Heindel and Noyes
P.O. Box 64709 Burlington, Vermont 05406-4709

• Consulting Hydrogeologists
• Engineers
• Environmental Scientists

802-658-0820
Fax 802-860-1014

December 16, 1998

Mr. Chuck Schwer
Department of Environmental Conservation
Sites Management Section
103 South Main Street, West Office
Waterbury, VT 05671-0404

Re: Noyes Express

Dear Chuck:

Enclosed for your review is a copy of the environmental investigation of the Noyes Express property. The Bank is currently preparing this property for sale by auction. There are several prospective purchasers who are interested in acquiring the site. However, they have concerns regarding their going forward liability for the contamination present on the property. The Bank has asked me to have the Department address a couple of issues in its project review letter.

The first issue is whether or not active remediation on the property will be required. Please note that we have recommended placing concrete in the basement of the facility to isolate soil contamination from future users. Additionally, the Bank would like to have the review letter review the Department's commitment to fund future monitoring or remediation costs. While I recognize this is somewhat redundant, having your surety in the investigation review letter will go a long way towards returning this site to its highest and best use.

Please call with any questions.

Best regards,

Jeffrey E. Noyes
Chief Hydrogeologist

JEN/jm

Enclosure

U:\PROJECTS\NOYS_EXP\COVERLTR.DOC

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NOYES EXPRESS

Beecher Falls, Vermont

SITE CHARACTERIZATION REPORT

Prepared by:

Heindel and Noyes

Prepared for:

Mr. Alan Wing
Senior Vice President
Community National Bank

December 14, 1998

Heindel and Noyes
P.O. Box 64709 Burlington, Vermont 05406-4709

• Consulting Hydrogeologists
• Engineers
• Environmental Scientists

802-658-0820
Fax 802-860-1014

December 28, 1998

Mr. Gerold Noyes
Sites Management Section
103 South Main Street, West Office
Waterbury, VT 05671-0404

RE: Noyes Express

Dear Gerold:

It has been brought to my attention that the Heindel and Noyes Site Characterization Report for Noyes Express (dated 12/14/98) contains a few typographic errors that may lead to some confusion. In an effort to keep the record clear I would like to address and correct these errors:

1. Page 13 paragraph 2: This paragraph discusses BTEX concentrations in parts per million (ppm), this should read parts per billion (ppb) in each instance that (ppm) is used. There is no substantive change in the content of this paragraph.

2. Page 13 paragraph 6: This paragraph also discusses BTEX concentrations in (ppm), this should be changed to (ppb). There is no substantive change in the text of the paragraph.

3. Appendix 1, page 4: Water Table and BTEX Concentration Contour Map: The BTEX concentration contour values and BTEX concentrations are noted in (ppm) in the legend. These values are in (ppb). There is no change in the plume configuration.

4. Appendix 1, page 5: Water Table and MTBE Concentration Contour Map: The MTBE concentration contour values and MTBE concentrations are noted in (ppm) in the legend. These values are in (ppb). There is no change in the plume configuration.

The errors listed above do not effect the conclusions and recommendations put forth by Heindel and Noyes. Please attach this letter to your report to avoid future confusion.

Best regards,

Dori Barton
Staff Scientist

U:\PROJECTS\BEECHRFL\DECEMBER 22.DOC

NOYES EXPRESS

Beecher Falls, Vermont

SITE CHARACTERIZATION REPORT

TABLE OF CONTENTS

Heindel and Noyes
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• Consulting Hydrogeologists
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NOYES EXPRESS

Beecher Falls, Vermont

SITE CHARACTERIZATION REPORT

December 14, 1998

1.0 INTRODUCTION

This report documents environmental testing conducted by Heindel and Noyes (H&N) at the Noyes Express property, located in Beecher Falls, Vermont (Site #97-2252) (Appendix 1, page 1). The Sites Management Section (SMS) requested this work after soil and groundwater contamination were identified during the site assessment for closure of six underground storage tanks on the property. The UST Assessment[1] was completed by H&N and submitted to the SMS on September 15, 1997.[2] The recent activities documented in this report were conducted by H&N in accordance with the work plan approved by the SMS and dated September 23, 1998.

1.1 Purpose and Scope

The purpose of this investigation was to characterize the extent of petroleum hydrocarbon contamination which was reported in H&N's UST Assessment.[3] To achieve this task, H&N installed onsite and offsite monitoring wells, screened and sampled soils, conducted groundwater and surface water sampling, sampled ambient air space in the facility and performed a sensitive receptor survey.

This report summarizes the results of the investigation. Accordingly, this report documents

[1]Heindel and Noyes, Inc. #4095), UST Site Assessment, 10/15/97.
[2]Heindel and Noyes, Inc. (#4095), UST Site Assessment, 10/15/97.

[3]Heindel and Noyes, Inc. (#4095),UST Site Assessment, 10/15/97.

field activities, presents field and laboratory analytical results, and makes conclusions and recommendations based on all data obtained at the site to date.

1.2 UST Closure

On September 9, 1997, Heindel and Noyes (H&N) conducted a site assessment in accordance with the requirements for closure of six underground storage tanks (USTs) at Noyes Express, located in Beecher Falls, Vermont.

A total of three excavations were conducted to expose/remove the six USTs. Excavation areas A, B and C are illustrated on the Site Plan in Appendix 1, page 2. Two 3,000 gallon gasoline USTs, located within excavation A, one 500 gallon UST of unknown contents, located within excavation B, and one 1,000 gallon kerosene UST, located within excavation C were excavated and transported offsite. Two 1,000 gallon gasoline USTs, located within excavation C, were closed in-place to avoid compromising the integrity of the overlying structure. Soil samples were collected at appropriate depths and locations within the excavations and screened for contamination. Petroleum contamination was discovered in each of the three excavations during the closure of the six USTs. The UST Site Assessment[4] concluded that the contamination has impacted both the soil and groundwater at the site.

2.0 SITE LOCATION AND PHYSIOGRAPHY

Noyes Express (site) was a gasoline station/convenience store, situated on a small parcel of land (approximately 120' x 65') in Beecher Falls, Vermont. The site is bordered to the north by Route 253, to the south by the Connecticut River, to the west by a Town Road, and to the east by a private residence/business. A site location map is presented in Appendix 1, page 2.

Based on soil boring logs, the site was filled to bring it up to its existing grade. The majority of the site is covered by the gasoline station and fueling stations. The parking area is confined to the north and west sides of the property, the remaining unimproved areas on the south side of the lot are covered by herbaceous and woody vegetation. The majority of the site is level. The topography slopes steeply downward at the south end toward the Connecticut River. The southern boundary of the property ends at the toe of this slope. Surface water drainage is to the west towards sewer drains on Route 253.

[4] Heindel and Noyes, Inc. (#4095), UST Site Assessment, 10/15/97.

3.0 WORK COMPLETED

3.1 Soil Boring/Monitoring Well Installation

On November 4-5, 1998, a total of ten soil borings were advanced to 5 to 20 feet below ground surface (bgs) and subsequently configured with monitoring wells to evaluate hydrogeologic conditions and groundwater quality. Six soil borings were advanced using hollow-stem augers (with split spoon sampling), by Specialty Drilling, Inc. (Burlington, Vermont) under the supervision of H&N personnel. The remaining four borings were hand augured by H&N. The boring program focused onsite with only one soil boring conducted offsite.

Split-spoon samples were generally collected at two-foot intervals in each of the borings. Samples were descriptively logged and screened for volatile organic compounds (see Section 3.2). Soil boring logs are included in Appendix 2, pages 1-6.

Water table monitoring wells were constructed of two-inch (i.d.) PVC casing with flush-threaded joints and factory-slotted screened sections (0.020 inch). Screened sections were installed from 1-10 feet bgs, covered with filter sock and backfilled with native material. All monitoring wells were finished with a bentonite seal and concrete surface seal.

3.2 Soil Screening

During the soil-boring program, discrete interval soil samples (1-2 foot intervals) were screened with an HNu Systems, Inc. Model PI 101 photoionization detector (PID) equipped with a 10.2 eV lamp. The PID was calibrated with a 100 ppm isobutylene span gas. Headspace screening results are included on soil boring logs (Appendix 2, pages 1-6) and in the following tables.

