

Heindel and Noyes

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- Consulting Hydrogeologists
- Engineers
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April 27, 1999

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

Re: Morse Block Facility, Bennington, Vermont

Dear Chuck:

Enclosed for your review is a copy of the environmental investigation of the Morse Block Facility. If you have any questions regarding this submittal or any other project matter, please feel free to contact either Jeff Noyes or myself.

Please call with any questions.

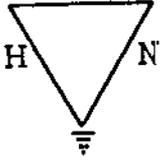
Best regards,

Dori Barton
Staff Scientist

Enclosure

cc: Larry Cole

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MORSE BLOCK FACILITY Bennington, Vermont

SUBSURFACE INVESTIGATION REPORT

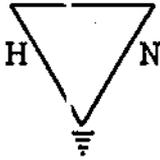
Prepared by:

Heindel and Noyes, Inc.

Prepared for:

Mr. Larry Cole

April 27, 1999



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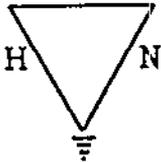
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MORSE BLOCK FACILITY Bennington, Vermont

SUBSURFACE INVESTIGATION REPORT

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SUBSURFACE INVESTIGATION REPORT

1.0 INTRODUCTION

This report documents environmental activities conducted by Heindel & Noyes (H&N) at the Morse Block property, located in Bennington, Vermont. These activities were performed in accordance with the October 30, 1998 work plan approved by the Sites Management Section (SMS). Verbal approval was also given by Mr. Larry Cole and Mr. Chuck Schwer of the SMS to conduct additional investigative work not described in the work plan. This report has been prepared by H&N on behalf of Mr. Larry Cole.

1.1 *Purpose And Scope*

The purpose of this investigation was to determine the extent and distribution of petroleum hydrocarbon contamination on the site. Prior research on the property identified the presence and removal of two underground storage tanks that had possibly been leaking. In connection with the subsurface investigation, H&N

installed ground water monitor wells, conducted a sensitive receptor survey, and conducted ground water, surface water and sediment sampling.

This report summarizes the results of the subsurface investigation. Accordingly, this report documents field activities, presents field and laboratory analytical results, and provides a discussion of all data obtained at the site to date.

2.0 SITE LOCATION

The Morse Block facility, now leased by S.T. Griswold and Company, Inc., is located at 116 Rte 7A, northwest of the Village of Bennington, Vermont. See attached Site Location Map in Appendix 1, page 1. The triangular-shaped property is bounded to the northeast by Vermont Route 7A and the Vermont Railroad (a spur of which comes directly onto the site), on the northwest by the

Bernington Bypass (Vermont Route 9), and on the south by Phyllis Lane (a paved private road which provides access to adjoining businesses). A brook in a roadside ditch runs parallel to this road, flowing to the west.

2.1 Site Description

The Morse Block Company and S.T. Griswold and Company, Inc. (since 1995) has operated as a distributor of masonry materials used in construction and landscaping. Various types of cement blocks were also manufactured at the facility from the 1940's until January 1993. Buildings on the site include several storage structures, as well as the main office building and former block plant. Inventory on the 10.08-acre property consists of stacks of blocks, bricks, stones, pipes, and other masonry materials.

Most of the property is relatively flat, covered with sandy and gravelly fill soil. According to Mr. Coles (preliminary investigation 1995) this fill was brought to the site by Mr. William Morse, founder of the Morse Block Company, as well as other enterprises, including a local construction company.

Surface water flows onto the property from the northeast boundary and exits via a stream to the southwest corner of the triangle. A stream enters the property near the northeast corner, flowing under the railroad tracks via an underground culvert. The block plant itself was constructed over this stream which flows below the first floor foundation. This

stream flows south and southwest across the property, joining a second unnamed brook, which flows along the south border of the property. The brook and stream converge at the southwest corner of the property.

Groundwater flow under the site flows generally from the north or northeast to the southwest, based on the presence of the west-flowing Roaring Branch of the Walloomsac River to the south, and the assumption that groundwater flow generally follows a path similar to that of surface water. A ground water contour map constructed from water table elevation data confirms the direction of ground water flow on the site (Appendix 1, page 4).

3.0 PREVIOUS WORK CONDUCTED

A 1,000-gallon gasoline underground storage tank (UST) was removed from the eastern/central portion of the site in 1986. There are no records of this tank pull. The approximate location of the former UST is included in the Site Map in Appendix 1, page 2.

A 7,000-gallon No.2 fuel oil UST (an old railroad car) was removed on February 27, 1998. This tank was used to provide heating oil for the facility. Investigation at this site conducted by Aaron and Sons (Bennington, Vermont) with the assistance of Sue Thayer (Environmental Investigator for the State of Vermont) was conducted on March 12, 1998. The results of this investigation revealed areas of petroleum contamination with levels of 50 to 150 ppm recorded with a Thermo PID model 580 calibrated to

isobutylene. Based on these findings, further investigation was determined necessary to define the extent of contamination associated with the 7,000 gallon UST. The approximate area of excavation for the former UST is included on the Site Map in Appendix 1, page 2.

4.0 WORK COMPLETED BY HEINDEL & NOYES

4.1 *Soil Boring/ Monitoring Well Installation*

On March 4-March 5, 1999, a total of 14 soil borings were advanced and 10 subsequently configured with monitoring wells to evaluate hydrogeologic conditions, soil, and ground water quality. 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 boring program focused on identifying the extent of petroleum contamination on the site.

Split-spoon samples collected from the auger were descriptively logged and screened for volatile organic compounds. Specialty Drilling's drilling logs are included in Appendix 2, pages 1-5.

Water table monitor wells were constructed of 2-inch (i.d.) PVC casing with flush-threaded joints and factory-slotted, 10-foot screened sections (0.010 inch). Screened sections were covered with filter sock and packed with drill cuttings. All monitor wells were finished with a bentonite surface seal. Eight of the wells were finished with flush-mounted curb boxes and two as stick-ups.

4.2 *Soil Screening*

During the soil-boring program, discrete interval soil samples were screened with an HNu Systems, Inc. Model PI 101 photoionization detector (PID) equipped with a 10.2 eV lamp. The PID was calibrated each day with a 100 ppm isobutylene span gas. Soil samples were placed in zip-lock plastic bags and permitted to equilibrate for a minimum of 15 minutes prior to head space screening. Headspace screening results are included on soil boring logs (Appendix 2, pages 1-15). Results are further discussed in Section 5.2.1.

4.3 *Ground Water and Surface Water Sampling*

Newly installed monitoring wells were developed on March 4-5, 1999 and purged on March 9, 1999 prior to sampling. Ground water samples were collected from the newly installed monitoring wells. Samples were obtained with a dedicated bailer. All samples were preserved with hydrochloric acid and ice, and submitted to Endyne, Inc. for EPA methods 8021B and TPH 8015 GRO.

Surface water samples were collected from two locations: one from an unnamed brook directly west of the former block plant (as described previously, this building straddles the brook), a second from a seep flowing directly into the brook that flows parallel to Phyllis Lane, southern boundary of the subject property. Sediment samples were also collected from each of the stream locations. Water and sediment samples from the first location (SW-1) were

analyzed for VOCs by EPA methods 8260 and 8015 DRO. Water and sediment samples from the second location (SW-2) were analyzed for VOCs by EPA methods 8021B and 8015 GRO.

Surface water and sediment samples were collected from SW-1 due to its location relative to the relict 7,000 gallon #2 fuel oil UST (downgradient) and to its location to the block plant (the stream flows directly under the block plant). During a preliminary investigation in 1995, H&N identified floor drains in the block plant that discharge directly to the stream. Sheens indicative of petroleum contamination were observed on the sediments while collecting samples.

Surface water and sediment samples were collected at SW-2 due to the presence of iron staining on the stream banks. The precipitation of iron on the stream bank, located hydrologically downgradient of the location of the former leaking UST, shows the point of emergence of the plume from the source area.

4.4 Monitoring Well Survey

Newly installed monitoring well locations and top of casing (TOC) elevations were surveyed by Heindel & Noyes on March 10, 1999. A total station survey instrument with electronic distance measuring capability was used to develop the site plan.

Water level measurements were obtained from all monitoring wells on March 9, 1999, prior to ground water sampling. Ground water 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 4). The monitoring well elevation data are presented in tabular form in Appendix 1, page 3. A discussion of ground water elevation data is presented in Section 5.2.2.

4.5 Sensitive Receptor Survey

Contamination associated with the Morse Block 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 5.3.

5.0 INVESTIGATION RESULTS

5.1 Stratigraphy/Hydrogeology

The soil boring program concentrated on two different areas of the subject property. The first phase of the investigation focused on the area where the 7,000 gallon #2 fuel oil UST had been located, approximately 30 feet upgradient of the block plant and main yard of the facility. Two soil borings were advanced in this area (MW-1 and MW-2). Based on the soil boring logs generated during the drilling program, the stratigraphy of the area upgradient of the block plant generally consists of 10 feet of fill material (brown sands and gravel), overlying a 7 foot layer of native till (yellow/brown fine silty sands with some pebbles), overlying

a glacial outwash (gray medium and coarse sands and gravel). Bedrock was not encountered to depth of 27' bgs. Soils were saturated at approximately 26' bgs.

The second area of focus was within the yard of the facility at the relict 1,000 gallon UST location. Here, 12 soil borings were advanced. Based on the soil logs generated during the drilling program, the stratigraphy of the site beneath the Morse Block Facility and yard generally consists of 4 feet of fill material (stones and gravel) overlying a 3-foot layer of native glacial till (green fine sands and silts). Bedrock was not encountered during the drilling program. Soils were saturated at approximately 7.0' bgs.

As discussed in Section 4.3, groundwater elevations were calculated from monitoring well water level measurements taken on March 9, 1999

(Appendix 1, page 3). The water table elevation contour map confirms that shallow groundwater flow at the site is to the southwest towards the Roaring Branch of the Walloomsac River (Appendix 1, page 4). The horizontal hydraulic gradient averages approximately 0.0028 feet/foot (MW-6 to MW-5) along the north/south extent of the property towards the unnamed brook.

5.2 Analytical Results

5.2.1 Soil Screening

During the soil-boring program, discrete interval soil samples (generally 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 1-15) and in the following tables.

	MW-1	MW-2	MW-6	MW-7	MW-8	MW-9	MW-10	SB-1	SB-2	SB-3	SB-4
Depth (ft bgs)	PID (ppm)	PID (ppm)	PID (ppm)								
3-5	0.0	--	110	0.6	0.0	0.0	0.0	210	20	6.0	110
5-7	NA	0.0	106	0.8	0.0	0.0	0.0	170	***2.0/0.0	1.5	100
7-9	0.0	--	65	0.0	NA	0.0	0.0	--	--	--	60
9-11	2.0	*0.0	**2.0	--	0.0	--	--	--	--	--	--
11-13	1.5	--	--	--	--	--	--	--	--	--	--
13-15	1.5	--	--	--	--	--	--	--	--	--	--
15-17	0.0	--	--	--	--	--	--	--	--	--	--
20-22	0.0	--	--	--	--	--	--	--	--	--	--
25-27	0.0	--	--	--	--	--	--	--	--	--	--

*: Soils screened from 10' to 11.5' bgs
 **: Soils screened from 10' to 12' bgs
 ***: Soils screened at bottom 4" had PID measurement of 0.0 ppm.

	MW-4	MW-4D	MW-6
Depth (ft bgs)	PID (ppm)	PID (ppm)	PID (ppm)
4-6	130	--	0.6
6-8	148	--	0.2
8-10	140	--	0.4
10-12	--	7.0	--
12-14	--	0.8	--

The soil screening program was used to delineate the extent of the contaminant plume during the field investigation. Monitor wells were advanced in 10 of the 14 boring locations. PID levels from SB-3 and SB-2 are used in combination with ground water analysis to define the east/west boundaries of the contaminant plume discussed in Section 6.0.

5.2.2 Ground Water

The results of the March 9, 1999 groundwater analyses (EPA Method 8021b and Method 8015 GRO) are summarized in tabular form and included in 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-4, MW-4D, and MW-6.

- Monitoring well MW-4 had benzene (23.5 ug/l), naphthalene (101 ug/l), 1,3,5- trimethylbenzene (50.9 ug/l) and 1,2,4-trimethylbenzene (168 ug/l) in excess of the VTES and VTHA.
- Monitoring well MW-4D had benzene (62.2 ug/l), naphthalene (116 ug/l), 1,3,5- trimethylbenzene (153 ug/l) and

1,2,4-trimethylbenzene (464 ug/l) in excess of the VTES and VTHA.

- Monitoring well MW-6 had benzene (21.9 ug/l), naphthalene (21.8 ug/l), 1,3,5- trimethylbenzene (80.6 ug/l) and 1,2,4-trimethylbenzene (241 ug/l) in excess of the VTES and VTHA.

Several unidentified peaks were detected in six of the monitoring wells (MW-2, MW-4, MW-4D, MW-5, MW-6, and MW-7). Laboratory analytical reports are presented in Appendix 3, pages 1-26.

Volatile organic compounds (via EPA 8021b) were not detected in monitor wells MW-9 and MW-10. Monitor wells MW-1, MW-2, MW-7 and MW-8 only show low levels of toluene (<28 ug/l at each location). Total BTEX, and toluene dissolved plume isopleth maps were constructed and are included in Appendix 1, pages 6-7.

