMPLER(S): (signature) <u>Chris Cove</u>	LABORATORY:

Samples sealed at collection		Seals broken & remade for addition of preservative		DESCRIPTION AND NUMBER OF CONTAINERS														Samples sealed on receipt by laboratory	
M.D. C.C.		M.D. C.C.																	
Y or N Initial		Y or N Initial																Y or N Initial	
SAMPLE LOCATION	COLLECTION DATE	TIME	COMP/GRAB	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	1x40 mL Soil	Total	REMARKS		
MW3, 25-27	3/4/91		Grab	1												1	82451 requested		
MW3, 25-22	3/4/91															1			
MW3, 15-17	3/4/91															1			
MW3, 5-7	3/4/91															1			
M3, 5-3	3/4/91															1			
MW2, 5-7	3/5/91															1			
MW2, 0-2	3/5/91															1			
MW3, 0-2	3/4/91															1			
MW1, 0-2	3/4/91															1			
MW1, 5-7	3/4/91															1			

RELINQUISHED BY: <u>Chris Cove</u> (signature) 5 MARCH 91 3:37 (date/time)	RELINQUISHED BY: (signature) (date/time)	RELINQUISHED BY: (signature) (date/time)
RECEIVED BY: <u>Shirley Lantz</u> (signature) 5 MAR 91 3:37 (date/time)	RECEIVED BY: (signature) (date/time)	RECEIVED AT LABORATORY BY: (signature) (date/time)
REMARKS:	REMARKS:	REMARKS:

APPENDIX G

**VERMONT AGENCY OF NATURAL RESOURCES
ANALYTICAL RESULTS
FROM RESIDENTIAL WELLS IN STUDY AREA**

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

Saxa River
discovered
- 12/1

LAB ID 48147 REPORT TO R/SPIESE

DUE DATE 12/17/89

CORRECTION LOCATION FAMILY HOUSING

COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK

AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM

PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89
016	METHYL BUTYL ETHER (MTBE)	11	PPB		11/30/89
015	TETRACHLOROETHENE (PCE)	< 2	PPB		11/30/89

Steve,
Here are the Nov.
results from S.R.
I've put you on the
CC for results.
I have all back data
& geology & contacts you
may need. Let me
know. Richard

OL: 12/12/89 can do
with our sampling this

See Stan (off continuing
file)

1 R/ind sup well
S/R/ind BR well
1 R/ind BR

See Richard S. 12/14/89
turned up 12/14/89
HSA suppl. 12/14/89

12/14

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 48146 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION SIMGN *Location P* COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

ST DE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NCNE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NCNE	Z	11/30/89
04W	METHOD 8240 TESTS, WATER	0	NCNE	M	11/30/89
W35	1,1,1,2-TETRACHLOROETHENE (PCE)	10	PPB		11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 48151 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION COLVIN HOUSE COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
03W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89
W35	;;TETRACHLOROETHENE (PCE)	67	PPB		11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

WJ ID 48145 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION SMITH COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
2 W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89
W16	(; METHYL BUTYL ETHER (MTBE)	60	PPB		11/30/89
V	* TOTAL VOLATILE HYDROCARBONS <	100	PPB	J	11/30/89

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FINAL LAB REPORT

DATE 12/04/89

LAB ID 48155 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION PIZZA PAUL MARY COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

ANALYST BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
METHOD 8010 TESTS, WATER	0	MGNE	S	11/30/89
METHOD 8020 TESTS, WATER	0	MGNE	Z	11/30/89
METHOD 8240 TESTS, WATER	0	MGNE	M	11/30/89
16 ; METHYL BUTYL ETHER (MTBE)	< 10	PPB		11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

AB ID 48156 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION TRUSLOW ✓ COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
03W	METHOD 8240 TESTS, WATER	C	NONE	M	11/30/89
W16	METHYL BUTYL ETHER (MTBE)	< 10	PPB		11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/C4/89

LAB ID 48152 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION KIMBLE IN *Whom?* COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	T	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	T	11/30/89
02W	METHOD 8240 TESTS, WATER	C	NONE	M	11/30/89
W16	1; METHYL BUTYL ETHER (MTBE)	350✓	PPB		11/30/89
W4	; BENZENE	45	PPB		11/30/89
W31	; TOLUENE	2	PPB		11/30/89
W39	; XYLENES	3	PPB		11/30/89
V	* TOTAL VOLATILE HYDROCARBONS	640	PPB		11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

AS ID 43153 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION KIMBLE MIDDLE COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
2 W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89
W16	; METHYL BUTYL ETHER (MTBE)	110	PPB		11/30/89
V	• TOTAL VOLATILE HYDROCARBONS	110	PPB		11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 48154 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION KIMBLE OUT *Kim P ✓* COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CCODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NCNE	S	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NCNE	Z	11/30/89
04W	METHOD 8240 TESTS, WATER	0	NCNE	M	11/30/89
W15	; METHYLENE CHLORIDE	< 2	PPB	X, P	11/30/89
W 6	; METHYL BUTYL ETHER (MTBE)	< 10	PPB		11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

AL ID 48150 REPORT TO R/SPIESE DUE DATE 12/17/89

LOCATION HARDWARE STORE COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8020 TESTS, WATER	0	ACNE	Z	11/30/89
03W	METHOD 8240 TESTS, WATER	0	ACNE	M	11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 48149 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION SAXTONS RIVER INN COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

AL ID 48148 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION FLETCHER *Water P* ✓ COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NCNE	U	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NCNE	U	11/30/89
03W	METHOD 8240 TESTS, WATER	0	NCNE	M	11/30/89
04H	* TOTAL VOLATILE HYDROCARBONS < 100		PPB	J	11/30/89

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DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 40144 REPORT TO R/SPIESE

DUE DATE 12/17/89

SOURCE LOCATION BRENNEN *Wham?*

COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK

AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM

PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

ST DE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
04W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

ID 48143 REPORT TO R/SPIESE

DUE DATE 12/17/89

SOURCE LOCATION LAWRENCE > KWB

COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK

AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM

PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	11/30/89
03W	METHOD 8240 TESTS, WATER	0	NONE	M	11/30/89

DEC 6 1989

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/04/89

LAB ID 48142 REPORT TO R/SPIESE DUE DATE 12/17/89

SOURCE LOCATION SYKTE COLLECTION DATE 11/17/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY B/HASLAM PHONE 244-8702 SUBMIT DATE 11/17/89 LEGAL NO

SAMPLE NOTES:

EST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NCNE	Z	11/30/89
02W	METHOD 8020 TESTS, WATER	0	NCNE	Z	11/30/89
24W	METHOD 8240 TESTS, WATER	0	NCNE	M	11/30/89

JUN 2 1990

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FINAL LAB REPORT

DATE 12/29/89

LAB ID 48420 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION BRENNEN ✓ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

Jan 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48419 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION LAWRENCE ✓ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

1989

FINAL LAB REPORT

DATE 12/29/89

ID 48418 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION SYKIE COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

ANALYZED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
02W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48457 REPORT TO R/CHARD SPIESE DUE DATE 01/20/90

SOURCE LOCATION KURN HATTIN SCHOOL COLLECTION DATE 12/20/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/20/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	M	12/22/89
802W	METHOD 8020 TESTS, WATER	0	NONE	M	12/22/89
824W	METHOD 8240 TESTS, WATER	0	NONE	Z	12/22/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

B ID 48433 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION SAXTONS RIVER INN COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

EST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
24W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

JAN 2 1990

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48426 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90
SOURCE LOCATION JELLY BEAN✓ COLLECTION DATE 12/14/89
PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y
SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48427 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION KIMBALL (IN)✓ COLLECTION DATE 12/14/89

PROGRAM 041--UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
1W	METHOD 8010 TESTS, WATER	0	NONE	T	12/27/89
302W	METHOD 8020 TESTS, WATER	0	NONE	T	12/27/89
4W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
W16	;METHYL BUTYL ETHER (MTBE)	290	PPB	E	12/27/89
24	;BENZENE	9	PPB		12/27/89
TH	• TOTAL VOLATILE HYDROCARBONS	310	PPB	E	12/27/89

JAN 4 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 01/03/90

LAB ID 48428 REPORT TO RICHARD SPIESE DUE DATE 01/14/90
SOURCE LOCATION KIMBALL (MID) COLLECTION DATE 12/14/89
PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y
SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO
SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NCNE	S	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NCNE	Z	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NCNE	M	12/27/89
W16	METHYL BUTYL ETHER (MTBE)	268	PPB	E	12/27/89
1	TOTAL VOLATILE HYDROCARBONS	285	PPB	E	12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48429 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION KIMBALL (OUT) ✓ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
301W	METHOD 8010 TESTS, WATER	0	NONE	S	12/27/89
302W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
304W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
W16	METHYL BUTYL ETHER (MTBE)	10	PPB	E	12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48432 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION FLETCHER ✓ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	U	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NONE	U	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48423 REPORT TO R/CHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION SMITH/ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY R/CHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
301W	METHOD 8010 TESTS, WATER	0	NONE	S	12/27/89
3-2W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
3-4W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
W16	:METHYL BUTYL ETHER (MTBE)	42	PPB	E	12/27/89
W35	:TETRACHLOROETHENE (PCE)	< 2	PPB		12/27/89

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48422 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION MORTENSEN COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST #	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	12/27/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
03W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
016	METHYL BUTYL ETHER (MTBE)	43	PPB	E	12/27/89
05	TETRACHLOROETHENE (PCE)	< 2	PPB		12/27/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID. 48425 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION PIZZA. PM ✓ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
801W	METHOD 8010 TESTS, WATER	0	NONE	S	12/27/89
802W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
824W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
W16	METHYL BUTYL ETHER (MTBE)	< 2	PPB	E	12/27/89

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
 DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59429

DATE RUN: 01-29-91

SITE: Family Housing - 29

DATE COLLECTED: 01-25-91

ANALYST: SRL

DILUTION FACTOR: 1

REMARKS CODE

824W: S

Approximate Detection Limit

Detected at

		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	91E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	3
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 80%

D8-Toluene: 96%

4-BromoFluorobenzene: 90%

GD\W01

JAN 4 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 01/03/90

LAB ID 48417 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION SAXTONS RIVER T~~B~~ COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

INITIATED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	Z	12/27/89
02W	METHOD 8020 TESTS, WATER	C	NONE	Z	12/27/89
03W	METHOD 8240 TESTS, WATER	0	NONE	M	12/29/89

JAN 2 1990

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM PAGE 1

FINAL LAB REPORT

DATE 12/29/89

LAB ID 48430 REPORT TO RICHARD SPIESE DUE DATE 01/14/90

SOURCE LOCATION FAMILY HOUSING COLLECTION DATE 12/14/89

PROGRAM 041-UNDERGROUND STORAGE TANK AMBIENT WATER SAMPLE Y

SUBMITTED BY RICHARD SPIESE PHONE 244-8702 SUBMIT DATE 12/14/89 LEGAL NO

SAMPLE NOTES:

TEST CODE	TEST NAME	RESULT	UNIT OF MEASURE	REMARKS CODE	PROCESS DATE
01W	METHOD 8010 TESTS, WATER	0	NONE	S	12/27/89
02W	METHOD 8020 TESTS, WATER	0	NONE	Z	12/27/89
03W	METHOD 8240 TESTS, WATER	0	NONE	M	12/27/89
W16	:METHYL BUTYL ETHER (MTBE)	7	PPB	E	12/27/89
W15	:TETRACHLOROETHENE (PCE)	< 2	PPB		12/27/89

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

FEB 06 1991

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59422

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: Truslow

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	<10 E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78% D8-Toluene: 84% 4-BromoFluorobenzene: 82%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59424

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: Fred Brown

DATE COLLECTED: 1-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 82% D8-Toluene: 100% 4-BromoFluorobenzene: 96%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59426

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: Arthur Mark

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 84% D8-Toluene: 88% 4-BromoFluorobenzene: 86%

GD\WV01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

FEB 16 1991

SAMPLE NUMBER: 59427

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: Martensen

DATE COLLECTED: 01-25-91

Approximate Detection Limit

Detected at

ug/l

ug/l

VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	21E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 82%

D8-Toluene: 90%

4-BromoFluorobenzene: 88%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59429

DATE RUN: 01-29-91

SITE: Family Housing - 39

DATE COLLECTED: 01-25-91

ANALYST: SRL
DILUTION FACTOR: 1

REMARKS CODE

824W: S

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	91E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	3
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 80% D8-Toluene: 96% 4-BromoFluorobenzene: 90%

GD\W01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59431

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: King (Mid)

DATE COLLECTED: 01-25-91

Approximate Detection Limit

Detected at

		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 84%

D8-Toluene: 100%

4-BromoFluorobenzene: 96%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

FEB 06 1991

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59433

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: PPM

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 82% D8-Toluene: 94% 4-BromoFluorobenzene: 94%

GD\WV01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

FEB 05 1991

SAMPLE NUMBER: 59436

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Sykie

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 86% D8-Toluene: 94% 4-BromoFluorobenzene: 94%

GD\W01

VI. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59438

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Lawrence

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 82% D8-Toluene: 110% 4-BromoFluorobenzene: 106%

GD\WV01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

FEB 06 1991

SAMPLE NUMBER: 59440

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Fletcher - 83

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 86% D8-Toluene: 100% 4-BromoFluorobenzene: 96%

GD\VW01

DEPT. OF ENVIRONMENTAL CONSERVATION LAB MANAGEMENT SYSTEM

REGULAR SAMPLE LOG-IN

SUBMITTED BY: RFS PHONE: 244-8702 DATE COLLECTED: 01/25/91
 REQUIRED COMPLETION DATE: 02/25/91 DATE SUBMITTED: 01/25/91
 PROGRAM CODE: 041 REPORT RESULTS TO: RICHARD SPIESE
 LEGAL SAMPLE (Y/N): N AMBIENT WATER SAMPLE (Y/N): Y

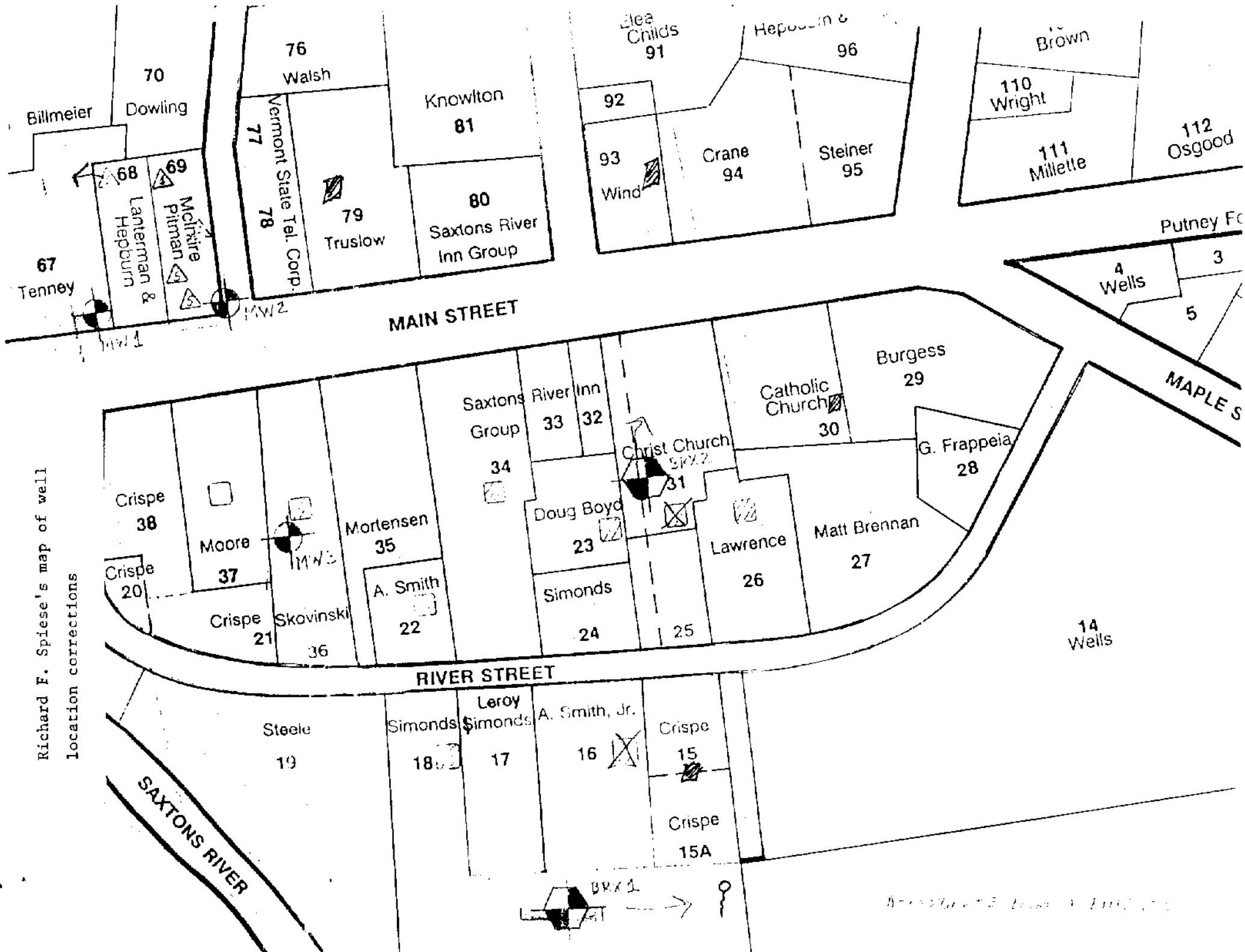
***** TESTS REQUESTED *****

824W

***** SAMPLES SUBMITTED FOR TESTS *****

LAB ID	SOURCE LOCATION	LAB ID	SOURCE LOCATION
59422	9416-TRUSLOW	59423	9416-S.R.GENERAL STOR
59424	9416-FRED BROWN	59425	9416-CHRIST CHURCH
59426	9416-AURTHUR MARK	59427	9416-MORTENSEN
59428	9416-SKOVINSKI	59429	9416-FAMILY HOUSING
59430	9416-KING(OUT)	59431	9416-KING(MID)
59432	9416-KING(IN)	59433	9416-PPM
59434	9416-SIMON	59435	9416-SMITH
59436	9416-SYKIE	59437	9416-VHS
59438	9416-LAWRENCE	59439	9416-BRENNEN
59440	9416-FLETCHER	59441	9416-FULLER HARDWARE

Richard F. Spiese's map of well
location corrections



FEB 03 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59441

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Fuller Hardware

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 86%

D8-Toluene: 102%

4-BromoFluorobenzene: 98%

GD\W01

FEB 06 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59439

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Brennen

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS

SURROGATE RECOVERIES

1,2-Dichloroethane - D4: 88%

D8-Toluene: 110%

4-BromoFluorobenzene: 106%

GD\W01

FEB 06 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59437

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: VHS

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 82%

D8-Toluene: 104%

4-BromoFluorobenzene: 100%

GD/VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

FEB 06 1991

SAMPLE NUMBER: 59434

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Simon 102 18

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	8
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 80% D8-Toluene: 110% 4-BromoFluorobenzene: 108%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59430

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: King (Out)

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

VW15 quantitated from 1 to 10 dilution run.