MW-1		MW-2		MW-3		MW-4		MW-4D		MW-5	
Depth	ppm	depth	ppm	depth	ppm	depth	ppm	depth	ppm	depth	ppm
3-5'	1.0	3-5'	--	3-5'	--	3-5'	--	--	--	--	--
5-7'	1.4	5-7'	1.6	4.5-6.5	1.0	5-7'	156	--	--	--	--
7-9'	0.8	7-9'	4.8	7.5-9.5	1.2	7-9'	186	--	--	--	--
9-11'	1.6	9-11'	20.0	9.5-11.5	1.8	10-12'	96	--	--	--	--
11-13'	0.6	11-13'	98.0	11.5-13.5'	1.6	12-13.5'	162	--	--	--	--
--	--	--	--	13.5-15.5'	50.0	13.5-14'	7.8	--	--	--	--
--	--	--	--	--	--	--	--	15-16'	--	15-16'	7.3
--	--	--	--	--	--	--	--	16-18'	--	16-18'	10.6
--	--	--	--	--	--	--	--	18-20'	7.3	--	--

Hand augured borings:

MW-6		MW-7		CRW1		CRW2	
Depth	ppm	Depth	ppm	Depth	ppm	Depth	ppm
2'	2.2	1	20	--	--	--	--
3'	2.0	1.7	22	--	--	--	--
4'	2.2	2.0	20	2.0	1.4	2.0	1.4
--	--	2.5	68	--	--	--	--
--	--	3.0	60	--	--	--	--
--	--	4.0	75	--	--	--	--
--	--	4.5	120	--	--	--	--
--	--	5	120	--	--	--	--
--	--	5.5	160	--	--	--	--
--	--	6.0	120	--	--	--	--

Soil samples were collected for laboratory analyses from MW-4D at a depth of 18-19.5', MW-5 at 16-18', and MW-6 at 3'. Samples were submitted for Total Petroleum Hydrocarbon (TPH) analysis by Modified EPA Method 8015. Analytical results are discussed in Section 4.2.3.

3.3 Groundwater and Surface Water Sampling

Newly installed monitoring wells were developed on November 5, 1998 and sampled on November 6, 1998. Groundwater samples were collected, using disposable bailers, from nine of the newly installed monitoring wells. Groundwater samples were not collected from MW-6 due to insufficient yield.

All nine monitoring wells sampled were analyzed for volatile organic compounds (VOCs) by EPA method 8021b. Analytical results are discussed in Section 4.2.2.

Surface water samples were collected from two locations along the Connecticut River, located approximately 70' downgradient of the site. Samples were obtained upstream (southeast), and downstream (southwest) of the site. Samples were analyzed for VOCs by field gas chromatograph.

All groundwater samples were preserved according to appropriate protocol and submitted to Endyne, Inc., located in Williston, Vermont, for analytical testing.

3.4 Monitoring Well Survey

Monitoring well locations and top-of-casing (TOC) elevations were surveyed by H&N on November 6, 1998. The survey established a temporary benchmark (TBM) on a fire hydrant located northeast of the site, assigning it an arbitrary elevation of 100.00 feet.

Water level measurements were obtained from monitoring wells on November 6, 1998, prior to groundwater sampling. Groundwater elevations were calculated by subtracting the measured water levels from the surveyed TOC elevations. A water table elevation contour map was subsequently constructed (Appendix 1, page 3). The monitoring well elevation data are present in tabular form in Appendix 1, page 4. A discussion of the groundwater elevation data is presented in Section 4.1.

3.5 Indoor Ambient Air Survey

The ambient air space in the Noyes Express facility was sampled using EPA Method T-02. In addition, a PID was used to screen all rooms, drains, and sinks in the building. The results of the indoor air survey are presented in section 4.3 of this report.

3.6 Sensitive Receptor Survey

Contamination associated with the Noyes Express facility could potentially impact human and environmental receptors. As a consequence, H&N performed a sensitive receptor survey with particular emphasis on the basements of the onsite and neighboring buildings, and the environment. The results of the receptor survey are presented in section 4.4.

4.0 INVESTIGATION RESULTS

4.1 Stratigraphy/Hydrogeology

Based on the soil logs generated during the tank pull investigation and the soil boring logs generated during the drilling program, the stratigraphy beneath the Noyes Express site consists of 8 feet of fill material (brown very coarse to medium sand, and gravel) overlying native glacial till (grey very-fine sand, and clayey silt). Bedrock may have been encountered at 14.5' bgs. Soils were saturated at approximately 9.0' bgs and standing water began accumulating in the excavations and monitor wells at approximately 10.0'-12' bgs.

As discussed in Section 2.4, groundwater elevations were calculated from monitoring well water level measurements taken on November 6, 1998 (Appendix 1, page 4). The water table elevation contour map confirms that shallow groundwater flow at the site is to the south towards the Connecticut River. Groundwater flow is likely intercepted by a bridge foundation that exists on the southwestern extent of the property. See Site Plan included in Appendix 1, page 2. The foundation creates a conduit for shallow groundwater flow to the Connecticut River. The horizontal hydraulic gradient averages approximately 0.129 feet/foot (MW-2 to CRW2) along the north/south extent of the property towards the River.

4.2 Analytical Results

4.2.1 Groundwater

The results of the November 6, 1998 groundwater analyses (EPA Method 8021b) are summarized in Table 2 of Appendix 1, page 5. During the recent sampling event,

groundwater concentrations exceeded either the VT Enforcement Standard (VTES) or the VT Health Advisory (VTHA) for one or more compounds in monitoring wells MW-2, MW-3, MW-4, MW-4D, MW-5, MW-7, and CRW2.

- Monitoring well MW-2 had benzene (19.8 ug/l), naphthalene (205 ug/l) 1,3,5-Trimethylbenzene (451 ug/l) and 1,2,4-Trimethylbenzene (1,400 ug/l) in excess of the VTES and VTHA. MTBE was not detected in MW-2 with an elevated detection limit of <100 ug/l.

- Monitoring well MW-3 had MTBE (1820 ug/l), 1,3,5-Trimethylbenzene (97.9 ug/l) and 1,2,4-Trimethylbenzene (244 ug/l) in excess of the VTES and VTHA. Benzene and napthalene were not detected in MW-3 with elevated detection limits of <5 ug/l and <50 ug/l, respectively.

- Monitoring well MW-4 had benzene (9590 ug/l), ethylbenzene (803 ug/l), MTBE (6720 ug/l), toluene (10,100 ug/l), naphthalene (250 ug/l) 1,3,5-Trimethylbenzene (113 ug/l) and 1,2,4-Trimethylbenzene (385 ug/l) in excess of the VTES and VTHA.

- Monitoring well MW-4D had benzene (263 ug/l), MTBE (390 ug/l), naphthalene (24.7 ug/l) 1,3,5-Trimethylbenzene (17.6 ug/l) and 1,2,4-Trimethylbenzene (50.3 ug/l) in excess of the VTES and VTHA.

- Monitoring well MW-5 had MTBE (3240 ug/l) in excess of the VTES and VTHA. Detection limits for benzene (<100 ug/l), naphthalene (<100 ug/l) 1,3,5-Trimethylbenzene (<100 ug/l) and 1,2,4-Trimethylbenzene (<100 ug/l) were greater than the VTES and VTHA.

- Monitoring well MW-7 had benzene (23,900 ug/l), ethylbenzene (2,890 ug/l), MTBE (89,000 ug/l), toluene (38,500 ug/l), total xylenes (13,500 ug/l) and 1,2,4-Trimethylbenzene (1,690 ug/l) in excess of the VTES and VTHA. Detection limits for naphthalene (<1000 ug/l) and 1,3,5-Trimethylbenzene (<1000 ug/l) were greater than the VTES and VTHA for these compounds.

- Monitoring well CRW2 had MTBE (394 ug/l) in excess of the VTES and VTHA. Detection limits for benzene (<5 ug/l), 1,3,5-Trimethylbenzene (<5 ug/l) and 1,2,4-Trimethylbenzene (<5 ug/l) were greater than the VTES and VTHA for these compounds.

Several unidentified peaks were detected in the majority of the monitoring wells. Laboratory analytical reports are presented in Appendix 3, pages 1-9.

Volatile organic compounds (via EPA 8021b) were detected in each of the nine monitor wells that were sampled. Total benzene, toluene, ethylbenzene, and total xylene (BTEX) and MTBE dissolved plume isopleth maps were constructed and are included in Appendix 1, pages 6 and 7. As stated previously, MW-6 could not be sampled during this last sampling event.

4.2.2 Surface Water

Surface water samples were collected from two locations on the Connecticut River, approximately 10' upstream and 10' downstream (directly downgradient of the bridge foundation) of the site. Samples were analyzed by gas chromatograph. The results of the November 6, 1998 surface water analyses indicate that the Connecticut River has not been adversely impacted by the contaminant plume originating on the Noyes Express property. The contamination in groundwater that has migrated to the River, has left no visible physical or chemical effect.