Each of the dissolved plume isopleth maps shows a contaminant plume with highest magnitude (BTEX 2961 ug/l) concentrated about the source area associated with the former 1,000 gallon UST (MW-4, MW-4D and MW-6). There is a significant decrease in dissolved phase contamination as the plume migrates in a narrow band toward MW-5 (BTEX <33.3 ug/l). Twelve years after the leaking UST was removed, natural attenuation (as evidenced by iron staining on the stream directly downgradient of the plume) has effectively confined the plume to the property.

5.2.3 Surface Water

Surface water samples were collected on March 4-5, 1999 from two locations: one directly west of the former block plant (as described previously, this building straddles the brook), and a second from the brook that flows parallel to Phyllis Lane, the southern boundary of the subject property. Sediment samples were also collected from each of the stream locations. Water and sediment samples from the first location (SW-1) were analyzed for VOCs by EPA methods 8260 and 8015 DRO. Sediment and water samples collected from the second location (SW-2) were analyzed for VOCs by EPA methods 8021B and 8015 GRO.

The results of the analyses for surface water samples collected from SW-1 indicate that the water quality of the brook flowing under the block plant has not been adversely affected by discharge from floor drains in the block plant or from any possible contamination from the removed 7,000 gallon UST.

Results of soils analysis for sediment samples at SW-1 show non-detectable concentrations of compounds measured by EPA Method 8260. The results of EPA method TPH 8015 (DRO) show a total petroleum hydrocarbon concentration of 560 ppm. The signature of the contaminant is most similar to motor oil, and is likely a form of used/old motor oil that would be associated with engine maintenance.

The results of the March 1999 surface water analyses indicate that the unnamed brook that flows parallel to Phyllis Lane has not been adversely impacted at

station SW-2 by the contaminant plume originating on the Morse Block property. The presence of Iron staining, found along the streambank downgradient from the contaminant plume, shows the point of emergence of the plume from the source area.

The results of soils analyses for sediment samples collected from SW-2 complement the results of the surface water analyses. There are no detectable concentrations of any targeted analytes present in either the surface water or sediment samples.

5.3 Sensitive Receptor Survey

Contamination associated with the Morse Block facility could potentially impact human and environmental receptors. As a consequence, H&N performed a sensitive receptor survey on March 4-5, 1999, with particular emphasis on the basements of the onsite and neighboring buildings, and the environment. The results of the receptor survey are presented below.

5.3.1. 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 Morse Block facility is serviced by public water, with no private water supply wells located on the property.

According to Mr. Terry Morse of Bennington Public Works Department, area residents use well water near the Morse Block facility. Businesses upgradient (northeast of Rte. 7A) and residences potentially downgradient (two residences directly south of the facility) are all serviced by private water supply wells. Businesses south of Phyllis Lane share a water line with the Morse Block facility. Exposure through ingestion may potentially 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 soil borings for additional characterization, maximum PID readings (20-220 ppm) were encountered at depths of 3'-6' below ground surface (bgs). The risk for dermal contact with contaminated soil is considered to be negligible.

An unnamed brook borders the subject property to the south. A surficial reconnaissance of the riverbank was conducted during which a groundwater seep was observed on the subject property. There were no sheens or odors detected in the ground water discharge area. However, there was noticeable iron staining on the stream banks. Analysis of the seep water and sediments indicates that the contaminant plume on the site has not adversely affected the water quality of the stream and does not likely pose a threat to human health.

Due to the presence of private supply wells in the surrounding area, groundwater

contact is 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 visited.

Morse Block Facility

There are three buildings associated with the subject facility: the block plant (main building), the cement warehouse, and the brown barn. Each of the structures is on a cement slab, with no basement. Floor drains were identified in the main building. These drains discharge directly to the unnamed brook that the building straddles. A PID was used to screen the head space above the drains and no elevated readings were detected.

The floor drains may pose a threat to surface water and human health given the presence of small and large engine vehicles in this building.

Route 7A Residences

There are two residences on Rte. 7A that were included in the sensitive receptor survey. Each of the homes is serviced by private water supply wells. The buildings are located along the southeast boundary of the property. Only one of these homes was accessible during the site investigation. The current occupant of the southernmost home indicated that the

basement of the house often floods but that there have been no petroleum odors evident. A PID was used to screen the head space in the basement and no elevated readings were detected. This residence is cross-gradient of the known contaminant plume and the risk to human health appears to be negligible.

Adjoining Businesses

There are four commercial buildings located on Phyllis Lane, downgradient from the subject property. Three of the buildings are used by Ranzona, packaging and moving company. Reportedly these buildings do not have basements. Access to each of the buildings was not available during the site investigation. Mr. Terry Morse of the Bennington Public Works Department indicated that these businesses are serviced by the same water line that services the Morse Block Facility. Each of the commercial buildings is located on the southern side of the unnamed brook and the risk to human health appears to be negligible.

5.3.2 Environmental Receptors

An unnamed brook flows in a roadside ditch westerly along the southern border of the property. The stream was walked along the entire distance of the southern property line and approximately 200' past the property line. There were no sheens or unusual odors observed during this investigation. Iron deposits were identified along a 35-foot section of the streambank, directly downgradient of the flow path of the contaminant plume originating on the Morse Block property. The deposits were

associated with a groundwater discharge zone.

Surface water and sediment samples were collected from the seep and analyzed by EPA Method 8021B and 8015 GRO. The results of the March 1999 surface water analyses indicate that the unnamed brook that flows parallel to Phyllis Lane has not been adversely impacted at station SW-2. The presence of Iron staining, found along the streambank downgradient from the contaminant plume, is consistent with the discharge point for the contaminant plume. There are no detectable concentrations of any targeted analytes present in either the surface water or sediment samples.

A second unnamed brook enters the property from the northeast, flows through a narrow channel (manmade curtain drain) and joins the first brook (roadside ditch) at the southwestern corner of the property. This brook was also walked in its entirety along the property and approximately 1,000' upstream. The brook is characterized as a nature channel upgradient (northeast of Rte. 7A) of the subject property until it is culverted under Rte. 7A and the Morse Block main building. The brook flows under the building and discharges into a manmade channel (curtain drain). At the point of discharge from under the building, surface water and sediment samples were taken. Sediments exhibited a sheen when collected, possibly due to biological activity. Laboratory analysis indicate that the sediments have elevated levels of total petroleum hydrocarbons (560 ppm).

The contaminant signature is most similar to motor oil, most likely originating from the floor drains in the main building.

The brook flows from under the building in a westerly location, passing upgradient from the location of the former 1,000 gallon gasoline UST. There were no sheens or odors observed in this area indicating that the stream has not likely been impacted by the contaminant plume originating on the property.

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, and the unnamed brook flowing along the southern boundary of the property.

6.0 CONCLUSIONS AND RECOMMENDATIONS

H&N has completed an investigation of the Morse Block Facility in Bennington, Vermont. These activities included onsite monitoring well installation, soil screening, groundwater sampling from newly installed wells, monitoring well survey, surface water and sediment sampling at two stream locations, and a sensitive receptor survey. Based on the data collected during this investigation, several conclusions have been made. These are as follows:

- Shallow groundwater flow has been confirmed to be southwest, towards the Walloomsac River.
- Headspace PID soil screening results from within the excavation area of the former 7,000 gallon heating oil UST at the drilling location MW-1 and from the

downgradient drilling location MW-2 do not indicate any residual soil contamination.

- Ground water laboratory analysis for MW-1 and MW-2 complement the results of the soil screening. With the exception of toluene, concentrations of targeted analytes were non-detectable. Toluene was found in only low levels in MW-1 and MW-2, 2.8 ppb and 27.6 ppb, respectively.
- 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-4, MW-4D, and MW-6.
- The source of the BTEX, naphthalene and total trimethylbenzene contamination has been identified as the former 1,000 gallon gasoline underground storage tank which was removed from the site in 1986, and suspected to have leaked in the subsurface environment. There are no reports documenting tank removal.
- The highest contaminant concentrations (2,961 ppb BTEX, 219 ppb total trimethylbenzenes, 101 ppb naphthalene) were detected in MW-4D located in or just downgradient of the former leaking gasoline UST. The relatively high BTEX concentrations are consistent with gasoline contamination.
- Concentrations of VOCs in MW-4D may be exaggerated due to well installation procedures and the fact that samples were collected soon after

installation. PID levels from soils screened during well installation (7 ppm at 10'-12' bgs and 0.8 ppm at 12'-14' bgs) did not suggest a high level of contamination at depths of 14' to 17' bgs. Due to the contradictory data from ground water and soils analysis, further monitoring of this well will determine the correct contaminant.

- The contaminant plume has migrated south from the source area as evidenced by elevated levels of VOCs in MW-6 and MW-5, particularly 1,2,4-trimethylbenzene (241 ppb and 4.6 ppb, respectively).
- The north-south boundaries of the dissolved-phase hydrocarbon plume(s) have been delineated between MW-4 and MW-5, approximately 220'. The most northern east-west boundaries of the plume have been delineated between MW-10 and MW-7, approximately 125'. The southern east-west boundaries narrow to a width of 85' between MW-8 and MW-9. The vertical extent of contamination has been roughly defined between 3' and 10' within and immediately downgradient of the source area (MW-4D and MW-6).
- The results of the March 1999 surface water and stream sediment analyses indicate that the unnamed brook that flows parallel to Phyllis Lane, on the southern boundary of the property, has not been adversely impacted by the contaminant plume originating on the Morse Block property. The presence of iron staining on the streambank downgradient from the contaminant

plume suggests that active bioremediation is occurring on the site.

- The unnamed brook that flows onto the property from the northeast and across the property, approximately 30 feet upgradient from the former 1,000 gallon UST, does not appear to have been impacted by the contaminant plume.
- There are at least two residential water supply wells in the vicinity of the site. Given the proximity of these homes to the contaminant plume, there is a potential risk to public health or the environment offsite.
- The unnamed brook has been impacted by possible discharges from floor drains within the main building. Elevated TPH levels (560 ppm) in the stream sediments are most likely attributed to motor oil (most likely used or weathered). At the time of the investigation the outfall from the floor drains was directly to the stream.

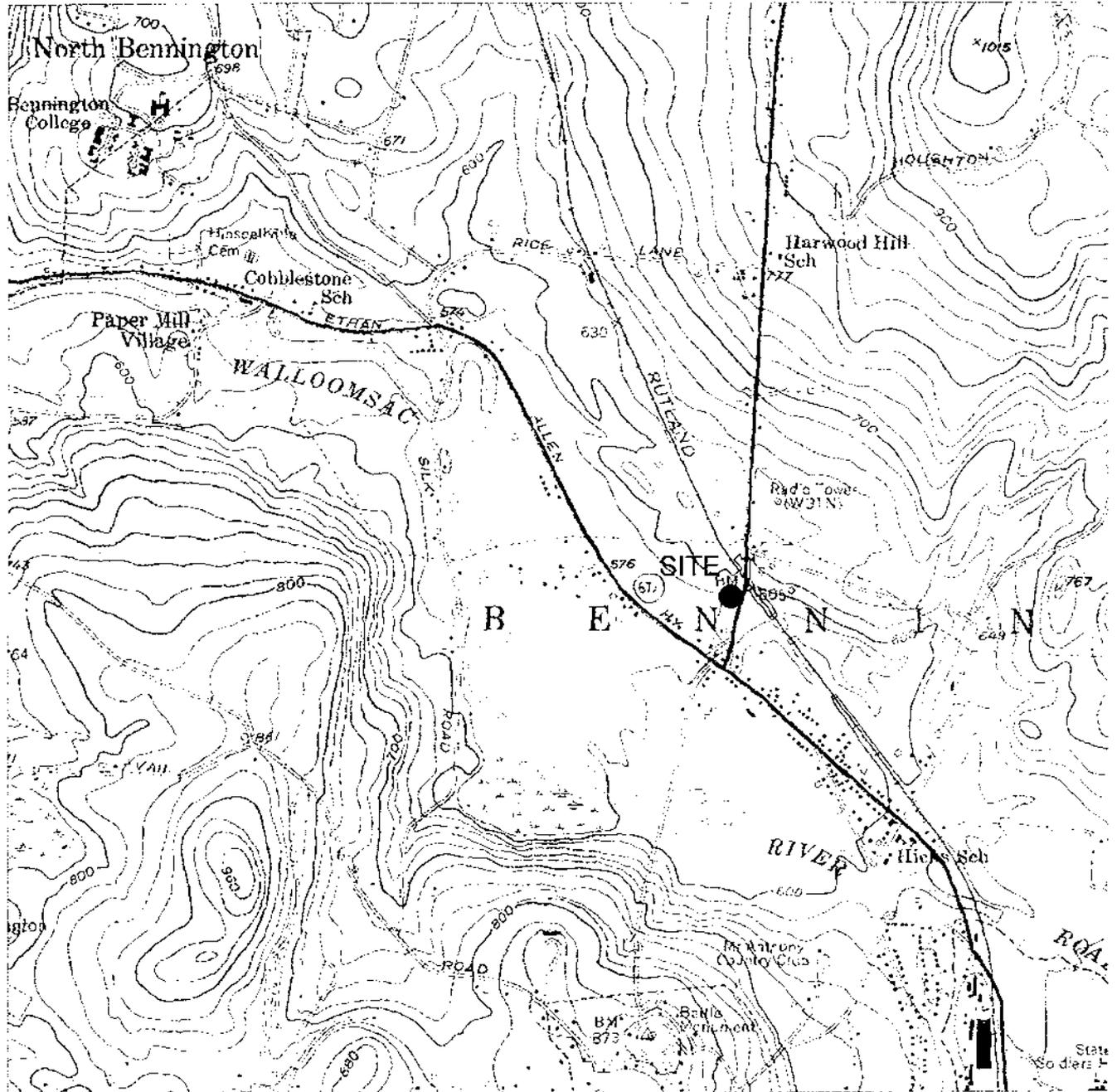
Based on the above conclusions, H&N recommends the following:

- Collect and analyze private water supply wells in the downgradient vicinity of the property. Samples should be analyzed for volatile organic compounds (VOCs) via EPA Method 8260.
- Properly close all floor drains in the main building on the subject property following procedures outlined in the Floor Drain Closure Regulations.
- Conduct an additional monitoring in the summer 1999, and collect ground

water samples from all newly installed monitor wells (ten wells) and surface water samples from the unnamed brook directly downgradient from the contaminant plume (SW-2). Monitor wells MW-1 and MW-2 shall serve as upgradient compliance points and surface water station SW-2 as the downgradient compliance point. Samples should be analyzed for VOCs via EPA Method 8021B.