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 86% D8-Toluene: 88% 4-BromoFluorobenzene: 86%

GD\W01

FEB 06 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59432

DATE RUN: 01-31-91

SITE: King (In)

DATE COLLECTED: 01-25-91

ANALYST: SRL

DILUTION FACTOR: 1

REMARKS CODE

824W: S

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	7
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	-Xylenes	2	13
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 80%

D8-Toluene: 96%

4-BromoFluorobenzene: 94%

GD\VW01

FEB 06 1991

V.I. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59428

DATE RUN: 01-29-91

SITE: Skovinski

DATE COLLECTED: 1-25-91

ANALYST: SRL
DILUTION FACTOR: 1

REMARKS CODE 824W: S

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	8
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 86% D8-Toluene: 92% 4-BromoFluorobenzene: 88%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59435

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-31-91

DILUTION FACTOR: 1

SITE: Smith

DATE COLLECTED: 01-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	15E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	3
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 84%

D8-Toluene: 94%

4-BromoFluorobenzene: 94%

GD\VW01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59425

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: Christ Church

DATE COLLECTED: 1-25-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78% D8-Toluene: 90% 4-BromoFluorobenzene: 86%

GD\W01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 59423

ANALYST: SRL

REMARKS CODE

824W: Z

DATE RUN: 01-29-91

DILUTION FACTOR: 1

SITE: General Store

DATE COLLECTED: 1-29-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78% D8-Toluene: 86% 4-BromoFluorobenzene: 84%

GD\VW01

APR 30 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60349

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-24-91

DILUTION FACTOR: 1

SITE: Smith Jr.

DATE COLLECTED: 04-11-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	35 E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	<2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 100% D8-Toluene: 80% 4-BromoFluorobenzene: 80%

GD\WV01

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

APR 30 1991

SAMPLE NUMBER: 60348

DATE RUN: 04-24-91

SITE: Smith

DATE COLLECTED: 04-11-91

ANALYST: SRL

DILUTION FACTOR: 1

REMARKS CODE

824W: S

Approximate Detection Limit

Detected at

		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	36 E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	4
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	<2
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	ND
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....
Non-acidified sample.

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 100% DB-Toluene: 80% 4-BromoFluorobenzene: 76%

GD\W01

APR 30 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60350

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-22-91

DILUTION FACTOR: 1

SITE: Simon

DATE COLLECTED: 04-11-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	10
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78% D8-Toluene: 118% 4-BromoFluorobenzene: 108%

GD\VW01

MT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY

DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60339

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-19-91

DILUTION FACTOR: 1

SITE: Cath Church

DATE COLLECTED: 04-11-91

		Approximate Detection Limit	Detected at
		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	3
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 74%

D8-Toluene: 128%

4-BromoFluorobenzene: 114%

GDAVW01

APR 30 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60345

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-22-91

DILUTION FACTOR: 1

SITE: Family Housing

DATE COLLECTED: 04-11-91

Approximate Detection Limit

Detected at

		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	15 E
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 80% D8-Toluene: 126% 4-BromoFluorobenzene: 106%

CD\VW01

APR 30 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
 DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60341

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-22-91

DILUTION FACTOR: 1

SITE: Vt. Pretzel

DATE COLLECTED: 04-11-91

		Approximate Detection Limit	Detected at
		ug/l	ug/l
JW07	Vinyl chloride	10	ND
JW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
JW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
JW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
JW15	Methylene chloride	2	ND
JW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
JW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
JW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
JW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
JW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	<2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78% D8-Toluene: 124% 4-BromoFluorobenzene: 114%

3D\VW01

APR 20 1991

VT. DEPT. ENVIRONMENTAL CONSERVATION LABORATORY
DATA SHEET FOR VOLATILE ORGANICS - WATER

SAMPLE NUMBER: 60340

ANALYST: SRL

REMARKS CODE

824W: S

DATE RUN: 04-19-91

DILUTION FACTOR: 1

SITE: Burgess

DATE COLLECTED: 04-11-91

Approximate Detection Limit

Detected at

		<u>ug/l</u>	<u>ug/l</u>
VW07	Vinyl chloride	10	ND
VW08	Chloromethane	10	ND
VW09	Bromomethane	10	ND
VW10	Chloroethane	10	ND
VW11	Trichlorofluoromethane	10	ND
VW12	Acetone	50	ND
VW13	1,1-Dichloroethene	2	ND
VW14	Carbon disulfide	2	ND
VW15	Methylene chloride	2	ND
VW16	Methyl-t-Butylether (MTBE)	10	ND
VW17	1,2-Dichloroethene	2	ND
VW18	1,1-Dichloroethane	2	ND
VW19	Vinyl acetate	50	ND
VW20	2-Butanone	50	ND
VW21	Chloroform	2	ND
VW22	1,1,1-Trichloroethane	2	ND
VW23	Carbon tetrachloride	2	ND
VW24	Benzene	2	ND
VW25	1,2-Dichloroethane	2	ND
VW26	Trichloroethene	2	ND
VW27	1,2-Dichloropropane	2	ND
VW28	Bromodichloromethane	2	ND
VW29	4-Methyl-2-pentanone	20	ND
VW30	cis-1,3-Dichloropropene	2	ND
VW31	Toluene	2	ND
VW32	trans-1,3-Dichloropropene	2	ND
VW33	1,1,2-Trichloroethane	2	ND
VW34	2-Hexanone	20	ND
VW35	Tetrachloroethene	2	<2
VW36	Dibromochloromethane	2	ND
VW37	Chlorobenzene	2	ND
VW38	Ethylbenzene	2	ND
VW39	Xylenes	2	ND
VW40	Styrene	2	ND
VW41	Bromoform	2	ND
VW42	1,1,2,2,-Tetrachloroethane	2	ND
TVH	Total Volatile Hydrocarbons	100	ND

REMARKS.....

SURROGATE RECOVERIES.....

1,2-Dichloroethane - D4: 78%

D8-Toluene: 130%

Arthur Mark

ne: 116%

GD\WV01

**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT REPORT**

**Sandri Realty Property
40 Main Street, Village of Saxtons River
Rockingham, Vermont
VT DEC Site #89-0415
Brownfield Site #105962**

July 25, 2011
Revised August 24, 2011

Prepared for:

Village of Saxton River Trustees
Attn: Ryan Ostebo and Louise Luring
PO Box 444
Saxtons River, Vermont 05154

Prepared by:



11 Kilburn Street
P.O. Box 4602
Burlington, Vermont 05406-4602
(802) 860-9400
mwaite@WaiteEnv.com

WEM Project # 09091-45

REPORT CERTIFICATION

Location: **Sandri Realty Property**, 40 Main Street, Village of Saxtons River, Rockingham,
Vermont

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312.

I have the specific qualifications based on education, training, and experience to assess the property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

A handwritten signature in black ink, appearing to read "Miles E. Waite", is positioned above a horizontal line.

Miles E. Waite, Ph.D., Inspector/ Principal Hydrogeologist
Professional Geologist

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EXECUTIVE SUMMARY

Waite Environmental Management, LLC (WEM) of Burlington, Vermont conducted a Phase I Environmental Site Assessment (ESA) of the Sandri Realty property at 40 Main Street, Saxtons River, Vermont in July 2011. This assessment was conducted for the Trustees of the Village of Saxtons River. The objective of the work was to identify recognized environmental conditions (RECs) associated with the property as defined and described in the *ASTM Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05) and in conformance with the *Standards and Practices for All Appropriate Inquiries; Final Rule* (40 CFR Part 312). A Phase I ESA was conducted by WEM on this property in September 2009. Because ASTM Standard E 1527-05 specifies that a Phase I ESA be conducted or updated within 180 days of an intended transaction, the Village is required to go through this process again before purchasing the property and enrolling in the state's Brownfield Reuse and Liability Limitation Act (BRELLA) program. The Village is anticipating purchase of the property for future use as a public park.

The 0.25-acre property has been owned by Sandri Realty (Sandri) of Greenfield, Massachusetts since 1965. The property is currently vacant with no buildings. A former building that was used by Sandri as a Sunoco gasoline station and garage until 1989 was demolished in June 2010. Former uses of the property dating back to the late 1800s include service station and auto repair, blacksmiths shop, feed mill, and meat market. This property is listed as a state hazardous waste site (#89-0415) and a federal Brownfield site (#105962).

Based on the findings of the 2009 Phase I ESA, recognized environmental conditions (RECs) were identified stemming from: 1) groundwater contamination from previous release(s) of petroleum from USTs operated by the former Sandri Sunoco; 2) the established presence of polycyclic aromatic hydrocarbons (PAHs) and the metals lead and arsenic in the shallow soil at the abutting Saxtons River Mill property; and 3) the likely presence of lead paint and asbestos containing materials (ACMs) in the former gas station building.

Since 2009, all the above RECs have been resolved and are no longer considered RECs. Also since 2009, two other RECs were identified (hydraulic oil tank and concrete vault underneath garage), and these have also been resolved and are no longer considered RECs.

The July 2011 Phase I ESA involved review of all environmental work conducted since 2009, re-inspection of the property in June 2011, telephone interview with the property owner, and an updated database search. Based on this work, it is WEM's opinion that there are no longer RECs identified with this property. The confirmed presence of PAHs in shallow soil at concentrations above the EPA residential Regional Screening Levels (RSLs) at two locations on the property, and the confirmed presence of total petroleum hydrocarbons (TPH) in the deeper soil under the former hydraulic oil tank are both de minimis conditions, which are defined by ASTM E 1527-05 as generally not posing a risk of harm to public health or the environment and not subject to an enforcement action.

WEM recommends that the Village develop a corrective action plan (CAP) to encompass both the Sandri property and the Saxtons River Mill for VT DEC approval prior to pursuing the redevelopment project, and that the CAP call for use of appropriate engineering controls and/or institutional controls to minimize contact with subsurface soils by future park users. WEM also recommends that Sandri determine whether the VT DEC will grant a Sites Management Activity Complete (SMAC) designation to formally terminate the groundwater monitoring program and abandon groundwater monitoring wells as necessary.

1.0 INTRODUCTION

Waite Environmental Management, LLC (WEM) of Burlington, Vermont conducted a Phase I Environmental Site Assessment (ESA) of a 0.25-acre property located at 40 Main Street in Saxtons River, Vermont (“subject property”; see Maps in Appendix A). This property is currently owned by Sandri Realty / A. R. Sandri, Inc. (Sandri; “Owner”) but is currently vacant. This assessment was conducted for the Trustees of the Village of Saxtons River (Village; “User”). The Village is intending to purchase this property for future use as a public park. The property is listed as a Federal Brownfield site and is being enrolled in the State’s Brownfield Reuse and Liability Limitation Act (BRELLA) program.

The objective of this ESA was to identify recognized environmental conditions (RECs) associated with the property as defined and described in the American Society of Testing and Materials (ASTM) *Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05). This ESA was also conducted in conformance with the *Standards and Practices for All Appropriate Inquiries; Final Rule* (40 CFR Part 312). As such, this ESA addresses all appropriate inquiries under sections 101(35)(B)(ii) and (iii) of the *Comprehensive Environmental Response and Liability Act* (CERCLA). A Phase I ESA was conducted by WEM on this property in September 2009. Because ASTM Standard E 1527-05 specifies that a Phase I ESA be conducted or updated within 180 days of an intended transaction, the Village is required to go through this process again before purchasing the property and enrolling in the BRELLA program.

2.0 SITE DESCRIPTION

2.1 Location and Land Use

The subject property consists of approximately 0.25 acres at the intersection of Main Street (Route 121) and Westminster Street in Saxtons River, Vermont. It is identified on the town tax map as parcel 001040 (see Tax Map in Appendix A). It is located in a primarily mixed commercial/residential area in the middle of the Village of Saxtons River in the Town of Rockingham.

Currently there are no buildings on the property. The most recent use was as a Sunoco gasoline service station and garage from the late 1960s until 1989. Sandri continues to own the property but has not operated it since 1989. The gas station building was demolished in June 2010.

2.2 Site and Area Features, Topography, Surface Water Bodies and Drainage

The front (northern) portion of the property is relatively flat and at grade with Main Street. This area is paved and was the former location of the gasoline tanks and pumps. To the south, a grassy open area slopes to the south to a path/fire service road that is the southern property line. The grassy open area is where the former building was located until 2010. South of the property is a wooded area along the bank of the Saxtons River that has stone foundations from the former Saxtons River Mill. A layout of the property can be seen in the Site Plan in Appendix A.

Regional drainage is to the south toward the Saxtons River. Water drainage also follows the path/fire service road. No catch basins were observed on the property. Drainage is via overland flow.

2.3 Buildings and Other Structures

No buildings are present on the property.

The former building dimensions were approximately 80 ft x 40 ft. It was constructed on a concrete slab with concrete block walls with the exception of a small wooden frame office on the west end that has a small basement space below. The building had a flat roof. On the front side (north), there were two doorways and an overhead garage door.

Historical maps show a building at this property since at least 1869. It appears as if two (2) buildings existed at one point and that they may have been combined into a single building (refer to Section 4.3). A map from 1944 (see Appendix A) also shows a former southeastern wing that is no longer present.

The building was demolished under the supervision of Sandri in June 2010. The demolition contractor was Twin State Excavators. Issues encountered during the demolition are described in Section 4.6.

2.4 Abutters and Nearby Properties

Based on visual inspection, the abutters to the property are as follows:

- Northwest: Main Street with church/historical society beyond
- North: Main Street with post office beyond
- Northeast: Main Street with Dish on Main Restaurant beyond
- East: Morrill residence (former King residence)
- South: former Mill Site with Saxtons River beyond
- West: Westminster Street and bridge

The abutters can be seen on the attached 2010 Orthophotograph and Site Plan in Appendix A.

2.5 Utilities and Roads

Utilities for the former building on the subject property were as follows:

- Electric: overhead electric from utility pole on Main Street to northeast corner of building. The electrical service was disconnected prior to demolition.
- Water: drilled well located south of the former building location. The well was disconnected from the building during demolition, but the well remains.
- Sewer: town sewer from Main Street that apparently exited the northeast corner of the basement. The sewer service was disconnected during demolition.
- Heat: fuel oil heating system. A 275-gallon fuel oil tank AST was present in the basement but was removed prior to demolition.

The property is not bisected by any roads, but there is an overgrown path/fire road at the southern property boundary. The property is abutted by Main Street to the north and Westminster Street to the west. Utilities and roads are shown on the attached Site Plan in Appendix A.

3.0 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

No exposed bedrock was observed on the subject property. Geological mapping [1] indicates that the property is above the Standing Pond volcanic member of the Waits River formation composed of amphibolite, garnet amphibolite and coarse garnet schist. Logs from soil borings drilled on the subject property [3] show “quartz mica schist” and “gray slate/schist” encountered between 12-17 ft depth under the property.

Surficial geological mapping [2] indicates that the overburden is fluvial gravel deposited by the Saxtons River. Review of soil boring logs [3] shows a range in stratigraphy including “fine gravel”, “coarse sand” and “clayey silt”, as well as fill material under the front portion of the property.

Groundwater flow under the property is well understood from the existing network of monitoring wells on the property. The most recent groundwater monitoring results [4] show depth to groundwater between 7-14 ft, with groundwater flow to the south/southeast at a gradient of 15-20%. This gradient is similar to the measured gradient at the abutting Saxtons River Mill site [5].

4.0 HISTORICAL AND INTERVIEW INFORMATION

4.1 Sources Used

Sources utilized in this assessment to determine historical site usage included a review of low altitude aerial photographs dating back to 1962, a review of the land transactions back to 1945, a review of historical maps of the property dating back to 1869, a review of the environmental history of the property between 2009 and present, and a telephone interview was conducted with Mr. Dick Barnes, a representative of Sandri.

4.2 Land Records Review

WEM reviewed property transactions to trace ownership back to 1945. The most recent land transaction was to A.R. Sandri from Robert W. O'Connor in September 1, 1965 (book 160, page 103). The previous transaction was to Robert W. O'Conner on May 2, 1945.

4.3 Historical Documents and Sanborn Fire Insurance Maps

WEM reviewed Sanborn Fire Insurance Maps from 1885, 1894, 1904, 1912, 1928, and 1944. The most recent (1944) Sanborn Map is included in Appendix A.

The history review indicates that the earliest known use was as a blacksmith shop, which operated from approximately from 1869 through at least 1944. A secondary use was as a feed mill and then

meat market starting in approximately the 1880s and lasting until the 1920s. These buildings were apparently separate and then combined in the 1920s, when the use changed to auto repair garage and blacksmith shop. A photograph from circa 1930 describes the building as “White’s Socony gas station”. In 1944 (see Sanborn Map in Appendix A), the use was as an auto repair garage and “shop”. By 1957, the use was strictly as an auto repair garage named “O’Connors Garage”. This was apparently run by Robert W. O’Connor who purchased the property in 1945 and was operated by him as a gas station and garage until he sold it to Sandri in 1965.

It should be noted that none of the Sanborn maps showed any gas tank (“GT”) symbols on the subject property. These symbols are shown in the 1944 Sanborn Map across the street from the Site to the northeast, where the building is described as a “garage & auto repair shop”. This property is now a restaurant called the Dish on Main restaurant.