4.2.3 Soils

Soil samples were collected for laboratory analysis from MW-4D at a depth of 18'-19.5', MW-5 at 16'-18', and MW-6 at 3'. Samples were submitted for Total Petroleum Hydrocarbon (TPH) analysis by Modified EPA Method 8015. Analytical values were quantitated based on the response of gasoline. Individual laboratory results are presented in the following table and included in Appendix 3, pages 4-6.

Location	Depth (ft)	Concentration (mg/kg)
MW-4D	18-19.5	2.18
MW-5	16-18	21.3
MW-6	3	ND

TPH levels in combination with PID readings suggest that the contaminant plume is migrating south at a depth of 5' to 18' bgs. Highest contaminant concentrations are located at the shallow water table and diminish with depth. The TPH level in MW-5 (21.3 mg/kg) is indicative of residual contamination in the soils, although it is not suggestive of free phase product. PID measurements taken of soils from the same location are also indicative of residual contamination (10.6 ppm). At a depth of 18-19.5' contaminant

levels have significantly decreased as measured at MW-4D by TPH (2.18 mg/kg) and by PID (7.3 ppm).

4.2.4 Indoor Ambient Air Survey

An indoor air survey was conducted at the Noyes Express facility. Ambient air samples were collected from the main floor and analyzed by EPA Method T-02. A PID was also used to screen each of the rooms in the building, including the main floor, second floor, bathrooms, basement and the garage. PID readings of the second floor, and the garage were not elevated above background levels (0.2 ppm). PID readings measured on the main floor and basement were consistently 0.4ppm, including the bathrooms and sinks. The results of the T-02 analysis of the ambient air on the main floor indicate that the air space in the building does not pose a threat to human health. Laboratory results are included in Appendix 3, pages 1-5.

4.3 Sensitive Receptor Survey

Contamination associated with the Noyes Express facility could potentially impact human and environmental receptors. As a consequence, H&N performed a sensitive receptor survey on November 6, 1998, with particular emphasis on the basements of the onsite and neighboring buildings, and the environment. The results of the receptor survey are presented below.

4.3.1 Human Receptors

Humans can be exposed to contaminants through three major pathways, ingestion, inhalation, and dermal contact.

Ingestion

Exposure through ingestion occurs by the consumption of contaminated foodstuffs or drinking water. The Noyes Express site is serviced by public water, with no private water supply wells located on the property.

According to Mr. Ken Lundberg of Riverside Waterworks, no area residents use well water. All area businesses and residences employ municipal water through Riverside Waterworks. This was confirmed during the sensitive receptor survey; no well heads were noted in the vicinity of the subject site. Exposure through ingestion does not appear to be a threat to human health.

Dermal Contact

The dermal contact pathway involves exposure by physical contact with contaminated soil, surface water, or groundwater, with subsequent absorption of contaminants through the skin. During the excavations for the tank removals and soil borings for additional characterization, maximum PID readings (20 -220 ppm) were encountered at depths of 5'-15' below ground surface (bgs). Soils screened in the basement of the Noyes Express facility were elevated to 20 ppm at a depth of 1' bgs, maximum PID readings (160 ppm) were encountered at a depth of 5.0' bgs in the basement adjacent to a fuel oil AST. The subject property is almost entirely paved, the risk for dermal contact with contaminated soil is considered to be negligible. A more substantial threat of contact is possible in the basement of the facility with any disturbance of the soils.

The Connecticut River borders the subject property to the south. A surficial reconnaissance of the riverbank was conducted during which no groundwater seeps were observed on the subject property, the outfall of a storm drain was identified. There were no sheens or odors detected at the outfall of the drain. There were no sheens observed on the River upgradient (~200 yards), cross gradient or downgradient (~200 yards) of the site. The riverbank appears to have been filled with stone and waste debris. Numerous car parts (engines, doors, etc) were identified along the banks upstream and downstream of the subject property. A groundwater seep was identified approximately 200 yards downstream of the Noyes Express site. There were no sheens or odors observed in the area of this seep. Surface waters do not appear to have been impacted by contamination on the subject property and do not likely pose a threat to human health.

There are no private water supply wells on the site or surrounding area. Groundwater contact is not considered a potential risk to human health.

Inhalation

One inhalation pathway was identified: Inhalation vapors from contaminated soil or groundwater into basements, floor drains, or other openings in building foundations. In order to evaluate the potential inhalation exposure the subject facility and neighboring buildings were all visited.

Noyes Express Facility

The building on the subject property has a partial basement, not extending under the garage. The basement has an exposed dirt and concrete floor. A PID was used to screen the basement, only slightly elevated readings were noted (0.4 ppm). There were no floor drains observed in the basement, only a pump that appears to be a component of an abandoned cistern. Disturbance of the exposed dirt floor in the basement may pose a threat to human health given the elevated PID readings (68 ppm at 2.5' bgs) measured at shallow depths during hand auguring of MW-7.

Beecher Falls Post Office

This is a seventy-year-old structure with full basement and is the adjoining property to the southwest (across the Town Road). The basement has a concrete floor and has not been known by the Post Mistress to flood. A PID was used to screen the basement; only background readings were noted (0.2 ppm). Because it is cross-gradient to the plume location, the risk to human health appears to be negligible.

Town Road Residences

There are two residences on the Town Road that were included in the sensitive receptor survey. The first is an approximately seventy year old two story house located across the street (Rt. 253) from the Post Office, northwest of the Noyes Express facility. The current occupant indicated that the building does not have a basement. Subsequent conversations with the Post Mistress, also a former occupant of this residence, revealed that the house does have a cement basement. To her knowledge, the basement had never flooded and did not have any odors. This residence is upgradient of the known contaminant plume and the risk to human health appears to be negligible.

The second residence on the Town Road is a one hundred-year-old two-story residence located north of the Noyes Express facility. The basement has an exposed dirt and cement floor. There were no indications of flooding observed. A PID was used to screen this basement; only background readings (0.2 ppm) were noted. This second residence is also upgradient of the known contaminant plume and the risk to human health appears to be negligible.

Adjoining Business/Residence

A tire sales shop and private residence occupy the adjoining property to the east. The house is approximately fifty to sixty years old. The basement of the residence has a cement floor and has been finished as living space in the house. The owner of the house, Mr. Bruce Tibbetts, indicated that the basement has no drains and has never flooded. A PID was used to screen this basement, only slightly elevated readings (0.4 ppm) were noted in the furnace room where a fuel oil AST is located. The attached tire shop does not have a basement. Because of its cross-gradient location to the contaminant plume, the risk to human health appears to be negligible.

4.3.2 Environmental Receptors

The Connecticut River borders the site to the south. As described above, no sheens or odors were observed on the riverbanks or river upstream and downstream of the site. Surface water samples were collected from upstream and downstream of the site and analyzed by field gas chromatogram. This analysis indicates that the Connecticut River has not been negatively impacted by the contamination on site. A single storm water outfall was identified on the eastern border of the property. There were no sheens or odors observed at this outfall.

Storm sewers located along Route 253 collect surface water runoff from Route 253 and the Town Road. The storm sewers flow in an east/west direction to a wastewater treatment facility in Canaan, Vermont. The sewer line is approximately 18' bgs and located north (upgradient) of the site.

The known environmental receptors in the area are the groundwater, the soil in contact with groundwater, the soil in the area of the former UST locations, the soil in the area of AST in the basement of the site facility, and the Connecticut River.

5.0 CONCLUSIONS AND RECOMMENDATIONS

H&N has completed an investigation of the Noyes Express site in Beecher Falls, Vermont. These activities included onsite and offsite monitoring well installation, soil screening and sampling, groundwater sampling from newly installed wells, surface water sampling at two locations along the Connecticut River, ambient air space sampling from within the facility, and a sensitive receptor survey. This phase of investigation complemented field observations made during the tank pull investigation conducted by H&N in September 1997. Based on the combined data, several conclusions have been drawn. These are as follows:

- Shallow groundwater flow has been confirmed to be south, towards the Connecticut River. A vertical hydraulic gradient could not be quantified based on the present array of wells. Groundwater flow is likely intercepted by a bridge foundation, which serves as a conduit for flow to the Connecticut River.

- Headspace PID soil screening results at the offsite (upgradient) drilling location (MW-1) do not indicate significant soil contamination.

- Groundwater concentrations exceeded either the VT Enforcement Standard (VTES) or the VT Health Advisory (VTHA) for one or more compounds in onsite monitoring wells MW-2, MW-3, MW-4, MW-4D, MW-5, MW-7, and CRW2.

