DUFRESNE-HENRY, INC.
Precision Park
NORTH SPRINGFIELD, VERMONT 05150

(802) 886-2261

LETTER OF TRANSMITTAL

MAY 15 1996

DATE	JOB NO.
5/14/96	4160026

ATTENTION: MR. CHUCK SCHWER

RE: LINDGREN PROPERTY

96-1968

TO AGENCY OF NATURAL RESOURCES
WMD, SMS
103 SOUTH MAIN ST/ WEST OFFICE
WATERBURY, VT 05671-0404

GENTLEMEN:

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

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			REPORT - INITIAL SITE INVESTIGATION
			LINDGREN RESIDENCE
			WOODSTOCK, VT

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

REMARKS _____

COPY TO RICHARD LINDGREN

SIGNED: Bruce Coy

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

Phase (check one)	Type (check one)
☒ Initial Site Investigation ☐ Corrective Action Feasibility Investigation ☐ Corrective Action Plan ☐ Corrective Action Summary Report	☐ Work Scope ☒ Technical Report ☐ PCF Reimbursement Request ☐ General Correspondence

MAY 1 5 1996

INITIAL SITE INVESTIGATION

Lindgren Residence
Woodstock, VT 05091

SMS Site #Unknown
96-1968

A Facility Owned By:
Richard Lindgren
P.O. Box 492
Chester Springs, PA 19425
(610) 933-8131
Contact: Richard Lindgren

Prepared By:
Dufresne-Henry, Inc.
Precision Park
North Springfield, VT 05150
(802) 886-2261
Contact: Bruce H. Cox, P.E.

May 6, 1996

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EXECUTIVE SUMMARY

An Initial Site Investigation has been completed at the Lindgren residence in Woodstock, Vermont. The investigation was in response to the discovery of a gasoline release during a Tank Closure Assessment in March 1996. The vent was found to be broken at the tank. A test pit excavation indicated the plume had spread at least 15 feet beyond the UST. Contaminated soil excavated from the tank bed was backfilled pending additional investigation.

Four shallow groundwater monitoring wells were installed on the site in April 1996. The monitoring wells were sampled and analyzed for VOC's by EPA Method 602/8015. Low concentrations of BTEX were detected in three of the wells. None of the concentrations exceeded the Vermont Enforcement Standard. Benzene was not detected in any sample. No compounds above detection limits were found in the sample from the drinking water well.

Gasoline contaminated soil still exists in the vicinity of the former UST at concentrations exceeding the backfilling guidelines. The gasoline appears to be old and weathered. Evidence from the borings suggests the area of contamination is limited. Excavation of the soil would be hindered by the proximity of foundation walls, etc.

The direction of groundwater flow is to the south and southwest. The nearest off-site private water supply is approximately 600 feet away and topographically upgradient. The nearest off-site downgradient private water supply is approximately 800 feet away and separated from the site by a stream. The nearest public water supply is Vondell Reservoir located approximately 3,300' to the northeast and at a higher elevation. The nearest surface water, other than the on-site pond, is the unnamed stream approximately 200 feet southwest of the site. No sheens or other evidence of contamination was observed in the pond or the stream. None of the identified water supplies are judged to be in jeopardy from the release.

Based on these findings, it is recommended that:

1. The four (4) monitoring wells and the two (2) drinking water wells should be analyzed one more time during seasonal high water in 1997. If the results are below the Enforcement Standard at that time, the State should be petitioned for a Site Monitoring Activity Complete (SMAC) designation.

2. If gasoline vapors are detected in the basement, contaminated soil should be excavated to the extent possible.

INITIAL SITE INVESTIGATION
LINDGREN RESIDENCE
WOODSTOCK, VERMONT

Introduction

The Lindgren residence is located on Cox District Road (TH #17) in Woodstock, Vermont. A site location map is included as Appendix A.

Dufresne-Henry, Inc., in conjunction with Great Northern Environmental Services (GNES), performed a Tank Closure Assessment at the site on March 27, 1996. The subject was one (1) 550 gallon gasoline single wall UST. The tank was found to be in fair condition, but the vent line was broken at the tank. Evidence of soil and possible groundwater contamination was discovered in the tank excavation. Headspace PID readings of soil samples from the tank excavation were in excess of 2,100 ppm. The gasoline was judged to be old and weathered based on a varnish-like odor. The excavation was continued to approximately 6' where the water table was encountered. A test pit was excavated approximately 15' south of the tank. Soil from 4.5' had a headspace reading of 410 ppm. Due to the depth of frost, and adjacent driveway pavement and a brick patio, the excavation was backfilled pending additional investigation. A water sample from the kitchen faucet was obtained by a separate consultant at the time of the Closure Assessment.

Work and Health and Safety Plans

As a result of the findings of the Tank Closure Assessment, the Sites Management Section (SMS) verbally requested additional investigation at the Lindgren residence. Dufresne-Henry prepared a Work Plan and a Health and Safety Plan for the proposed activities at the site. A copy of the proposed work plan was forwarded to the Hazardous Materials Management Division (HMMD) for review. Copies of these documents will be found in Appendix B. The remainder of this report describes the on-site activities and subsequent findings based on that work plan.

Site Description

The Lindgren residence is located on the northwest side of the intersection of Cox District Road (TH #17) and TH #16. The entire property consists of two parcels. Parcel A is 22.3± acres and Parcel B is 10.4± acres. The Lindgren residence is located on Parcel A. Parcel B is located southerly of Parcel A on the opposite side of TH #16. Buildings on Parcel A include the residence and an attached barn and shed. A small pond is located approximately 160 feet southwest of the house. A guest house is located on Parcel B. The residences on both parcels have their own on-site water supply wells and wastewater disposal systems. The majority of both sites is used as farmland or is idle. Surrounding land consists largely of woodland. An unnamed brook flowing to the south is located approximately 200 feet southwest of the former UST.

Site History

The history of the site is not known. It is expected that the property was in agricultural use for many years.

The property is currently vacant. Neither of the residences or the sheds were entered. No evidence of hazardous materials was observed in the immediate vicinity of the buildings.

The gasoline UST that was removed was estimated to have been approximately 50 years old. It was reportedly not in use for the last 15 to 20 years. An abandoned 1,000(?) gallon #2 heating oil UST is located near the southeastern corner of the house. The tank has reportedly recently passed a tightness test. A #2 heating oil UST of unknown size is in use at the guest house.

The most recent Vermont Hazardous Waste Sites List maintained by the HMMD contains eight (8) sites in Woodstock, and three (3) sites in Bridgewater. None are close enough to have any impact on the subject property.

Monitoring Well Installation

Four (4) shallow groundwater monitoring wells were installed on April 24 and 26, 1996 by M & W Soils Engineering, Inc. of Charlestown, New Hampshire. The wells are designated MW-1 through MW-4. Wells MW-1 and MW-2 were installed under the supervision of Dufresne-Henry personnel. Wells MW-3 and MW-4 were installed at locations flagged by Dufresne-Henry. Well MW-1 was located in undisturbed soil under the driveway approximately 15 feet from the former UST and less than 5 feet from the test pit. Well MW-2 was located near the southwest corner of the house approximately 30 feet from the abandoned heating oil UST. Well MW-3 was located just beyond a stone wall on the west side of the house directly opposite the former gasoline UST. Well MW-4 was located near the shed and house between the former UST and the pond. A site sketch showing the well locations is included as Appendix C. Logs of the borings and monitoring well installation reports are included in Appendix D.

During boring advancement split spoon soil samples were taken at various intervals depending on discovered and expected conditions. In MW-1 continuous sampling was done from just under the driveway pavement to the limit of the boring. In MW-2, MW-3, and MW-4 sampling was at five foot intervals. Wells MW-3 and MW-4 were inaccessible by the drill rig due to wet soil conditions. Those borings were done using a portable tripod rig by driving and washing casing. All soil samples were screened for the presence of Volatile Organic Compounds (VOC's) with a Photovac MicroTIP HL-2000 photoionization detector (10.6 eV lamp, calibrated with isobutylene). The screening was done at room air temperature.

In MW-1, PID readings ranged from 12.3 ppm to 91 ppm and generally increased with depth. The general geologic column is dense, silty till to the limit of the boring. Refusal on possible bedrock was encountered at 9'2". In MW-2, PID readings ranged from 24.5 ppm to 38.5 ppm and decreased with depth. The general geologic column consists of dense, silty till to the limit of the boring with no refusal. In MW-3, PID readings ranged from 24.3 ppm to 36.5 ppm and decreased with depth. The general geologic column is dense, silty till to the limit of the boring with no refusal. In MW-4, PID readings ranged from 23 ppm to 23.9 ppm. The general geologic column is dense, silty till to the limit of the boring with no refusal. There was no visual or olfactory evidence of contamination in any of the samples. None of the soil augered to the surface had any odor. Given the distinctive odor of the weathered gasoline on the site, it is not certain that the readings are related to leakage from the UST.