4.4 Aerial Photography

WEM reviewed low altitude aerial photographs from 1962, 1974, 2000, 2008, and 2010. Copies of the 1962, 1974, and 2010 photographs are provided in Appendix A. WEM’s review of the photos indicates that the building footprint and apparent use did not change between 1962 and 2010. The abutting properties also appear not to have changed since 1962.

4.5 Environmental File Review

4.5.1 Subject Property

The property was originally designated a hazardous waste site (Site #89-0415) as the result of a leaking UST in 1989. The release was discovered after the owner of the abutting property, Mrs. Bertha King, notified the Vermont Department of Health of gasoline odor in her water [6]. The ensuing investigation revealed the leak coming from the Sunoco Station, but the Site continued to be called the “King Residence”. Sandri subsequently removed the USTs; VT DEC records show that three (3) 4,000-gallon, one (1) 2,000-gallon gasoline tank were removed in 1990 and one (1) 500-gallon used oil tank was removed in 1989. Sandri also undertook remediation that utilized a groundwater pump and treat system using a recovery well (RW-1 in the Site Plan) starting in 1990 and lasting until the late 1990s. Since then, the groundwater has been monitored by a consultant hired by Sandri from a network of monitoring wells that includes five (5) wells onsite (RW-1, AR-1, AR-2, AR-9, and AR-10) and seven (7) wells on abutting properties (AR-3, AR-4, AR-5, AR-6, AR-7, AR-8, and AR-11), shown on the Site Plan in Appendix A. As of the most recent report [4], the only wells that continue to be monitored are AR-2, AR-3, AR-8, AR-10, AR-11, and RW-1. The 2010 data indicate that only offsite wells AR-11 and RW-1 had detectable levels of petroleum compounds, and all concentrations are below Vermont Groundwater Enforcement Standards (VGES). Per recommendation of Sandri’s consultant, the site should be eligible for a Sites Management Activity Complete (SMAC).

In 2009 the property was enrolled as a federal Brownfield Site (#105962) by the Windham Regional Commission (WRC), which applied EPA grant money (Grant #2B-96109501-0) to the assessment of the property. WEM was contracted by WRC to conduct a Phase I ESA [7] on the property. Based on WEM’s September 2009 Phase I ESA, recognized environmental conditions (RECs) were identified stemming from: 1) groundwater contamination from previous release(s) of petroleum from USTs operated by the former Sandri Sunoco; 2) the established presence of polycyclic aromatic hydrocarbons (PAHs) and the metals lead and arsenic in the shallow soil at

the abutting Saxtons River Mill property; and 3) the likely presence of lead paint and asbestos containing materials (ACMs) in the former gas station building.

Since the 2009 the status of these RECs has changed. In regard to groundwater contamination, sampling by Sandri's consultant in October 2010 revealed that contamination concentrations are all now below VGES and meet the criteria for formal site closure. In regard to PAHs, lead and arsenic in soil, a Phase II ESA [10] was conducted by WEM in November 2010 on this property and the abutting Saxtons River Mill property and established that the subject property is generally outside the zone of contamination stemming from the former Saxtons River Mill property to the south. In regard to the ACMs, these were identified in window caulking and removed in May 2010 [9]. In regard to lead paint, the building was demolished in June 2010 and all lead painted surfaces were removed.

Also since 2009, two additional RECs were identified and resolved. During the demolition of the building in June 2010, the demolition contractor working for Sandri discovered two features underneath the garage slab foundation: 1) a buried hydraulic oil tank for a former hydraulic lift system; and 2) a concrete vault that was reported to be used as a settling tank for a floor drain that had petroleum-contaminated material inside. In regard to the hydraulic tank, it was removed under supervision of WEM as part of Phase II activities in December 2010 [10] during which there was no visual or soil screening evidence of hydraulic oil leakage. Soil sampling from under the hydraulic tank revealed total petroleum hydrocarbons (TPH), but did not merit further assessment or concern for groundwater quality. In regard to the concrete vault, it was removed, the soil was screened from under the tank revealing not evidence of leakage, and the vault was and cleaned of all contaminated material for offsite disposal [11]. Also, field screening of soil under the entire building footprint was conducted by Sandri's consultant [12] during the demolition process and did not reveal any areas of obvious petroleum contamination.

The Phase II ESA did reveal the presence of PAHs, arsenic and lead in the shallow soil at the four (4) locations sampled (see Site Plan for contaminant concentrations). All concentrations of arsenic were below the Vermont cleanup standard in use (10 ppm), and all concentrations of lead were below the EPA residential Regional Screening Level (RSL), so the presence of these metals does not present a threat. The concentrations of PAHs at two locations (see SS-102 and SS-104) were above the EPA RSL for benzo(a)pyrene (15 ppb). The presence of PAHs at these locations is assumed to be from deposition of combustion by-products from automobile traffic along Main and Westminster Street.

4.5.2 Nearby Properties

Village of Saxtons River: A portion of the Village of Saxtons River was designated a hazardous waste site in 1977 (site #77-0135) after it was discovered that the dry cleaning solvent tetrachloroethene (PCE, or "perc") was present in several water supply wells. An investigation in 1990 [6] reported a 119-gallon tank containing PCE located in the basement of a former dry cleaner (shown as "former dry cleaner" in Tax Map in Appendix A) then operated as Pizza, Paul and Mary Restaurant was assumed to be the source of contamination. According to Richard Spiese, a government official with the VT DEC, neither the Sandri water supply well nor the abutting well at the Morrill residence were impacted by PCE. Water testing results from 2003 at the Morrill well confirmed that neither PCE nor petroleum compounds were detected. Recent data indicate that contaminant levels in other nearby water supply wells are slowly decreasing with time with current PCE concentrations on the order of 1-2 parts per billion (ppb).

The 1990 site investigation report [6] also references the presence of gasoline tanks and an automobile garage across the street to the north of the Sandri Property, then identified as Tenney Lumber. To assess whether these USTs may have contributed to the petroleum contamination on the Sandri property, Sandri installed a monitoring well in the tank zone in 1994. Results from groundwater sampling in 1994 indicate no contamination by petroleum. This monitoring well was subsequently covered by concrete during sidewalk repaving and is no longer present. The most recent groundwater sampling results [4] on the Sandri property confirm that there is no detectable contaminant migration onto the property from any offsite sources to the north.

Saxtons River Mill Site: The site of a former wood turning mill abuts the subject property to the south. The mill is shown on the 1944 Sanborn Map in Appendix A. The WRC commissioned a Phase II Environmental Site Assessment [5] on this property in 2003 to assist in the redevelopment plans to potentially convert the property into a park/green space. The 2003 Phase II revealed the presence of PAHs and metals in soil, but neither volatile organic compounds (VOCs) nor polychlorinated biphenyls (PCBs) were detected in soil, nor were VOCs detected in groundwater. This property was designated as a State HWS (#2003-3091) in 2003, and then lumped with the Sandri Property during the November 2010 Phase II ESA [10] that involved testing of the soil for PAHs, arsenic, lead, and mercury, revealing a 6,500 ft² zone of highly contaminated soil (PAH>1,000 ppb and lead >400 ppm). Further testing of the soil for lead on the Mill site is planned for 2011.

4.6 Interviews

4.6.1 Interview With Owner

As part of the 2009 Phase I ESA, WEM interviewed Mr. Dick Barnes of A.R. Sandri. Mr. Barnes has been involved with the subject property since the 1970s. The 2009 interview form is provided in Appendix C. On July 22, 2011, WEM re-interviewed Mr. Barnes via telephone to simply confirm that there have been no changes to the status or use of the property with the exception of the building demolition. The telephone log for the July 22 interview is also provided in Appendix C.

4.6.2 User Supplied Information and Documentation

Prior to conducting the Phase I, the Trustees of the Village of Saxtons River explained that they were interested in purchasing the subject property from Sandri for possible use as a future public park, and were interested in enrolling the property in Vermont's Brownfield Reuse and Environmental Liability Limitation Act (BRELLA) program.

Regarding commonly known or reasonably ascertainable information, the Trustees had reason to suspect that there may be lingering environmental issues due to the former use of the property as a gas station.

A User Questionnaire was provided to the Trustees and is included in Appendix C.

5.0 SITE RECONNAISSANCE

On June 24, 2011 Mr. Miles Waite of WEM (see Resume in Appendix B) conducted a site reconnaissance to inspect the subject property. Mr. Waite was unaccompanied during the inspection, which encompassed a visual inspection of the grounds of the subject property and a visual inspection of the surrounding properties. A Site Inspection Checklist was completed for this assessment, and is included in Appendix D. Photographs taken by WEM during the reconnaissance are presented in Appendix F.

5.1 Description of Site Processes

The property is vacant with no buildings.

5.2 Hazardous Substance Usage/Storage

No hazardous substances were observed on the property.

5.3 Petroleum Products Usage/Storage

No petroleum products were observed on the property.

5.4 Underground and Above Ground Storage Tanks

No storage tanks were observed on the property.

5.5 Drums, Containers

No 55-gallon drums were observed on the property.

5.6 PCBs Usage

No pole-mounted electrical transformers (PMT) were observed on property. No other potential PCB-containing materials appear to be present on the subject property.

5.7 Stains, Corrosion, Strained Vegetation

No staining, corrosion or strained vegetation was observed.

5.8 Fill/Solid Waste Disposal

No evidence of fill or solid waste disposal were observed. Slight mounding of the ground is apparent where the former building was located (see Photo #1) due to regrading after demolition.

5.9 Sewage Disposal Systems

No sewage disposal systems are present. The former town sewer connection was terminated during demolition.

5.10 Wells

The water supply well for the former building is still located behind the building (see Site Plan). Based on VT DEC records (well report #27) the well was drilled in 1970 for A. R. Sandri. It is a 6-inch diameter well, 172 feet deep, with 22 ft of steel casing. Bedrock was encountered at a depth of 9 feet during drilling. The yield of the well and static elevation were not reported in the well report.

Several groundwater monitoring wells and a recovery well were also observed on this property and the abutting Morrill property. WEM observed wells AR-2, AR-3, AR-8, AR-9, AR-10, and RW-1. These wells were not accessed or inspected by WEM.

5.11 Drains and Sumps

No drains or sumps were observed.

5.12 Pits, Ponds, Lagoons

No pits, ponds, or lagoons are present.

5.13 Suspect Asbestos-Containing Materials

No building materials are present.

5.14 Lead Paint

No lead paint is present.

5.15 Lead in Drinking Water

No drinking water piping is present.

5.16 Visual Inspection of Adjoining Properties

WEM observed conditions on the abutting properties. No obvious signs of hazardous materials or conditions were observed at the residential property to the east, commercial properties to the north and northwest, or vacant mill space to the south.

5.17 Other Issues of Concern

No other issues of concern were noted.

6.0 REGULATORY INFORMATION

WEM contracted with FirstSearch Technology Corporation to perform a review of state and federal regulatory records during this Phase I ESA [13]. A copy of the FirstSearch™ Report is included as Appendix E. The specific lists and registries consulted are described below, followed by the results of the FirstSearch review.

USEPA NPL: The National Priorities List (NPL) Report, also known as the Superfund List, is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. An NPL site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Department of Health and Human Services and the US EPA in order to become a NPL site. NPL sites are classified as Final, Proposed, or Deleted.

CERCLIS List: The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites either have been investigated or are currently under investigation by the federal EPA for the release of hazardous substances. Once a site is placed in CERCLIS, it may be subject to several levels of review and evaluation and ultimately place on the National Priorities List.

NFRAP: This CERCLIS database is a comprehensive listing of archived CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and it has determined that no further steps will be taken to list this site on the NPL. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

RCRA-TSD: The EPA's Resource Conservation and Recovery Act (RCRA) Treatment Storage and Disposal (TSD) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or dispose of hazardous wastes. RCRA-TSDs are facilities that treat, store, and/or dispose of hazardous waste.

RCRA-COR: The EPA maintains this database of RCRA facilities that are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of the when the release occurred, even if it predates RCRA.

RCRA-GEN: The EPA's list of all registered hazardous waste generators. They are classified as TSD (treatment, storage, disposal), LGN (large quantity), SGN (small quantity), VGN (very small quantity), and NLR (no longer regulated) generator facilities. Information pertaining to the status of facilities tracked by the RCRA Administration Action Tracking System (RAATS) is included.

ERNS List: The Emergency Response Notification System (ERNS) is a national computer database system that is used to store information on the sudden and/ or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system

contains preliminary information on specific releases, including the spill location, the substance release, and the responsible party.

State Sites: The State Equivalent CERCLIS List, also referred to as the Vermont Hazardous Waste Sites (HWS) List (Active and Closed), contains summary information pertaining to those sites which the Vermont Department of Environmental Conservation (VT DEC) considers a threat to public health and welfare, such as spills sites or leaking underground storage tank (LUST) sites.

Spills: The VT DEC's database of emergency response actions and spill releases maintained by the Waste Management Division. Sites where spills are reported are recorded within the Spills database.

Landfills: The Vermont Solid Waste Landfill (SWL) list contains information pertaining to all permitted solid waste landfills and processing facilities within the State of Vermont

Registered USTs/ASTs: The Vermont Underground Storage Tank (UST) Report is a comprehensive listing of all registered USTs located within the State of Vermont. Note that Vermont does not require that heating oil USTs less than 1,100 gallons in capacity to be registered.

Leaking USTs: The State of Vermont does not maintain a list of leaking USTs (LUSTs). FirstSearch compiles the information from review of the pulled UST records.

Federal Land Use: The federal land use database includes lands owned or administered by the Federal Government, including the Bureau of Land Management, the Bureau of Reclamation, the Bureau of Indian Affairs, the U.S. Department of Agriculture Forest Service, the Department of Defense, the U.S. Fish and Wildlife Service, the National Park Service, the Tennessee Valley Authority, and other agencies. Only areas of 640 acres or more are included.

State & Federal IC/EC and Brownfields: The Brownfield Site List includes the sites that have been classified at Brownfields and/or have Institutional Controls (IC) or Engineering Controls (EC). Information regarding size, response action, cleanup type, and project manager is included. Information is obtained from the VT DEC and the EPA.

The First Search results are summarized below. Maps showing locations of sites referenced in this Section are included in the FirstSearch report.

6.1 USEPA NPL Sites

FirstSearch did not identify the subject property as a NPL site or a NPL Delisted site. No NPL sites are identified within a 1.0-mile radius of the subject property.

6.2 CERCLIS List

FirstSearch did not identify the subject property as a CERCLIS site. No CERCLIS sites are identified within a 0.5-mile radius of the subject property.

6.3 NFRAP

FirstSearch did not identify the subject property as a NFRAP site. No NFRAP sites are identified within a 0.5-mile radius of the subject property.

6.4 RCRA-TSD

FirstSearch did not identify the subject property as a RCRA-TSD site. No RCRA-TSD sites are identified within a 0.5-mile radius of the subject property.

6.5 RCRA-COR

FirstSearch did not identify the subject property as a RCRA-COR site. No RCRA-COR sites are identified within a 1.0-mile radius of the subject property.

6.6 RCRA-GEN

FirstSearch did not identify the subject property as a RCRA-GEN facility. No RCRA-GEN sites are identified within a 0.25-mile radius of the property.

6.7 ERNS List

FirstSearch did not identify the subject property as a ERNS site. No ERNS sites are identified within a 0.5-mile radius of the subject property.

6.8 State Sites

FirstSearch identified the subject property as a State Site, designated as the “King Residence” (VT DEC Site #89-0415). Refer to Section 4.6.1 for a discussion of the environmental site history.

Three (3) other properties within a 1.0-mile radius of the subject property are identified as State Sites. The first is the **Saxtons River Site**, located 0.02-mile to the northwest (Site #77-0135), which was previously discussed in Section 4.6.2. The second is the **Saxtons River Elementary School** (Site #2007-3647) located 0.13-mile to the northwest, where a 2007 fuel oil leak from an aboveground storage tank (AST) resulted in contamination to soil and surface water and was aggressively mitigated by soil removal. The third is the **Penta** site, which is misidentified as being 0.25-mile from the subject property; WEM established that this is actually in Bellows Falls and not in Saxtons River. It should be noted that the **Former Mill Site** (Site #2003-3091) in Saxtons River, which is also discussed in Section 4.6.2, was not identified by FirstSearch.

6.9 Spills

FirstSearch did not identify the subject property as a Spill site. No Spill sites are identified within a 0.25-mile radius of the property.

6.10 Solid Waste Landfills

FirstSearch did not identify the subject property as a solid waste landfill (SWL) site. No landfill sites are identified by FirstSearch within a 0.5-mile radius of the subject property.

6.11 Registered USTs/ASTs

FirstSearch did not identify the subject property as a registered UST/AST site. One (1) registered UST site is located within a 0.25-mile radius of the subject property, summarized below:

- **Saxtons River Elementary School**, located 0.13-mile to the northwest. This site is reported to have a 3000-gallon fuel oil UST that was installed in 1954 and removed in 2001.

6.12 Leaking UST (LUST) Sites

FirstSearch identified the subject property as a LUST Site, designated as the “Sunoco Gasoline Station” (VT DEC Site #89-0415). Refer to Section 4.6.1 for a discussion of the environmental site history.

Two (2) other LUST sites are located within a 0.5-mile radius of the subject property, summarized below:

- **Saxtons River Elementary School**, located 0.13-mile to the northwest. This site is reported to have a 3000-gallon fuel oil UST that was installed in 1954 and removed in 2001. During the 2001 UST removal, no contamination was detected.
- **Former New England Kurn Hatten Homes**, located 0.35-mile to the southwest. This site is listed due to the fact that USTs were removed in 1994. However, contamination was not detected above state standards.

6.13 IC/EC Sites

FirstSearch did not identify the subject property as a federal or state site with institutional controls (IC) or engineering controls (EC). No such sites were identified within a 0.5-mile radius of the subject property.

6.14 Brownfields

The subject property is identified as a Federal Brownfield Site, listed as **Former Sandri Property (#105962)** at 40 Main Street. This listing was made in 2009 when the Windham Regional Commission enrolled the site in anticipation of Phase I & II work described in Section 4.6.1. No other Brownfield sites are identified within a 0.5-mile radius of the property.

6.15 Unmapped Sites

The FirstSearch report identified four (4) sites within the zip code that were unable to be mapped given available location information. Based on the street names of these sites, they are not close enough to merit concern to the subject property. The UST site referenced as “Contel of Vermont, Inc.” on Main Street does not appear on the ANR Natural Resource Locator so may be mis-identified.