- The source of the BTEX and MTBE contamination is likely a combination of the four underground storage tanks (gasoline, and unknown) which were removed from the site and two underground storage tanks (gasoline) that were closed in place on September 9, 1997, and suspected to have leaked in the subsurface. This is supported by the presence of MTBE in several wells onsite. MTBE is a common octane enhancing gasoline additive. ppb see lab sheets

- The highest contaminant concentrations (78,290 ppm BTEX) were detected in MW-7 located in the basement of the Noyes Express facility. This monitor well is directly downgradient of a known source area for gasoline contamination. Two leaking 3,000 gallon underground storage tanks were removed from the northeast corner of the property (excavation A). The relatively high BTEX concentrations are consistent with gasoline contamination. A BTEX concentration of 78,000 ppm is indicative of free/or residual phase product, although none was detected at the time of sampling.

- The contaminant plume has migrated south from the source areas as evidenced by elevated levels of VOCs in MW-5 and CRW-2, particularly MTBE (3240 ppb and 394 ppb, respectively). Given the size of the site, it is likely that the contamination from individual USTs has combined to form a heterogeneous plume under the site.

- The north-south boundaries of the dissolved-phase hydrocarbon plume(s) have been delineated between MW-1 and CRW-2, approximately 185'. The eastern and western extent of the plume have not been completely defined, but probably does not extend significantly further west of downgradient wells MW-4 and MW-5, or east of MW-2, located in the source area (assumed 60' east/west lateral extent). The vertical extent of contamination has been roughly defined between 5' and 18' bgs. The estimated contaminant plume encompasses approximately 145,000 cubic feet.

- The Connecticut River, located approximately 70 feet downgradient of the site, does not appear to have been impacted. There are no residential water supply wells in the vicinity of the site. Currently, there is no known risk to public health or the environment offsite.

- Onsite, residual contamination in the shallow soils and groundwater in the basement present a potential threat to human health. Contaminant concentrations of 20 ppm by PID were detected at a depth of 1' bgs. BTEX concentrations of 78,000 ppm in groundwater are indicative of free phase product, although none was detected at the time of sampling. Given the high levels of contamination in the soils and groundwater, disturbance of exposed soils in the basement may result in the release of vapors into the facility.

Based on the above conclusions, H&N recommends the following:

- Due to the potential for dermal contact with contaminated soils and possible inhalation of toxic vapors, disturbance of soils in the basement of the Noyes Express facility should be minimized and avoided. To eliminate the risk to human health, the exposed dirt in the basement should be sealed/capped with concrete or the contaminants removed by an approved State method.

- Install two more monitoring wells to better define the extent of the contaminant plume on the site. One well would be installed on the private property to the east and one on the Post Office property to the west. Include these wells in the recommended groundwater sampling program, described below.

- Collect groundwater samples from all monitoring wells during the spring high water table season and analyze via EPA method 8021b; sample select wells for EPA method 8100 analyses. Springtime sampling will allow for a sample to be collected from MW-6, which was dry during this last event. Surface water samples should also be collected to verify that the contamination is not impacting the Connecticut River. Based on the results of the spring sampling, an appropriate course of action could be recommended.

Sample Storm water outfall to east

Noyes Express
Beecher Falls, Vermont

1:2415

N

INFORMATION & VISUALIZATION SERVICES
P.O. Box 54105 - Burlington, Vermont - 05406-4705 - Tel: (802) 865-0437 - Fax: (802) 860-1014

Noyes Express
Beechers Falls
Water Table Elevations

Monitor Well	TOP Elevation (ft)	BTOP (ft)	11/6/98
MW 1	97.39	4.98	92.41
MW 2	96.79	9.98	86.81
MW 3	98.48	12.92	85.56
MW 4	96.23	9.83	86.4
MW 4D	96.41	10.05	86.36
MW 5	99.66	14.48	85.18
MW 6	93.66	6.34	87.32
MW 7 (Basement)	NA	5.73	NA
CRW1	79.32	4.75	74.57
CRW2	76.59	3.95	72.64

GROUND WATER QUALITY RESULTS
Noyes Express
Beecher Falls, Vermont

Parameter	Benzene	Ethyl-Benzene	MTBE	Toluene	Total Xylenes	Naphthalene	1,3,5 Trimethyl Benzene	1,2,4 Trimethyl Benzene	Total BTEX	Unidentified Peaks
VT Enforcement Standard [1]	5	700	40	1000	10000	20	4	5	none	none
VT Preventive Action Limit [1]	0.5	350	20	500	5000	10	2	2.5	none	none
VT Health Advisory [2]	1	none	40	none	none	20	4	5	none	none
Federal MCL [2]	5	700	none	1000	10,000	none	none	none	none	none
UNITS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	ug/l	none
Sample ID / Date / Method (s)										
MW-1 11/05/98 8021b	< 1	< 1	< 10	47.4	< 1	< 1	<1	<1	< 50.4	0
MW-2 11/05/98 8021b	19.8	258	< 100	230	2210	205	451	1,400	< 2717.8	>10
MW-3 11/05/98 8021b	< 50	TBQ< 50	1820	TBQ< 50	383	< 50	97.9	244	< 533	>10
MW-4 11/05/98 8021b	9580	803	5720	10,100	3,320	250	113	385	< 23813	>10
MW-4D 11/05/98 8021b	263	56.7	390	326	137	24.7	17.6	50.3	< 782.7	>10
MW-5 11/05/98 8021b	< 100	< 100	3240	< 100	< 100	< 100	<100	<100	< 400	0
MW-7 11/05/98 8021b	23,900	2,890	89,000	38,000	13,500	< 1000	<1000	1,690	< 78290	4
CRW1 11/05/98 8021b	< 1	< 1	TBQ< 10	10.5	< 1	< 1	<1	<1	< 13.5	0
CRW2 11/05/98 8021b	< 5	< 5	394	51.7	< 5	< 5	<5	<5	< 66.7	0

NT = Parameter not tested.
NS = Not Sampled
[1] Vermont ESs and PALs from 1997 GWPRS
[2] Vermont HAs and Federal MCLs from April 1997 Vermont Health Advisory Reference Guide
Note: Shaded values exceed the Vermont Ground Water Enforcement Standard.

HYDRANT

92

<50.4
92.41
MW-1

90

88

STORM DRAIN

WATER SHUTOFF

<2717.8
86.81
MW-2

2500

1 8640
<27,813
MW-4
MW-4D
20,000 <782.7
88.36

PUMPS

NA
78,290
MW-7
75,000

MW-6
NS
87.32

86

500

100

50

MW-3
<533
85.56

84

82

80

MW-5
<400
85.18

78

76

CRW1
<13.5
74.81

CRW2
<66.7
72.64

EDGE OF RIVER

TOWN ROAD

BRIDGE

LEGEND

MW-6 ◆ MONITORING WELL LOCATION

AREA OF EXCAVATION

WATER TABLE CONTOUR (FEET)

BTEX CONCENTRATION CONTOUR (ppm)

72.64 WATER TABLE ELEVATION (FEET)

394 BTEX CONCENTRATION (ppm)

TBQ TRACE BELOW QUANTITATION LIMIT
NA NOT AVAILABLE
NS NOT SAMPLED

Heindel and Noyes

• Hydrogeology • Ecology •
• Environmental Engineering •

CONSULTING SCIENTISTS AND ENGINEERS

P.O. BOX 64709
BURLINGTON, VERMONT 05406-4709

Prepared By:
Information & Visualization Services

DATE: DECEMBER 7, 1998
PROJECT NO.
DRAWN BY: M. Luman
PROJ. MGR: D. Barton
APPROVED: J. Noyes