- Measure conductivity, dissolved oxygen and ORP levels and sample with field filtration dissolved iron and manganese in monitor wells MW-5, MW-8 and MW-9 to evaluate the bioremedial capacity of the site.
- Based on the results of the summer 1999 monitoring event, make recommendations for site remediation and steps to site closure.

SITE LOCATION MAP: MORSE BLOCK



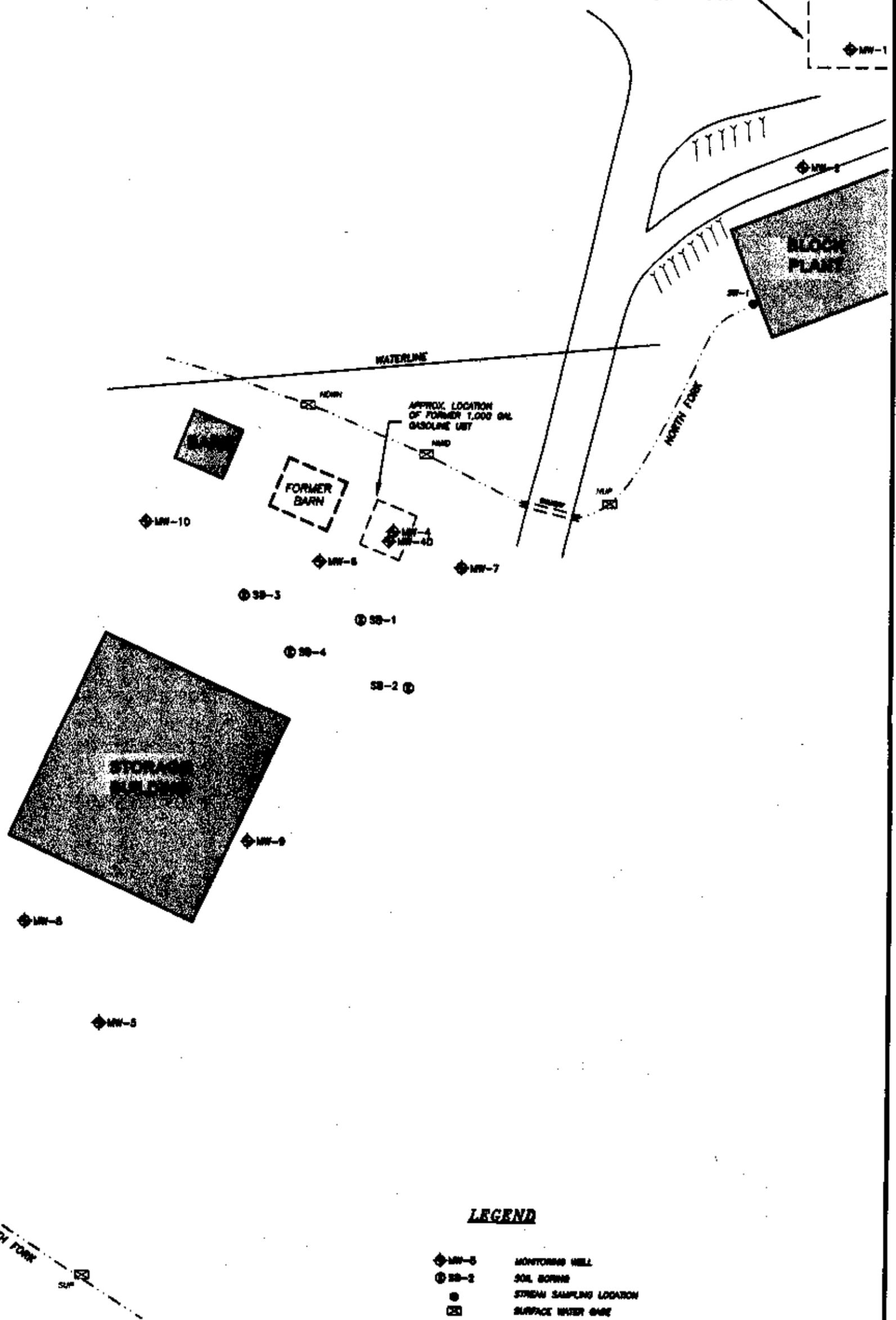
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APPROX. AREA OF EXCAVATION FOR FORMER 7,000 GAL #2 FUEL OIL UST



LEGEND

- MONITORING WELL
- SOIL BORING
- STREAM SAMPLING LOCATION
- SURFACE WATER GAGE

Griswold/Morse Block

BENNINGTON, VERMONT

SITE PLAN

SCALE: 1" = 40'

FILE: C:\GRISWOLD\SITEPLAN

DATE: APRIL 16, 1990

PROJECT NO.

DRAWN BY: *D. Smith*

PROJ. MGR: *D. Barton*

APPROVED: *J. Noyes*

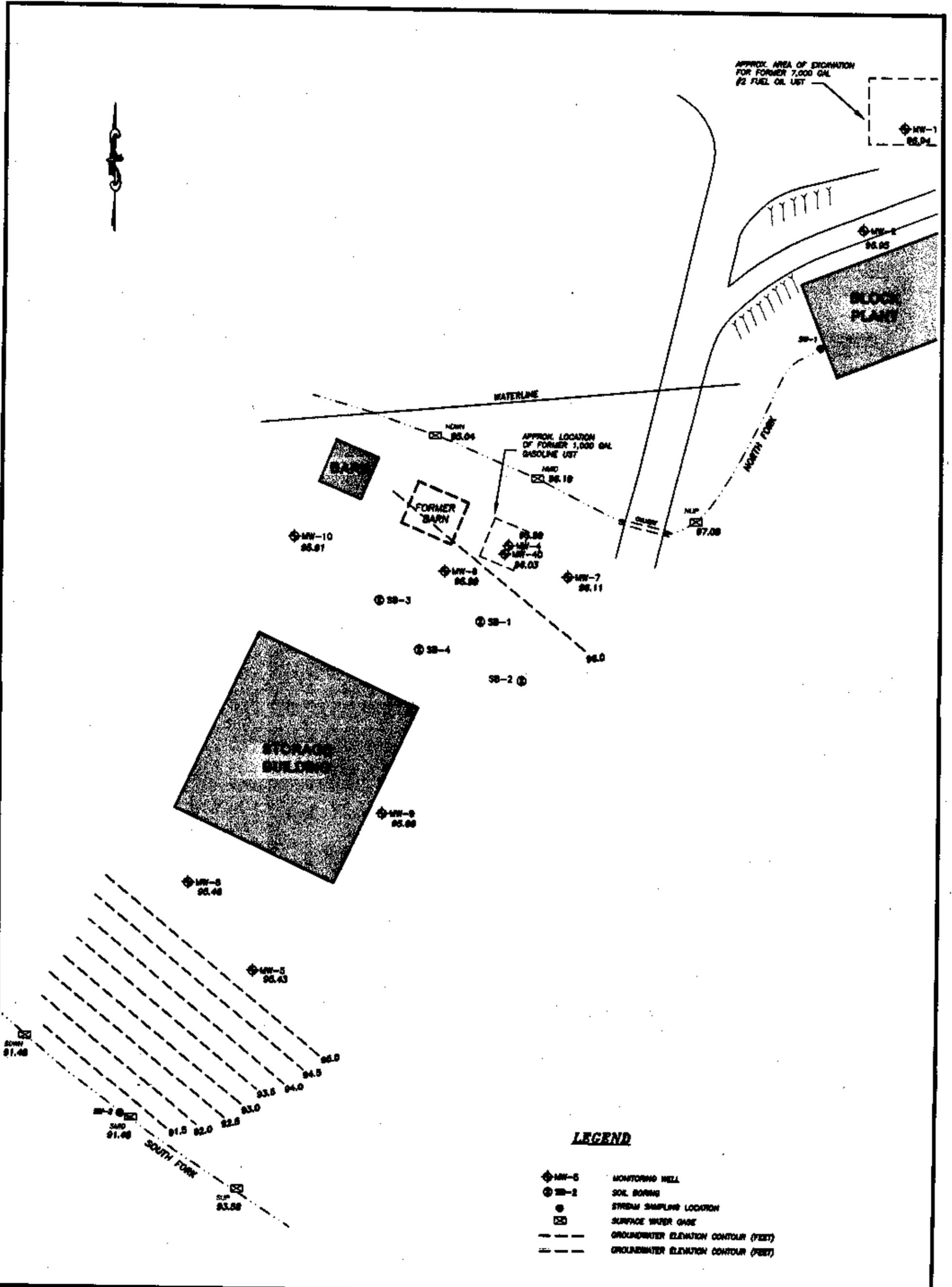
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 Prepared By:
Information & Visualization Services

MORSE BLOCK FACILITY
Bennington, Vermont
Water Level Elevation (Feet)

Well	Top of Pipe	3/10/99
MW-1	122.35	96.94
MW-2	106.80	96.95
MW-4	99.89	95.99
MW-4D	99.98	96.03
MW-5	98.47	95.43
MW-6	99.67	95.99
MW-7	100.28	96.11
MW-8	98.26	95.46
MW-9	99.53	95.66
MW-10	99.40	95.91



Griswold/Morse Block

BENNINGTON, VERMONT
GROUNDWATER CONTOUR MAP - 3/10/99

SCALE: 1" = 40'

FILE: C:\GRISWOLD\SITEPLAN

DATE: APRIL 16, 1999
 PROJECT NO.
 DRAWN BY: S. Smith
 PROJ. MGR: D. Barton
 APPROVED: J. Noyes
 DRAFT FINAL

Heindel and Noyes
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 CONSULTING SCIENTISTS AND ENGINEERS
 P.O. BOX 64760
 BURLINGTON, VERMONT 05406-4760
 Prepared By:
 Information & Visualization Services

**ST Griswold / Morse Block
Bennington, Vermont
Water Quality Results**

Location	Parameter	Units	VGES	3/9/1999
MW-01	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	2.8
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1
MW-02	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	27.6
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	> 10
	TPH 8015 GRO	ppm	--	0.2
MW-04	Benzene	ppb	5	23.5
	Toluene	ppb	1000	313
	Ethylbenzene	ppb	700	133
	Xylenes	ppb	10000	600
	1,3,5-Trimethylbenzene	ppb	4	50.9
	1,2,4-Trimethylbenzene	ppb	5	168
	Naphthalene	ppb	20	101
	MTBE	ppb	40	ND / < 10
	UIPs	#	--	> 10
	TPH 8015 GRO	ppm	--	3.3
MW-04D	Benzene	ppb	5	62.2
	Toluene	ppb	1000	913
	Ethylbenzene	ppb	700	356
	Xylenes	ppb	10000	1630
	1,3,5-Trimethylbenzene	ppb	4	153
	1,2,4-Trimethylbenzene	ppb	5	464
	Naphthalene	ppb	20	116
	MTBE	ppb	40	ND / < 40
	UIPs	#	--	> 10
	TPH 8015 GRO	ppm	--	9.0
MW-05	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	12.8
	Ethylbenzene	ppb	700	3.7
	Xylenes	ppb	10000	15.8
	1,3,5-Trimethylbenzene	ppb	4	1.7
	1,2,4-Trimethylbenzene	ppb	5	4.6
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	7
	TPH 8015 GRO	ppm	--	ND / < 0.1

UIP = Unidentified peaks

TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics

ND = none detected

Bold, shaded = exceeds Vermont Groundwater Enforcement Standard (VGES)