7.0 FINDINGS

WEM has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of the Sandri Realty property at 40 Main Street in the Village of Saxtons River in the Town of Rockingham. Any exceptions to, or deletions from, this practice are described in Section 10.0 of this report. This assessment has revealed no evidence of recognized environmental conditions (RECs) in connection with the property.

RECs identified during the previous 2009 Phase I ESA have all been resolved and are no longer considered RECs. Specifically:

1. The groundwater contamination from previous release(s) of petroleum from USTs operated by the former Sandri Sunoco has been resolved through 21 years of groundwater monitoring with the most recent (October 2010) results indicate that contamination levels have now fallen below state groundwater standards.
2. The established presence of polycyclic aromatic hydrocarbons (PAHs) and the metals lead and arsenic in the shallow soil at the abutting Saxtons River Mill property has been further characterized by November 2010 Phase II soil sampling which revealed that the subject property is generally outside the zone of contamination stemming from the former Mill property. PAHs were detected at two (2) locations on the subject property at concentrations above the EPA residential Regional Screening Levels (RSLs).
3. The likely presence of lead paint and asbestos containing materials (ACMs) in the former gas station building has been resolved by ACM abatement in May 2010 followed by building demolition and disposal in June 2010.

RECs identified during demolition activities in 2010 have also been resolved and are no longer considered RECs. Specifically:

4. The presence of a concrete vault that was under the garage floor reported to be used as a settling tank for a floor drain was removed in June 2010, cleaned of contaminated material, and disposed of properly.
5. The presence of a hydraulic oil tank under the garage floor used for the former hydraulic lift system was removed in December 2010, drained of all remaining hydraulic oil, and disposed of properly along with the lift piston and piping. Screening and observation of soil surrounding the hydraulic oil tank did not reveal evidence of leakage, but sampling for total petroleum hydrocarbons (TPH) did reveal a high concentration at one sub-tank sampling location.

The confirmed presence of PAHs in shallow soil at concentrations above the EPA residential RSLs at two (2) locations on the property (see item #2 above), and the confirmed presence of TPH in the deeper soil under the former hydraulic oil tank (see item #5 above) are both considered by WEM as de minimis conditions, which are defined by ASTM E 1527-05 as generally not posing a risk of harm to public health or the environment and are not subject to an enforcement action. WEM's opinion on this matter is based on the understanding that future use of the property will be subject to both engineering and institutional controls to be reviewed and approved by the VT DEC.

8.0 RECOMMENDATIONS

WEM does not recommend any further assessment on the subject property. It is WEM's professional opinion that the de minimis conditions identified do not require additional appropriate investigation.

Additional assessment is merited on the abutting Saxtons River Mill property, specifically further definition of the lead contaminated shallow soil. This work, planned for summer of 2011, is necessary for corrective action planning in anticipation of eventual redevelopment of both the Sandri property and the Saxtons River Mill property into a public park. WEM recommends that a corrective action plan (CAP) to encompass both the Sandri property and the Saxtons River Mill property be developed for VT DEC approval prior to pursuing the redevelopment project, and that the CAP call for use of appropriate engineering controls and/or institutional controls to minimize contact with subsurface soils by future park users.

WEM recommends that the Village request Sandri to make a formal request to the VT DEC for a Sites Management Activity Complete (SMAC) designation in light of the October 2010 groundwater testing results. If granted, then Sandri should be responsible for abandoning the groundwater monitoring wells that are no longer necessary. The VT DEC should be consulted as to whether any of the existing monitoring wells should be kept until after the redevelopment process is complete.

As a "housekeeping" issue, WEM recommends that the Village decide whether the future use of the property will require use of the existing water supply well. If not, then it should be properly abandoned in conformance with VT DEC standards.

9.0 DATA GAPS

No significant data gaps were identified in the information collected for this Phase I ESA. The precise location of the former concrete vault that was located underneath the garage and associated soil screening locations utilized by Sandri's consultant during removal in 2010 cannot be verified by WEM, but this does not constitute a significant data gap.

10.0 LIMITATIONS AND EXCEPTIONS

This work was undertaken to assess environmental conditions specifically on the subject property in accordance with the *Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05) and in conformance with the *Standards and Practices for All Appropriate Inquiries; Final Rule* (40 CFR Part 312). No other warranty, express or implied, is made. Absolute assurance that any and all possible recognized environmental conditions were identified cannot be provided. Because the findings of this report are based, in part, on information provided by the client, their agents, and third parties, WEM assumes no responsibility for the accuracy and completeness of the information.

11.0 REFERENCES

1. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.
2. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
3. Soil boring logs completed at the Sandri Sunoco site between 1989-90, reviewed during WEM's review of file #89-0415 at the VT DEC offices in Waterbury, Vermont.
4. DB Environmental Consulting, *2010 Annual Monitoring Report, Saxtons River Sunoco*, December 31, 2010.
5. Griffin International, Inc., *Phase II Environmental Site Assessment Report, Saxtons River Mill*, January 8, 2003.
6. GEI Consultants, Inc., *Hazardous Materials Investigation, Saxtons River, Vermont*, June 3, 1991.
7. Waite Environmental Management, LLC, *Phase I Environmental Site Assessment, Sandri Realty Property, 40 Main Street, Saxtons River, Vermont*, October 5, 2009.
9. Documentation provided by Catamount Environmental Inc., to Matthew Brennan of the Village of Saxtons River, July 26, 2010.
10. Waite Environmental Management, LLC, *Supplemental Phase II Environmental Site Assessment, Former Sandri Property / Saxtons River Mill, 40 Main Street, Saxtons River, Vermont*, February 22, 2011.
11. Atkinson Street Environmental, letter from Matthew Trieber to Louise Luring, Saxtons River Village Trustee, Re: Summary of Concrete Vault Removal Activities, Former Sandri Property, Main Street, Saxtons River, Vermont, November 8, 2010.
12. Atkinson Street Environmental, letter from Matthew Trieber to Miles Waite of Waite Environmental Management, LLC, Re: Soil Screening Summary Table for Former Sandri Gasoline Station, Main Street, Saxtons River, Vermont, November 3, 2010.
13. FirstSearch Technology Corporation, *Environmental FirstSearch Report, 40 Main Street, Saxtons River, Vermont*, July 22, 2011.

APPENDIX A

MAPS

USGS Site Location Map

2010 Orthophotograph

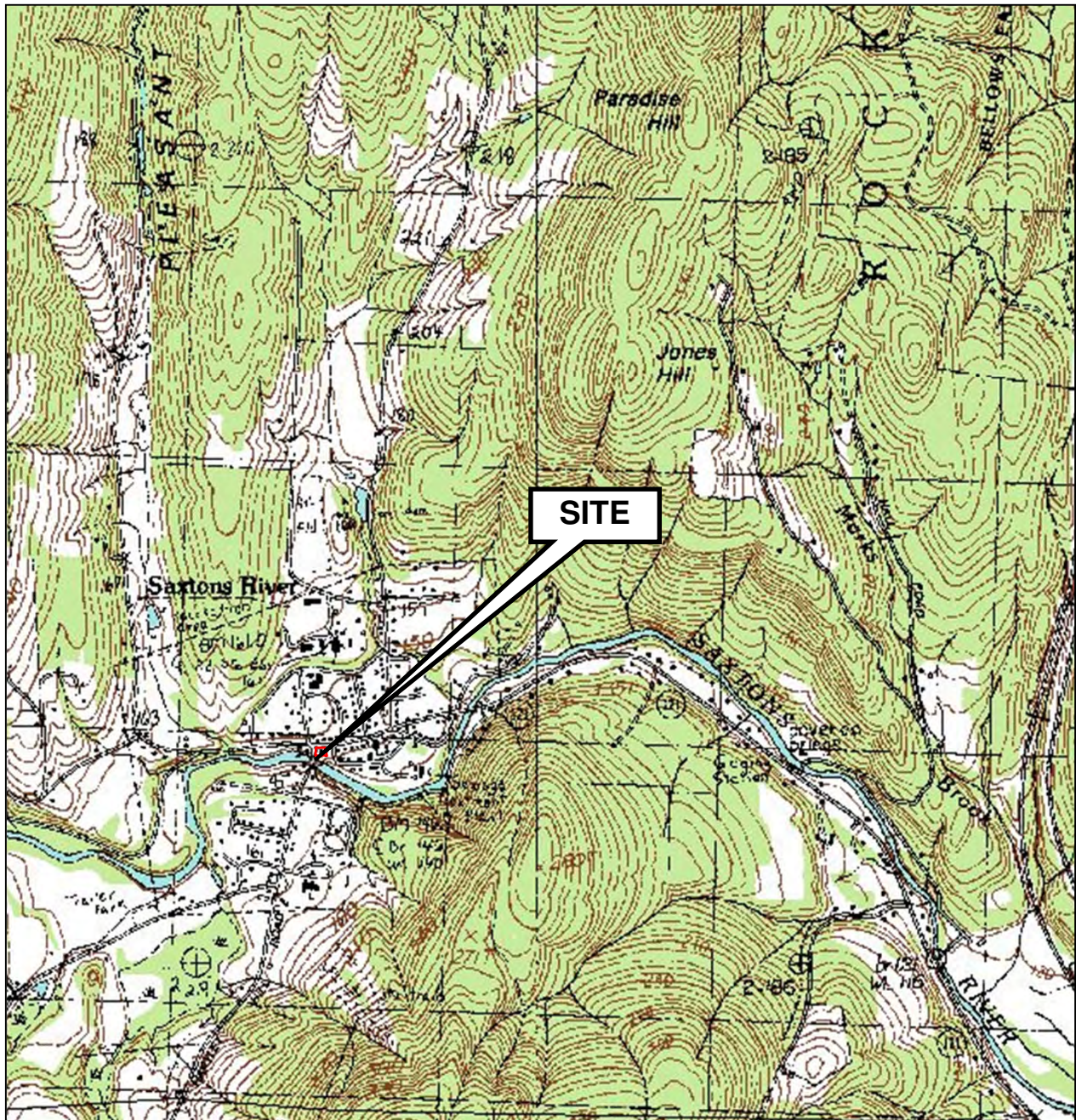
1974 Orthophotograph

1962 Orthophotograph

Tax Map

1944 Sanborn Map

Site Plan With Contaminant Data



Map Source

USGS topographic quadrangles: Saxtons River (1984) and Bellows Falls (1985).



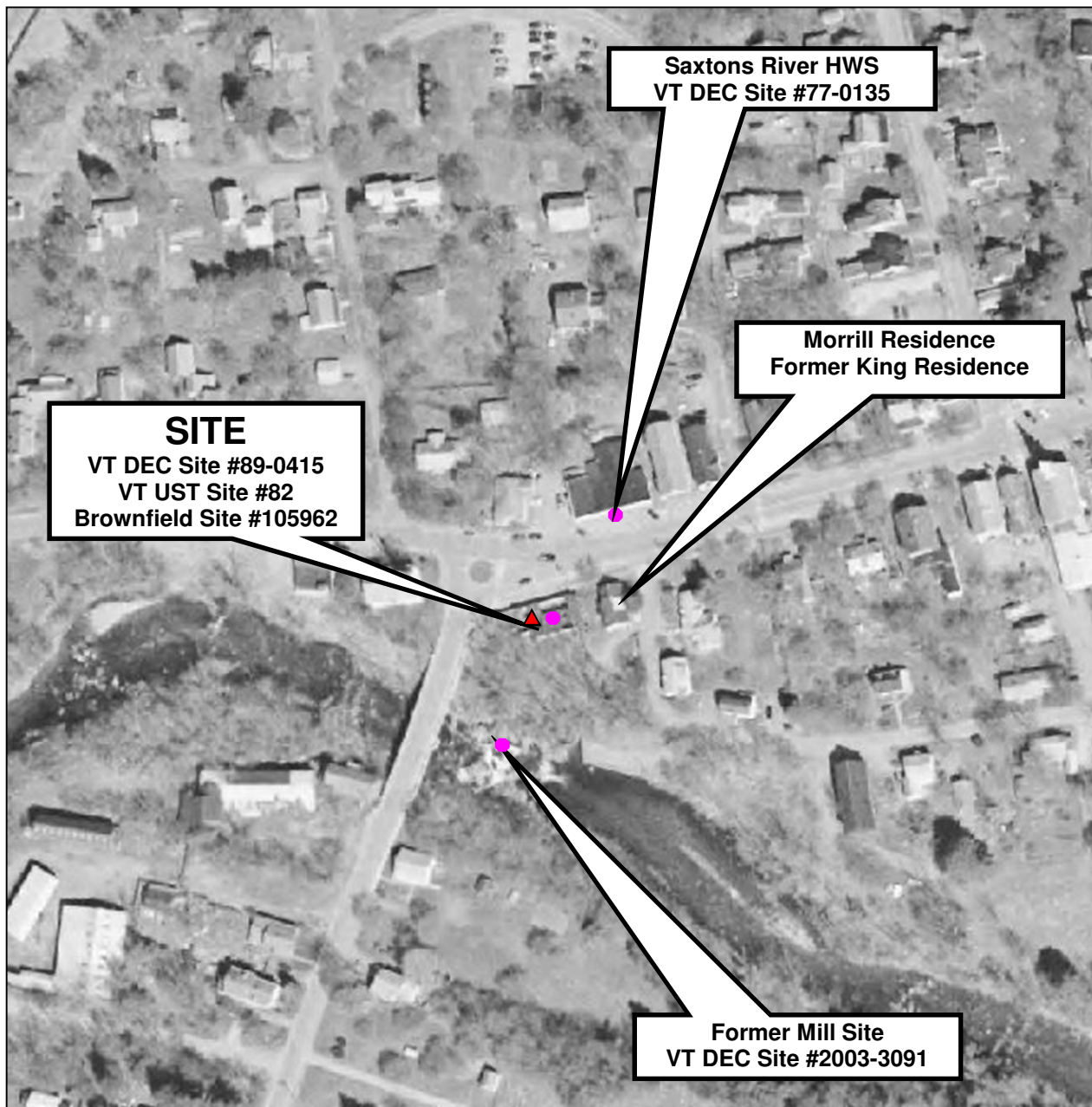
Waite Environmental Management, LLC

USGS SITE LOCATION MAP

Sandri Realty Property

40 Main Street, Saxtons River, Vermont

Date: 07/11/11 Drawing No. 1 Scale: 1" = 2,000' By: MEW



LEGEND



State-Listed Hazardous Waste Site
Registered UST



Map Source

2010 orthophoto (file vt_148068_20100414.jp2), downloaded from VCGI

Data Source:

Vermont ANR WM-ID, accessed via website



Waite Environmental Management, LLC

2010 Orthophotograph

Sandri Realty Property

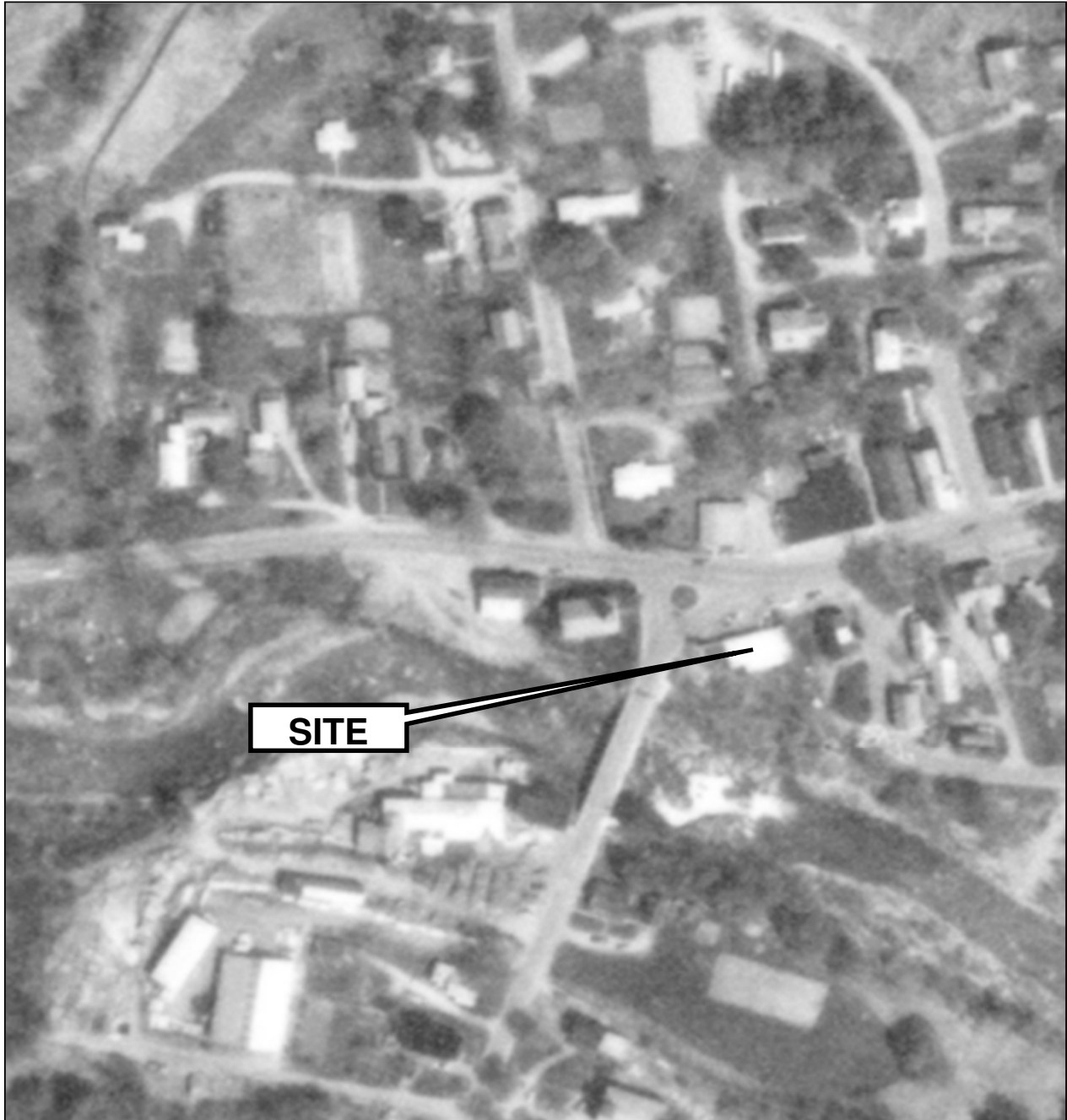
40 Main Street, Saxtons River, Vermont

Date: 07/11/11

Drawing No. 2

Scale: 1" = 200'