☐ DRAFT ☐ FINAL

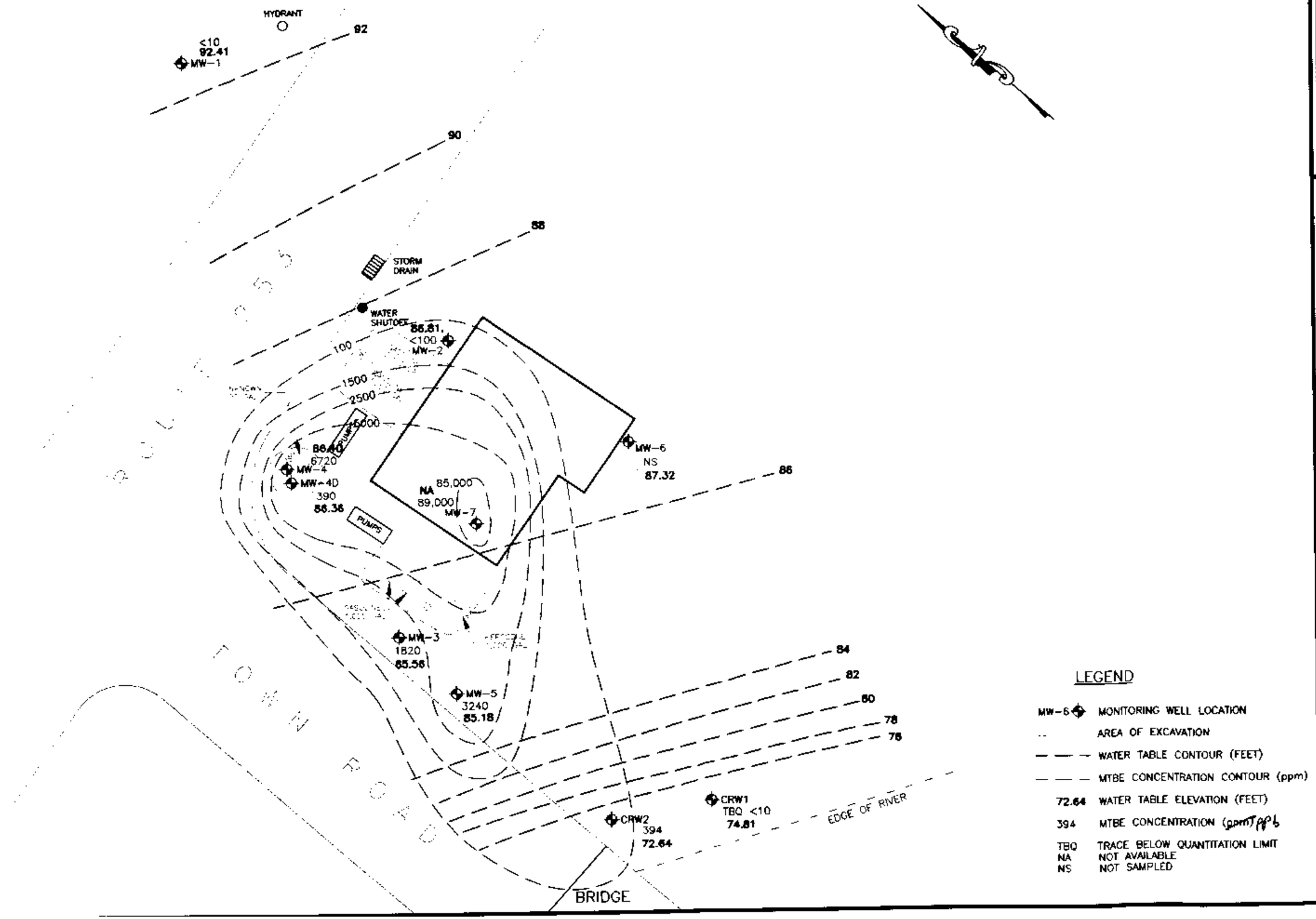
NOYES EXPRESS

BEECHER FALLS, VERMONT

WATER TABLE AND BTEX CONCENTRATION CONTOUR MAP - 11/05/98

SCALE: 1"=20'

FILE: C:\NOYESEXP\SITEPLAN



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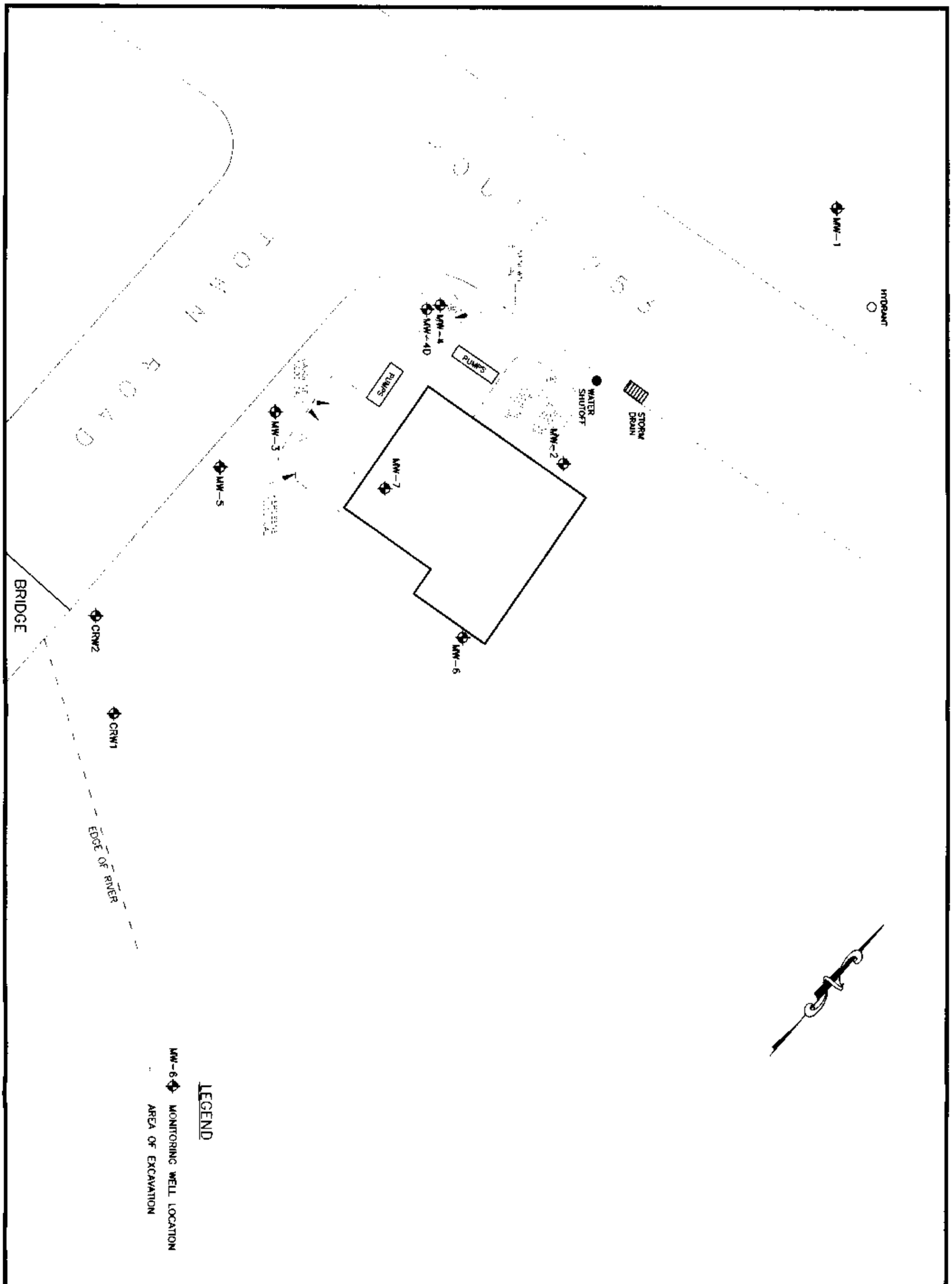
PROJ. MGR: B. Barton
APPROVED: J. Noyes
☐ DRAFT ☐ FINAL

NOYES EXPRESS
BEECHER FALLS, VERMONT

WATER TABLE ELEVATION AND MTBE CONCENTRATION CONTOUR MAP - 11/05/98

FILE: C:\NOYESEXP\SITEPLAN

SCALE: 1"=20'



NOYES EXPRESS

BEECHER FALLS, VERMONT

SITE PLAN

SCALE: 1"=20'

FILE: C:\NOYESEXP\SITEPLAN

DATE: DECEMBER 7, 1998

PROJECT NO.