A two-inch diameter PVC monitoring well was installed in each boring. The length of each screen was determined by the depth to refusal or to the water table. Screen lengths were 7', 10', 7', and 7' for MW-1 through MW-4 respectively. Each well was constructed from .010" machine slotted screen. Each well was backfilled with clean silica sand to a point above the screen and a bentonite seal installed. The wells were protected at the ground surface by grouting in watertight aluminum monitoring well boxes. All excess soil remained on site and was brought to the former UST excavation.

Site Geology

Surficial geology at the site is published as till. The borings corroborate the till mapping. The till is very silty with little gravel and only occasional cobbles. Many of the rock fragments are very weathered. The hydraulic conductivity of the soil is judged to be low.

Published data indicates bedrock at the site is the Waits River Formation. The Waits River Formation is generally described as gray quartzose and micaceous crystalline limestone interbedded and intergradational with gray quartz-muscovite phyllite or schist. The age is Lower Devonian. No confirmed exposures of bedrock were observed. Possible bedrock was encountered in MW-1 at a depth of 9'2". No sample of the rock was obtained.

Site Hydrogeology

At the time that groundwater samples were obtained on April 29, 1996, the water levels ranged from .78' - 4.01' below the ground surface. Due to 2.5 inches of rain in the previous week, the observed water elevations are likely influenced by perching on the relatively impermeable till. Based on the measured elevations the direction of groundwater flow is to the south and southwest toward the main stream. A site plan showing the groundwater contours as of the date of sampling is included as Appendix E.

Potential Receptors

The 1976 Woodstock North and the 1966 Woodstock South USGS quadrangle maps show 15 structures within a one-half mile radius of the Lindgren residence. All are assumed to have

on-site drinking water wells. The nearest off-site private water supply is approximately 600 feet away and topographically upgradient. The nearest downgradient private water supply is approximately 800 feet away and separated from the site by a stream. The nearest public water supply is Vondell Reservoir located approximately 3,300' to the northeast and at a higher elevation. The nearest surface water, other than the on-site pond, is the unnamed stream approximately 200 feet southwest of the site. No sheens or other evidence of contamination was observed in the pond or the stream.

Monitoring Well Sampling

The four (4) Dufresne-Henry monitoring wells were sampled on April 29, 1996 following the standard protocols which are on file with the HMMD. The well at the guest house was not sampled because access to the house was unavailable and there was no flow to the two exterior faucets. The sampling was performed by Dufresne-Henry personnel. Three well volumes were purged prior to drawing a sample. No evidence of free product was observed in any well. No odors were observed from any well. The refrigerated samples were sent to Eastern Analytical, Inc. of Concord, New Hampshire on April 29, 1996 via overnight service. The samples were analyzed for the VOC's BTEX and MTBE by EPA Method 602/8015. A copy of the contract laboratory analytical report is included as Appendix F.

The analyses found low concentrations of BTEX in MW-1, MW-2, and MW-3. No compounds above detection limits for the methods used were found in MW-4. In no well did the concentrations exceed the Vermont Enforcement Standard. A summary of the analytical results is presented in Table 1 below.

Table 1
Summary of Volatile Organic Compounds

Compound	ES µg/L	MW-1 µg/L	MW-2 µg/L	MW-3 µg/L	MW-4 µg/L
Benzene	5	<1	<1	<1	<1
Toluene	2,420	5	1	6	<1
Ethylbenzene	680	2	7	1	<1
Total Xylenes	400	8	37	15	<1
MTBE		<20	<20	<20	<20

ES State of Vermont Enforcement Standard
MW Monitoring Well

The drinking water well at the Lindgren residence was sampled on March 27, 1996 by a representative of Lalancette Engineers. The sample was analyzed for Total Petroleum Hydrocarbons (TPH) by EPA Method 8100(mod) by American Environmental Laboratories, Incorporated of Leominster, Massachusetts. No compounds above detection limits were found. A copy of the analytical report is also included in Appendix F.

Summary and Recommendations

In summary, four (4) shallow groundwater monitoring wells were installed on the site and sampled. Analysis of groundwater samples from those wells found low concentrations of BTEX. No compounds above detection limits for the method used were found in the drinking water well. None of the compounds detected were above the Vermont Enforcement Standard. Benzene was not detected in any of the wells. Petroleum contaminated soil still exists in the vicinity of the former gasoline UST. Based on olfactory evidence the gasoline is old and weathered. PID readings were above the threshold at which the soils can be backfilled. No evidence of contaminated soil was observed in any of the test borings. This study did not determine the exact limits of soil contamination, but the evidence suggests it is limited. Given the soils proximity to

foundation walls and other critical areas, leaving them in place may be the best alternative.

The nearest bedrock water wells are those serving the Lindgren residence and the guest house. The nearest public water supply is Vondell Reservoir located approximately 3,300 feet to the northeast and topographically higher. The nearest private off-site water supply is approximately 600 feet to the northeast and topographically higher. The nearest water supply in the downgradient direction is approximately 800 feet away and separated from the site by a stream. No evidence of contamination was observed in the stream or the on-site pond. None of the water supplies identified, or the stream, are judged to be in jeopardy as a result of conditions at the Lindgren residence.

Based on these findings we recommend the following:

1. The four (4) monitoring wells and the two (2) drinking water wells should be analyzed one more time during seasonal high water in 1997. If the results are below the Enforcement Standard at that time, the State should be petitioned for a Site Monitoring Activity Complete (SMAC) designation.

2. If gasoline vapors are detected in the basement, contaminated soil should be excavated to the extent possible.

APPENDIX A

SITE LOCATION MAP

SCALE
1:24,000

TAKEN FROM A USGS QUAD. SHEET FOR WOODSTOCK SOUTH, VT
FIELD CHECKED IN 1966

Dufresne-Henry, Inc.
A DVI Company
Precision Park
No. Springfield,
Vermont 05150
Tel. (802)886-2261 Fax (802)886-2260

SITE LOCATION PLAN
PREPARED FOR
LINDGREN PROPERTY
WOODSTOCK, VERMONT

Project No.	4160026
Proj. Mgr.	B.H.C.
Date	MAY, 1996
B	SKETCH

APPENDIX B

WORK PLAN, SITE HEALTH AND SAFETY PLAN

Proposed Work Plan
Initial Site Investigation

LINDGREN RESIDENCE
WOODSTOCK, VERMONT

This work plan outlines the tasks to be completed for an Initial Site Investigation at the Lindgren residence in Woodstock, Vermont. This plan has been prepared as a result of a gasoline release discovered during the removal of a UST. While a request for an investigation has not yet been issued by the SMS, discussions with State officials indicate it is imminent.

The purpose of the investigation is to determine the existence and extent of subsurface petroleum contamination at the site. The proposed monitoring wells will be used to help ascertain the extent of a contamination plume and provide basic hydrogeologic data. At this time it is anticipated that up to four (4) shallow groundwater monitoring wells will be installed. One well will be in the immediate vicinity of the former UST. The others will be arrayed in the probable downgradient direction and near potential receptors identified in the field. All borings and monitoring well installations will be performed by M & W Soils Engineering, Inc. of Charlestown, New Hampshire under the field supervision of Dufresne-Henry personnel. All field personnel are OSHA certified for hazardous site operations under 29 CFR part 1910.120.

BORINGS

It is anticipated that the borings for the monitoring wells will be done using 4 1/4" hollow stem augers. Monitoring well borings will be taken a minimum of five (5) feet into the prevailing water table. It is anticipated that the wells will be approximately 15 deep. Petroleum based pipe dope for use on drill rods, tools, or casing will not be allowed. No type of drilling mud, including polymers, will be used. Should flowing sands be encountered, clean water obtained locally will be used to increase hydraulic head. If flowing sands are particularly problematic, casing will be used.

SOIL SAMPLING

Soil samples will typically be taken at 5 foot intervals using a split spoon sampler. Sampling at other intervals may occur and will be a field decision of the Dufresne-Henry inspector. Possible reasons include abrupt changes in drill rate and suspected zones of contamination. It is likely that continuous sampling will be done in the immediate vicinity of the former UST. The split spoon sampler allows retrieval of relatively undisturbed soil samples from a known depth for classification and Volatile Organic Compound (VOC) screening. All soil samples and material from the auger flights will be screened for VOC's by headspace analysis with a Photovac MicroTIP HL-2000 photoionization detector (10.6

eV lamp, calibrated with isobutylene). The act of driving the sampler (Standard Penetration Test) also gives an indication of the density or degree of compaction of the soil. Representative samples from each spoon will be placed in glass jars and retained by Dufresne-Henry. These are for project records only and are not intended for chemical analysis. Detailed logs of geology, drilling data, PID readings, and monitoring well installation will be prepared for each boring. At this time it is not anticipated that analytical soil samples will be collected.