By: MEW



Map Source
Data Source:

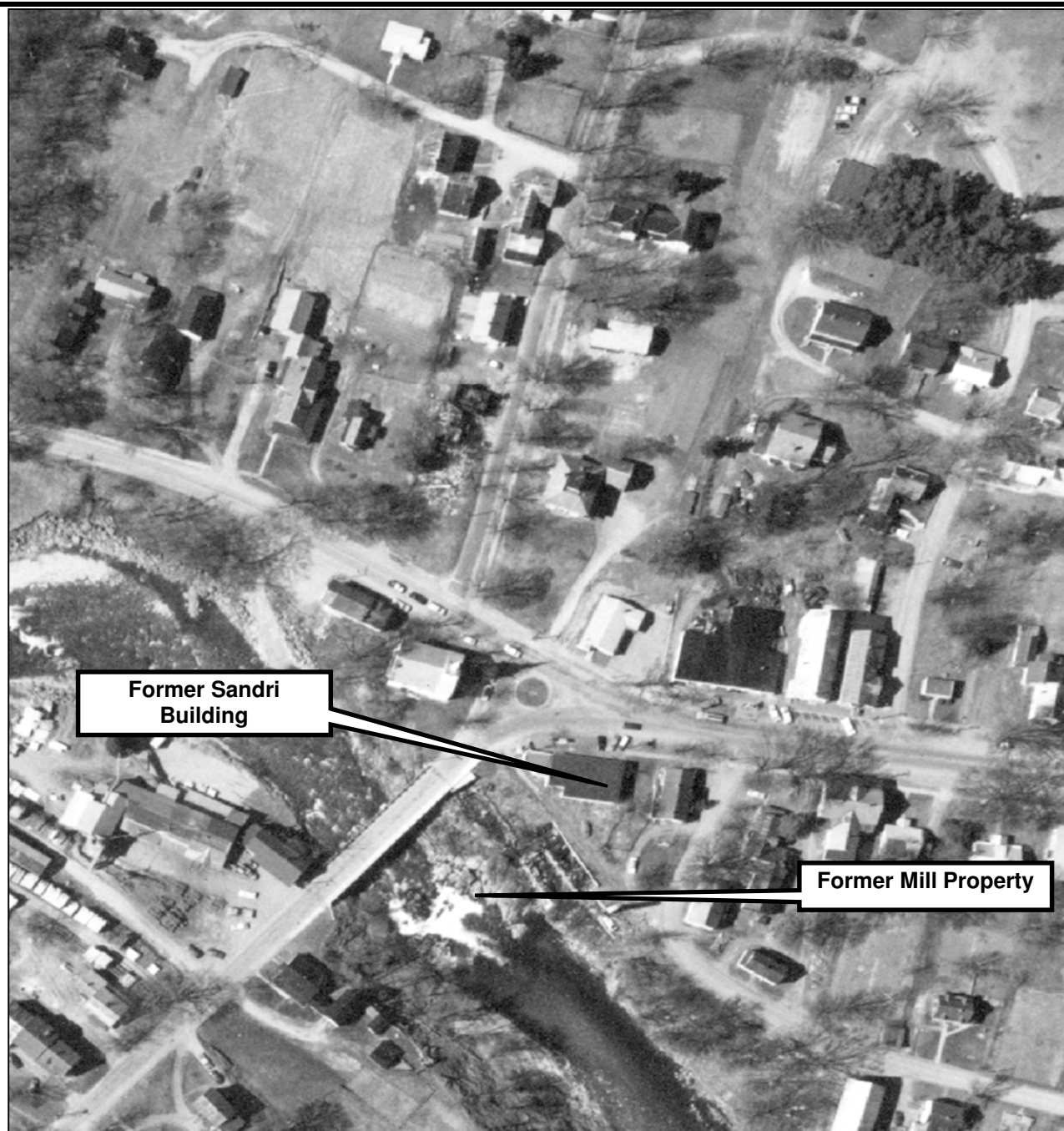
VT7420 10-241, May 15, 1974, scanned at the UVM Library



Waite Environmental Management, LLC

1974 Orthophotograph
Sandri Realty Property
40 Main Street, Saxtons River, Vermont

Date: 07/11/11	Drawing No. 3	Scale: 1" ~ 200'	By: MEW



**Former Sandri
Building**

Former Mill Property



Map Source
Data Source:

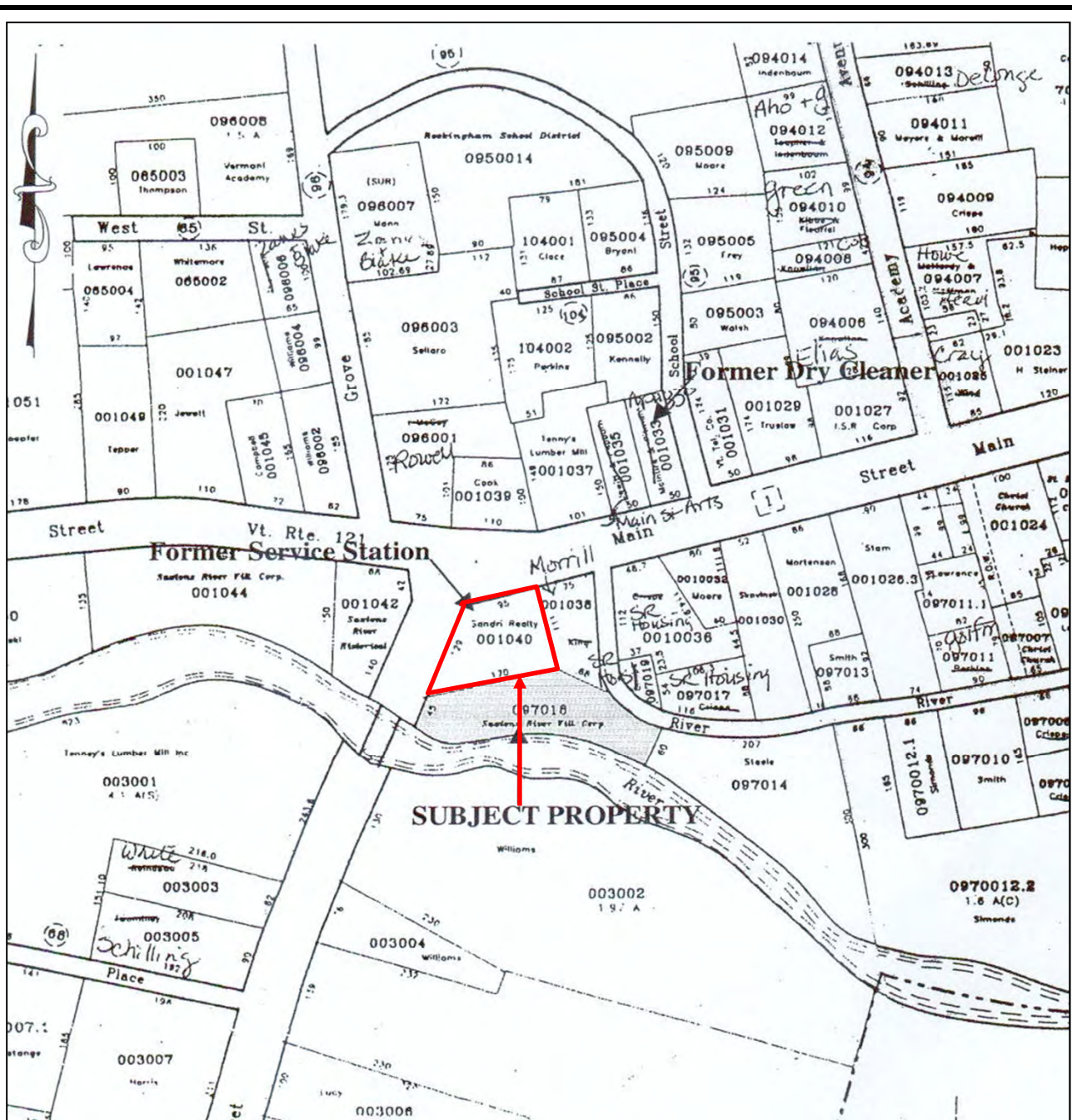
VT 62-L 3-227, April 26, 1962, scanned at the UVM Library



Waite Environmental Management, LLC

1962 Orthophotograph
Sandri Realty Property
40 Main Street, Saxtons River, Vermont

Date: 07/11/11 | Drawing No. 4 | Scale: 1" ~ 200' | By: MEW



Map Source

Town of Rockingham Tax Map #16 & #17, copied from Griffin International report on Phase II Environmental Site Assessment for the Saxtons River Mill, 1/8/03.



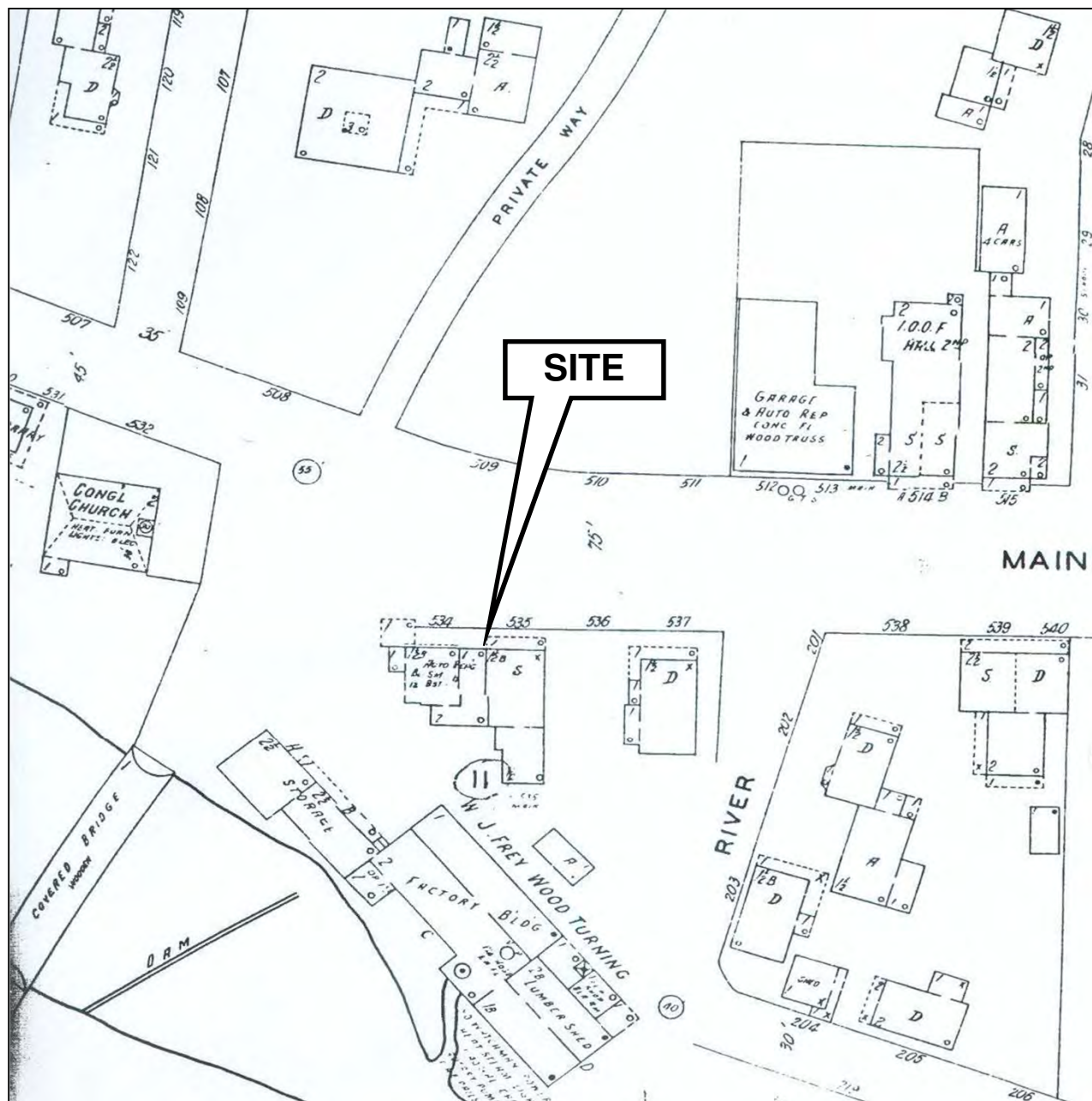
Waite Environmental Management, LLC

Tax Map

Sandri Realty Property

40 Main Street, Saxtons River, Vermont

Date: 07/11/11 Drawing No. 5 Scale: NTS By: MEW



Map Source

Sanborn Fire Insurance Map, copied at the Saxtons River Historical Society



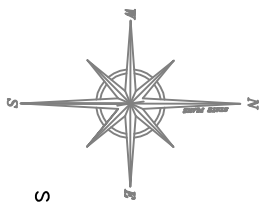
Waite Environmental Management, LLC

1944 Sanborn Map

Sandri Realty Property

40 Main Street, Saxtons River, Vermont

Date: 07/11/11 Drawing No. 6 Scale: NTS By: MEW



MAIN STREET

SANDRI SUNOCO SITE
(VT DEC #89-0415)

FORMER SAXTONS RIVER
MILL SITE
(VT DEC #2003-3091)

WESTMINSTER
STREET

RIDGE

A.

B.

C.

D.

E.

F.

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APPENDIX B

QUALIFICATIONS

MILES E. WAITE, PhD
Principal Hydrogeologist

EDUCATION

B.A., Environmental Studies, Minor in Geology, University of Vermont, 1991.
Ph.D., Geology, University of Colorado, 1998.

EXPERTISE

Hydrogeologic investigations, environmental site assessments, Brownfields site assessments and site redevelopment, water supply siting and permitting, wastewater system design and permitting, groundwater and soil contamination, remediation system design and installation, water quality evaluation, groundwater modeling, GIS mapping, geothermal planning and design.

**PROFESSIONAL
EXPERIENCE**

**President & Principal Hydrogeologist, Waite Environmental Management, LLC.
March 2003 - Present**

Primary tasks are the initiation and management of projects involving environmental site assessments, wastewater, water supply, and land development (Act 250) permitting, and hazardous site investigation and remediation. Conduct and oversee all aspects of projects, including fieldwork, data collection/analysis, reporting, CAD design work, and client/regulator interaction. Additional technical capabilities include the use of GIS for data evaluation and presentation, hazardous risk assessment, groundwater modeling, air quality sampling, and stormwater assessment. Conduct all aspects of company management, including preparation of cost estimates and proposals, preparation of reports and technical memorandums, data evaluation, marketing, and resource management.

**Senior Hydrogeologist, Griffin International, Inc., Williston, Vermont.
June 2001 - March 2003**

Managed and conducted projects involving hydrogeologic investigations, groundwater supply development projects, environmental site assessments, Brownfield redevelopment, site remediation, and hazardous waste site management. Specific tasks included monitoring well installation, soil and groundwater sampling, fracture trace analysis, design and supervision of production well drilling, implementation/analysis of pumping tests, water supply permitting, landfill monitoring, indoor air quality monitoring, contaminated soil excavation and treatment, and design and operation of soil/groundwater remediation systems.

**Senior Hydrogeologist, Heindel and Noyes, Burlington, Vermont.
September 1998 - June 2001.**

Managed a variety of projects with a focus on site investigation and remediation. Responsible for conducting and overseeing field investigations of hazardous waste sites, hydrogeologic investigations, design and operation of remediation systems, Phase I & II Environmental Site Assessments, and underground storage tank closure inspections. Water supply development projects for municipal sites involved fracture trace analysis, magnetic and VLF surveys, and implementation of pumping tests. Involved with Act 250 permitting and site redevelopment issues.

**Graduate Student, University of Colorado, Boulder, Colorado.
September 1993 - September 1998.**

Completed Ph.D. in Geological Sciences. Concentration of research was on computer modeling of water flow in fractured rocks. Employed by the University as a Research Assistant and as a Teaching Assistant.

**Hydrogeologist/Geochemist, Shepherd Miller, Inc., Fort Collins, Colorado.
February 1994 - September 1994.**

Analyzed groundwater and surface water quality data on several large-scale mining projects in Colorado. Specialized on surface water geochemistry and groundwater-surface water interaction.

**Staff Geologist, McCulley, Frick & Gilman, San Francisco, California.
October 1991 - June 1993.**

Conducted field investigations of hazardous waste sites, groundwater sampling, remediation system operation and maintenance, data analysis, and report preparation.