DRAWN BY: M. Luman

PROJ. MGR: D. Barton

APPROVED: J. Noyes

☐ DRAFT ☐ FINAL

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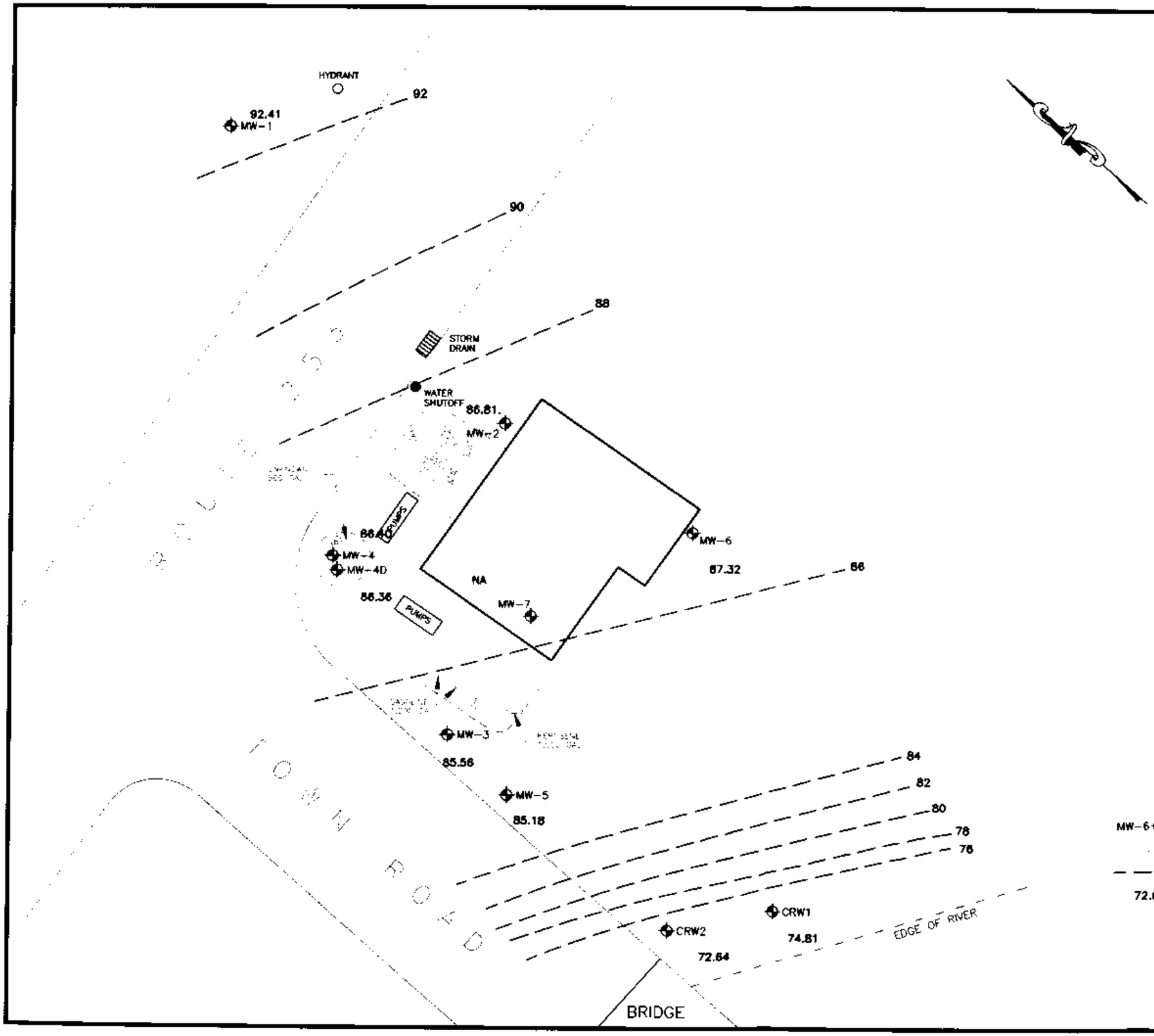

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DATE: DECEMBER 7, 1998
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DRAWN BY: M. Luman
PROJ. MGR: D. Barton
APPROVED: J. Noyes
☐ DRAFT ☐ FINAL

NOYES EXPRESS
BEECHER FALLS, VERMONT

WATER TABLE CONTOUR MAP - 11/05/98

SCALE: 1"=20'
FILE: C:\NOYESEXP\SITEPLAN

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 1
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-1 upgradient
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/4/98
Date Completed: 11/4/98

Rig Hours Meter Start: 266.7 7:20 A
Rig Hours Meter End: 268.5 9:15 A

Casing
Size: ____ Type: Split Spoon Other: ____
Hammer: 140 Pounds
Fall: 30 Inches

Sampler
Hammer: ____
Fall: ____

Groundwater Readings

Date / Time	Depth	Casing	Stabil.

Sample No.	Sample Rec.	Sample Depth	Sample Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
1	16"	3-5	8,10,10, 6	Gray and blue silty fine sands, reworked till	Dry	.2/1.0 ppm	10' .020 screen w/sock Native backfill
2	16"	5-7	6,10,8, 12	As above with more sand and rock fragments	NO	.2/1.4 ppm	Bentonite chips 4'-3'
3	13"	7-9	7,9,20, 25	Olive gray sandy reworked till	Moist	.2/0.8 ppm	Flushmount
4	22"	9-11	13,15, 20,18	Olive gray, sandy, pebbly, reworked till	Saturated	.2/1.6 ppm	Used 1 10' .020 screen
5	14"	11-13	18,17, 16, 27	As above	Saturated	.2/0.6 ppm	1 5' riser 1 plug 1 locking gripper 1 Flushmount 12' sock
				Augered to 15' set 2" PVC well 10' screen			

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density

0-4	Very Loose
5-9	Loose
10-29	Med. Dense
30-49	Dense
50+	Very Dense

Cohesive Consistency

0-2	Very Soft
3-4	Soft
5-8	M/Stiff
9-15	Stiff
16-30	Very Stiff
31+	Hard

Well Construction Legend

Concrete: Bentonite:
Grout Silica Sand
Backfill: Bedrock

ND = No Data

U:\PROJECTS\NOYS_EXP\SDILOG.DOC

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 2
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-2
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/4/98
Date Completed: 11/4/98

Rig Hours Meter Start: 268.5 9:35 A
Rig Hours Meter End: 270.2 11:20 A

Casing
Size:_____ Type: Split Spoon Other: _____
Hammer: 140 Pounds Hammer: _____
Fall: 30 Inches Fall: _____

Sampler

Groundwater Readings

Date / Time	Depth	Casing	Stabil.

Sample No.	Sample Rec.	Sample Depth	Sample Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
1	6"	5'7	6,8,7,7	Fill mat, dark brown sand with pebbles, loose	Dry	.2/1.6 ppm	10' .020 screen w/sock Native backfill
2	18"	7-9	4,4,5,6	Brown silty fine sand	Dry to moist	.2/4.8 ppm	Bentonite chips 4'-3'
3	18"	9-11	4,5,7,15	Brown fine sandy silts, odor of pet.	Damp	.2/20.0 ppm	Flushmount
4	16"	11-13	11,13, 18	70 for 4", dark gray medium sand with rock fragments, bedrock chips in tip. Sheen with odor	Wet	.2/98.0 ppm	Used 2 5' .020 screens 1 5' riser
							1 plug 1 locking gripper ½ bag bentonite chips 1 Flushmount 12' sock
				Augered to 15' set 2" PVC well			

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density		Cohesive 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	Very Stiff
		31+	Hard

Well Construction Legend

Concrete: Bentonite:
Grout Silica Sand
Backfill: Bedrock

ND = No Data

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont 05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 3
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-3
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/4/98
Date Completed: 11/4/98

Rig Hours Meter Start: 270.3 12:50 P
Rig Hours Meter End: 272.8 3:30 P

Casing
Size:_____ Type: Split Spoon Other: _____
Hammer: 140 Pounds
Fall: 30 Inches

Sampler
Hammer: _____
Fall: _____

Groundwater Readings

Date Time	Depth	Casing	Stabil.

Sample No.	Sample Rec.	Sample Depth	Sample Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
1	6"	4.5-6.5	3,3,2,2	Fill mat?, dark brown silty fine sand with pebbles	Dry	.2/1.0 ppm	10' .020 screen w/sock Native backfill
2	8"	7.5-9.5	3,3,3,2	As above	Dry	.2/1.2 ppm	Bentonite chips 7'-6' Native fill to GS
3	8"	9.5-11.5	3,2,2,3	As above	Dry	.2/1.8 ppm	Flushmount
4	10"	11.5-13.5	4,2,3, rock refusal	As above	Moist, tip wet	.2/1.6 ppm	Used 2 5' .020 screens 12' sock
5	10"	13.5-15.5	12,18, 60	For 0" refusal Defoul odor, 5" of brown silty fine sands/ till, 5" wetland bedrock	Wet	.2/50.0 ppm	1 5' riser 1 plug 1 locking gripper ½ bag bentonite Flushmount
				Set well to 18' BGS 2" PVC			

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density	
0-4	Very Loose
5-9	Loose
10-29	Med. Dense
30-49	Dense
50+	Very Dense

Cohesive Consistency	
0-2	Very Soft
3-4	Soft
5-8	M/Stiff
9-15	Stiff
16-30	Very Stiff
31+	Hard

Well Construction Legend

Concrete: Bentonite:
Grout Silica Sand
Backfill: Bedrock

ND = No Data

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 4
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-4
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/5/98
Date Completed: 11/5/98

Rig Hours Meter Start: 272.8 7:00 A
Rig Hours Meter End: 274.5 8:40 A

Casing
Size:_____ Type: Split Spoon Other: _____
Hammer: 140 Pounds Hammer: _____
Fall: 30 Inches Fall: _____

Sampler

Groundwater Readings

Date / Time	Depth	Casing	Stabil.