**ST Griswold / Morse Block
Bennington, Vermont
Water Quality Results**

Location	Parameter	Units	VGES	3/9/1999
MW-06	Benzene	ppb	5	21.9
	Toluene	ppb	1000	24.4
	Ethylbenzene	ppb	700	82.2
	Xylenes	ppb	10000	462
	1,3,5-Trimethylbenzene	ppb	4	80.6
	1,2,4-Trimethylbenzene	ppb	5	241
	Naphthalene	ppb	20	21.8
	MTBE	ppb	40	ND / < 8
	UIPs	#	--	> 10
	TPH 8015 GRO	ppm	--	2.8
MW-07	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	4.2
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	2
	TPH 8015 GRO	ppm	--	ND / < 0.1
MW-08	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	1.3
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1
MW-09	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	ND / < 1
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1
MW-10	Benzene	ppb	5	ND / < 1
	Toluene	ppb	1000	ND / < 1
	Ethylbenzene	ppb	700	ND / < 1
	Xylenes	ppb	10000	ND / < 2
	1,3,5-Trimethylbenzene	ppb	4	ND / < 1
	1,2,4-Trimethylbenzene	ppb	5	ND / < 1
	Naphthalene	ppb	20	ND / < 5
	MTBE	ppb	40	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1

UIP = Unidentified peaks

TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics

ND = none detected

Bold, shaded = exceeds Vermont Groundwater Enforcement Standard (VGES)

7

**ST Griswold / Morse Block
Bennington, Vermont
Water Quality Results**

Location	Parameter	Units	VGES	3/9/1999
SW-01 (surface water)	Benzene	ppb	1.2	ND / < 1
	Toluene	ppb	6,800	ND / < 1
	Ethylbenzene	ppb	3,100	ND / < 1
	Xylenes	ppb	--	ND / < 2
	1,3,5-Trimethylbenzene	ppb	--	ND / < 1
	1,2,4-Trimethylbenzene	ppb	--	ND / < 1
	Naphthalene	ppb	--	ND / < 5
	MTBE	ppb	--	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.4
SW-01 (sediment)	Benzene	ppb	1.2	ND / < 15
	Toluene	ppb	6,800	ND / < 15
	Ethylbenzene	ppb	3,100	ND / < 15
	Xylenes	ppb	--	ND / < 30
	1,3,5-Trimethylbenzene	ppb	--	ND / < 15
	1,2,4-Trimethylbenzene	ppb	--	ND / < 15
	Naphthalene	ppb	--	ND / < 75
	MTBE	ppb	--	ND / < 30
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	560
SW-02 (surface water)	Benzene	ppb	1.2	ND / < 1
	Toluene	ppb	6,800	ND / < 1
	Ethylbenzene	ppb	3,100	ND / < 1
	Xylenes	ppb	--	ND / < 2
	1,3,5-Trimethylbenzene	ppb	--	ND / < 1
	1,2,4-Trimethylbenzene	ppb	--	ND / < 1
	Naphthalene	ppb	--	ND / < 5
	MTBE	ppb	--	ND / < 2
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1
SW-02 (sediment)	Benzene	ppb	1.2	ND / < 15
	Toluene	ppb	6,800	ND / < 15
	Ethylbenzene	ppb	3,100	ND / < 15
	Xylenes	ppb	--	ND / < 30
	1,3,5-Trimethylbenzene	ppb	--	ND / < 15
	1,2,4-Trimethylbenzene	ppb	--	ND / < 15
	Naphthalene	ppb	--	ND / < 75
	MTBE	ppb	--	ND / < 30
	UIPs	#	--	0
	TPH 8015 GRO	ppm	--	ND / < 0.1

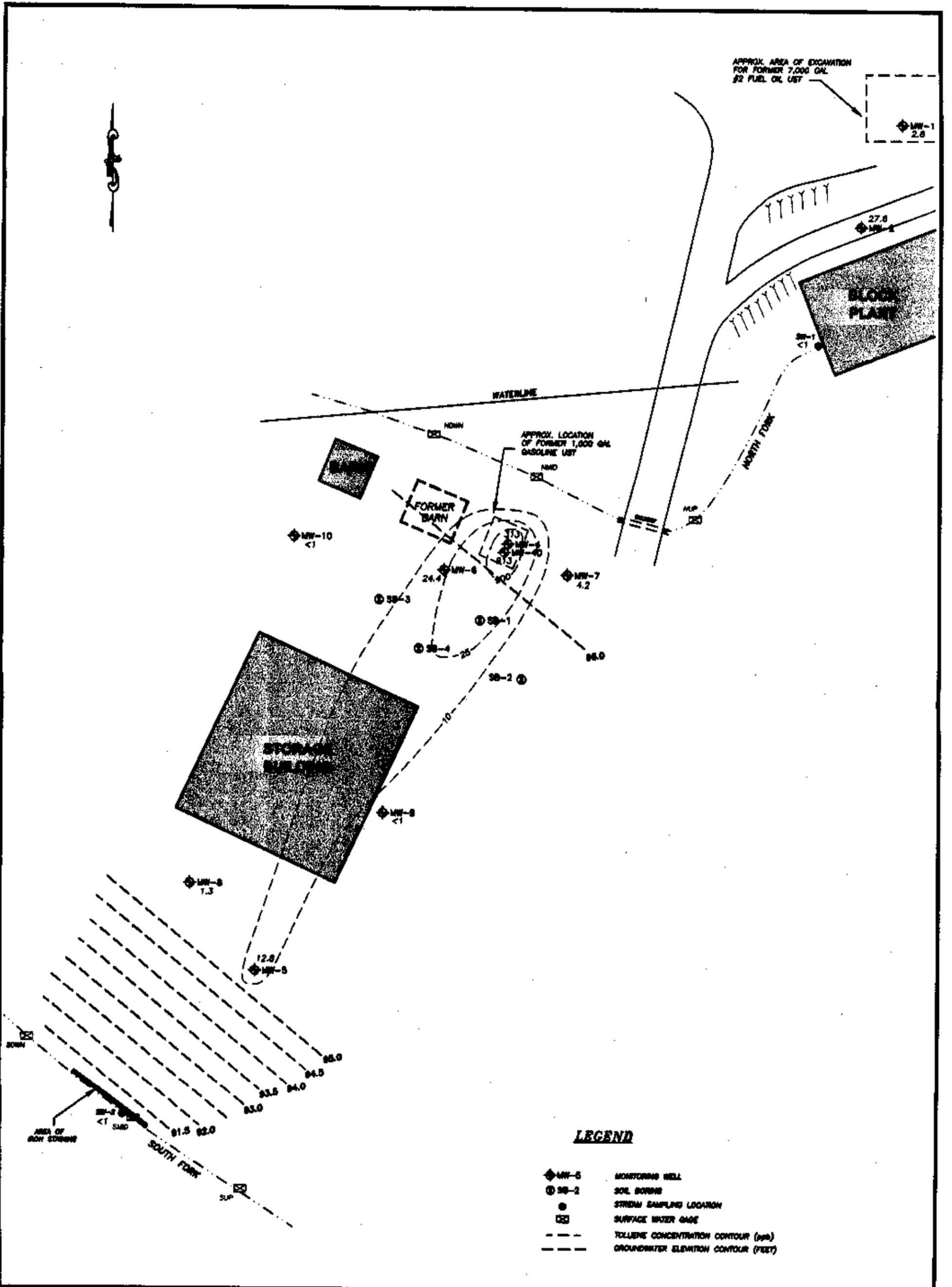
UIP = Unidentified peaks

TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics

ND = none detected

Bold, shaded = exceeds Vermont Groundwater Enforcement Standard (VGES)



LEGEND

- ◆ MW-5 MONITORING WELL
- ⊙ SB-2 SOIL BORING
- STREAM SAMPLING LOCATION
- SURFACE WATER GAGE
- - - - - TOLUENE CONCENTRATION CONTOUR (ppb)
- — — — GROUNDWATER ELEVATION CONTOUR (FEET)

Griswold/Morse Block

BENNINGTON, VERMONT

TOLUENE CONCENTRATION CONTOUR MAP - 3/8/88

SCALE: 1" = 40'

FILE: C:\GRISWOLD\SITEPLAN

DATE: APRIL 19, 1989

PROJECT NO.

DRAWN BY: S. Smith

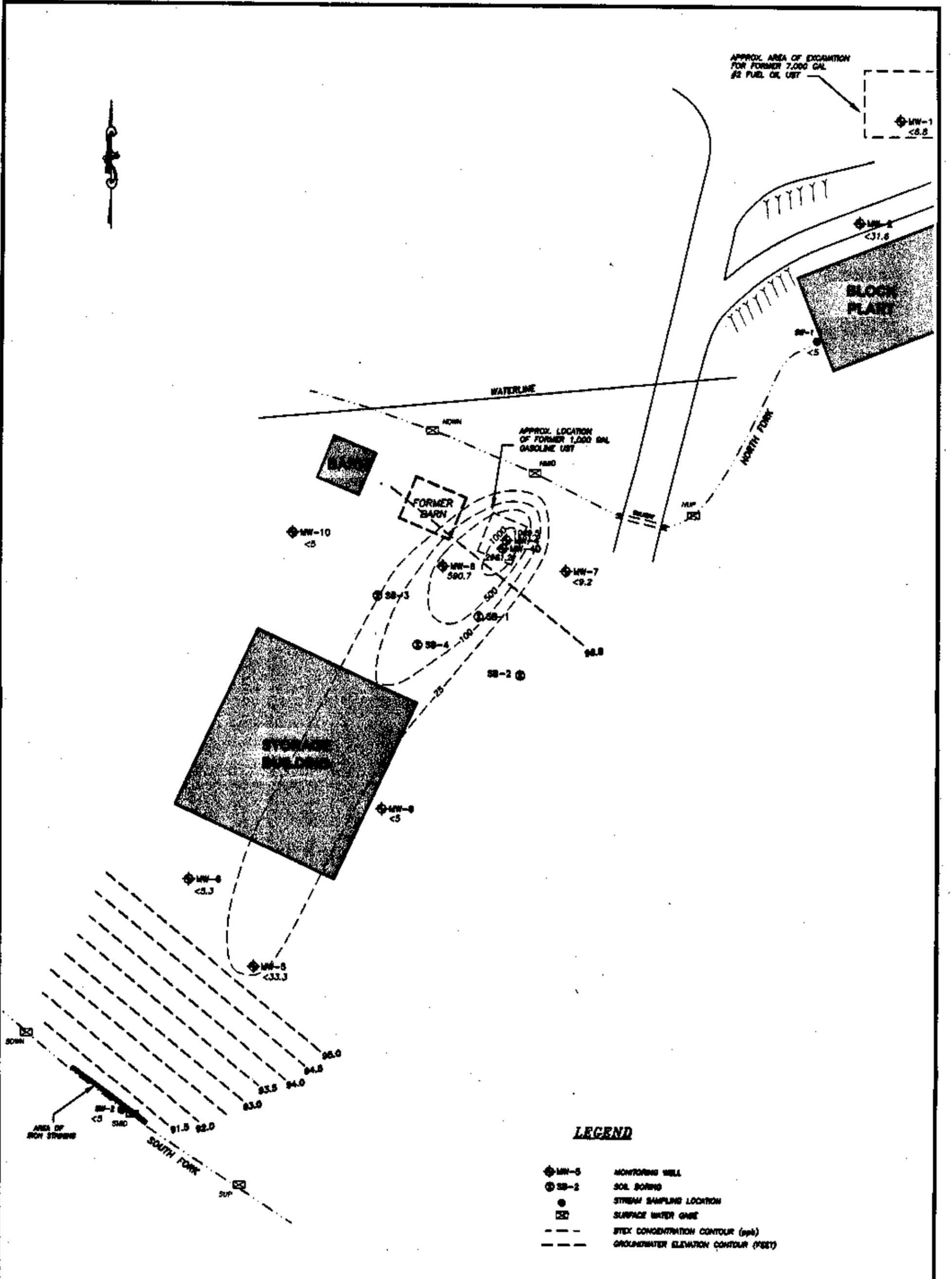
PROJ. MGR: D. Barton

APPROVED: J. Noyes

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 Prepared By:
 Information & Visualization Services



APPROX. AREA OF EXCAVATION FOR FORMER 7,000 GAL #2 FUEL OIL UST
 MW-1
 <5.8

APPROX. LOCATION OF FORMER 1,200 GAL GASOLINE UST

LEGEND

- ◆ MW-5 MONITORING WELL
- ⊙ SB-2 SOIL BORING
- STREAM SAMPLING LOCATION
- ⊠ SURFACE WATER GAUGE
- - - BTX CONCENTRATION CONTOUR (PPB)
- - - GROUNDWATER ELEVATION CONTOUR (FEET)

Griswold/Morse Block

BENNINGTON, VERMONT

BTX CONCENTRATION CONTOUR MAP - 3/8/99

DATE: APRIL 19, 1999

PROJECT NO.