**PROFESSIONAL
AFFILIATIONS &
CERTIFICATIONS**

Licensed Designer, Type B, State of Vermont #464
Licensed Professional Geologist, State of New Hampshire #745
40-Hour Trained OSHA 29 CFR 1910.120 Hazardous Waste Site Operations
Certified Class 2 Water System Operator
Board Member - Vermont Environmental Consortium
Board Member – Burlington Conservation Board
Member - National Groundwater Association (contributor to the Aquifer Protection Group)
Member – American Institute of Professional Geologists
Member – Lake Champlain Regional Chamber of Commerce

**PROFESSIONAL
DEVELOPMENT**

- National Ground Water Association, *Hydraulic Fracturing of the Marcellus Shale*, Baltimore, Maryland, May 2011.
 - Wastewater Technologies, Inc., *AdvanTex Designer Training*, South Burlington, March 2010.
 - Heatspring Energy Institute, *Geothermal Training for Building Professionals: Planning & Designing Systems*, Boston, February 2009.
 - US EPA, *Triad Investigations, New Approaches and Innovative Strategies*, University of Massachusetts, Amherst, June 2008.
 - National Ground Water Association, *Science and Myths of Indoor Inhalation Pathway*, Portland, Maine, September 2007.
 - American Council of Engineering Companies, *Field Description of Soil Properties and Estimating Seasonal High Water Table* refresher course, May 2007.
 - Lorman Education Services, *Stormwater Regulation in Vermont*, South Burlington, Vermont, November 2006.
 - Lorman Education Services, *Navigating the Regulatory Rapids in a Changing Environment*, South Burlington, Vermont, October 2004.
 - National Ground Water Association, *U.S. EPA/NGWA Fractured Rock Conference: State of the Science and Measuring Success in Remediation*, Portland, Maine, September 2004, 2007.
 - Northeast Rural Water Association, *Small Systems Certification Course* (Class 2 Water System Operation), April 2004.
 - Lorman Education Services, *Issues Affecting Brownfields Development Projects in Vermont*, South Burlington, Vermont, December 2002.
 - National Ground Water Association, *Screening Modeling for Natural Attenuation*, Hartford, Connecticut, October 2000.
- +

PUBLICATIONS

- Gaynor, Deborah, M. Waite, G. Noyes, and K. McKracken, *Working Together: How Effective Teamwork Improved the Quality and Usability of Air Monitoring Data*, paper presented at the National Environmental Monitoring Conference, Washington, D. C., August 2010.
- Waite, Miles E. and Deborah Gaynor, *Anticipating Data Needs for a Brownfields Site Assessment, New England's Environment*, vol. 10, no. 2, March/April 2004 .
- Waite, Miles. E, S. Ge., and H. Spetzler. *A New Conceptual Model for Fluid Flow in Discrete Fractures: An Experimental and Numerical Study*, **Journal of Geophysical Research**, vol. 104, no. B6, pp.13049-13059, June 1999.
- Waite, Miles E., *Fluid Flow in Discrete Fractures: An Experimental and Lattice Gas Automata Modeling Study*, Ph.D. Thesis, University of Colorado, July 1998.
- Waite, Miles E., S. Ge., H. Spetzler, and D. Bahr, *The Effect of Surface Geometry on Fracture Flow: A Case Study Using a Sinusoidal Fracture*, **Geophysical Research Letters**, vol. 25, no. 6, pp. 813-816, 1998.
- Waite, Miles E. and S. Ge, *Fluid Flow in a Sinusoidal Fracture: A Numerical and Experimental Investigation Into the Control of Geometry on Fracture Permeability*, **EOS Trans. AGU**, 78(46), Fall Meeting Supplement F453, 1997.

APPENDIX C

INTERVIEW FORM
MEETING MEMO

Owner/Operator Interview
Phase I ESA

Project No: 09091-45
Date: 9/15/09

Telephone ☐
Personal ☒

Site Name: Sandri Realty Property
Location: 40 Main St
Saxtons River

Interviewer: Miles Waite

Signed: Mha Waite

Person Interviewed: Dick Borno
Title or Relationship to Property: Sandri Realty Inc. Asst. Treasurer
Address & Telephone: 400 Chapman St.
Chapman MA 01301

1. To your knowledge, do any of the following exist?

Environmental Site Assessment Reports

Yes
not since remediation & monitoring

Environmental Permits (solid waste disposal, hazardous waste disposal, NPDES, wastewater)

not aware
was discharge permit for radiation system

UST registrations

none

Spill Prevention Plans

No

MSDS

no

Hazardous waste manifests or existing EPA ID number

no

Site Plans or blueprints

no

Owner/Operator Interview
Phase I ESA

2. Explain the land use and property history of the subject property:

purchased in 1969-70
operated - looked out until 1989

Land owned to the

Building existed a service station
vacant since 1989

leased to
Brd
Hokuy 6-8 yrs

3. Do you know of any pending, threatened, or past **litigation** relevant to hazardous substances, petroleum products, pollutants, or contaminants in, on, or from the property or surrounding properties?

no

4. Do you know of any pending, threatened, or past **administrative proceedings** relevant to hazardous substances, petroleum products, pollutants, or contaminants in, on, or from the property or surrounding properties?

cleanup of petroleum contamination in 1990s

5. Do you know of any notices from governmental entities regarding possible **violation of environmental laws or possible liability** relating to hazardous substances, petroleum products pollutants, or contaminants in, on, or from the property or surrounding properties?

no

6. Are you aware of any environmental incidents, including leaking tanks, chemical spills, unauthorized disposal, or releases of hazardous substances or petroleum products on the property or nearby properties?

none other than tank leaks

Owner/Operator Interview
Phase I ESA

7. What is the potable water supply for the property? If it is a well, please provide details (date installed, depth, yield) *was a well still there
↳ drilled well*
8. Are there abandoned wells or old springs on the property?
not aware
9. What is the current sewage disposal system for the property? When was it installed and does it have a permit?
town - out the back
10. What was the historic sewage disposal system?
don't recall
11. Has there ever been a failure of the sewage disposal system?
not aware
12. What is the current fuel source(s) and systems for heating the building(s) on the property?
*oil - AST originally in garage, then
moved into cellar
since 1969*
13. What was the historic fuel source(s)?
not aware
14. Are there USTs or ASTs on the property? Please provide details (size, age, type, spill containment, upgrades, registrations, monitoring)
*(3) 4000 in fuel at building
look around to be for prop/joint*

Owner/Operator Interview
Phase I ESA

15. Are there any tanks that have been taken out of operation, removed, closed in place? Please provided details (closure procedure, testing results, etc.)

T-1 removed in 1990ish

16. Are there floor drains or sumps in the building? Please provide details (status, use in area, connection, municipal sewer or on-site wastewater system)

*Drain went into oil-water separator
1st floor corner of garage. ~~May~~
O/W separator was removed
not sure if drain was plugged.*

17. Are you aware of the presence of asbestos in the insulation or building materials?

*no
had checked "clear bill of health"*

18. Are you aware of the presence of lead paint?

no idea

19. Are there any other issues of environmental concern related to the property?

no



Telephone Log

Miles E. Waite

Date	<u>7/22/2010</u>
Time	<u>12:30 PM</u>

Project Name: **Sandri Phase I ESA**

Job No.: **09091-45**

Spoke With: **Dick Barnes**

(w) **(413) 772-9444**

Representing: **A. R. Sandri**

(h) _____

Subject: **Phase I updated information**

(cell) _____

LOG:

I called Dick Barnes and explained that we were doing another Phase I ESA on the Sandri property at 40 Main Street and needed to update the interview component.

Dick confirmed that since the previous Phase I ESA in 2009 there have been no changes to the status or use of the property except for the fact that the building was demolished in 2010. During demolition, the asbestos was removed from window caulking, the fuel oil AST from the basement was removed, and vault from underneath the floor was removed, and all remaining building materials were disposed of appropriately.

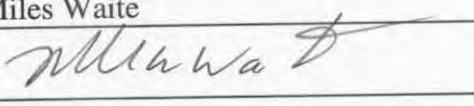
User Questionnaire
Phase I ESA

Project No: 09091-45
Date: 8/19/11

Telephone ☐
Personal ☐
Email ☒

Site Name: Sandri Realty Property
Location: 40 Main Street
Saxtons River

Interviewer: Miles Waite

Signed: 

Person Interviewed: Louise Luring
Title or Relationship to Property: Village Trustee (potential buyer)
Address & Telephone PO Box 444
Saxtons River, VT

1. Do you know of any pending, threatened, or past **litigation** relevant to hazardous substances, petroleum products, pollutants, or contaminants in, on, or from the property or surrounding properties?

☐ No

2. Do you know of any pending, threatened, or past **administrative proceedings** relevant to hazardous substances, petroleum products, pollutants, or contaminants in, on, or from the property or surrounding properties?

☐ No

3. Do you know of any notices from governmental entities regarding possible **violation of environmental laws or possible liability** relating to hazardous substances, petroleum products pollutants, or contaminants in, on, or from the property or surrounding properties?

☐ Yes.

4. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

☐ No

5. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

☐ No

User Questionnaire
Phase I ESA

6. As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties?

No

7. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to exist at the property?

We believe the price is appropriate for the limited uses the property has because of its size and location. We are aware of its history and the issues that have existed in the past.

8. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of a release or threatened releases? For example, as a user,
(a) Do you know the past uses of this property?

Yes.

- (b) Do you know of specific chemicals that are present or were present at the property?

Yes.

- (c) Do you know of spills or other chemical releases that have taken place at the property?

Yes.

- (d) Do you know of any environmental cleanups that have taken place at the property?

Yes.

9. As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

Yes, Phase I testing has indicated possible sources of contamination. An obvious indicator is the property's former use as a gas station.

APPENDIX D

SITE INSPECTION CHECKLIST

Site Inspection Checklist
Phase I ESA

Project No: 09091-45
Date: 6/24/11

Site Name: Sandri Realty Property
Location: 40 Main St
Saxtons River, VT

Inspector: Miller Wark

Signed: Miller Wark

Weather: Sunny

Accompanied By: Unaccompanied
Title or Relationship to Property: _____
Telephone: _____

1. Describe structures or other improvements to the property including number of buildings, footprints, stories, age, occupancy status, pavement, fences, utilities, abutting roads, etc. Generate a site sketch or obtain existing plans.

- No structures
- See site plan for layout of property

Site Inspection Checklist
Phase I ESA

2. List public thoroughfares, roads, streets on or adjoining the property.

Main St to North
River St to East

3. If buildings are on the property, visually inspect as appropriate. Identify below which interior spaces were inspected.

N/A

4. Identify (if appropriate) any conditions which prevented thorough inspection of building or grounds.

N/A

5. Describe the most recent use and past uses of the property, as apparent from visual inspection.

- Former service station / garage
- building demolished in 2010

6. Note presence of exposed bedrock and show on site sketch.

none on property

7. Describe natural bodies of water, swales, seeps, or possible wetlands and show on site sketch.

none on property
Saxtons River = 100 ft to south

8. Describe the potable water supply for the property and show on a site sketch. Note whether any active or inactive wells are present. If possible, visually inspect the well(s) to note identifying features (tag, markings).

- drilled well south of former building.
- well NOT in use

Site Inspection Checklist
Phase I ESA

9. Describe the current/historical sewage disposal system, and show location on site sketch.

Town sewer - no longer connected

10. Note floor drains or sumps. Describe use of drains or processes in their vicinity. Describe connection (municipal or onsite septic). Describe any visible wastewater present.

N/A

11. Note stains/corrosion on floors, walls or ceilings

N/A

12. Describe current/historical fuel source(s) for heating and cooling.

historical = kerosene in basement AST
no current fuel source

13. Identify any ASTs or USTs on the property. Note pumps, fill pipes, vents, pads, saw cuts in pavement, etc. For each AST/UST, note location, registration status, size, age, construction, contents, spill release/containment measures.

None

Site Inspection Checklist
Phase I ESA

14. Note hazardous substances, petroleum products, pollutants, contaminants and raw materials used, generated, in connection with the present or past use of the property. Estimate quantities. Obtain MSDS if available.

none present

15. Inspection storage areas. If drums are identified, note volume, labeling, type, leak status and spill containment.

none present

16. Note any stained soil or pavement.

none present

Site Inspection Checklist

Phase I ESA

17. Note landfills or solid waste disposal areas.

None

18. Note area that are apparently filled or graded by non-natural causes.

Regrading of lot was done after the building was demolished.

19. Note presence of trash/construction debris.

None

20. Note heavy equipment.

None

21. Note surface impoundments (pits, ponds, lagoons) or catch basins. Note whether they have appeared to be used in connection with waste disposal/treatment.

None

22. Note areas of stressed vegetation, or evidence of prolonged use of pesticides or fertilizers.

None

23. Note presence of farm wastes.

None

24. Note presence of strong, pungent, or noxious odors.

None

25. Note presence of radon mitigation equipment.

None

26. Note potential for lead based paint, and whether paint is peeling, flaking, etc.

None

Site Inspection Checklist

Phase I ESA

27. Note presence of potential ACMs and whether friable or damaged.

None

28. Note suspect sources of PCBs (electrical equipment, transformers, capacitors, lubricants, cutting oils, etc).

None

29. Are there surrounding or adjacent properties that may adversely impact the subject property such as waste storage, disposal, petroleum storage (ASTs/USTs), etc? If so, are these substances upgradient or downgradient of the subject property, and is there a reasonable potential for groundwater contamination to the subject property.

No

APPENDIX E

REGULATORY SEARCH DOCUMENTATION

FirstSearch Technology Corporation

Environmental FirstSearch[™] Report

Target Property:

40 MAIN ST

SAXTONS RIVER VT 05154

Job Number: 09091-45

PREPARED FOR:

07-22-11



Tel: (781) 551-0470

Fax: (781) 551-0471

Environmental FirstSearch Search Summary Report

Target Site: 40 MAIN ST
SAXTONS RIVER VT 05154

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	06-10-11	1.00	0	0	0	0	0	0	0
NPL Delisted	Y	06-10-11	0.50	0	0	0	0	-	0	0
CERCLIS	Y	05-31-11	0.50	0	0	0	0	-	0	0
NFRAP	Y	05-31-11	0.50	0	0	0	0	-	0	0
RCRA COR ACT	Y	04-22-11	1.00	0	0	0	0	0	0	0
RCRA TSD	Y	04-22-11	0.50	0	0	0	0	-	0	0
RCRA GEN	Y	04-22-11	0.25	0	0	0	-	-	1	1
Federal Brownfield	Y	05-04-11	0.50	1	0	0	0	-	0	1
ERNS	Y	07-18-11	0.12	0	0	-	-	-	1	1
Tribal Lands	Y	12-01-05	1.00	0	0	0	0	0	1	1
State/Tribal Sites	Y	07-08-11	1.00	0	2	1	1	0	0	4
State Spills 90	Y	07-08-11	0.12	0	1	-	-	-	0	1
State/Tribal SWL	Y	04-15-09	0.50	0	0	0	0	-	0	0
State/Tribal LUST	Y	07-08-11	0.50	0	1	1	1	-	1	4
State/Tribal UST/AST	Y	07-08-11	0.25	0	0	1	-	-	0	1
State/Tribal EC	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal IC	Y	NA	0.25	0	0	0	-	-	0	0
State/Tribal VCP	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal Brownfields	Y	05-01-11	0.50	0	0	0	0	-	0	0
Federal IC/EC	Y	05-16-11	0.50	0	0	0	0	-	0	0
-TOTALS-				1	4	3	2	0	4	14

Notice of Disclaimer

Due to the limitations, constraints, and inaccuracies and incompleteness of government information and computer mapping data currently available to FirstSearch Technology Corp., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in FirstSearch Technology Corp.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although FirstSearch Technology Corp. uses its best efforts to research the actual location of each site, FirstSearch Technology Corp. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of FirstSearch Technology Corp.'s services proceeding are signifying an understanding of FirstSearch Technology Corp.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

***Environmental FirstSearch
Site Information Report***

Request Date: 07-22-11
Requestor Name: MILES WAITE
Standard: AAI

Search Type: COORD
Job Number: 09091-45
Filtered Report

Target Site: 40 MAIN ST
SAXTONS RIVER VT 05154

Demographics

Sites:	14	Non-Geocoded:	4	Population:	NA
Radon:	NA				

Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>	<u>UTMs</u>
Longitude:	-72.508980	-72:30:32	Easting: 702593.665
Latitude:	43.138297	43:8:18	Northing: 4778969.745
Elevation:	481		Zone: 18

Comment

Comment: Phase I ESA

Additional Requests/Services

Adjacent ZIP Codes:					Services:	
ZIP Code	City Name	ST	Dist/Dir	Sel	Requested?	Date
					Fire Insurance Maps	No
					Aerial Photographs	No
					Historical Topos	No
					City Directories	No
					Title Search	No
					Municipal Reports	No
					Liens	No
					Historic Map Works	No
					Online Topos	No

Environmental FirstSearch
Target Site Summary Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

TOTAL: 14 **GEOCODED:** 10 **NON GEOCODED:** 4 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	ElevDiff	Page No.
1	FEDBROWN	FORMER SANDRI PROPERTY 105962/EPA BROWNFIELD	40 MAIN ST SAXTONS RIVER VT 05154	0.00 --	- 1	1

Environmental FirstSearch

Sites Summary Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

TOTAL: 14 **GEOCODED:** 10 **NON GEOCODED:** 4 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	ElevDiff	Page No.
1	FEDBROWN	FORMER SANDRI PROPERTY 105962/EPA BROWNFIELD	40 MAIN ST SAXTONS RIVER VT 05154	0.00 --	- 1	1
2	STATE	KING RESIDENCE 890415/ACTIVE	0 SAXTONS RIVER RD ROCKINGHAM VT	0.02 SE	- 4	4
3	SPILLS	MAIN STREET ARTS 09-WMD448/OPEN	37 MAIN ST SAXTON RIVER VT	0.02 NE	+ 5	5
4	STATE	SAXTONS RIVER 770135/ACTIVE	SAXTONS RIVER ROCKINGHAM VT	0.04 NE	0	6
5	LUST	SUNOCO GASOLINE STATION 82/PULLED UST DATABASE	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT	0.04 NE	- 4	7
6	STATE	SAXTONS RIVER EL SCHOOL 20073647/ACTIVE	11 SCHOOL ST ROCKINGHAM VT	0.13 NW	+ 16	9
6	UST	SAXTONS RIVER ELEMENTARY SCHOOL 606/	SCHOOL ST SAXTONS RIVER VT 05154	0.13 NW	+ 16	10
6	LUST	SAXTONS RIVER ELEMENTARY SCHOOL 606/PULLED UST DATABASE	SCHOOL ST ROCKINGHAM VT 05154	0.13 NW	+ 16	11
7	STATE	PENTA 20063480/ACTIVE	MILL ST ROCKINGHAM VT	0.28 NE	- 51	12
8	LUST	NEW ENGLAND KURN HATTIN HOMES 207/PULLED UST DATABASE	WESTMINSTER ST ROCKINGHAM VT 05154	0.35 SE	+ 89	13

Environmental FirstSearch

Sites Summary Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

TOTAL: 14 **GEOCODED:** 10 **NON GEOCODED:** 4 **SELECTED:** 0

Map ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	ElevDiff	Page No.
	RCRAGN	VT CUSTOM WOOD PRODUCTS VT5000002097/VGN	PLEASANT VALLEY RD ROCKINGHAM VT 05154	NON GC	N/A	N/A
	ERNS	264449/FIXED FACILITY	WESTMINISTER WEST RD SAXTONS RIVER VT	NON GC	N/A	N/A
	LUST	CONTEL OF VERMONT, INC. 1865/PULLED UST DATABASE	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT	NON GC	N/A	N/A
	TRIBALLA	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-05154/	UNKNOWN VT 05154	NON GC	N/A	N/A

Environmental FirstSearch

Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

FEDBROWNFIELD

SEARCH ID: 10 **DIST/DIR:** 0.00 -- **ELEVATION:** 480 **MAP ID:** 1

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 5/4/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

SITE INFORMATION:

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

OWNERSHIP ENTITY: PRIVATE
CURRENT OWNER: A. R. SANDRI, INC
DID OWNERSHIP CHANGE: N
SUPERFUND LANDOWNER LIABILITY CHANGE:

PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

OWNERSHIP ENTITY: PRIVATE
CURRENT OWNER: A. R. SANDRI, INC
DID OWNERSHIP CHANGE: N
SUPERFUND LANDOWNER LIABILITY CHANGE:

PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

GRANT RECIPIENT: WINDHAM REGIONAL COMMISSION
TYPE OF GRANT: ASSESSMENT
TYPE OF FUNDING: H
ENROLLED IN STATE/TRIBAL PROG:
STATE OR TRIBAL ID:
ENROLLED DATE:
ACRES PROP ID: 105962
LOCAL PROPERTY NUMBER: 160010040
PROPERTY SIZE acres: .25
CLEANUP REQUIRED: U
NFA/CLEANUP COMPL ISSUED:

- Continued on next page -

Environmental FirstSearch

Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

FEDBROWNFIELD

SEARCH ID: 10 **DIST/DIR:** 0.00 -- **ELEVATION:** 480 **MAP ID:** 1

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 5/4/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

PROPERTY DESCRIPTION: The property is currently owned by A.R. Sandri, Inc. There is one building on the property that is vacant. The owner plans to donate the property to the Village of Saxtons River (a municipality). The subject property has been used for a variety of business functions in the past which include a black smith shop and feed mill, meat market, auto repair, and a gas station. There was a known release from an underground storage tank on the property in 1989. The tank was removed and active remediation was conducted. The Vermont Department of Environmental Conservation is overseeing a voluntary annual groundwater monitoring.