MONITORING WELLS

Monitoring wells will be constructed from 2", 0.010" machine slotted, threaded, flush joint, Schedule 40 PVC. Assuming no refusal, each monitoring well will consist of 10' of screen with sufficient riser to reach approximately 2" below the surface grade. The bottom of the well will be set such that approximately 5 feet of screen extends below the water table observed at the time of installation. For wells with shallow depth to the water table, the screened interval will be a decision of the Dufresne-Henry inspector. The bottom of all wells will be provided with a PVC cap or point, or a plug with an expanding gasket. The annular space between the auger and the screen will be carefully backfilled with clean silica sand to create a filter pack around the well. The filter pack will extend from the bottom of the well to approximately 2 feet above the screen. A bentonite seal will be installed above the filter pack, and the remainder of the hole will be backfilled with native soil to about 2 feet from the surface. A protective monitoring well box will be grouted in flush at the surface or a stick-up steel casing installed depending on the location. All wells will have removable top caps for sampling and sounding.

DECONTAMINATION

The borings may, or may not, be completed within the zone of contamination. However, to prevent cross contamination between the borings, strict decontamination procedures will be followed. All in-ground tools and equipment will be decontaminated by steam cleaning prior to the start of work and between borings. All decontamination will be done on-site at a designated location. Within the known contaminated area, routine cleaning of equipment, such as split spoons, will use water obtained at the site and a product such as ALCONOX. Disposal of spent cleaning solution will be at the site. Excess contaminated soil will be stored in a polyencapsulated stockpile.

WATER SAMPLING

Water quality samples will be obtained from the Dufresne-Henry installed monitoring wells and the water supply at the guest house following a period of stabilization. The samples will be taken by Dufresne-Henry personnel. Protocols for the sampling have been previously forwarded and are on file with the HMMD. Samples will be obtained with disposable bailers which will be left in the wells to facilitate future sampling. Samples will

not be obtained from any well exhibiting free product. The samples will be analyzed for BTEX and MTBE by EPA Method 602/8020 by Eastern Analytical, Inc. of Concord, New Hampshire. Water samples for TPH analysis by EPA Method 8100 (mod) will also be analyzed from any boring where the presence of heating oil is suspected based on field observations.

SITE SURVEY

The relative locations and elevations of the monitoring wells will be determined. Sufficient additional surveying will be performed to update any existing site plan or prepare a new site plan.

RECEPTOR ASSESSMENT

A receptor assessment will be conducted to identify potential receptors including nearby water supply wells and surface water. One nearby drinking water well, at the guest house, has already been identified and will be sampled. The pond near the residence could also be sampled based on field observations. The basements of any nearby buildings, if any, will be screened with the PID as deemed necessary.

REPORTING

A report will be prepared summarizing the findings and recommendations of the investigation including the monitoring well installation, groundwater quality and overall characterization of shallow subsurface conditions, and the likely impacts on potential receptors. Conclusions and recommendations regarding the need for long term treatment and/or monitoring will be included. The report will be submitted within 30 days of the completion of well installation.

A summary breakdown of estimated costs to complete the work will be found attached.

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PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

HEALTH AND SAFETY PLAN
FOR

INITIAL SITE INVESTIGATION

LINDGREN RESIDENCE

WOODSTOCK, VERMONT

This Health and Safety Plan applies only to Dufresne-Henry, Inc. employees.

PROPOSED ON-SITE ACTIVITIES:

Installation of up to four (4) shallow groundwater monitoring wells, groundwater sampling, decontamination.

PROPOSED DATE(S) OF WORK: Monitoring well installation: April 24, 1996
Groundwater sampling: April 26, 1996

ANTICIPATED WEATHER CONDITIONS: Temperatures 30's - 60's, possible snow or rain, light wind.

PROPOSED SITE INVESTIGATION TEAM:

Personnel	Responsibilities
Bruce Cox	Project Manager
Bruce Cox	Site Safety Officer
Bruce Cox/Oscar Garcia	Field Team Leader Mon wells/sampling
Richard Lindgren/Laird Bradley	Site Representative (owner/agent)
Chuck Schwer	ANR Representative

All Dufresne-Henry, Inc. personnel arriving or departing the Site should check in and out with the Site Safety Officer. All Dufresne-Henry activities on-Site must be cleared through the Field Team Leader or Project Manager.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

Background Information

Site Status: __X__ Active _____ Inactive _____ Unknown

Site Description (Topography, on-site structures, vegetation, surrounding population, contaminated areas (if known)...Attach site plan)

The subject property is located on Cox District Road in Woodstock, Vermont. The parcel is currently vacant and for sale. Buildings in the immediate vicinity are a house and a shed. The site is served by an on-site wastewater disposal system and an on-site water well. The parcel is relatively flat with a slight grade down to the southwest.

Site History:

The site history is not known at this time. The property has presumably been used as a residence and/or agricultural use for years. The leaking UST is judged to have been approximately 50 years old.

Field Monitoring or Sampling Data From Previous Site work:

A gasoline release was discovered during the removal of a 550 gallon UST. Headspace readings of soil samples above and below the tank were over 2,000 ppm. Soils samples from a test pit excavated 15 feet from the tank were over 400 ppm. The soil was backfilled pending additional investigations.

No other site investigation work is known to exist.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

HAZARD REFERENCE

Waste Types:

__X__ Liquid __X__ Solid (soil) _____ Sludge __X__ Vapor _____ Unknown

Waste Characteristics:

_____ Corrosive __X__ Ignitable _____ Radioactive

__X__ Volatile _____ Toxic _____ Reactive

_____ Unknown _____ Other _____ Persistent

Specific Substances of Greatest Concern (if known): Gasoline.

Hazard Evaluation:

Task: Mon. Well Install. __X__ Low _____ Medium _____ High

Identification of Hazards: Gasoline.

Task: Decontamination __X__ Low _____ Medium _____ High

Identification of Hazards: Gasoline.

Task: Sampling __X__ Low _____ Medium _____ High

Identification of Hazards: Gasoline.

Task: _____ Low _____ Medium _____ High

Identification of Hazards:

Other Physical Hazards: (weather, heavy equipment, site structures...)

Drill rig, weather.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

Hazard Assessment:

OVERALL HAZARD: _____ Serious _____ Moderate __X__ Low

_____ Unknown

On-Site Control

Site control is necessary to minimize potential exposure of workers to hazardous waste/materials, protect the public from the Site's chemical and physical hazards, and to facilitate work activity. The procedures to be followed involve the establishment of Site work zones, Site security, and safe work practices.

The on-Site staging area and support zone has been established at:

The driveway in front of the house.

The personal contamination reduction zone (decon area) has been established at:

The site of the former UST.

During the intrusive work, the exclusion area will be defined as follows:

The drill rig and a 15 foot radius around the borehole.

The decontamination of sampling and/or heavy equipment will be conducted:

The site of the former UST.

These sub-regions of on-Site control have been established in order to reduce the potential cross contamination and proliferation of contamination by potentially contaminated equipment and personal protective equipment.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

SITE ACTIVITIES

Required Personal Protective Equipment (PPE)

Task	Entry Level of Protection	Monitoring Equipment	Upgrade/Downgrade Contingency
Well Install.	D	Photovac HL-2000 Explosimeter O_2 meter H_2S meter	Upgrade to Level C with PID readings over 10 ppm for 5 minutes in breathing space.
Decon.	D	"	"
Sampling	D	"	"

Note: Breathing space PID readings of 50 ppm, explosimeter readings over 25% of the LEL, O_2 deficiency or enrichment, or H_2S readings will result in shutting down the job and consulting with State officials and the client.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
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Specific protective equipment for each level of protection is as follows:

Level C: Full Face Respirator w/appropriate cartridge (Willson T45)
Chemically Resistant Suit (Tyvek®)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots

Modified Level D: Chemically Resistant Suit (Tyvek®)
Outer Rubber Slush Boots
Outer Chemically Resistant Gloves
Surgical Gloves
Hard Hat
Steel Toe/Shank Work Boots
Safety Glasses or Face Shield

Level D: Work Clothes
Steel Toe/Shank Work Boots
Surgical Gloves
Hard Hat

Rationale for change in level of protection:

Upgrade to Level C with PID readings of 10 ppm or more for 5 minutes in the breathing space. PID readings over 50 ppm in the breathing space, explosimeter readings of over 25% of the LEL, O_2 deficiency or enrichment, or H_2S readings will result in shutting down the job and consulting with State officials and the client.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER OR PROJECT MANAGER.

Monitoring Procedures

Site Monitoring Equipment:

__X__ Photovac MicroTIP (Model HL-2000, 10.6 eV probe)
__X__ Explosimeter
_____ Draeger Tube & Pump
__X__ O_2 Meter
__X__ Other: H_2S meter

Methods and Frequency of Monitoring:

Air space and soil samples: Photovac MicroTIP HL-2000.
Air space: explosimeter/O_2 meter/H_2S meter.

Frequency: Soil samples; as obtained.
Air; not to exceed every 15 minutes.