DRAWN BY: S. Smith

PROJ. MGR: D. Barton

APPROVED: J. Noyes

Helndel and Noyes

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 CONSULTING SCIENTISTS AND ENGINEERS
 P.O. BOX 84758
 BURLINGTON, VERMONT 05405-8758

SCALE: 1" = 40'

FILE: C:\GRISWOLD\BITEPLAN

DRAFT FINAL

Prepared By:
 Information & Visualization Services

SOIL BORING LOG

				P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014				Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 1 Sheet 1 of 1 SDI Project Number: 99907											
Boring Location: MW-1 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton				Date Started: 3/4/99 Date Completed: 3/4/99				Rig Hours Meter Start: 378.2 Time: 7:30 A.M. Rig Hours Meter End: 381.8 Time: 11:30 A.M.											
Casing Size: _____ Type: Split Spoon Other: _____ Hammer: 140 Pounds Hammer: _____ Fall: 30 Inches Fall: _____				Sampler _____				Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____											
Sample				Sample Description				Strata Change & General Description		Field Testing PiD		Equipment or Well Installed							
No.	Recovery	Depth	Blows																
1	4"	3-5'	WOH	Brown sand and gravel, fill.				Fill, Dry	0.0 ppm	Set 2" diameter PVC well to 28.5' BGS.									
2	0	5-7'	WOH	NA				NA	NA	10' .020 screen with sock, native backfill.									
3	3"	7-9'	8,8,8,8	Brown sands and gravel, fill.				Wet	0.0 ppm	Bentonite chips 17.5 - 16.5'									
4	4"	9-11'	11,11,9,7	As above, some fine sands. Interface between fill and native ± 10'				Wet	2.0 ppm	Native fill to ground surface.									
5	6"	11-13'	4,10,12,4	Yellow/brown fine silty sands, some pebbles, smeary.				Wet	1.5 ppm										
6	22"	13-15'	6,8,10,14	As above.				Saturated	1.5 ppm										
7	16"	15-17'	4,10,12,14	Top 10" as above, then brown fine sands.				Moist	0.0 ppm										
8	16"	20-22'	16,16,18,20	Gray medium sand.				Dry	0.0 ppm										
9	2"	25-27'	5,16,16,18	Wet coarse sand and gravel.				Saturated	0.0 ppm										
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 Details 2" PVC Screen (.020): one 10' 2" PVC Riser: four 5' Plug/Cap: 1 each Filter Sock: 12'				Sand: Concrete: Bentonite chips: 1/2 bg Well Guard:			

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

		P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014	Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 2 Sheet 1 of 1 SDI Project Number: 99907				
Boring Location: MW-2 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 3/4/99 Date Completed: 3/4/99	Rig Hours Meter Start: 381.8 Time: 12:45 P.M. Rig Hours Meter End: 384.5 Time: 3:45 P.M.				
Casing Type: <u>Split Spoon</u> Other: _____ Hammer: 140 Pounds Hammer: _____ Fall: 30 Inches Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample		Sample Description		Strata Change & General Description	Field Testing PID	Equipment or Well Installed	
No.	Recovery	Depth	Blows				
				Prior auger tailings 1" - 3" stones/gravel	Dry	Set 2" diameter PVC well to 15' BGS.	
1	2"	5-7'	5,4,15, 16	Rock in tip.	Dry	10' .020 screen with sock, native backfill.	
2	4"	10-10.5'	20 then 50 for 2"	Gravel and sandy till, refusal at 10.5'. Tried to auger through, would not go, moved setup.	Dry	Bentonite chips 4' - 3'	
3	4"	10-11.5'	19,57, 54	Coarse gravel, spoon goes off center, hangs up on casing.	Saturated	Native fill to ground surface.	
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Cohesive Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Details</u> 2" PVC Screen (.020): one 10' 2" PVC Riser: one 5' Plug/Cap: 1 each Filter Sock: 12' Sand: Concrete: Bentonite chips: 1/2 bg Well Guard: 1 flushmount	

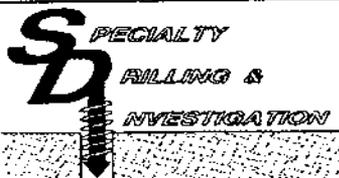
WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

				P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014				Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 3 Sheet 1 of 1 SDI Project Number: 99907					
Boring Location: MW-3 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton				Date Started: 3/4/99 Date Completed: 3/4/99				Rig Hours Meter Start: 384.5 Time: 3:50 P.M. Rig Hours Meter End: 386.3 Time: 5:15 P.M.					
Size: _____ Hammer: 140 Pounds Fall: 30 Inches				Casing Type: Split Spoon Other: _____ Sampler _____ Hammer: _____ Fall: _____				Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample				Sample Description				Strata Change & General Description		Field Testing PID		Equipment or Well Installed	
No.	Recovery	Depth	Blows										
				Tried three locations, refusal at 3, 4 and 5' at the end of the day, 5:30 p.m.									
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%				<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense				<u>Well Construction Details</u> 2" PVC Screen (.020): Sand: 2" PVC Riser: Concrete: Plug/Cap: Bentonite chips: Filter Sock: Well Guard: 1 flush					

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

		P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014		Project Name: Morse Block Project Location: Bannington, Vermont Boring Number: 4 Sheet 1 of 1 SDI Project Number: 99907			
Boring Location: MW-4 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 3/5/99 Date Completed: 3/5/99		Rig Hours Meter Start: 386.3 Time: 6:45 A.M. Rig Hours Meter End: 387.3 Time: 8:15 A.M.			
Casing Size: _____ Type: Split Spoon _____ Other: _____ Hammer: 140 Pounds _____ Hammer: _____ Fall: 30 inches _____ Fall: _____				Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____			
Sample No. Recovery Depth Blows Sample Description				Strata Change & General Description	Field Testing PID	Equipment or Well Installed	
1	12"	4-6'	4,6,8,7	Green fine, silty sand, odor of old gas.	Tip wet	130 ppm	7' .020 screen with sock, native backfill.
2	16"	6-8'	4,8,16,22	Green fine sands and silts. Strong odor of petroleum.	Wet	148 ppm	Bentonite chips 2' - 1'
3	10"	8-10'	18,20,22,11	Coarse sand and gravel.	Saturated	140 ppm	Native fill to ground surface. Flushmount.
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%				<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Well Construction Details</u> 2" PVC Screen (.020): one 10' Sand: 2" PVC Riser: one-half 5' Concrete: Plug/Cap: 1 cap Bentonite chips: 1/2 bg Filter Sock: 10' Well Guard: 1 flush	
				<u>Cohesive Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard			

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

		P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014		Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 5 Sheet 1 of 1 SDI Project Number: 99907			
Boring Location: MW-5 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 3/5/99 Date Completed: 3/5/99		Rig Hours Meter Start: 387.3 Time: 8:50 A.M. Rig Hours Meter End: 388.4 Time: 9:45 A.M.			
Casing Size: _____ Type: Split Spoon _____ Other: _____ Hammer: 140 Pounds _____ Hammer: _____ Fall: 30 Inches _____ Fall: _____		Sampler _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____			
Sample		Sample Description		Strata Change & General Description	Field Testing PID	Equipment or Well Installed	
No.	Recovery	Depth	Blows				
		0-4		Tailings, coarse gravel 1"-3"	Dry	—	Set 2' diameter PVC well to 10' BGS.
1	20"	4-6'	3,5,5,11	16" dark brown fine sands and silty loam, 4' of gray/brown medium sand.	Wet	0.6 ppm	8' .020 screen with sock, native backfill.
2	12"	6-8'	25,25,13,23	Brown coarse sand and gravel, 1" stones.	Saturated	0.2 ppm	Bentonite chips 1.5'-1.0'
3	20"	8-10'	12,16,23,19	As above, more pebble size rocks.	Saturated	0.4 ppm	Native fill to ground surface. 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 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 Details 2" PVC Screen (.020): one 10' Sand: 2" PVC Riser: one-half 5' Concrete: Plug/Cap: 1 cap Bentonite chips: 1/2 bg Filter Sock: 10' Well Guard: 1 flush	

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

		P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014		Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 6 Sheet 1 of 1 SDI Project Number: 99907			
Boring Location: MW-6 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 3/5/99 Date Completed: 3/5/99		Rig Hours Meter Start: 388.4 Time: 9:55 A.M. Rig Hours Meter End: 389.6 Time: 11:05 A.M.			
Casing: _____ Type: Split Spoon _____ Other: _____ Sampler: _____ Hammer: 140 Pounds _____ Hammer: _____ Fall: 30 Inches _____ Fall: _____				Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____			
Sample		Sample Description		Strata Change & General Description	Field Testing PID	Equipment or Well Installed	
No.	Recovery	Depth	Blows				
		0-3		Fill, gravel, 1"-3" stones, odor of gas.		Set 2" diameter PVC well to 10' BGS.	
1	10"	3-5'	17,23, 18,25	Coarse sand with fine sandy silts.	Dry	8' .020 screen with sock, native backfill.	
2	12"	5-7'	2,4,6,7	Brown coarse sands with 1" bed of fine sands.	Wet	Bentonite chips 1.5'-1.0'	
3	18"	7-9'	11,16,8, 10	Saturated/strong odor of gas, coarse sand and gravel.	Saturated	Native fill to ground surface. Flushmount.	
4	8"	10-12'	6,8,10, 12	Coarse gravel.	Saturated		
				Odor of gas throughout profile until 10'-12'. No odors.			
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive Density</u> 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense		<u>Cohesive Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Details</u> 2" PVC Screen (.020): one 10' Sand: 2" PVC Riser: Concrete: Plug/Cap: 1 cap Bentonite chips: 1/2 bg Filter Sock: 10' Well Guard: 1 flush	

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
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SOIL BORING LOG

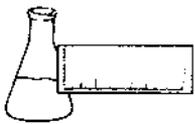
	P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014	Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 7 Sheet 1 of 1 SDI Project Number: 99907					
Boring Location: MW-7 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton		Date Started: 3/5/99 Date Completed: 3/5/99					
Rig Hours Meter Start: 389.6 Time: 11:25 A.M. Rig Hours Meter End: 390.4 Time: 12:25 P.M.							
Casing Size: _____ Type: Split Spoon Other: _____ Sampler Hammer: 14 Pounds Hammer: _____ Fall: 30 Inches Fall: _____		Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____					
Sample Description		Strata Change & General Description	Field Testing PID	Equipment or Well Installed			
No.	Recovery	Depth	Blows				
		0-3'		Gravel and fill.			Set 2" diameter PVC well to 10' BGS.
1	4"	3-5'	23,23,9,11	Brown fine sands and silts with pebbles.	Moist	0.6 ppm	8" .020 screen with sock, native backfill.
2	15"	5-7'	3,3,3,9	4" dark brown silty fine sands. 11" brown medium and fine sands.	Moist Wet	0.8 ppm	Bentonite chips 1.5'-1.0'
3	7"	7-9'	3,5,12,24	Saturated brown to green fine sands and gravel.	Saturated	0.0 ppm	Native fill to ground surface. Flushmount.
				No odors of gas.			
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 Details 2" PVC Screen (.020): one 10' Sand: 2" PVC Riser: one 5' Concrete: Plug/Cap: 1 cap Bentonite chips: 1/2 bg Filter Sock: 10' Well Guard: 1 flush	

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
 U:\PROJECTS\SDI\SDILOG.DOC

SOIL BORING LOG

				P.O. Box 64709, Burlington, Vermont 05406-4709 Tel: 802-658-0820 Fax: 802-860-1014				Project Name: Morse Block Project Location: Bennington, Vermont Boring Number: 9 Sheet 1 of 1 SDI Project Number: 99907					
Boring Location: SB-2 Foreman: Chris Aldrich H&N Staff: Chris Aldrich and Dori Barton				Date Started: 3/5/99 Date Completed: 3/5/99				Rig Hours Meter Start: 390.8 Time: 1:45 P.M. Rig Hours Meter End: 391.3 Time: 2:10 P.M.					
Casing Size: _____ Type: Split Spoon Other: _____ Sampler Hammer: 140 Pounds Hammer: _____ Fall: 30 Inches Fall: _____				Groundwater Readings Date _____ Depth _____ Casing _____ Stabil. _____ Time _____									
Sample				Sample Description				Strata Change & General Description		Field Testing PID		Equipment or Well Installed	
No.	Recovery	Depth	Blows										
		0-3		Tailings, gravel/fill material, rounded and angular stains.				Dry				None	
1	16"	3-5'	4,6,8,12	Dark brown, silty fine, sandy loam, rocks.				Molst	20 ppm				
2	17"	5-7'	4,5,6,14	As above for 13" then brown fine sands. Top 13" Bottom 4"				Wet	2.0 ppm 0.0 ppm				
<u>Proportions Used</u> Trace: 0 to 10% Little: 10 to 20% Some: 20 to 35% And: 35 to 50%		<u>Penetration Resistance</u> 140 lb. wt falling 30" on 2" O.D. Sampler <u>Cohesive</u> Density 0-4 Very Loose 5-9 Loose 10-29 Med. Dense 30-49 Dense 50+ Very Dense				<u>Cohesive Consistency</u> 0-2 Very Soft 3-4 Soft 5-8 M/Stiff 9-15 Stiff 16-30 Very Stiff 31+ Hard		<u>Well Construction Details</u> 2" PVC Screen (.020): Sand: 2" PVC Riser: Concrete: Plug/Cap: Bentonite chips: Filter Sock: Well Guard:					

WOH = Weight of Hammer
 BGS = Below Ground Surface
 NA = Not Applicable
 U:\PROJECTS\SDI\SDILOG.DOC



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Cole
REPORT DATE: March 18, 1999

ORDER ID: 1554
DATE RECEIVED: March 10, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Cole
REPORT DATE: March 18, 1999

ORDER ID: 1554
DATE RECEIVED: March 10, 1999
SAMPLER: DB
ANALYST: 725

Ref. Number: 135372 Site: MW 1 Date Sampled: March 9, 1999 Time: 10:45 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99