Sample No.	Sample Rec.	Sample Depth	Sample Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
1	12"	5-7	3,3,3,3	Dark brown fill mat, sandy, rocky, loose sediments	Dry	.6/156 ppm	10' .020 screen w/sock Native backfill
2	22"	7-9	3,5,5,3	Olive gray brown, silty fine sands, odor and sheen	Tip wet	.6/186 ppm	Bentonite chips 3'-2' Native fill to GS
3	29"	10-12	3,4,4,4	10" brown silty fine sands 10" dark brown and dark gray fine silty sands, sheen and odors	Saturated	.6/96 ppm	Flushmount
4	20"	12-14	2,11,9,9	Dark gray medium and fine sands 13.5-14' brown medium sand	Saturated	.6/162 ppm	Used 2 5' .020 screens 12' sock
5	10"	13.5-15.5	12,18, 60	For 0" refusal Defoul odor, 5" of brown silty fine sands/ till, 5" wetland bedrock	Wet	.6/7.8 ppm	1 5' riser 1 plug 1 locking gripper ½ bag bentonite Flushmount
				Set 2" PVC well to 14' BGS			

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density

0-4	Very Loose
5-9	Loose
10-29	Med. Dense
30-49	Dense
50+	Very Dense

Cohesive Consistency

0-2	Very Soft
3-4	Soft
5-8	M/Stiff
9-15	Stiff
16-30	Very Stiff
31+	Hard

Well Construction Legend

Concrete: Bentonite:
Grout Silica Sand
Backfill: Bedrock

ND = No Data

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 4D
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-4 Deep
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/5/98
Date Completed: 11/5/98

Rig Hours Meter Start: 274.5 9:00 A
Rig Hours Meter End: 277.4 12:00 P

Casing
Size: ____ Type: Split Spoon Other: ____
Hammer: 140 Pounds Hammer: ____
Fall: 30 Inches Fall: ____

Sampler

Groundwater Readings

Date / Time	Depth	Casing	Stabil.

Sample No.	Sample Rec.	Sample Depth	Sample Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
				Augured to 18' spoon	ND	ND	2' .020 screen w/sock Sand pac 19.5'-17'
1	10"	18-20	11,45,60	For 1" refusal at 19.5', very dark gray, very dense, fine sandy till	Till	0.7/7.3	Bentonite chips 17'-16' Bentonite slurry 16'-3' Native fill to GS
				Set 2" PVC to 19.5' 2" screen			Flushmount
							Used 2' .020 screen 3' sock
							4-5' riser 1 plug 2 bags sand ½ bag bentonite chips Flushmount
							Locking gripper 1 bag grout

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density		Cohesive 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	Very Stiff
		31+	Hard

Well Construction Legend

Concrete:	Bentonite:
Grout	Silica Sand
Backfill:	Bedrock

ND = No Data

SOIL BORING LOG

SPECIALTY DRILLING & INVESTIGATION

P.O. Box 64709, Burlington, Vermont
05406-4709
Tel: 802-658-0820
Fax: 802-860-1014

Project Name: Noyes Express
Project Location: Beecher Falls, Vermont
Boring Number: 5
Sheet 1 of 1
SDI Project Number: 98915

Boring Location: MW-5
Foreman: Chris Aldrich
H&N Staff: Chris Aldrich and Dori Barton

Date Started: 11/5/98
Date Completed: 11/5/98

Rig Hours Meter Start: 277.4 1:30 P
Rig Hours Meter End: 280.4 4:30 P

Casing
Size:_____ Type: Split Spoon Other: _____
Hammer: 140 Pounds Hammer: _____
Fall: 30 Inches Fall: _____

Sampler

Groundwater Readings

Date Time	Depth	Casing	Stabil.

Sample No.	Rec.	Depth	Blows	Sample Description	Strata Change & General Description	Field Testing PID	Equipment or Well Installed
1	8"	10-12	4,4,9,12	Olive gray, sandy till with rock fragments	Dry	ND	10' .020 screen w/sock Native backfill
2	2"	15-17	100 for 6" refusal?	Rick in tip, augered through rock	Tip wet	0.4/2.7	Bentonite chips 9'-8' Native fill to GS
3	10"	16-18	4,4,5,5	7" black coarse sand 3" brown fine silty sand, sheen and light odor	Saturated	0.4/10.6	Flushmount
							Used 2 5' .020 screens 12' sock
				Set 2" PVC for 20' BGS			2 5' risers 1 plug 1 locking gripper ½ bag bentonite chips Flushmount

Proportions Used
Trace: 0 to 10%
Little: 10 to 20%
Some: 20 to 35%
And: 35 to 50%

Penetration Resistance
140 lb. wt falling 30" on 2" O.D. Sampler

Cohesive Density		Cohesive 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	Very Stiff
		31+	Hard

Well Construction Legend

Concrete: Bentonite:
Grout Silica Sand
Backfill: Bedrock

ND = No Data

NOYES EXPRESS
BEECHER FALLS, VERMONT

SOIL LOGS

Date 11/4/98 Page 1

CRW-1	
0-1.5' 1.5'-2.5' 2.5'-3'	Brown and orange silty sand Black medium and fine sand Gravel Composite soil sample PID: 0.2/1.4 ppm No visual or olfactory evidence of contamination.
CRW2	
0'-2.5' 2.5'-3'	Black medium and fine sands Gravel Composite soil sample PID: 0.2/1.4 ppm No visual or olfactory evidence of contamination.
MW-6	
0'-2' **2'-2.1'** **2.1'-4'**	Brown sandy, pebbly fill material (moist) (PID: 0.2/ 2.2 ppm) Brown/Olive silty fine sand (PID: 0.2/2.0 ppm) Brown sandy, pebbly fill material (saturated) (PID: 0.2/2.0 ppm) No visual or olfactory evidence of contamination.
MW-7	
1'-1.7' 1.7'-2' 2'-5' 5'-5.5' 5.5'-6'	Brown silty fine sand; strong petro odor (PID: 0.2/20ppm) Olive/Grey silty fine sand; strong petro odor (PID: 0.2/22 ppm) Olive/Grey silty fine and medium sands (moist at 3' and saturated at 5'); strong petro odor (PID @5': 120 ppm) Dark Grey fine and medium sands (saturated); strong petro odor (PID: 0.2/160 ppm) Dark brown silty fine sand with red staining; strong petro odor (PID: 0.2/120ppm)

Noyes Express
Beecher Falls, Vermont
Indoor Air Quality Data
EPA Method T-02

Location	Compound	Units	11/4/98
Building Interior	PCE	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .15
	TCE	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .19
	1,1,1-Trichloroethane	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .19
	Benzene	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .32
	Ethylbenzene	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .24
	Toluene	ug/m3	ND / < 1.1
		ppb(v/v)	ND / < .27
	Xylenes	ug/m3	ND / < 2.2
		ppb(v/v)	ND / < .48

ND = None detected.

NEW ENGLAND
AIR QUALITY TESTING

- Source Emissions Testing
- Source Permitting
- Ambient Air Sampling
- Fugitive Emissions Measurement
- Indoor Air Sampling and Analysis
- Consulting/Engineering Services

SAMPLE COLLECTION DATA SHEET

Job Name: Noyes Express	Sampler: CA + DB
Location: Beecher Falls, VT	Date: 11/4/98
NEAQT Sample Number:	Media: TO-2 / Carbon Tube
Analyte: VOCs	Lot Number:
Site Conditions: LT Snow	Method (NIOSH/OSHA/Other): EPA TO 2
Pump Type: SKC Serial #: 638427	Laboratory: Endyne
Target flow rate: 200 cc/min	Actual flow rate: 258 cc/min
Target run time: 60 minutes	Actual run time: 87 min minutes

CALIBRATION DATA

Run	Pre-test	Post-test	Average
1	255	257	
2	258	259	
3	260	260	
Avg.	258	259	
Barometric Pressure (mm Hg)			
Ambient Temp. (°C)	38°F =	3°C	

#427 cal # to a 140 ml/min 10/14/98 DRW

Notes: done inside Building / minimal entry + exit.
Start 7:05 AM end 8:30

Sampler Signature

12/4/98
Date

Checked by

- Complete one form for each sample collected (including blanks).