Decontamination and Disposal

Personnel Decontamination Procedure:

__X__ Level C: Slush boot and glove wash, slush boot and glove rinse, tape removal, outer glove removal, (cartridge change), slush boot removal, suit removal, inner glove removal.

__X__ Modified Level D: Slush boot and glove wash, slush boot and glove rinse, slush boot removal, suit removal, glove removal.

Equipment Decontamination:

The drill rig and tools will be decontaminated by steam cleaning prior to the start of work and between borings. The use of clean augers (not previously used on the job) will be permitted with washing of the bit in ALCONOX. All decontamination will be done on-site. Routine washing of split spoon samplers, etc will use water obtained at the site or brought to the site by the boring contractor, with disposal on-site.

Disposal Procedure for Investigation-Derived Materials:
(decon waste, disposables)

All decon waste and disposables will remain on-site.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

SITE OPERATING PROCEDURES/SAFETY GUIDELINES

** Always observe the buddy system. Never enter or exit site alone, and never work alone in an isolated area. Never wander off by yourself.

** Always maintain a line-of-sight.

** Practice contamination avoidance. Never sit down or kneel, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with on-site objects

** No eating, drinking, or smoking outside the designated "clean" zone.

** In the event PPE is ripped or torn, work shall stop and PPE shall be removed and replaced as soon as possible.

** Be alert to any unusual changes in your own condition; never ignore warning signs. Notify Health and Safety Coordinator as to suspected exposures or accidents.

** A vehicle will be readily available exclusively for emergency use. All personnel going on-site shall be familiar with the most direct route to the nearest hospital.

** In the event of direct skin contact, the affected area shall be washed immediately with soap and water.

** Copies of the Health and Safety Plan shall be readily accessible at the command post.

** Note wind direction. Personnel shall remain upwind whenever possible during on-site activities.

** Never climb over or under refuse or obstacles. Use safety harness/safety lines when sampling lagoons, stream beds, and ravines with steep banks.

** Hands and face must be thoroughly washed before eating, drinking, etc.

** Any modifications to this safety plan MUST be approved by the Site Safety Officer.

Special Procedures:
Confined Space Entry

__X__ No attempt will be made to enter abandoned buildings, manholes, tanks, or any other confined areas.

_____ Other:

Personnel Monitoring: (If applicable: Heat stress, frostbite, air sampling of individual breathing zone)

Monitoring of individual breathing space will be monitored by a Photovac MicroTIP HL-2000, explosimeter, O_2 meter, and H_2S meter as outlined in monitoring procedures. Monitoring of weather related hazards will be dictated by existing conditions.

EMERGENCY SITUATIONS

The following standard emergency procedures will be used by Dufresne-Henry on-site personnel. The Site Safety Officer (SSO) shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury to Dufresne-Henry Employees in the Exclusion Zone

Upon notification of an injury to a Dufresne-Henry employee in the exclusion zone, a rescue team will enter the zone (if required) to remove the injured person to the hotline. The SSO and Project Manager should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the support zone. The SSO shall arrange for appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required). No Dufresne-Henry personnel shall re-enter the exclusion zone until the cause of the injury or symptoms are determined.

Personnel Injury to Dufresne-Henry Employees in the Support Zone

Upon notification of an injury to a Dufresne-Henry employee in the support zone, the Project Manager and SSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the on-site Field Team Leader initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, all Dufresne-Henry personnel shall move to the decon line for further instructions. Dufresne-Henry activities on-site will cease until the added risk is removed or minimized.

Fire/Explosion

Upon notification of a fire or explosion on-site, all Dufresne-Henry personnel will assemble at the decon line. The fire department shall be alerted and all Dufresne-Henry personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure

If any Dufresne-Henry site personnel experience a failure or alteration of protective equipment that effects the protection factor, that person and his/her buddy shall immediately leave the exclusion zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure

If any other equipment on-site fails to operate properly, the Project Manager and SSO shall be notified and then determine the effect of this failure on continuing operations on-site. If the failure affects the safety of on-site Dufresne-Henry personnel or prevents the completion of the tasks, all Dufresne-Henry personnel shall leave the exclusion zone until the situation is evaluated and appropriate actions taken.

In all situations, when an on-site emergency results in evacuation of the exclusion zone, Dufresne-Henry personnel shall not re-enter until:

1. The conditions resulting in the emergency have been corrected.

2. The hazards have been reassessed.

3. The Site Safety Plan has been reviewed.

4. Dufresne-Henry personnel have been briefed on any changes in the Site Safety Plan.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

EMERGENCY INFORMATION

AMBULANCE: Woodstock — Phone: 9-1-1

HOSPITAL: Mt. Ascutney Hospital
County Road
Windsor, VT
(see attached map) — Phone: (802) 674 - 6711

POLICE: Woodstock — Phone: (802) 457 - 1416

FIRE DEPARTMENT: Woodstock — Phone: 9-1-1

POISON CENTER: Burlington — Phone: (802) 658 - 3456

ANR INCIDENT RESPONSE: Office — Phone: (802) 241 - 3888

CORPORATE:

Dufresne-Henry N. Springfield, VT — Phone: (802) 886-2261

Project Manager: Bruce H. Cox

NEAREST PHONE: on-site

LOCATION OF ON-SITE FIRST AID KIT: Boring contractor's vehicle.

EMERGENCY VEHICLE: The designated emergency vehicle on-site shall be that of the Dufresne-Henry,Inc. representative.

PROJECT: LINDGREN RESIDENCE INITIAL SITE INVESTIGATION
JOB NO.: 4160026

The following individuals have read this safety document and are familiar with its contents, site conditions, and on-site safety procedures (please sign below):

Name	Company
Bruce Cox	Dufresne-Henry, Inc.
Oscar Garcia	Dufresne-Henry, Inc.
Richard Holmes	M & W Soils Engineering, Inc.
Mike Hitchcock	M & W Soils Engineering, Inc.
	M & W Soils Engineering, Inc.

Copies of this SSP have been given to:

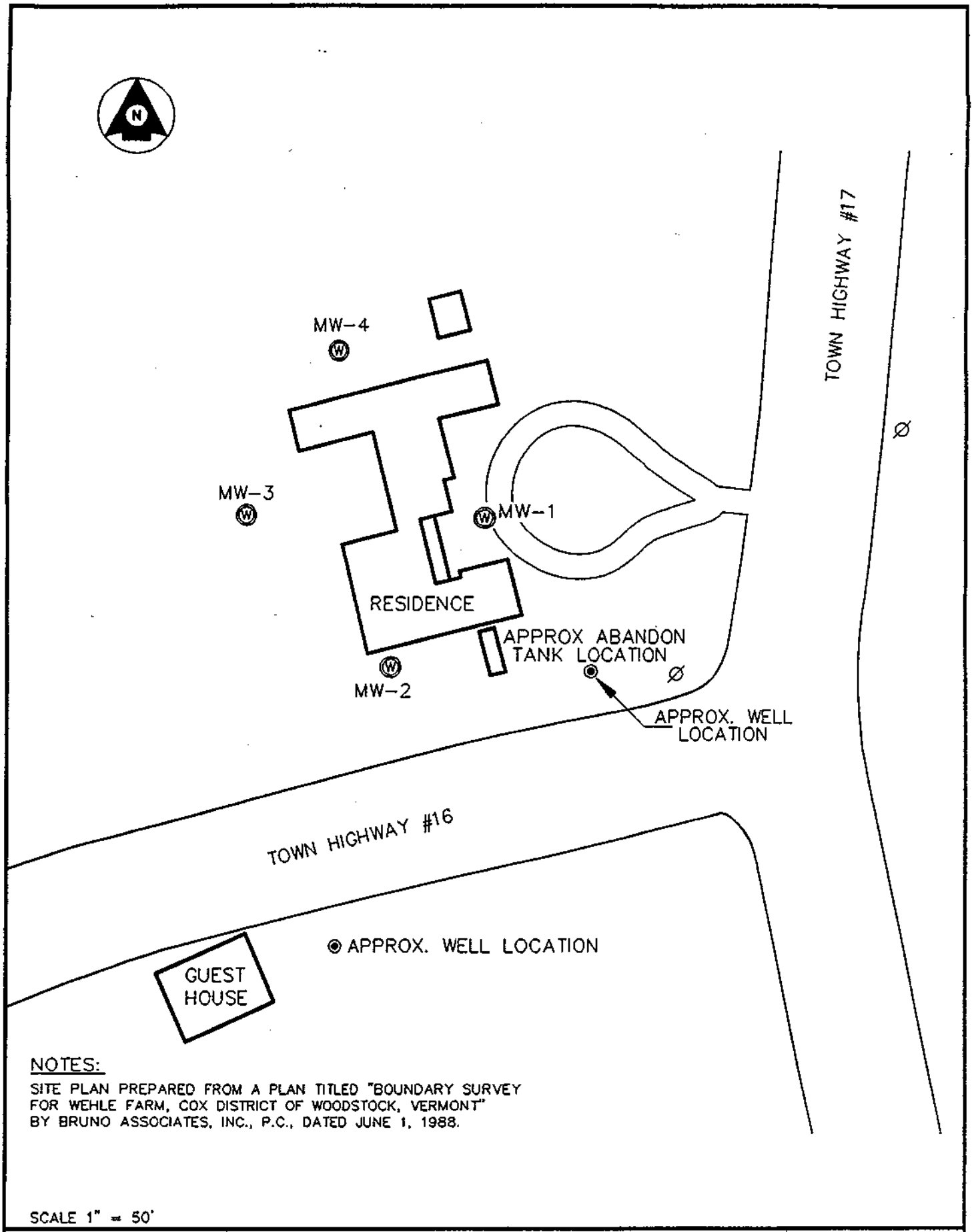
Approval Signatures:

PM _____

Div. Dir. _____

APPENDIX C

SITE PLAN



NOTES:

SITE PLAN PREPARED FROM A PLAN TITLED "BOUNDARY SURVEY FOR WEHLE FARM, COX DISTRICT OF WOODSTOCK, VERMONT" BY BRUNO ASSOCIATES, INC., P.C., DATED JUNE 1, 1988.