Ref. Number: 135373 Site: MW 2 Date Sampled: March 9, 1999 Time: 10:50 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	0.2	mg/L	SW 8015B	3/16/99

Ref. Number: 135374 Site: MW 4 Date Sampled: March 9, 1999 Time: 11:05 AM

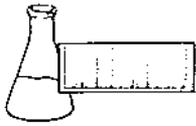
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	3.3	mg/L	SW 8015B	3/16/99

Ref. Number: 135375 Site: MW 4D Date Sampled: March 9, 1999 Time: 11:10 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	9.0	mg/L	SW 8015B	3/16/99

Ref. Number: 135376 Site: MW 5 Date Sampled: March 9, 1999 Time: 11:15 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99

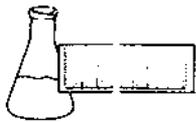


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Ref. Number:	Site:	Date Sampled:	Time:	
135377	MW 6	March 9, 1999	11:22 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	2.8	mg/L	SW 8015B	3/17/99
135378	MW 7	March 9, 1999	11:17 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99
135379	MW 8	March 9, 1999	11:50 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99
135380	MW 9	March 9, 1999	11:37 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99
135381	MW 10	March 9, 1999	11:30 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/16/99
135382	SW-2	March 9, 1999	6:30 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.1	mg/L	SW 8015B	3/17/99
135383	SW-2 Sediments	March 9, 1999	6:30 AM	
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 1.0	mg/Kg	SW 8015B	3/17/99



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Ref. Number: 135382

Site: SW-2

Date Sampled: March 9, 1999

Time: 6:30 AM

<u>Parameter:</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/17/99
Benzene	< 1.0	ug/L	SW 8021B	3/17/99
Toluene	< 1.0	ug/L	SW 8021B	3/17/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/17/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/17/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/17/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/17/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/17/99
UIP's	0.		SW 8021B	3/17/99
Surrogate 1	102.0%	%	SW 8021B	3/17/99

Ref. Number: 135383

Site: SW-2 Sediments

Date Sampled: March 9, 1999

Time: 6:30 AM

<u>Parameter:</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 30.0	ug/kg, dry	SW 8021B	3/17/99
Benzene	< 15.0	ug/kg, dry	SW 8021B	3/17/99
Toluene	< 15.0	ug/kg, dry	SW 8021B	3/17/99
Ethylbenzene	< 15.0	ug/kg, dry	SW 8021B	3/17/99
Xylenes, Total	< 30.0	ug/kg, dry	SW 8021B	3/17/99
1,3,5 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/17/99
1,2,4 Trimethyl Benzene	< 15.0	ug/kg, dry	SW 8021B	3/17/99
Naphthalene	< 75.0	ug/kg, dry	SW 8021B	3/17/99
UIP's	0.		SW 8021B	3/17/99
Percent Solid	64.	%	SW 8021B	3/17/99
Surrogate 1	101.0%	%	SW 8021B	3/17/99

CHAIN-OF-CUSTODY RECORD

2-OR6

Project Name: <u>Morse Brook / Cole</u>	Reporting Address: <u>H.W.</u>	Billing Address: <u>H.W.</u>
Site Location: <u>Brimington, VT</u>		
Endyne Project Number: <u>1554</u>	Company: <u>H.W.</u>	Sampler Name: <u>DS</u>
	Contact Name/Phone #: <u>Don Benton</u>	Phone #: <u>858-6620</u>

Lab #	Sample Location	Matrix	GRAH	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135372	MW 1	H ₂ O	✓		3/19/99 10:45 am	3	40 mL glass		30	HCL	NO
135373	MW 2				10:50 am						
135374	MW 4				11:05 am						
135375	MW 4D				11:10 am						
135376	MW 5				11:15 am						
135377	MW 6				11:22 am						
135378	MW 7				11:17 am						
135379	MW 8				11:50 am						
135380	MW 9				11:30 am						
135381	MW 10		✓		11:30 am	✓	✓				✓
	SW1	H₂O	✓		3/19/99 11:30 am	2	40 mL	Surface water - actual	8205	HCL	NO
	Stream Sediment (SW1)	Soil	✓		3/19/99 11:30 am	2	40 mL glass	Stream Sediment - 15	8260	NO	NO

Relinquished by: Signature <u>Don B</u>	Received by: Signature <u>Debra Florence</u>	Date/Time <u>3/10/99 1:40 PM</u>
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): <u>8021B ; 8100 fragments (8015/160)</u>										

[Handwritten mark]

CHAIN-OF-CUSTODY RECORD

 2-OR6
 22876

Project Name: <u>Moose Block / Cole</u> Site Location:	Reporting Address: <u>WIN</u>	Billing Address: <u>WIN</u>
Endyne Project Number: <u>1554</u>	Company: <u>WIN</u> Contact Name/Phone #: <u>Doris Barton</u>	Sampler Name: <u>DS</u> Phone #: <u>652-0020</u>

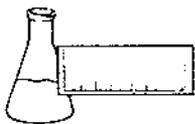
Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135382	Sw-2	H ₂ O	✓		3/5/99 6:30am	2	40mL	Stream Sample	30	HCL	NO
135383	Sw-2 Sediments	Sol	✓		6:30am	2	40mL	Stream Sediments	30	HCL	NO

Relinquished by: Signature <u>Doris Barton</u>	Received by: Signature <u>Allison Florence</u>	Date/Time <u>3/10/99 1:40pm</u>
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): <u>8021 B ; FPH (8015 tree) G.R.D</u>										

[Handwritten signatures and notes]



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Cole
REPORT DATE: March 18, 1999

ORDER ID: 1554
DATE RECEIVED: March 10, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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.

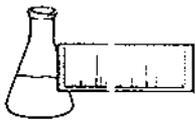
Blank contamination was not observed at levels affecting the analytical results.

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, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Cole
REPORT DATE: March 18, 1999ORDER ID: 1554
DATE RECEIVED: March 10, 1999
SAMPLER: DB
ANALYST: 725

Ref. Number: 135372

Site: MW 1

Date Sampled: March 9, 1999

Time: 10:45 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	2.8	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	0.		SW 8021B	3/16/99
Surrogate 1	96.0%	%	SW 8021B	3/16/99

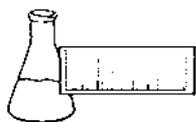
Ref. Number: 135373

Site: MW 2

Date Sampled: March 9, 1999

Time: 10:50 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	27.6	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	> 10.		SW 8021B	3/16/99
Surrogate 1	100.0%	%	SW 8021B	3/16/99



ENDYNE, INC.

Laboratory Services

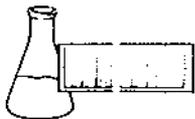
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Ref. Number: 135374 Site: MW 4 Date Sampled: March 9, 1999 Time: 11:05 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 10.0	ug/L	SW 8021B	3/16/99
Benzene	23.5	ug/L	SW 8021B	3/16/99
Toluene	313.	ug/L	SW 8021B	3/16/99
Ethylbenzene	133.	ug/L	SW 8021B	3/16/99
Xylenes, Total	600.	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	50.9	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	168.	ug/L	SW 8021B	3/16/99
Naphthalene	101.	ug/L	SW 8021B	3/16/99
UIP's	> 10.		SW 8021B	3/16/99
Surrogate 1	102.%	%	SW 8021B	3/16/99

Ref. Number: 135375 Site: MW 4D Date Sampled: March 9, 1999 Time: 11:10 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 40.0	ug/L	SW 8021B	3/16/99
Benzene	62.2	ug/L	SW 8021B	3/16/99
Toluene	913.	ug/L	SW 8021B	3/16/99
Ethylbenzene	356.	ug/L	SW 8021B	3/16/99
Xylenes, Total	1,630.	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	153.	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	464.	ug/L	SW 8021B	3/16/99
Naphthalene	116.	ug/L	SW 8021B	3/16/99
UIP's	> 10.		SW 8021B	3/16/99
Surrogate 1	103.%	%	SW 8021B	3/16/99



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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Ref. Number: 135376

Site: MW 5

Date Sampled: March 9, 1999

Time: 11:15 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	12.8	ug/L	SW 8021B	3/16/99
Ethylbenzene	3.7	ug/L	SW 8021B	3/16/99
Xylenes, Total	15.8	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	1.7	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	4.6	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	7.		SW 8021B	3/16/99
Surrogate 1	96.0%	%	SW 8021B	3/16/99

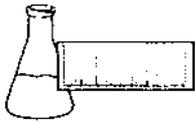
Ref. Number: 135377

Site: MW 6

Date Sampled: March 9, 1999

Time: 11:22 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 8.0	ug/L	SW 8021B	3/17/99
Benzene	21.9	ug/L	SW 8021B	3/17/99
Toluene	24.4	ug/L	SW 8021B	3/17/99
Ethylbenzene	82.2	ug/L	SW 8021B	3/17/99
Xylenes, Total	462.	ug/L	SW 8021B	3/17/99
1,3,5 Trimethyl Benzene	80.6	ug/L	SW 8021B	3/17/99
1,2,4 Trimethyl Benzene	241.	ug/L	SW 8021B	3/17/99
Naphthalene	21.8	ug/L	SW 8021B	3/17/99
UIP's	> 10.		SW 8021B	3/17/99
Surrogate 1	103.0%	%	SW 8021B	3/17/99



Ref. Number: 135378

Site: MW 7

Date Sampled: March 9, 1999

Time: 11:17 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	4.2	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	2.		SW 8021B	3/16/99
Surrogate 1	104.0%	%	SW 8021B	3/16/99

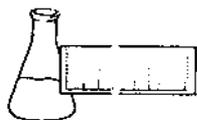
Ref. Number: 135379

Site: MW 8

Date Sampled: March 9, 1999

Time: 11:50 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	1.3	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	0.		SW 8021B	3/16/99
Surrogate 1	101.0%	%	SW 8021B	3/16/99



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Ref. Number: 135380

Site: MW 9

Date Sampled: March 9, 1999

Time: 11:37 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	< 1.0	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	0.		SW 8021B	3/16/99
Surrogate 1	103.0%	%	SW 8021B	3/16/99

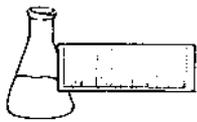
Ref. Number: 135381

Site: MW 10

Date Sampled: March 9, 1999

Time: 11:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/16/99
Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Toluene	< 1.0	ug/L	SW 8021B	3/16/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/16/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/16/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/16/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/16/99
UIP's	0.		SW 8021B	3/16/99
Surrogate 1	101.0%	%	SW 8021B	3/16/99



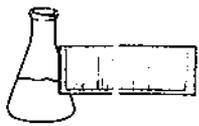
Ref. Number: 135382

Site: SW-2

Date Sampled: March 9, 1999

Time: 6:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	3/17/99
Benzene	< 1.0	ug/L	SW 8021B	3/17/99
Toluene	< 1.0	ug/L	SW 8021B	3/17/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	3/17/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	3/17/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/17/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	3/17/99
Naphthalene	< 5.0	ug/L	SW 8021B	3/17/99
UIP's	0.		SW 8021B	3/17/99
Surrogate 1	102.0%	%	SW 8021B	3/17/99



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LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Griswold
REPORT DATE: March 29, 1999

ORDER ID: 1555
DATE RECEIVED: March 10, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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.

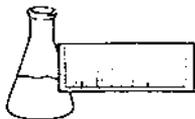
Blank contamination was not observed at levels affecting the analytical results.

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, unless otherwise noted.