(TB-DATANEAQT 7-1-92)

P.O. Box 4297, Burlington, Vermont 05406-4297
802-658-5428

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

METHOD TO-1/TO-2

CLIENT: Heindel & Noyes
PROJECT NAME: Noyes Express
REPORT DATE: November 16, 1998
SAMPLER: D.B.
DATE SAMPLED: November 4, 1998
DATE RECEIVED: November 9, 1998

PROJECT CODE: HNNE1696
ANALYSIS DATE: November 12, 1998
STATION: Building Interior
REF.#: 130,869
TIME SAMPLED: a.m.

Parameter	Detection Limit (ng)	Amount (ng)
Benzene	25	ND[1]
Carbon Tetrachloride	25	ND
Chlorobenzene	25	ND
Chloroform	100	ND
1,2 Dichloroethane	25	ND
1,1 Dichloroethene	25	ND
Ethyl Benzene	25	ND
Methylene Chloride	100	ND
Naphthalene	25	ND
Tetrachloroethene	25	ND
1,1,1-Trichloroethane	25	ND
Trichloroethene	25	ND
1,2,4-Trimethylbenzene	25	ND
1,3,5-Trimethylbenzene	25	ND
Toluene	25	ND
Total Xylenes	50	ND

NUMBER OF UNIDENTIFIED PEAKS: 0

NOTES:

1 None Detected

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CHAIN-OF-CUSTODY RECORD

Project Name: Noyes Express Site Location: Beeching Falls, VT	Reporting Address:	Billing Address:
Endyne Project Number: HNNE1696	Company: Contact Name/Phone #:	Sampler Name: DB Phone #: 658-0800

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
130369	Building Interior	A.C		✓	11/9/98 am	1	1Liter		T-02		

Relinquished by: Signature DAVID SRD	Received by: Signature	Date/Time 11/9/98 4:00
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes ____ No ____

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes
PROJECT NAME: Noyes Express
DATE REPORTED: November 16, 1998
DATE SAMPLED: November 4, 1998

PROJECT CODE: HNNE1696
REF. #: 130,869

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8015

DATE: November 24, 1998
CLIENT: Heindel & Noyes
PROJECT: Noyes Express
PROJECT CODE: HNNE1745
COLLECTED BY: D.B.
DATE SAMPLED: November 5, 1998
DATE RECEIVED: November 11, 1998

Reference #	Sample ID	Concentration (mg/kg)[1]
130,985	MW5 (16-18'; 3:30	21.3
130,986	MW4D (18-19.5'); 2:30	2.18
130,987	MW6 (3'); 2:00	ND[2]

Notes:

1 Values quantitated based on the response of Gasoline. Method detection limit is 1.0 mg/kg.
2 None Detected

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HNNE1746

29513

130,985 — 130,996

CHAIN-OF-CUSTODY RECORD

Project Name: Nagle Express Site Location: Bellows Falls, VT	Reporting Address: HN	Billing Address: HN
Endyne Project Number: HNNE1745	Company: HN Contact Name/Phone #: [illegible]	Sampler Name: DB Phone #: 658 6620

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 11/5/98	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
130985	MW5 (16-18')	Soil		✓	3:30	2	40mL	Soil Bottle 8015B	TPH	None	
130986	MW 4D (18-19.5)	"		✓	2:30	"	"	"	"	"	
130987	MW 6 (3')	"		✓	2:00	"	"		"	"	
	CRW1	H_2O			8:00	2	40mL	Groundwater	8021B	HCL	
	CRW2	H_2O			8:00	2	40mL	"	"	"	
	MW1	"			11/6/98 9:55	"	"	"	"	"	
	MW 2	"			10:00	"	"	"	"	"	
	MW 3	"			10:05	"	"	"	"	"	
	MW 4	"			10:10	"	"	"	"	"	
	MW 5	"			10:20	"	"	"	"	"	
	MW 4D	"			10:15	"	"	"	"	"	
	MW 7	"			10:05	"	"	"	"	"	

Relinquished by: Signature: Dal SR	Received by: Signature: Chris Aldrich	Date/Time 11/10/98
Relinquished by: Signature: Chris Aldrich	Received by: Signature: [illegible]	Date/Time 11-11-98 12:40

New York State Project: Yes ___ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes
PROJECT NAME: Noyes Express
DATE REPORTED: November 24, 1998
DATE SAMPLED: November 5, 1998

PROJECT CODE: HNNE1745
REF. #: 130,985 - 130,987

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel & Noyes
PROJECT NAME: Noyes Express
REPORT DATE: November 18, 1998
DATE SAMPLED: November 5, 1998

PROJECT CODE: hnne1746
REF.#: 130,988 - 130,996

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Heindel & Noyes
PROJECT NAME: Noyes Express
CLIENT PROJ. #: NI

DATE RECEIVED: November 11, 1998
REPORT DATE: November 18, 1998
PROJECT CODE: hnne1746

Ref. #:	130,988	130,989	130,990	130,991	130,992
Site:	CRW 1	CRW 2	MW 1	MW 2	MW 3
Date Sampled:	11/5/98	11/5/98	11/5/98	11/5/98	11/5/98
Time Sampled:	8:00	8:00	9:55	10:00	10:05
Sampler:	D.B.	D.B.	D.B.	D.B.	D.B.
Date Analyzed:	11/13/98	11/16/98	11/14/98	11/14/98	11/16/98
UIP Count:	0	0	0	>10	>10
Dil. Factor (%):	100	20	100	10	2
Surr % Rec. (%):	96	96	98	87	89
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
MTBE	TBQ <10	394.	<10	<100	1,820.
Benzene	<1	<5	<1	19.8	<50
Toluene	10.5	51.7	47.4	230.	TBQ <50
Ethylbenzene	<1	<5	<1	258.	TBQ <50
Xylenes	<1	<5	<1	2,210.	383.
1,3,5 Trimethyl Benzene	<1	<5	<1	451.	97.9
1,2,4 Trimethyl Benzene	<1	<5	<1	1,400.	244.
Naphthalene	<1	<5	<1	205.	<50

Ref. #:	130,993	130,994	130,995	130,996	
Site:	MW 4	MW 5	MW 4D	MW 7	
Date Sampled:	11/5/98	11/5/98	11/5/98	11/5/98	
Time Sampled:	10:10	10:20	10:15	10:05	
Sampler:	D.B.	D.B.	D.B.	D.B.	
Date Analyzed:	11/16/98	11/16/98	11/17/98	11/16/98	
UIP Count:	>10	0	>10	4	
Dil. Factor (%):	1	1	10	0.1	
Surr % Rec. (%):	88	95	80	97	
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	
MTBE	6,720.	3,240.	390.	89,000.	
Benzene	9,590.	<100	263.	23,900.	
Toluene	10,100.	<100	326.	38,000.	
Ethylbenzene	803.	<100	56.7	2,890.	
Xylenes	3,320.	<100	137.	13,500.	
1,3,5 Trimethyl Benzene	113.	<100	17.6	<1000	
1,2,4 Trimethyl Benzene	385.	<100	50.3	1,690.	
Naphthalene	250.	<100	24.7	<1000	

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated

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29515

CHAIN-OF-CUSTODY RECORD

Project Name: Nepen Express Site Location: Beechers Falls, VT	Reporting Address:	Billing Address:
Endyne Project Number: HNNE 1746	Company: Contact Name/Phone #:	Sampler Name: DB Phone #: 658-6600

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 11/5/98	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	MW5 (16-18')	soil		✓	3:30	2		Soil Boring	TPH	None	
	MW 4D (18-19.5)	"		✓	2:30	"	"	"	"	"	
	MW 6 (3')	"		✓	2:..	"			"	"	
130,988	CRW 1	H2O				2			8021B	HCL	
130,989	CRW 2	H2O				"		"	"	"	
130,990	MW 1	"			11/6/98	"	"	"	"	"	
130,991	MW 2	"			10:..	"	"	"	"	"	
130,992	MW 3	"			10:15	"	"	"	"	"	
130,993	MW 4	"			10:10	"	"	"	"	"	
130,994	MW 5	"			10:20	"	"	"	"	"	
130,995	MW 4D	"			10:15	"	"	"	"	"	
130,996	MW 7	"			10:05	"	"	"	"	"	

Relinquished by: Signature Dal S R	Received by: Signature Chris Aldrich	Date/Time 11/10/98
Relinquished by: Signature Chris Aldrich	Received by: Signature	Date/Time 11-11-98 10:40

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										