SCALE 1" = 50'

Dufresne-Henry, Inc.
A DVI Company
Precision Park
No. Springfield,
Vermont 05150
Tel. (802)886-2261 Fax (802)886-2260

SITE PLAN
OF

LINDGREN PROPERTY
INITIAL SITE INVESTIGATION

WOODSTOCK, VERMONT

Project No.	4160026
Proj. Mgr.	B.H.C.
Date	5/96
B	1

APPENDIX D

BORING LOGS
AND
MONITORING WELL INSTALLATION REPORT

BORING LOCATION MW-1 INCLINATION V BEARING DATE START/FINISH 4/24/96 / 4/24/96

CASING ID CORE SIZE TOTAL DEPTH 9.17 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (R.H.)

GROUND EL (AD) 999.51 DEPTH TO WATER/DATE 2.76 FT/ 4/29/96 LOGGED BY: B. COX

ELEV AD FT	SAMPLE DEPTH FT	SAMPLE TYPE AND NO.	SAMPLE B	SAMP OD IN	LENGTH REC IN	LENGTH PENETRATION IN	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
999.34	.17						4 1/4" HSA	8"/CCH	Bituminous concrete driveway.
997.34	2.17	SS-1	1 1 1 2	2	24	10			Medium brown, very loose, silty, weathered TILL. Very fine grained, well sorted sand. 70%± non plastic fines. Trace of fine gravel to 1/4". Trace of organic matter. Very wet - saturated. No odor or staining. 12.3 ppm.
996.51	3						4 1/4" HSA	8"/CCH	Probable TILL similar to above.
994.51	5	SS-2	3 4 8 12	2	24	24			Medium - dark gray brown, medium dense, silty TILL similar to above. 10% fine gravel to 1/2". Occasional very weathered rock fragments. Wet. No odor or staining. 9.9 ppm.
992.51	7	SS-3	5 8 12 13	2	16	24			Medium - dark gray, medium dense - dense, silty TILL similar to above. Occasional very weathered rock fragments. Trace of small, oxidized, fine sand lenses. damp - wet. No odor or staining. 13.7 ppm.
990.51	9	SS-4	9 10 13 26	2	24	24			Medium - dark gray, medium dense - dense, silty TILL similar to above, but with slightly more weathered and unweathered rock fragments. Damp - wet. No odor or staining. 91 ppm.
990.34	9.17						4 1/4" HSA	8"/CCH	Probable TILL as above.
									Refusal on HSA on possible bedrock. Set 7' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 9'. Sand backfill to 18". Bentonite seal 12" - 18". Grouted in flush, watertight, aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube N - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

HSA = Hollow Stem Auger
CCH = Conical Cutter Head
ppm Refers to PID reading (10.6 eV lamp)

Top of PVC elev = 999.30

INITIAL SITE INVESTIGATION
LINDGREN RESIDENCE

WOODSTOCK, VERMONT

DATE: 4/24/96 PROJECT: 4160026

PAGE 1 OF 1 LOG OF BORING: MW-1

DH DUFRESNE-HENRY, INC.

BORING LOCATION MW-2 INCLINATION V BEARING DATE START/FINISH 4/24/96 / 4/24/96

CASING ID CORE SIZE TOTAL DEPTH 21 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (R.H.)

GROUND EL (AD) 999.44 DEPTH TO WATER/DATE 4.01 FT/ 4/29/96 LOGGED BY: B. COX

ELEV AD FT	SAMPLE DEPTH FT	SAMPLE TYPE AND NO.	B	SAMP OD IN	LENGTH REC IN	LENGTH PENETRATION IN	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
994.44	5						4 1/4" HSA	8"/CCH	0" - 6"± Medium - dark brown, sandy, silty, ORGANIC SOIL. 6" - 5' Medium brown and gray, silty TILL.
992.44	7	SS-1	4 6 6 10	2	24	24			Medium - dark brown gray, medium dense, silty TILL Very fine grained, well sorted sand. 70%± non plastic fines. 10%+ fine, often very weathered, gravel to 1/4". Trace of mica. Damp - wet. No odor or staining. 38.5 ppm.
989.44	10						4 1/4" HSA	8"/CCH	Probable TILL similar to above.
987.44	12	SS-2	12 12 15 24	2	24	24			Medium - dark gray, medium dense, silty TILL similar to above, but denser and finer overall. Moist No odor or staining. 36.1 ppm.
984.44	15						4 1/4" HSA	8"/CCH	Probable TILL similar to above.
982.44	17	SS-3	14 15 25 23	2	24	24			Medium - dark gray, medium dense - dense, silty TILL similar to above. Occasional gravel to 1/2" (often very weathered). Trace of very thin, discontinuous mottles. Dry - wet bottom 1"±. No odor or staining. 35.6 ppm.
979.44	20						4 1/4" HSA	8"/CCH	Probable TILL similar to above.
978.44	21	SS-4	31 42	2	12	12			Medium - dark gray, very dense, silty TILL as above. Dry. No odor or staining. 24.5 ppm.
									No refusal to depth. Set 10' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 20'. Sand backfill to 7'6". Bentonite seal 7' - 7'6". Grouted in flush, watertight, aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube N - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

HSA = Hollow Stem Auger
CCH = Conical Cutter Head
ppm Refers to PID reading (10.6 eV lamp)

Top of PVC elev = 999.23

INITIAL SITE INVESTIGATION
LINDGREN RESIDENCE

WOODSTOCK, VERMONT

DATE: 4/24/96 PROJECT: 4160026

PAGE 1 OF 1 LOG OF BORING: MW-2

DH DUFRESNE-HENRY, INC.

BORING LOCATION MW-3 INCLINATION V BEARING DATE START/FINISH 4/26/96 / 4/26/96

CASING ID 3" CORE SIZE TOTAL DEPTH 11.5 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (R.H.)

GROUND EL (AD) 996.92 DEPTH TO WATER/DATE .78 FT/ 4/29/96 LOGGED BY: B. COX

ELEV AD FT	SAMPLE DEPTH FT	SAMPLE TYPE AND NO.	SAMPLE B	SAMP OD IN	LENGTH REC IN	LENGTH PENETRATION IN	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
992.92	4						3" NW CSG	D&W	0" - 8"± Dark brown ORGANIC SOIL. 8" - 4' Medium gray brown, silty TILL.
990.92	6	SS-1	13 18 17 15	2	14	24			Medium - dark gray brown, medium dense - dense, silty TILL. very fine grained, well sorted sand. 70%+ non plastic fines. Trace of fine gravel to 1/8". Wet - saturated. No odor or staining. 36.5 ppm.
986.92	10						3" NW CSG	D&W	Probable TILL similar to above.
985.42	11.5	SS-2	8 13 21	2	16	24			Medium - dark brown gray, medium dense, silty TILL similar to above but with 10%+ gravel to 1". Wet - saturated. No odor or staining. 24.3 ppm.
									No refusal to depth. Set 7' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 10'. Sand backfill to 2'. Bentonite seal 1'6" - 2'. Grouted in flush, watertight, aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube N - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

CSG = Casing
D&W = Drive & Wash
ppm Refers to PID reading (10.6 eV lamp)
Boring logged from samples and drillers log.

Top of PVC elev = 996.59

INITIAL SITE INVESTIGATION
LINDGREN RESIDENCE

WOODSTOCK, VERMONT

DATE: 4/26/96 PROJECT: 4160026

PAGE 1 OF 1 LOG OF BORING: MW-3

DH DUFRESNE-HENRY, INC.

BORING LOCATION MW-4 INCLINATION V BEARING DATE START/FINISH 4/26/96 / 4/26/96

CASING ID 3" CORE SIZE TOTAL DEPTH 11.5 FT DRILLED BY: M & W SOILS ENGINEERING, INC. (R.H.)