Reviewed by,

Harry E. Locker, Ph.D.
Laboratory Director

enclosures



LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Griswold
REPORT DATE: March 29, 1999

ORDER ID: 1555
DATE RECEIVED: March 10, 1999
SAMPLER: DB
ANALYST: 820

Ref. Number: 135384

Site: SW 1

Date Sampled: March 4, 1999

Time: 11:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Fuel ID	Not Available	n/a	SW 8015B	3/19/99
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	3/19/99

Ref. Number: 135385

Site: SW 1 Sediments

Date Sampled: March 4, 1999

Time: 11:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
Fuel ID	Unknown	n/a	SW 8015B	3/23/99
TPH 8015 DRO	560.	mg/Kg	SW 8015B	3/23/99

-Unknown contaminant eluting between straight chain hydrocarbons C16-C32

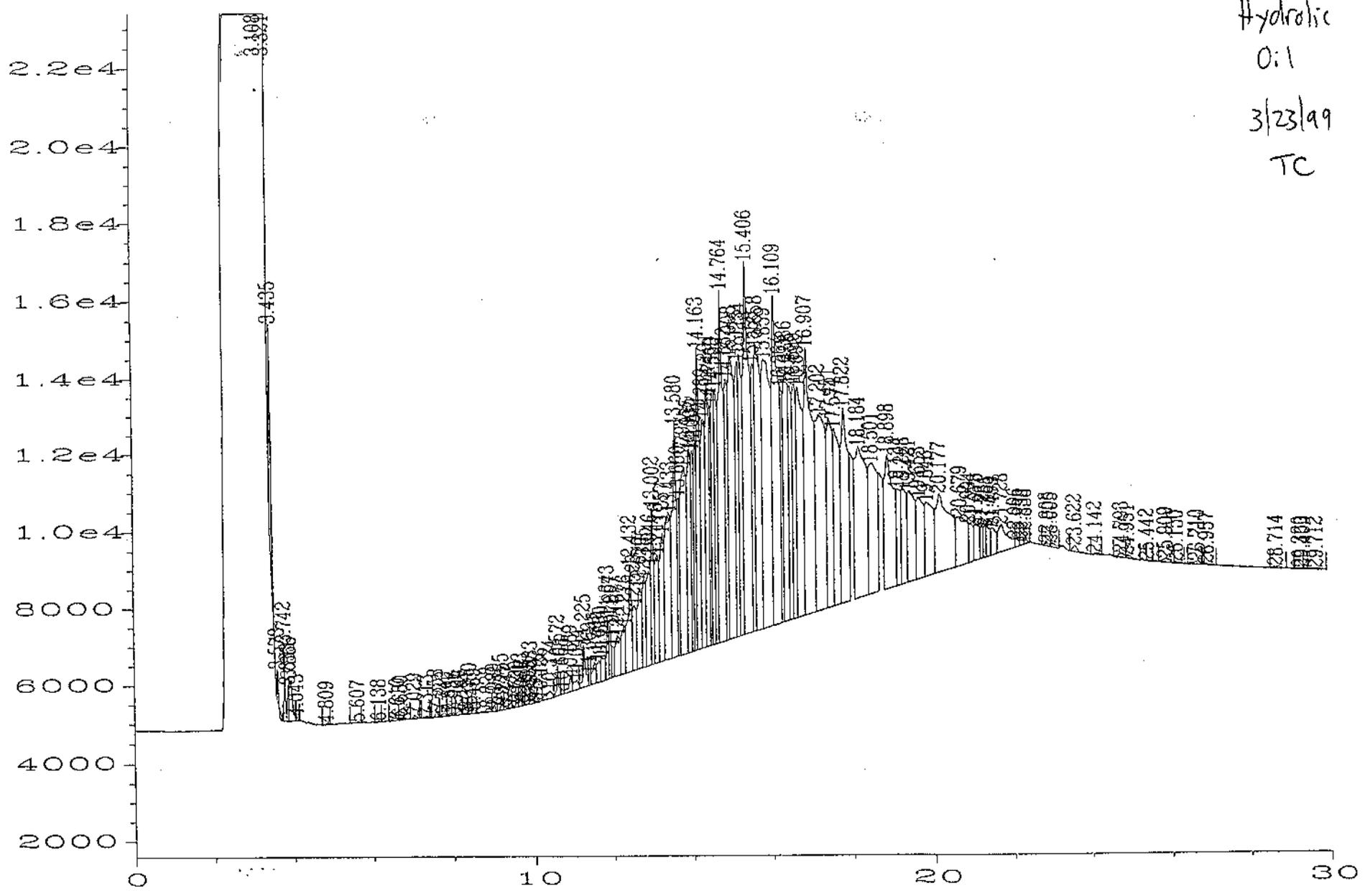


Fig. 1 in C:\HPCHEM\2\DATA\FID\03239909.D

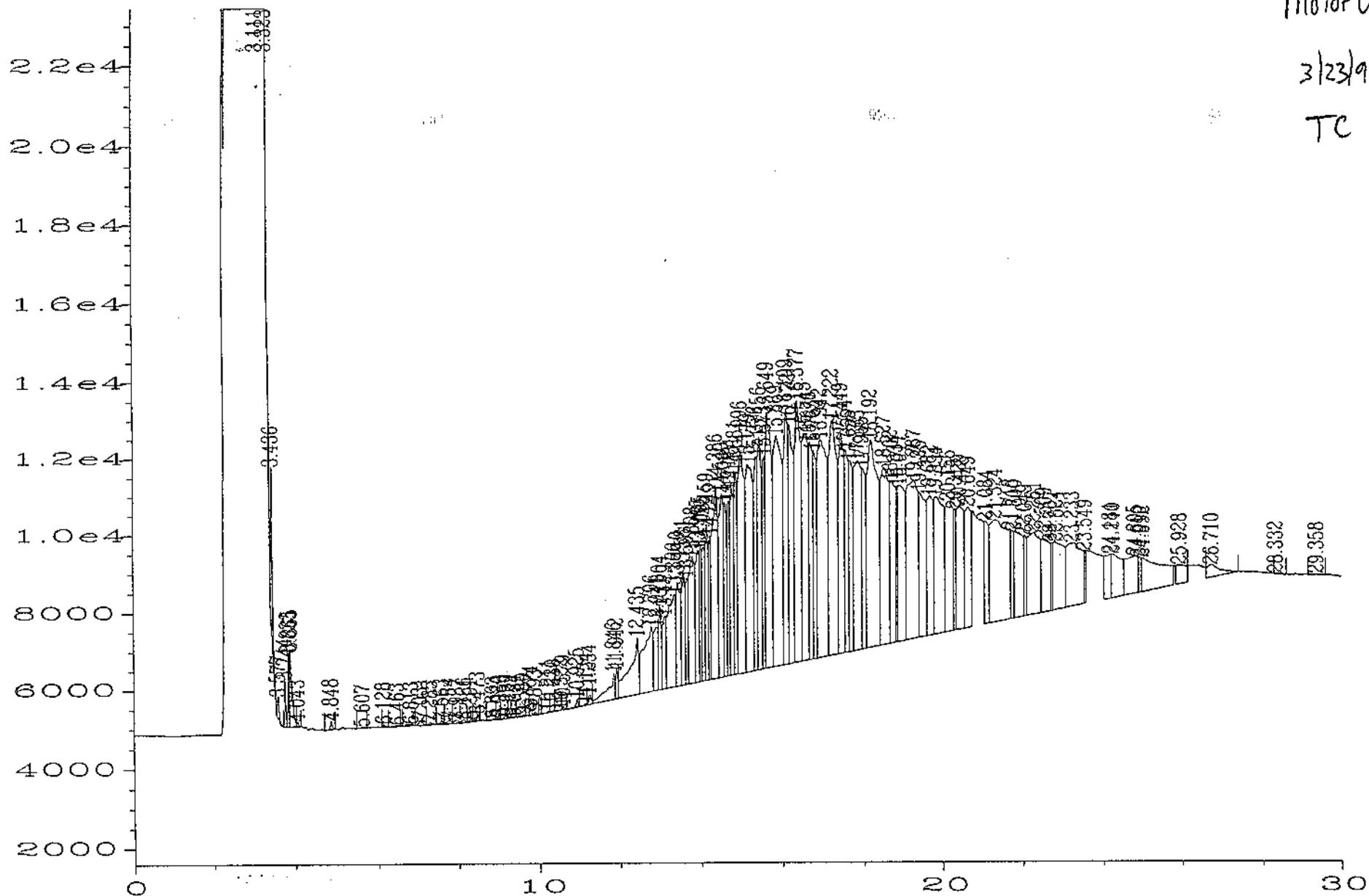


Fig. 1 in C:\HPCHEM\2\DATA\FID\03239908.D

Straight Chain
Hydro Carbon
Window Mix

3/23/99
TC

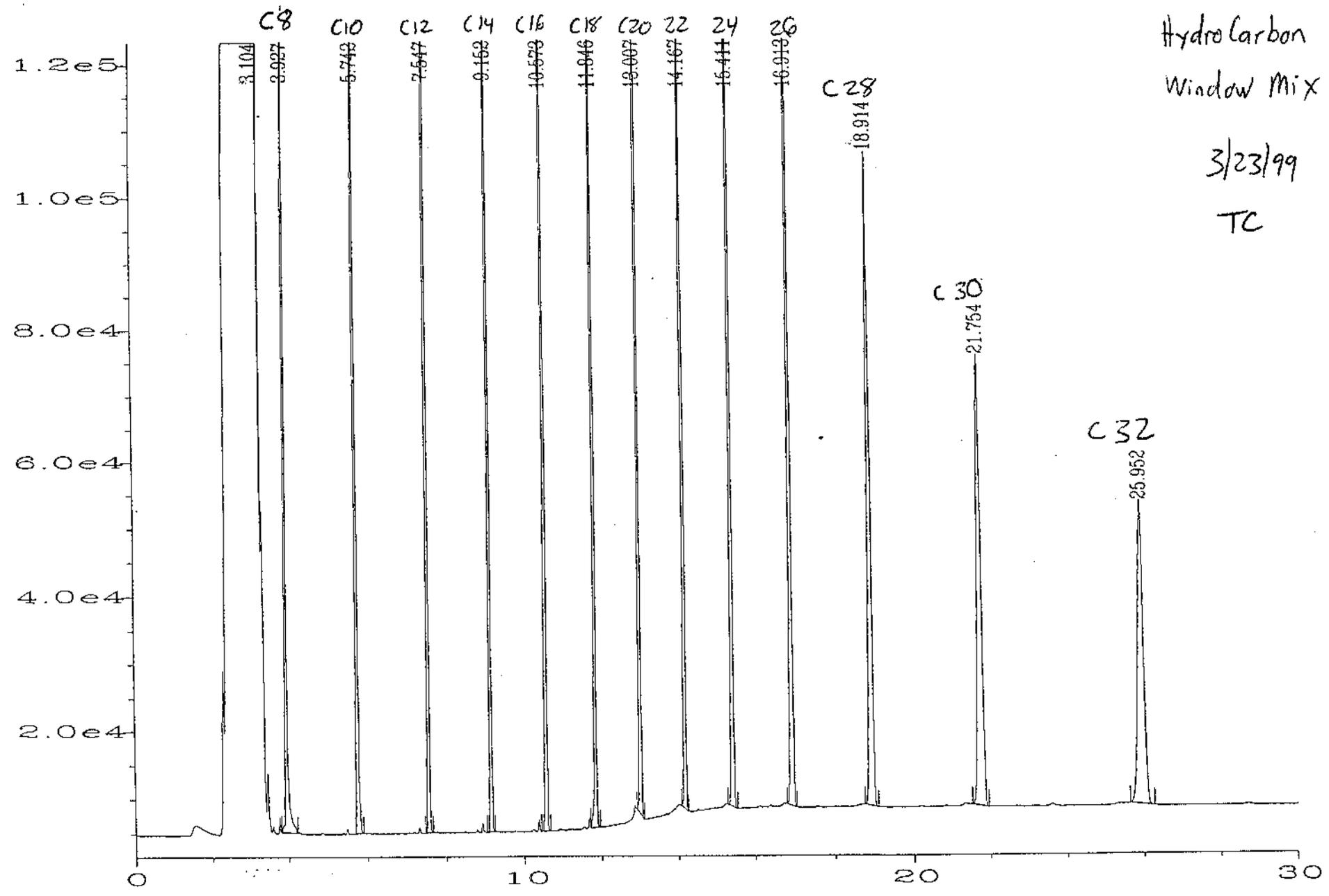


Fig. 1 in C:\HPCHEM\2\DATA\FID\03239910.D

#2 Fuel

oil

3/23/99

TC

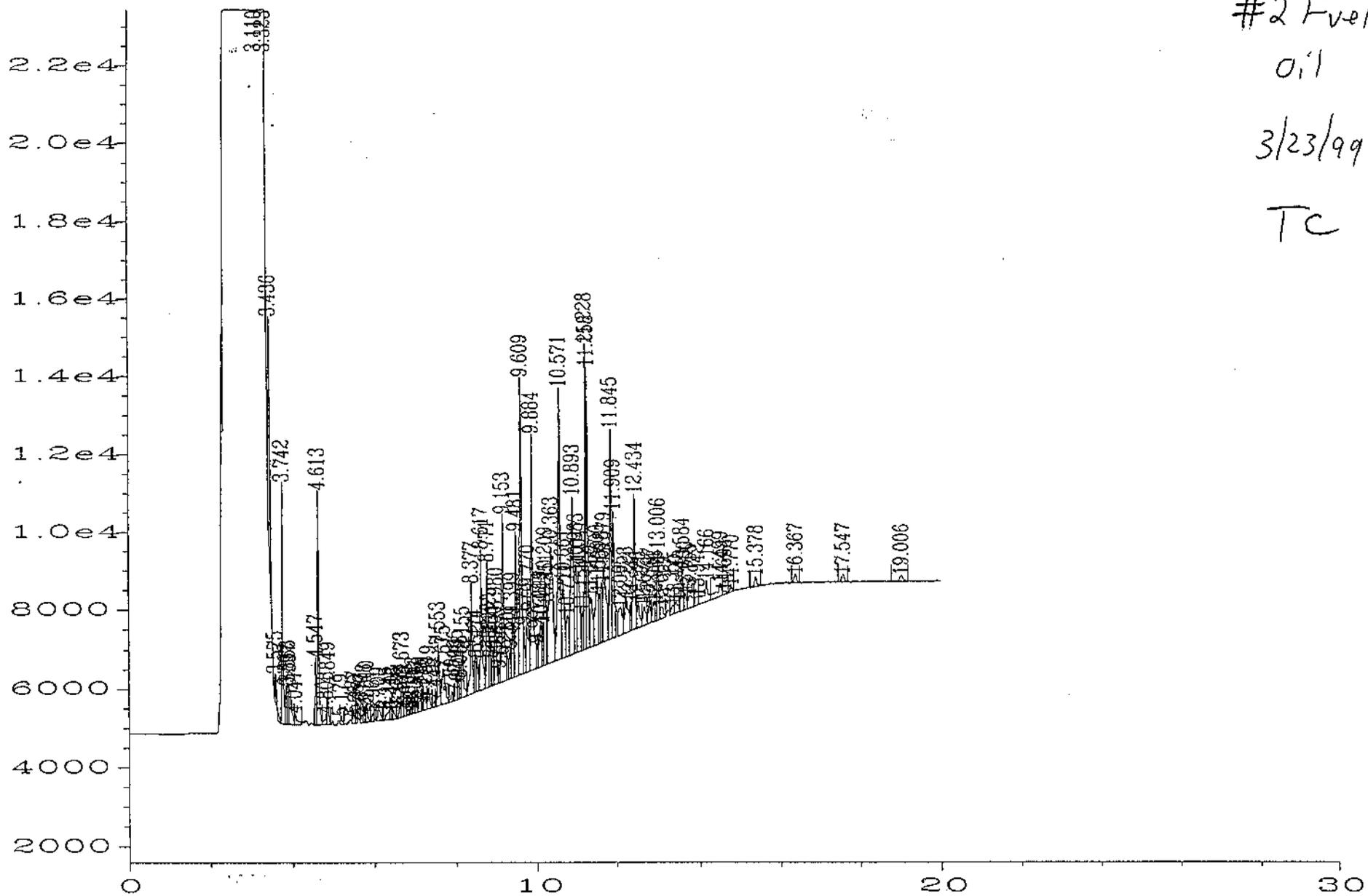
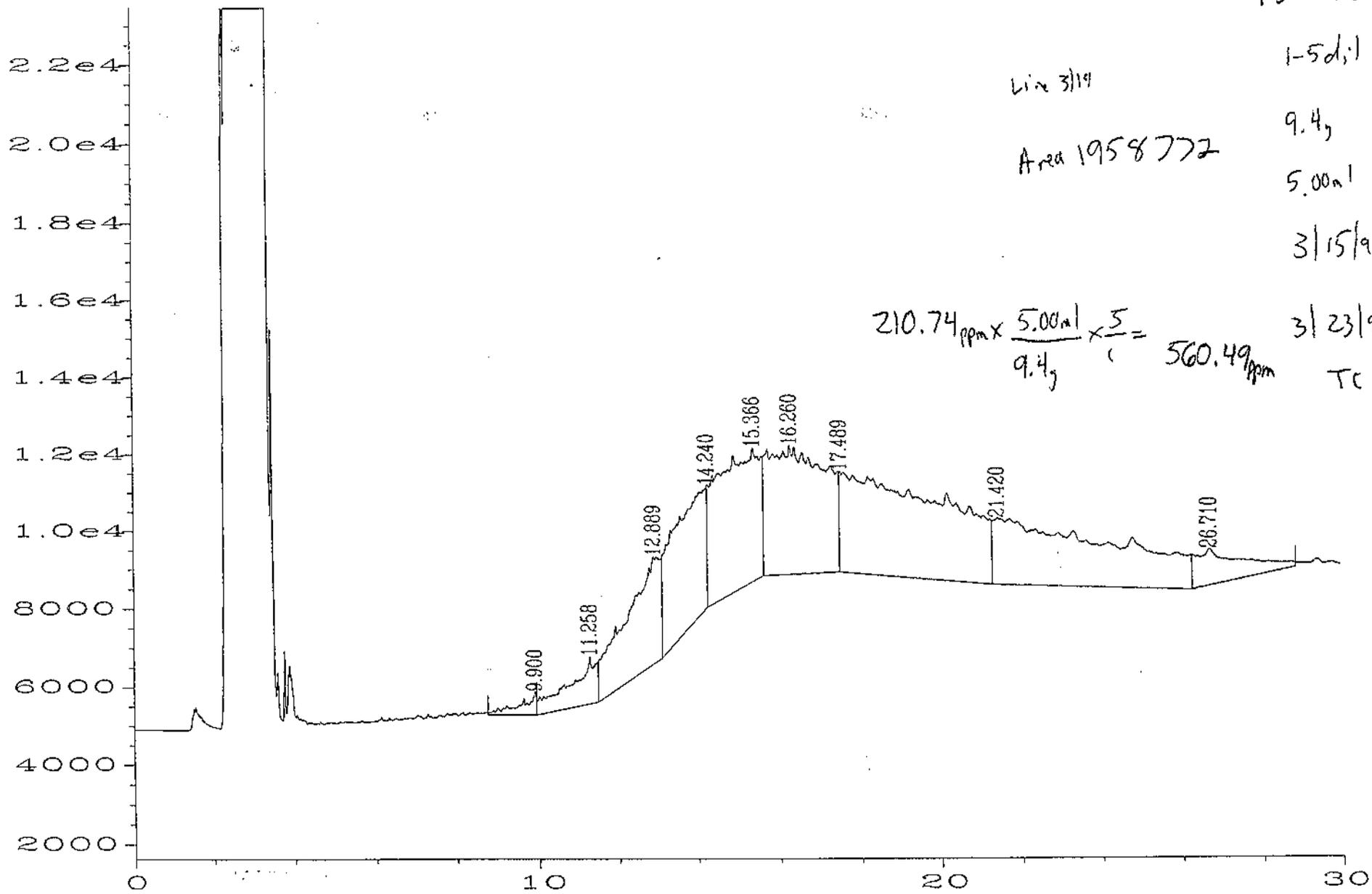


Fig. 1 in C:\HPCHEM\2\DATA\FID\03239904.D

user modified

135385



Sig. 1 in C:\HPCHEM\2\DATA\FID\03239907.D

CHAIN-OF-CUSTODY RECORD

29893

2-0g

Project Name: <u>Morse Brook / Windsor</u>	Reporting Address: <u>HN</u>	Billing Address: <u>HN</u>
Site Location: <u>Bennigan</u>		
Endyne Project Number: <u>1555</u>	Company: <u>HN</u>	Sampler Name: <u>DB</u>
	Contact Name/Phone #: <u>Don Burton</u>	Phone #: <u>658-0820</u>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135384	SW1	H ₂ O	✓		3/14/99 11:30am	2	10mL	Surface water @ wet fall	*8260	HCL	NO
135385	Stream Sediment (SW1)	Soil	✓		11:30am	2	10mL	Stream sediments	*8260	none	NO

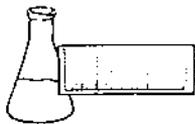
Relinquished by: Signature <u>Don B</u>	Received by: Signature <u>Alison Monahan</u>	Date/Time <u>3/10/99 1:40pm</u>
Relinquished by: Signature	Received by: Signature	Date/Time

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	Acidity	19	DREL	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):										

* 7210 and 8215 are DRO w/Fuel ID



ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Griswold
REPORT DATE: March 17, 1999

ORDER ID: 1555
DATE RECEIVED: March 10, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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FAX 879-7103

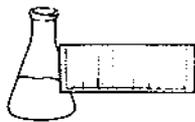
LABORATORY REPORT

SW 8260

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Griswold
SITE: SW 1
DATE RECEIVED: March 10, 1999
REPORT DATE: March 17, 1999
ANALYSIS DATE: March 12, 1999

ORDER ID: 1555
REFERENCE NUMBER: 135384
DATE SAMPLED: March 4, 1999
TIME SAMPLED: 11:30 AM
SAMPLER: DB
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/L</u>	<u>Parameter</u>	<u>Result</u> <u>ug/L</u>
Benzene	< 1.0	1,1-Dichloropropene	< 1.0
Bromobenzene	< 1.0	cis-1,3-Dichloropropene	< 1.0
Bromochloromethane	< 2.0	trans-1,3-Dichloropropene	< 1.0
Bromodichloromethane	< 1.0	Ethylbenzene	< 1.0
Bromoform	< 1.0	Hexachlorobutadiene	< 5.0
Bromomethane	< 5.0	Isopropylbenzene	< 1.0
n-Butylbenzene	< 1.0	p-Isopropyltoluene	< 1.0
sec-Butylbenzene	< 1.0	Methylene Chloride	< 5.0