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: START DATE:
COMPLETION DATE: SOURCE OF FUNDING:
ENTIRY PROVIDING FUNDS: AMOUNT OF FUNDING:

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: PHASE I ENVIRONMENTAL ASSESSMENT START DATE: 04-SEP-09
COMPLETION DATE: 10-OCT-09 SOURCE OF FUNDING: US EPA - BROWNFIELDS ASSESSMENT COOPERATIVE AGREEMENT
ENTIRY PROVIDING FUNDS: EPA AMOUNT OF FUNDING: 1350

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

PREDOMINANT PAST USE (ACRES)
GREEN SPACE: RESIDENTIAL:
COMMERCAIL: .25 INDUSTRIAL:

ASSESSMENT
PHASE: PHASE II ENVIRONMENTAL ASSESSMENT START DATE: 28-SEP-10
COMPLETION DATE: 22-FEB-11 SOURCE OF FUNDING: US EPA - BROWNFIELDS ASSESSMENT COOPERATIVE AGREEMENT
ENTIRY PROVIDING FUNDS: EPA AMOUNT OF FUNDING: 8675

CONTAMINANT FOUND
PETROLEUM: Y CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER: Y
OTHER DESCRIPTION: TPH

CONTAMINATION CLEANED UP
PETROLEUM: CONTROLLED SUBSTANCES:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

FEDBROWNFIELD

SEARCH ID: 10 **DIST/DIR:** 0.00 -- **ELEVATION:** 480 **MAP ID:** 1

NAME: FORMER SANDRI PROPERTY
ADDRESS: 40 MAIN ST
SAXTONS RIVER VT 05154
WINDHAM
CONTACT: A. R. SANDRI, INC
SOURCE: EPA

REV: 5/4/11
ID1: 105962
ID2: 105962
STATUS: EPA BROWNFIELD
PHONE:

OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

MEDIA CLEANED:
SOIL: AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:

CONTAMINATION CLEANED UP
PETROLEUM: CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

MEDIA CLEANED:
SOIL: AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:

CONTAMINATION CLEANED UP
PETROLEUM: CONTROLLED SUBSTANCES:
ASBESTOS: PCBs:
VOCs: LEAD:
OTHER METALS: PAHs:
OTHER:
OTHER DESCRIPTION:

MEDIA AFFECTED
SOIL: Y AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:
NO MEDIA: UNKNOWN:

MEDIA CLEANED:
SOIL: AIR:
SURFACE WATER: GROUND WATER:
DRINKING WATER: SEDIMENTS:

- More Details Exist For This Site; Max Page Limit Reached -

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

STATE

SEARCH ID: 1	DIST/DIR: 0.02 SE	ELEVATION: 477	MAP ID: 2

NAME: KING RESIDENCE ADDRESS: 0 SAXTONS RIVER RD ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 890415 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: NO SENSITIVE RECEPTOR IMPACT (VT SITE PRIORITY SCORE<30)
PROJECT STATUS: DRINKING WELLS CLEAN, MONITORING ONGOING
DATE OF SITE DISCOVERY: 1/1/1989 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 UST-GASOLINE, 6900

OWNER INFORMATION:

OWNER: MARIN
OWNER ADDRESS: P O BOX 192
ST ALBANS VT 05478

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

SPILLS

SEARCH ID: 5 **DIST/DIR:** 0.02 NE **ELEVATION:** 486 **MAP ID:** 3

NAME: MAIN STREET ARTS
ADDRESS: 37 MAIN ST
SAXTON RIVER VT
WINDHAM
CONTACT: MARY HEPBURN
SOURCE: VT DEC

REV: 7/8/11
ID1: 09-WMD448
ID2:
STATUS: OPEN
PHONE: 802-463-0000

6900
DATE OF INCIDENT:
TIME OF INCIDENT:
DATE CLOSED:
UST FACILITY ID:
DUTY OFFICER:
REPORTED BY: CHRIS COTA
REPORTER S ORGANIZATION: COTA & COTA INC.
REPORTER S WORK PHONE: 802-463-0000

TYPE OF INCIDENT: AST LEAK
PRODUCT: # 2 HEATING FUEL
QUANTITY: 200
UNIT OF MEASURE: G

RESPONSIBLE PARTY: MAIN STREET ARTS
ADDRESS:

RESPONSIBLE PARTY S PHONE: 802-869-2960

6900
SURFACE WATER AFFECTED:

CASE ASSIGNED TO:
ACTIONS TAKEN: COTA & COTA INSTALLED A TEMPORARY TANK. CHRIS COTA AGREED TO TALK WITH MARY HEPBURN OF MAIN STREET ARTS TO EXPLAIN THE PROCESS. IT WAS AGREED THAT A CONSULTANT WOULD BEGIN TO INVESTIGATE WHERE THE OIL HAS GONE.

COMMENTS: COTA & COTA FILLED THE AST IN BASEMENT IN THE SPRING. THERE WAS A STRONG FUEL ODOR IN BASEMENT. WHEN TANK WAS CHECKED IT WAS EMPTY. BASEMENT HAS A DIRT FLOOR.

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

STATE

SEARCH ID: 3	DIST/DIR: 0.04 NE	ELEVATION: 481	MAP ID: 4

NAME: SAXTONS RIVER ADDRESS: SAXTONS RIVER ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 770135 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: THREATENED SENSITIVE RECEPTOR (30 >= VT SITE PRIORITY SCORE <= 60)
PROJECT STATUS: CLEAN UP COMPLETE. SITE IN NATURAL ATTENUATION. PCE STILL IN SEVERAL BEDROCK WATER SUPPLY WELLS.
NEED TO CONTINUE WITH WELL SAMPLING.
DATE OF SITE DISCOVERY: 1/1/1990 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900

OWNER INFORMATION:

OWNER:
OWNER ADDRESS:

Environmental FirstSearch

Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

LUST

SEARCH ID: 9 **DIST/DIR:** 0.04 NE **ELEVATION:** 477 **MAP ID:** 5

NAME:	SUNOCO GASOLINE STATION	REV:	7/8/11
ADDRESS:	MAIN STREET, SAXTONS RIVER ROCKINGHAM VT WINDHAM	ID1:	82
CONTACT:	A R SANDRI INC	ID2:	890415
SOURCE:	VT DEC	STATUS:	PULLED UST DATABASE
		PHONE:	800-628-1900

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: CONTAMINATION FOUND ABOVE STATE STANDARD. REFERRED TO SITE MANAGEMENT

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: SERVICE STATION

OWNER NAME: A R SANDRI INC CONTACT: SHARON ABBOTT
OWNER ADDRESS: PO BOX 1578
GREENFIELD, MA

LAND OWNER: ** UNKNOWN ***
PERMITTED TO: TANK OWNER
NUM OF PULLED TANKS: 1/4
NUM OF REMOVED TANKS: 5
NUM OF GROUNDWATER MONITORING WELLS:
NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 5

TANK ID: 85 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-3

TANK ID: 83 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 500
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1989
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-1

TANK ID: 87 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1979-5

TANK ID: 86 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 4000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /

- Continued on next page -

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

LUST

SEARCH ID: 9	DIST/DIR: 0.04 NE	ELEVATION: 477	MAP ID: 5

NAME: SUNOCO GASOLINE STATION ADDRESS: MAIN STREET, SAXTONS RIVER ROCKINGHAM VT WINDHAM CONTACT: A R SANDRI INC SOURCE: VT DEC	REV: 7/8/11 ID1: 82 ID2: 890415 STATUS: PULLED UST DATABASE PHONE: 800-628-1900

PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-4

TANK ID: 84 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 2000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1990
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1971-2

Environmental FirstSearch
Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

STATE

SEARCH ID: 4	DIST/DIR: 0.13 NW	ELEVATION: 497	MAP ID: 6

NAME: SAXTONS RIVER EL SCHOOL ADDRESS: 11 SCHOOL ST ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 20073647 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: DIRECTLY IMPACTED SENSITIVE RECEPTOR (VT SITE PRIORITY SCORE>60)
PROJECT STATUS: FUEL OIL LEAK IMPACTED SCHOOL WITH VAPORS AND STREAM NEAR SCHOOL. SCHOOL PUBLIC WELL AT RISK.
AGGRESSIVE SOIL REMOVAL TO MITIGATE MOST GROSSLY CONTAMINATED SOILS. EVALUATIONS ONGOING.
DATE OF SITE DISCOVERY: 4/26/2007 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 ABOVE GROUND STORAGE TANK, 6900

OWNER INFORMATION:

OWNER:
OWNER ADDRESS:

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

UST

SEARCH ID: 6	DIST/DIR: 0.13 NW	ELEVATION: 497	MAP ID: 6

NAME: SAXTONS RIVER ELEMENTARY SCHOOL ADDRESS: SCHOOL ST SAXTONS RIVER VT 05154 WINDHAM CONTACT: SOURCE: VTDEC	REV: 4/10/02 ID1: 606 ID2: STATUS: PHONE:

TOTAL NUMBER OF TANKS: 1

FACILITY AND OWNER INFORMATION
TYPE OF FACILITY: TOWN

OWNER NAME: ROCKINGHAM SCHOOL DISTRICT CONTACT:
OWNER ADDRESS: 8 1/2 ATKINSON STREET
BELLOWS FALLS, VT 05101

TANK ID: 1954-1-R
SUBSTANCE STORED: FUEL OIL TANK CAPACITY IN GAL.: 3000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 2001
TANK MONITORING: /
SPILL/OVERFILL PROT.: NONE PUMP TYPE:
PIPE PROTECTION: UNPROTECTED STEEL PIPE MONITORING:

Environmental FirstSearch
Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

LUST

SEARCH ID: 8 **DIST/DIR:** 0.13 NW **ELEVATION:** 497 **MAP ID:** 6

NAME: SAXTONS RIVER ELEMENTARY SCHOOL ADDRESS: SCHOOL ST ROCKINGHAM VT 05154 WINDHAM CONTACT: ROCKINGHAM SCHOOL DISTRICT SOURCE: VT DEC	REV: 7/8/11 ID1: 606 ID2: STATUS: PULLED UST DATABASE PHONE: 802-463-9958

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: NO CONTAMINATION FOUND

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: TOWN

OWNER NAME: ROCKINGHAM SCHOOL DISTRICT CONTACT: MAINTENANCE DIRECTOR
OWNER ADDRESS: 8A ATKINSON STREET
BELLOWS FALLS, VT

LAND OWNER: ROCKINGHAM SCHOOL DISTRICT
PERMITTED TO:
NUM OF PULLED TANKS: 1
NUM OF REMOVED TANKS: 1
NUM OF GROUNDWATER MONITORING WELLS:
NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 1

TANK ID: 524 TANK STATUS: PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 3000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 2001
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1954-1-R

***Environmental FirstSearch
Site Detail Report***

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

STATE

SEARCH ID: 2	DIST/DIR: 0.28 NE	ELEVATION: 430	MAP ID: 7

NAME: PENTA ADDRESS: MILL ST ROCKINGHAM VT WINDHAM CONTACT: SOURCE: VT DEC	REV: 7/8/11 ID1: 20063480 ID2: STATUS: ACTIVE PHONE:

6900
SITE INFORMATION

PRIORITY: THREATENED SENSITIVE RECEPTOR (30 >= VT SITE PRIORITY SCORE <= 60)
PROJECT STATUS:
DATE OF SITE DISCOVERY: 1/31/2006 0:00:00
DATE OF SITE CLOSURE:
SOURCE: 6900 UNKNOWN, 6900

OWNER INFORMATION:

OWNER: BELLOWS FALLS HISTORICAL SOCIETY
OWNER ADDRESS: PO BOX 466
BELLOWS FALLS VT 05101

Environmental FirstSearch

Site Detail Report

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

LUST

SEARCH ID: 7 **DIST/DIR:** 0.35 SE **ELEVATION:** 570 **MAP ID:** 8

NAME:	NEW ENGLAND KURN HATTIN HOMES	REV:	7/8/11
ADDRESS:	WESTMINSTER ST	ID1:	207
	ROCKINGHAM VT 05154	ID2:	
	WINDHAM	STATUS:	PULLED UST DATABASE
CONTACT:	NEW ENGLAND KURN HATTIN HOMES	PHONE:	
SOURCE:	VT DEC		

This site comes from the Vermont Department of Environmental Conservation Pulled Underground Storage Tanks database and may or may not be considered a leaking underground storage tank , please review the data below for further indications of contamination.

SITE FINDINGS: CONTAMINATION FOUND BELOW STATE STANDARD, <20 PPM GAS OR 10 PPM DIESEL/HEATING OIL #2

FACILITY AND OWNER INFORMATION

TYPE OF FACILITY: INSTITUTIONAL

OWNER NAME: NEW ENGLAND KURN HATTIN HOMES **CONTACT:** DAVID MAYSILLES EXECUTIVE DIRECTOR
OWNER ADDRESS: PO BOX 127
WESTMINSTER, VT

LAND OWNER: ** UNKNOWN ***

PERMITTED TO:

NUM OF PULLED TANKS: 3

NUM OF REMOVED TANKS: 3

NUM OF GROUNDWATER MONITORING WELLS:

NUM OF VAPOR MONITORING WELLS:

TANK INFORMATION

TOTAL NUMBER OF TANKS: 3

TANK ID: 214 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-1

TANK ID: 215 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-2

TANK ID: 216 **TANK STATUS:** PULLED
SUBSTANCE STORED: TANK CAPACITY IN GAL.: 6000
TANK PROTECTION: UNPROTECTED STEEL YEAR REMOVED: 1994
TANK MONITORING: /
SPILL/OVERFILL PROT.: PUMP TYPE:
PIPE PROTECTION: TESTED DATE:
PIPE MONITORING:
TANK LABEL: 1968-3

Environmental FirstSearch Descriptions

NPL: EPA NATIONAL PRIORITY LIST - The National Priorities List is a list of the worst hazardous waste sites that have been identified by Superfund. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money. A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.**FINAL** - Currently on the Final NPL**PROPOSED** - Proposed for NPL

NPL DELISTED: EPA NATIONAL PRIORITY LIST Subset - Database of delisted NPL sites. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.**DELISTED** - Deleted from the Final NPL

CERCLIS: EPA COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM (CERCLIS)- CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.**PART OF NPL**- Site is part of NPL site**DELETED** - Deleted from the Final NPL**FINAL** - Currently on the Final NPL**NOT PROPOSED** - Not on the NPL**NOT VALID** - Not Valid Site or Incident**PROPOSED** - Proposed for NPL**REMOVED** - Removed from Proposed NPL**SCAN PLAN** - Pre-proposal Site**WITHDRAWN** - Withdrawn

NFRAP: EPA COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.**NFRAP** – No Further Remedial Action Plan**P** - Site is part of NPL site**D** - Deleted from the Final NPL**F** - Currently on the Final NPL**N** - Not on the NPL**O** - Not Valid Site or Incident**P** - Proposed for NPL**R** - Removed from Proposed NPL**S** - Pre-proposal Site**W** – Withdrawn

RCRA COR ACT: EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.**RCRAInfo** facilities that have reported violations and subject to corrective actions.

RCRA TSD: EPA RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are

required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that treat, store, dispose, or incinerate hazardous waste.

RCRA GEN: EPA/MA DEP/CT DEP RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM GENERATORS - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. Facilities that generate or transport hazardous waste or meet other RCRA requirements. LGN - Large Quantity Generators SGN - Small Quantity Generators VGN - Conditionally Exempt Generator. Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities. CONNECTICUT HAZARDOUS WASTE MANIFEST - Database of all shipments of hazardous waste within, into or from Connecticut. The data includes date of shipment, transporter and TSD info, and material shipped and quantity. This data is appended to the details of existing generator records. MASSACHUSETTES HAZARDOUS WASTE GENERATOR - database of generators that are regulated under the MA DEP. VQN-MA = generates less than 220 pounds or 27 gallons per month of hazardous waste or waste oil. SQN-MA = generates 220 to 2,200 pounds or 27 to 270 gallons per month of waste oil. LQG-MA = generates greater than 2,200 lbs of hazardous waste or waste oil per month.

Fed Brownfield: EPA BROWNFIELD MANAGEMENT SYSTEM (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs. CLEANUPS IN MY COMMUNITY (subset) - Sites, facilities and properties that have been contaminated by hazardous materials and are being, or have been, cleaned up under EPA's brownfield's program.