GROUND EL (AD) 998.41 DEPTH TO WATER/DATE 1.95 FT/ 4/29/96 LOGGED BY: B. COX

ELEV AD FT	SAMPLE DEPTH FT	SAMPLE TYPE AND NO.	SAMPLE B	SAMP OD IN	LENGTH REC IN	LENGTH PENETRATION IN	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
994.41	4						3" CSG	D&W	0" - 6" Dark brown, ORGANIC SOIL. 6" - 4' Medium brown gray, silty TILL.
992.41	6	SS-1	7 8 8 9	2	16	24			Medium - dark brown gray, medium dense, silty TILL Very fine - rarely fine grained, well sorted sand. 70%± non plastic fines. 10%± fine gravel to 1/8". Occasional very weathered rock fragments. Moist - wet. No odor or staining. 23.9 ppm.
988.41	10						3" CSG	D&W	Probable TILL similar to above.
986.91	11.5	SS-2	14 20 32	2	8	18			Medium - dark gray, dense - very dense, silty TILL similar to above, but grayer and denser overall. Wet - saturated. No odor or staining. 23 ppm.
									No refusal to depth. Set 7' of 2" dia, .010" slot, threaded, flush joint, Schd 40 PVC at 9'6". Sand backfill to 2' Bentonite seal 1'6" - 2'. Grouted in flush, watertight, aluminum monitoring well box.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube N - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

CSG = Casing
D&W = Drive & Wash
ppm Refers to PID reading (10.6 eV lamp)
Boring logged from samples and drillers log.

Top of PVC elev = 998.16

INITIAL SITE INVESTIGATION
LINDGREN RESIDENCE

WOODSTOCK, VERMONT

DATE: 4/26/96 PROJECT: 4160026

PAGE 1 OF 1 LOG OF BORING: MW-4

DH DUFRESNE-HENRY, INC.

M & W Soils Engineering, Inc.

Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 4/24/96
HOLE NO. MW-1
LINE & STA.
OFFSET

TO DUFRESNE-HENRY, INC. ADDRESS NORTH SPRINGFIELD, VT
PROJECT NAME LINDGRIN PROPERTY LOCATION WOODSTOCK, VT
REPORT SENT TO BRUCE COX PROJ. NO.
SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY OUR JOB NO. 6662-96

GROUND WATER OBSERVATIONS
AT 5' AT 1 HOURS
AT 1'6" AT 4 HOURS

	CASING	SAMPLER	CORE BAR.
Type	HSA	SS	
Size I. D.	4 1/4"	1 1/2"	
Hammer Wt.		140#	BIT
Hammer Fall		30"	

SURFACE ELEV.
DATE STARTED 4/24/96
DATE COMPL. 4/24/96
BORING FORMAN R.H. & M.H.
INSPECTOR B. COX
SOILS ENGR.

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler From 0-6	6-12	To 12-18	MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness. Drilling time, seams and ect.	SAMPLE NO.	PEN	REC
		2' - 2'2"	SS	1	1			2"	ASPHALT	1	24"	10"
				1	2							
		3' - 5'	SS	3	4		LOOSE - WET		OLIVE BROWN GRAVELLY SILTY FINE SAND	2	24"	24"
				8	12			4'				
5'		5' - 7'	SS	5	8					3	24"	24"
				12	14		MED. DENSE		OLIVE BROWN GRAVELLY FINE SAND			
		7' - 9'	SS	9	10		WET		AND SILT	4	24"	24"
				13	26							
								9'2"	REFUSAL - BEDROCK OR BOULDER			
10'												
									INSTALLED 2" PVC WELL AT 9'			
									SLOTTED FROM 2' TO 9' WITH 0.010"			
									SLOT SCREEN			
									FILTER SAND TO 1'11"			
									BENTONITE FROM 1'5" TO 1'11"			
									MATERIALS USED:			
									7' OF 2" PVC 0.010" SCREEN			
									2' OF 2" PVC SOLID			
									15# OF BENTONITE CHIPS			
									150# OF SAND			
									40# OF CEMENT MIX			
									1 6" MANHOLE			
									1 2" SLIDE CAP			
									1 2" EXPANSION CAP			

GROUND SURFACE TO 9'2" USED HSA CASING THEN

Sample Type
O-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense

Cohensive Consistancy
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

sumary
EARTH BORING 9'2"
ROCK CORING
SAMPLES 4

HOLE NO. MW-1

M & W Soils Engineering, Inc.
Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 4/24/96
HOLE NO. MW-2
LINE & STA.
OFFSET

TO DUFRESNE-HENRY, INC. ADDRESS NORTH SPRINGFIELD, VT
PROJECT NAME LINDGRIN PROPERTY LOCATION WOODSTOCK, VT
REPORT SENT TO BRUCE COX PROJ. NO.
SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY OUR JOB NO. 6662-96

GROUND WATER OBSERVATIONS
AT DRY AT * HOURS
*WELL COMPLETION
AT 14' AT 2 1/2 HOURS

	CASING	SAMPLER	CORE BAR.
Type	HSA	SS	
Size I. D.	4 1/4"	1 1/2"	
Hammer Wt.		140#	BIT
Hammer Fall		30"	

SURFACE ELEV.
DATE STARTED 4/24/96
DATE COMPL. 4/24/96
BORING FORMAN R.H. & M.H.
INSPECTOR B. COX
SOILS ENGR.

LOCATION OF BORING

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler From 0-6	To 6-12	To 12-18	MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect.	SAMPLE NO.	SAMPLE PEN	SAMPLE REC
								1'+/-	TOPSOIL			
5'		5' - 7'	SS	4	5				OLIVE BROWN GRAVELLY FINE SAND AND SILT	1	24"	24"
				7	10							
10'		10' - 12'	SS	12	12		MED. DENSE		SAME MATERIAL	2	24"	24"
				15	24		MOIST					
15'		15' - 17'	SS	14	15		DENSE - MOIST		SAME MATERIAL	3	24"	24"
				25	23							
20'		20' - 21'	SS	31	42		VERY DENSE		SAME MATERIAL	4	12"	12"
								21'				
25'									INSTALLED 2" PVC WELL AT 19'11" SLOTTED FROM 9'11" TO 19'11" WITH 0.010" SLOT SCREEN FILTER SAND TO 7'7" BENTONITE FROM 7' TO 7'7" MATERIALS USED: 10' OF 2" PVC 0.010" SCREEN 10' OF 2" PVC SOLID 20# OF BENTONITE CHIPS 250# OF SAND 40# OF CEMENT MIX 1 6" MANHOLE 1 2" SLIDE CAP 1 2" EXPANSION CAP			

GROUND SURFACE TO 21' USED HSA CASING THEN DROVE SS 12"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense

Cohensive Consistancy
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

sumary
EARTH BORING 21'
ROCK CORING
SAMPLES 4

HOLE NO. MW-2

M & W Soils Engineering, Inc.

Main St. Charlestown, NH 03603

SHEET 1 OF 1

TO DUFRESNE-HENRY, INC. ADDRESS NORTH SPRINGFIELD, VT

PROJECT NAME LINDGRIN PROPERTY LOCATION WOODSTOCK, VT

REPORT SENT TO BRUCE COX PROJ. NO.

SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY OUR JOB NO. 6662-96

DATE 4/26/96

HOLE NO. MW-3

LINE & STA.

OFFSET

GROUND WATER OBSERVATIONS

AT 2' AT OPEN HOLE HOURS

AT AT HOURS

	CASING	SAMPLER	CORE BAR.
Type	NW	SS	
Size I. D.	3"	1 1/2"	
Hammer Wt.		140#	BIT
Hammer Fall		30"	

SURFACE ELEV.

DATE STARTED 4/26/96

DATE COMPL. 4/26/96

BORING FORMAN R.H. & M.H.

INSPECTOR B. COX

SOILS ENGR.

LOCATION OF BORING FRONT OF HOUSE BY APPLE TREES

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler From 0-6	6-12	To 12-18	MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE NO.	PEN	REC
								8"	TOPSOIL			
							MED. DENSE		GREYISH BROWN FINE SAND AND SILT			
		4' - 6'	SS	13	18		MOIST TO WET	4'		1	24"	14"
5'				17	15		DENSE - WET		GREYISH BROWN GRAVELLY SILTY SAND			
		10' - 11'6"	SS	8	13					2	18"	16"
10'				21				11'6"	SAME MATERIAL			
									INSTALLED 2" PVC WELL AT 10'			
									SLOTTED FROM 3' TO 10' WITH 0.010"			
15'									SLOT SCREEN			
									FILTER SAND TO 2'			
									BENTONITE FROM 1'6" TO 2'			
									MATERIALS USED:			
									7' OF 2" PVC 0.010" SCREEN			
									3' OF 2" PVC SOLID			
									5# OF BENTONITE CHIPS			
									50# OF SAND			
									40# OF CEMENT MIX			
									1 6" MANHOLE			
									1 2" SLIDE CAP			
									1 2" EXPANSION CAP			

GROUND SURFACE TO 11'6" USED NW CASING THEN DROVE SS 18"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense

Cohensive Consistancy
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

sumary
EARTH BORING 11'6"
ROCK CORING
SAMPLES 2
HOLE NO. MW-3

M & W Soils Engineering, Inc.
Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 4/26/96
HOLE NO. MW-4
LINE & STA.
OFFSET

TO DUFRESNE-HENRY, INC. ADDRESS NORTH SPRINGFIELD, VT
PROJECT NAME LINDGRIN PROPERTY LOCATION WOODSTOCK, VT
REPORT SENT TO BRUCE COX PROJ. NO.
SAMPLE SENT TO RETAINED BY DUFRESNE-HENRY OUR JOB NO. 6662-96

GROUND WATER OBSERVATIONS
AT 3' AT OPEN HOLE HOURS
AT AT HOURS

	CASING	SAMPLER	CORE BAR.
Type	NW	SS	
Size I. D.	3"	1 1/2"	
Hammer Wt.		140#	BIT
Hammer Fall		30"	

SURFACE ELEV.
DATE STARTED 4/26/96
DATE COMPL. 4/26/96
BORING FORMAN R.H. & M.H.
INSPECTOR B. COX
SOILS ENGR.

LOCATION OF BORING FRONT OF BARN

Depth	CASING BLOWS PER FOOT	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler From 0-6	6-12	To 12-18	MOISTURE DENSITY OF CONSTANT	STRATA CHANGE ELEV.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect.	SAMPLE NO.	PEN	REC
								6"	TOPSOIL			
							MED. DENSE WET		GREYISH BROWN GRAVELLY SILTY SAND			
		4' - 6'	SS	7	8					1	24"	16"
5'				8	9							
									SAME MATERIAL			
		10' - 11'6"	SS	14	20					2	18"	8"
10'				32				11'6"				
									INSTALLED 2" PVC WELL AT 9'6"			
									SLOTTED FROM 2'6" TO 9'6" WITH			
15'									0.010" SLOT SCREEN			
									FILTER SAND TO 2'			
									BENTONITE FROM 1'6" TO 2'			
									MATERIALS USED:			
									7' OF 2" PVC 0.010" SCREEN			
									3' OF 2" PVC SOLID			
									5# OF BENTONITE CHIPS			
									50# OF SAND			
									40# OF CEMENT MIX			
									1 6" MANHOLE			
									1 2" SLIDE CAP			
									1 2" EXPANSION CAP			

GROUND SURFACE TO 11'6" USED NW CASING THEN DROVE SS 18"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense

Cohensive Consistancy
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

sumary
EARTH BORING 11'6"
ROCK CORING
SAMPLES 2
HOLE NO. MW-4

LINDGREN RESIDENCE
INITIAL SITE INVESTIGATION
WOODSTOCK, VERMONT

4/24/96

Dufresne-Henry, Inc. - Bruce Cox on site at 8:30 am.
M & W Soils Engineering, Inc. - Richard Holmes, Mike Hitchcock already on site.

MW-1

Started boring at 8:45 am. The rig and other equipment had been steam cleaned prior to arrival on site. All water used for cleaning split spoons and other tools was obtained at the site. Drilled with 4 1/4" hollow stem augers taking continuous split spoon samples starting under the driveway pavement. All samples were screened for VOC's with a Photovac MicroTIP HL-2000 (10.6 eV lamp, calibrated with isobutylene). Representative soil samples from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No analytical soil samples were collected. Total depth of the boring was 9'2" with refusal on possible bedrock. The general geologic column is silty till to the limit of the boring. PID readings ranged from .8 ppm to 3.5 ppm. No visual or olfactory evidence of contamination was observed in the samples or on the tools. Several perched wet zones were encountered due to excessive rainfall in the past week. Installed a 7' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 9'. All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 1'6". A bentonite seal was installed from 1' - 1'6". A watertight aluminum monitoring well box was grouted in at the surface.

Materials: 7' of 2", .010" slot, threaded, flush joint, SCHD 40 PVC.
1'10" of 2", solid wall, threaded, flush joint, SCHD 40 PVC.
150 lb± of silica sand.
15 lb± of bentonite chips.
40 lb± of concrete mix.
1 2" push-on PVC cap.
1 2" expanding gasket cap.
1 6" aluminum monitoring well box.

MW-2

Started boring at 10:15 am. All water used for cleaning split spoons and other tools was obtained at the site. Drilled with 4 1/4" hollow stem augers taking split spoon samples at five foot intervals starting at five feet. All samples were screened for VOC's with a Photovac MicroTIP HL-2000 (10.6 eV lamp, calibrated with isobutylene). Representative soil samples from each split spoon were stored in clear glass jars and retained by Dufresne-Henry. No analytical soil samples were collected. Total depth of the boring was 21' with no refusal. The general geologic column is till to the limit of the boring. Several perched wet zones were encountered due to excessive rainfall in the past week. No

evidence of contamination by visual or olfactory senses was observed in the samples or on the tools. PID readings were 0 ppm for all samples. Installed a 10' long, 2" diameter, .010" machine slotted, threaded, flush joint, Schedule 40 PVC well at 19'11". All pipe came from factory sealed plastic bags. The annular space was backfilled with clean silica sand to 7'6". A bentonite seal was installed from 7' - 7'6". A watertight aluminum monitoring well box was grouted in flush at the surface.

Materials: 10' of 2", .010" slot, threaded, flush joint, SCHD 40 PVC.
9'9" of 2", solid wall, threaded, flush joint, SCHD 40 PVC.
250 lb± of silica sand.
20 lb± of bentonite chips.
40 lb± of concrete mix.
1 2" push-on PVC cap.
1 2" expanding gasket cap.
1 6" aluminum monitoring well box.

Due to saturated soil conditions, the drill rig got stuck enroute to MW-3. The rig was extricated and a decision made to do the remaining two borings with a tripod rig. The work was scheduled for 4/26/96.

Visitors: Laird Bradley - Georgina Williams Agency.
Weather: Mostly cloudy with flurries am, partly cloudy pm, 40's, light wind.
Off site: 3:00 pm±.

4/26/96

MW-3 & MW-4

Due to prior commitments no representative from Dufresne-Henry was on site during the installation of MW-3 and MW-4. Both wells were installed at locations flagged by Bruce Cox. The borings were done with a portable tripod rig by driving and washing casing. The borings were logged from the samples (collected at five foot intervals) and from the drillers log.

MW-3

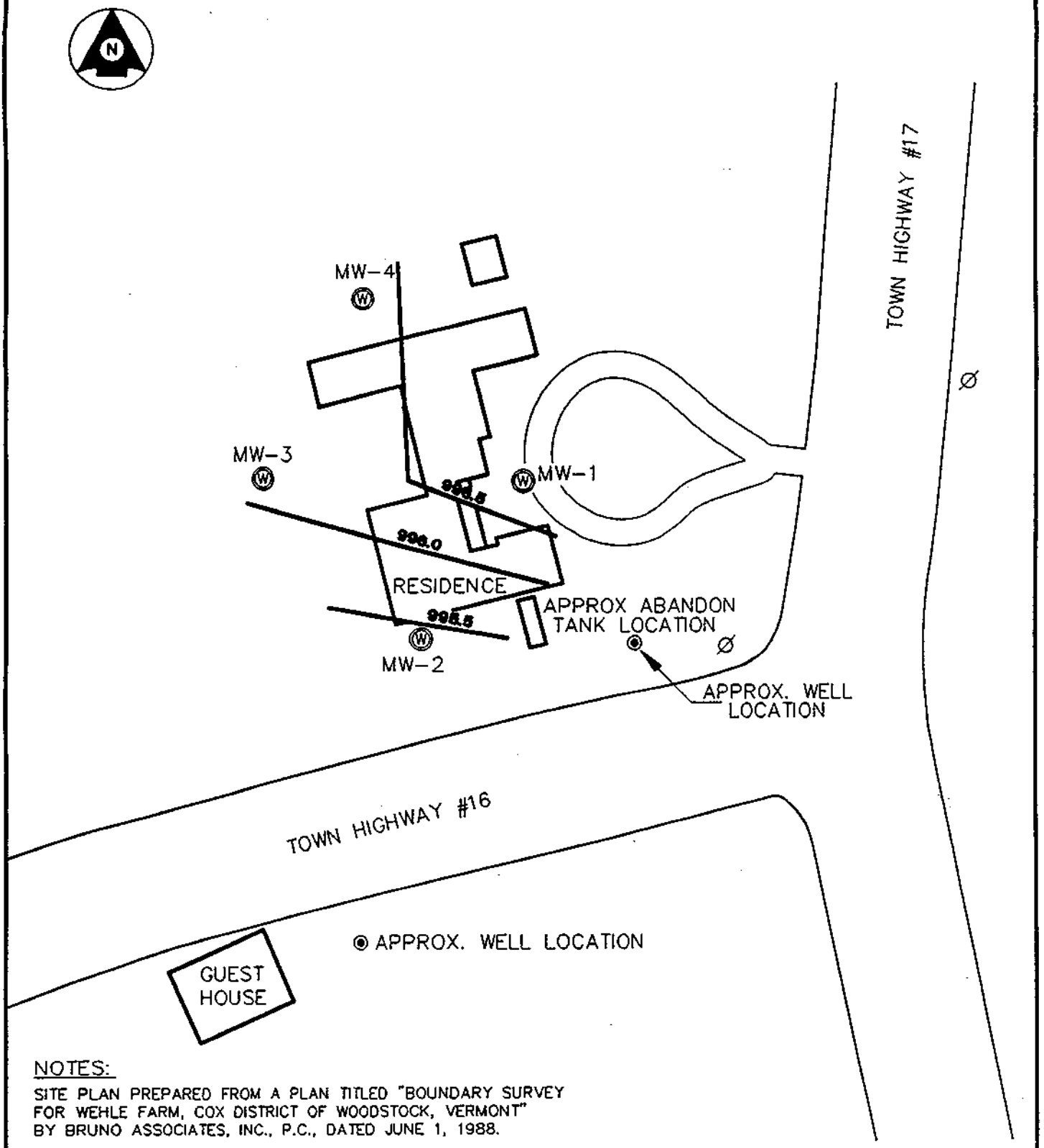
Materials: 7' of 2", .010" slot, threaded, flush joint, SCHD 40 PVC.
3' of 2", solid wall, threaded, flush joint, SCHD 40 PVC.
50 lb± of silica sand.
5 lb± of bentonite chips.
40 lb± of concrete mix.
1 2" push-on PVC cap.
1 2" expanding gasket cap.
1 6" aluminum monitoring well box.