ERNS: EPA/NRC EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) - Database of incidents reported to the National Response Center. These incidents include chemical spills, accidents involving chemicals (such as fires or explosions), oil spills, transportation accidents that involve oil or chemicals, releases of radioactive materials, sightings of oil sheens on bodies of water, terrorist incidents involving chemicals, incidents where illegally dumped chemicals have been found, and drills intended to prepare responders to handle these kinds of incidents. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: DOI/BIA INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation. BUREAU OF INDIAN AFFAIRS CONTACT - Regional contact information for the Bureau of Indian Affairs offices.

State/Tribal Sites: VT DEC ACTIVE AND CLOSED HAZARDOUS SITES LIST - database of active and closed hazardous waste sites. The data includes priority, project status, source, date of site discovery, date of site closure, and

owner information.

State Spills 90: VT DEC VERMONT SPILLS DATABASE - database of spills reported to the Vermont Department of Environmental Conservation. The data includes information regarding incident date, type of incident, reporter, responsible party, and action taken.

State/Tribal SWL: VT DEC SOLID WASTE MANAGEMENT FACILITIES LIST - database of both landfills and transfer stations for the state of Vermont. The list includes contact information for each site.

State/Tribal LUST: VT DEC PULLED UNDERGROUND STORAGE TANKS LIST - database of tanks that have been pulled/removed due to a leak. Under state law any tank that has reported a leak must be pulled/removed. The data includes owner and operator name, facility type, and tank information.

State/Tribal UST/AST: VT DEC REGISTERED UNDERGROUND STORAGE TANKS LIST - database of underground storage tanks registered with the Vermont Department of Environmental Conservation. The data includes facility type, owner contact information, and tank substance, protection, and capacity.

State/Tribal Brownfields: VT ANR BROWNFIELD SITE LIST SUBSET- database of sites that have been classified as Brownfields and have Institutional Controls. Information regarding size, response action, cleanup type, and project manager is included. Management System (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various brownfield grant programs.

State/Tribal Brownfields: VT ANR BROWNFIELD SITE LIST - database of sites that have been classified as Brownfields and/or have Institutional Controls. Information regarding size, response action, cleanup type, and project manager is included. Management System (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various brownfield grant programs.

Federal IC / EC: EPA FEDERAL ENGINEERING AND INSTITUTIONAL CONTROLS- Superfund sites that have either engineering or an institutional control. The data includes the control and the media contaminated. RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES (RCRA) – RCRA site that have institutional controls.

Environmental FirstSearch Database Sources

NPL: EPA Environmental Protection Agency

Updated quarterly

NPL DELISTED: EPA Environmental Protection Agency

Updated quarterly

CERCLIS: EPA Environmental Protection Agency

Updated quarterly

NFRAP: EPA Environmental Protection Agency.

Updated quarterly

RCRA COR ACT: EPA Environmental Protection Agency.

Updated quarterly

RCRA TSD: EPA Environmental Protection Agency.

Updated quarterly

RCRA GEN: EPA/MA DEP/CT DEP Environmental Protection Agency, Massachusetts Department of Environmental Protection, Connecticut Department of Environmental Protection

Updated quarterly

Fed Brownfield: EPA Environmental Protection Agency

Updated quarterly

ERNS: EPA/NRC Environmental Protection AgencyNational Response Center.

Updated annually

Tribal Lands: DOI/BIA United States Department of the InteriorBureau of Indian Affairs

Updated annually

State/Tribal Sites: VT DEC Vermont Department of Environmental Conservation

Updated quarterly

State Spills 90: VT DEC Vermont Department of Environmental Conservation

Updated quarterly

State/Tribal SWL: VT DEC Vermont Department of Environmental Conservation, Solid Waste Management Division

Updated annually

State/Tribal LUST: VT DEC Vermont Department of Environmental Conservation, Hazardous Materials Management Division

Updated quarterly

State/Tribal UST/AST: VT DEC Vermont Department of Environmental Conservation, Hazardous Materials Management Division

Updated quarterly

State/Tribal Brownfields: VT ANR Vermont Agency of Natural Resources, Waste Management Division of Brownfields Program

Updated quarterly

State/Tribal Brownfields: VT ANR Vermont Agency of Natural Resources, Waste Management Division of Brownfields Program

Updated quarterly

Federal IC / EC: EPA Environmental Protection Agency

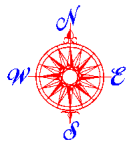
Updated quarterly

Environmental FirstSearch
Street Name Report for Streets within .25 Mile(s) of Target Property

Target Property: 40 MAIN ST
SAXTONS RIVER VT 05154

JOB: 09091-45

Street Name	Dist/Dir	Street Name	Dist/Dir
Academy Ave	0.1 NE		
Burk Hill St	0.17 NW		
Clark Ct	0.23 SW		
Cobb Ln	0.22 SW		
Frost Pl	0.13 SW		
Grove St	0.05 NW		
Hatfield Rd	0.25 NE		
Leavitt Ln	0.21 NE		
Library Way	0.25 NE		
Long Walk	0.25 NE		
Main St	0.00--		
Maple St	0.16 NE		
Mill St	0.25 NE		
Plant Rd	0.13 SE		
Pleasant St	0.15 NE		
Rice Rd	0.18 NE		
River St	0.01 NE		
Saxtons River Rd	0.00--		
School St	0.04 NW		
School St Pl	0.07 NE		
State Hwy 121	0.00--		
Sturtevant Ln	0.19 NW		
Styrtyvant St	0.18 NW		
West St	0.11 NW		
Westminster St	0.01 SW		



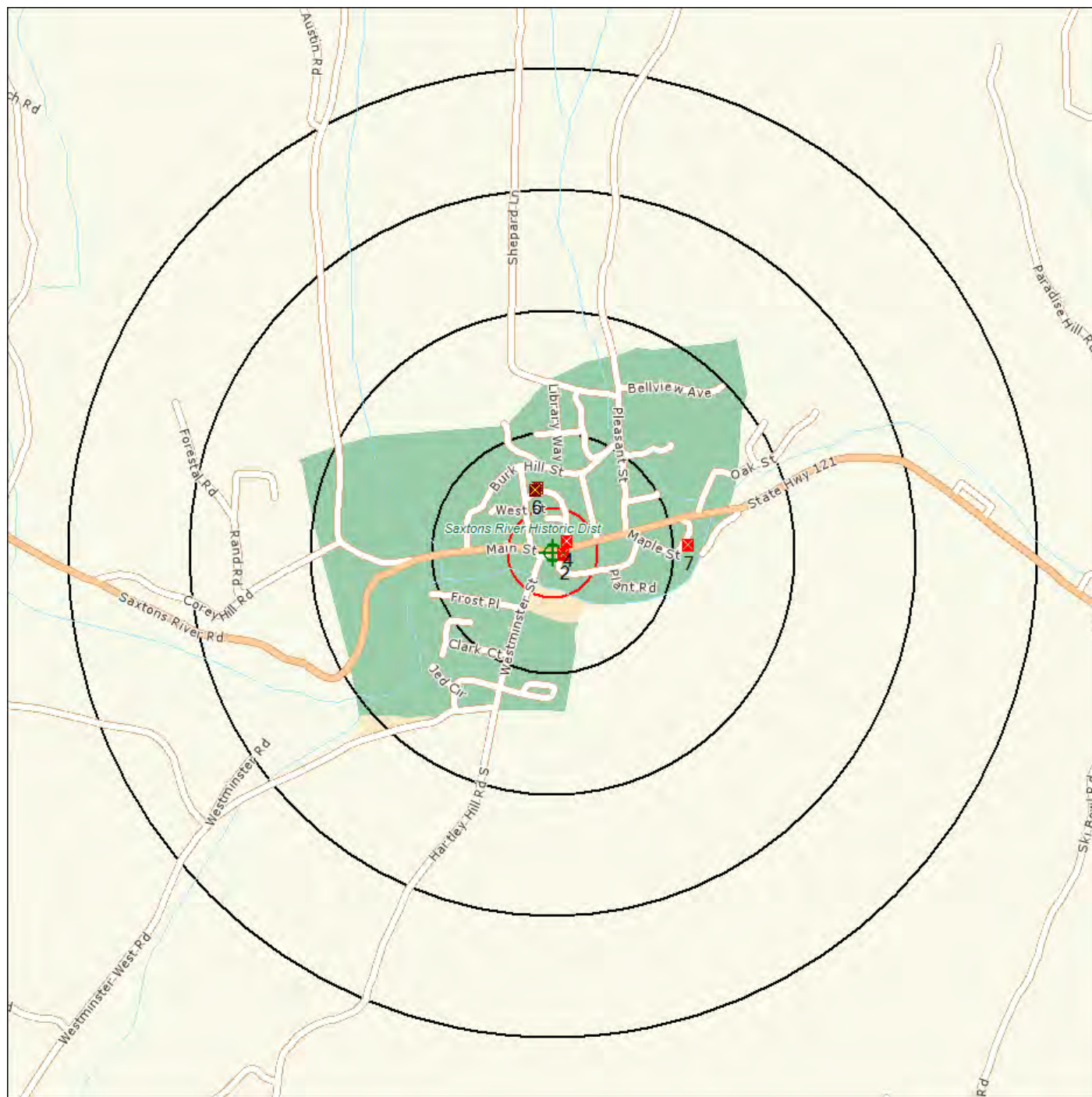
Environmental FirstSearch

1 Mile Radius

ASTM Map: NPL, RCRACOR, STATE Sites



40 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138297 Longitude: -72.508980)

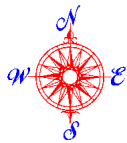
Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius





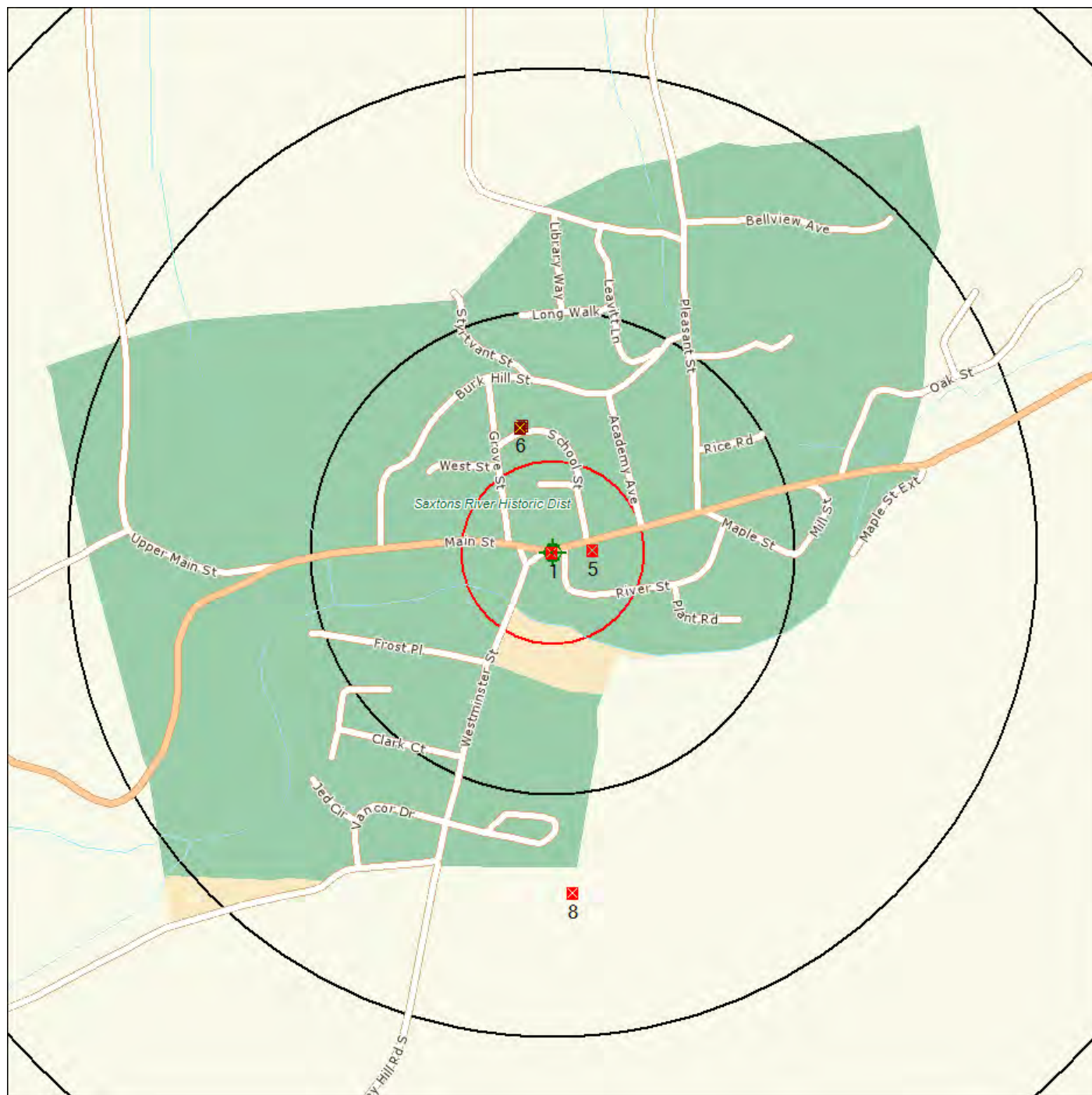
Environmental FirstSearch

.5 Mile Radius

ASTM Map: CERCLIS, RCRATSD, LUST, SWL



40 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138297 Longitude: -72.508980)

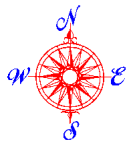
Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius





Environmental FirstSearch

.25 Mile Radius

ASTM Map: RCRAGEN, ERNS, UST, FED IC/EC, METH LABS



40 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138297 Longitude: -72.508980)

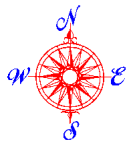
Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius





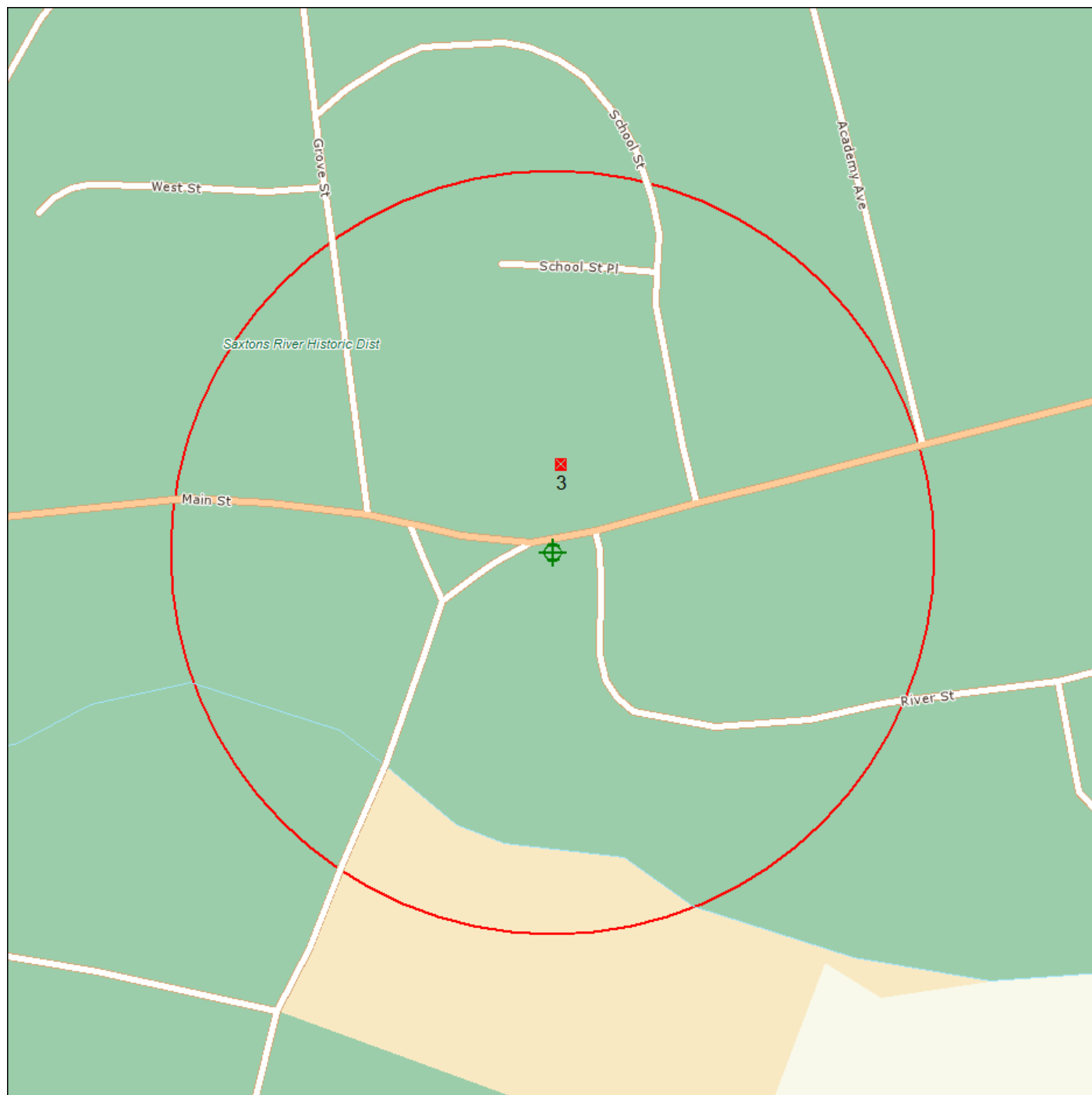
Environmental FirstSearch

.12 Mile Radius

Non-ASTM Map: Spills 90



40 MAIN ST, SAXTONS RIVER VT 05154



Source: Tele Atlas

Target Site (Latitude: 43.138297 Longitude: -72.508980)

Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

National Historic Sites and Landmark Sites

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius



APPENDIX F

PHOTOGRAPHS



Photo #1: Northeast area of Sandri property.



Photo #2: Southwest area of Sandri Property.



Photo #3: Looking east down trail/property line.



Photo #4: Looking east toward neighboring Morrill residence.