MW-4

Materials: 7' of 2", .010" slot, threaded, flush joint, SCHD 40 PVC.
3' of 2", solid wall, threaded, flush joint, SCHD 40 PVC.
50 lb± of silica sand.
5 lb± of bentonite chips.
40 lb± of concrete mix.
1 2" push-on PVC cap.
1 2" expanding gasket cap.
1 6" aluminum monitoring well box.

APPENDIX E

GROUNDWATER CONTOUR MAP



NOTES:

SITE PLAN PREPARED FROM A PLAN TITLED "BOUNDARY SURVEY FOR WEHLE FARM, COX DISTRICT OF WOODSTOCK, VERMONT" BY BRUNO ASSOCIATES, INC., P.C., DATED JUNE 1, 1988.

SCALE 1" = 50'

Dufresne-Henry, Inc.
A DVI Company
Precision Park
No. Springfield,
Vermont 05150
Tel. (802)886-2261 Fax (802)886-2260

GROUNDWATER CONTOUR PLAN
FOR SAMPLES OBTAINED ON APRIL 29, 1996

LINDGREN PROPERTY

WOODSTOCK, VERMONT

Project No.	4160026
Proj. Mgr.	B.H.C.
Date	5/96
B	2

APPENDIX F

CONTRACT LABORATORY ANALYTICAL REPORT

eastern analytical

professional laboratory services

Bruce Cox
Dufresne-Henry
Precision Park
N. Springfield, VT 05150

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	5316 DUF
Client Identification:	4160026/Lindgren
Sample Quantity/Type:	4 aqueous
Date Received:	4/30/96

Dear Mr. Cox:

Enclosed please find the laboratory report for the above identified project. All analyses were subjected to rigorous quality control measures to assure data accuracy.

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 limit
- BRL = Below Reporting Limits

If you have any questions regarding the results contained within, please feel free to directly contact me, the department supervisor, or the analytical chemist who performed the testing in question.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Will Brunkhorst (WD)
Will Brunkhorst, President

5/8/96
Date

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 5316 DUF

Client: Dufresne-Henry

Client Designation: **4160026/Lindgren**

Volatile Organic Compounds

Sample ID:	MW-1	MW-2	MW-3	MW-4
Matrix:	Aqueous	Aqueous	Aqueous	Aqueous
Date Received:	4/30/96	4/30/96	4/30/96	4/30/96
Units:	µg/L	µg/L	µg/L	µg/L
Date of Analysis:	5/2/96	5/2/96	5/2/96	5/2/96
Analyst:	TML	TML	TML	TML
EPA Method:	602	602	602	602
Benzene	< 1	< 1	< 1	< 1
Toluene	**5**	**1**	**6**	< 1
Ethylbenzene	**2**	**7**	**1**	< 1
Total Xylenes	**8**	**37**	**15**	< 1
Chlorobenzene	< 1	< 1	< 1	< 1
EPA Method:	8015	8015	8015	8015
MtBE	< 20	< 20	< 20	< 20
EPA Method:	8015(mod)	8015(mod)	8015(mod)	8015(mod)
Volatile Pet. Hydrocarbons				
VPH C_6-C_{10}	< 20	< 20	**50**	< 20
VPH C_{11}-C_{15}	< 20	**100**	**50**	< 20

Approved By: Clifford Chase, Volatile Organics Supervisor

5316

CHAIN OF CUSTODY FORM

DH Dufresne–Henry, Inc.
Precision Park
N. Springfield, VT 05150 (802)886–2261

Generator:

Page 1 of 1

Facility #:

DH #: 4160026

Return To: Bruce Cox

Client: Lindgren

Client #:

Address:

Sampled By: AMC / BHC

State Sampled: 4-29-96

Sample Identification	Date Start / Stop	Time Start / Stop	Comp. Desc.	Water Liquid / Solid	# / Size Containers	Field Preserved Y / N	Field Filtered Y / N	Analysis Requested	Est. Lab Cost ($)
MW #1	4-29-96	930 AM	D	W	2-40 mL	Y (HCl)	N	602/8015 BTEX/MTBE	
MW #2	4-29-96	940 AM	D	W	2-40 mL	Y	N	602/8015 BTEX/MTBE	
MW #3	4-29-96	1005 AM	D	W	2-40 mL	Y	N	602/8015 BTEX/MTBE	
MW #4	4-29-96	1005 AM	D	W	2-40 mL	Y	N	602/8015 BTEX/MTBE	
						NOTE:		NEED FAXED	
								RESULTS BY	
								5/3/96	

Generator Rep. Authorization:

Estimated Lab Analysis Total

Relinquished By Generator:	Date:	Received By:	Date:
	Time:		Time:
Relinquished By: Bruce Cox	Date: 4/29/96	Received By: Susan Dubois	Date: 4/30/96
	Time: 2:00 PM		Time: 11:00

PLEASE RETURN COMPLETED CHAIN OF CUSTODY WITH ANALYTICAL RESULTS

NEWCUST.WK1

REPORT NUMBER: AA76111

AMERICAN ENVIRONMENTAL LABORATORIES, INCORPORATED

- LAB ID # : MA076 -

COPY

TO: Criterium-Lalancette Engineers
32 North St. - Box 6348
Rutland, VT 05702-6348

DATE RECEIVED : 03/28/96
DATE COLLECTED 03/27/96
COLLECTED BY : M. LANGHAM
MATRIX : Water

PO/ID NUMBER : AA76111

SAMPLE DESCRIPTION: Lingren Prop. (96-4417/Helms)

- ANALYTICAL RESULTS -

PARAMETER	RESULT	UOM	TEST DATE	MDL	METHOD
TOTAL PETROLEUM HYDROCARBONS	ND	MG/L	04/02/96	2.0	EPA 8100MOD

MDL MULTIPLIER: 2

QC INFORMATION:

FUEL OIL SPIKE	FUEL OIL #2
SPIKE RECOVERY (70-130%)	100%
True Value (mg/l)	2.0
Recovered Value (mg/l)	2.0
BLANK	ND

DATE OF EXTRACTION: 03/29/96

POSSIBLE MATCH CATEGORIES FOR PETROLEUM IDENTIFICATION ARE AS FOLLOWS:

KEROSENE - INCLUDES KEROSENE
MOTOR OIL - INCLUDES VIRGIN & WASTE AUTOMOBILE OILS
FUEL OIL # 2 - INCLUDES HOME HEATING OIL, # 2 FUEL OIL, DIESEL
FUEL OIL # 4 - INCLUDES # 4 FUEL OIL
FUEL OIL # 6 - INCLUDES # 6 FUEL OIL AND BUNKER "C" OIL
GASOLINE

ANALYZED BY: (FB)
REVIEWED BY: ( )

These results apply only to the actual sample as tested. The integrity of results is dependent upon the quality of the sampling technique and subsequent handling. Actual detection limits are the above reported MDL's multiplied by dilution factors, if any. American Environmental Laboratories, Inc. shall not be held liable for any interpretation of analytical results.