tert-Butylbenzene	< 1.0	MTBE	< 2.0
Carbon Tetrachloride	< 1.0	Naphthalene	< 5.0
Chlorobenzene	< 1.0	n-Propylbenzene	< 1.0
Chloroethane	< 5.0	Styrene	< 1.0
Chloroform	< 2.0	1,1,1,2-Tetrachloroethane	< 2.0
Chloromethane	< 10.0	1,1,2,2-Tetrachloroethane	< 2.0
4-Chlorotoluene	< 1.0	Tetrachloroethene	< 1.0
2-Chlorotoluene	< 1.0	Toluene	< 1.0
Dibromochloromethane	< 1.0	1,2,3-Trichlorobenzene	< 2.0
1,2-Dibromo-3-Chloropropane	< 2.0	1,2,4-Trichlorobenzene	< 2.0
1,2-Dibromoethane	< 2.0	1,1,1-Trichloroethane	< 1.0
Dibromomethane	< 2.0	1,1,2-Trichloroethane	< 1.0
1,2-Dichlorobenzene	< 1.0	Trichloroethene	< 1.0
1,3-Dichlorobenzene	< 1.0	Trichlorofluoromethane	< 2.0
1,4-Dichlorobenzene	< 1.0	1,2,3-Trichloropropane	< 2.0
Dichlorodifluoromethane	< 10.0	1,2,4-Trimethylbenzene	< 1.0
1,1-Dichloroethane	< 1.0	1,3,5-Trimethylbenzene	< 1.0
1,2-Dichloroethane	< 1.0	Vinyl Chloride	< 5.0
1,1-Dichloroethene	< 1.0	Xylenes, Total	< 2.0
cis-1,2-Dichloroethene	< 1.0	Surrogate 1	102.%
trans-1,2-Dichloroethene	< 1.0	Surrogate 2	107.%
1,2-Dichloropropane	< 1.0	Surrogate 3	102.%
1,3-Dichloropropane	< 1.0	UIP's	0.
2,2-Dichloropropane	< 1.0		



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LABORATORY REPORT

SW 8260

CLIENT: Heindel & Noyes
PROJECT: Morse Block/ Griswold
SITE: SW 1 Sediments
DATE RECEIVED: March 10, 1999
REPORT DATE: March 17, 1999
ANALYSIS DATE: March 12, 1999

ORDER ID: 1555
REFERENCE NUMBER: 135385
DATE SAMPLED: March 4, 1999
TIME SAMPLED: 11:30 AM
SAMPLER: DB
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/kg, dry</u>	<u>Parameter</u>	<u>Result</u> <u>ug/kg, dry</u>
Benzene	< 15.0	1,1-Dichloropropene	< 15.0
Bromobenzene	< 15.0	cis-1,3-Dichloropropene	< 15.0
Bromochloromethane	< 30.0	trans-1,3-Dichloropropene	< 15.0
Bromodichloromethane	< 15.0	Ethylbenzene	< 15.0
Bromoform	< 15.0	Hexachlorobutadiene	< 75.0
Bromomethane	< 75.0	Isopropylbenzene	< 15.0
n-Butylbenzene	< 15.0	p-Isopropyltoluene	< 15.0
sec-Butylbenzene	< 15.0	Methylene Chloride	< 75.0
tert-Butylbenzene	< 15.0	MTBE	< 30.0
Carbon Tetrachloride	< 15.0	Naphthalene	< 75.0
Chlorobenzene	< 15.0	n-Propylbenzene	< 15.0
Chloroethane	< 75.0	Styrene	< 15.0
Chloroform	< 30.0	1,1,1,2-Tetrachloroethane	< 30.0
Chloromethane	< 15.0	1,1,2,2-Tetrachloroethane	< 30.0
2-Chlorotoluene	< 15.0	Tetrachloroethene	< 15.0
4-Chlorotoluene	< 15.0	Toluene	< 15.0
Dibromochloromethane	< 15.0	1,2,3-Trichlorobenzene	< 30.0
1,2-Dibromo-3-Chloropropane	< 30.0	1,2,4-Trichlorobenzene	< 30.0
1,2-Dibromoethane	< 30.0	1,1,1-Trichloroethane	< 15.0
Dibromomethane	< 30.0	1,1,2-Trichloroethane	< 15.0
1,2-Dichlorobenzene	< 15.0	Trichloroethene	< 15.0
1,3-Dichlorobenzene	< 15.0	Trichlorofluoromethane	< 30.0
1,4-Dichlorobenzene	< 15.0	1,2,3-Trichloropropane	< 30.0
Dichlorodifluoromethane	< 15.0	1,2,4-Trimethylbenzene	< 15.0
1,1-Dichloroethane	< 15.0	1,3,5-Trimethylbenzene	< 15.0
1,2-Dichloroethane	< 15.0	Vinyl Chloride	< 75.0
1,1-Dichloroethene	< 15.0	Xylenes, Total	< 30.0
cis-1,2-Dichloroethene	< 15.0	Surrogate 1	107.0%
trans-1,2-Dichloroethene	< 15.0	Surrogate 2	102.0%
1,2-Dichloropropane	< 15.0	Surrogate 3	102.0%
1,3-Dichloropropane	< 15.0	UIP's	0.
2,2-Dichloropropane	< 15.0	Percent Solids	78.0%

CHAIN-OF-CUSTODY RECORD

29893

J-Orq

Project Name: <u>Morse Block / Briswold</u> Site Location: <u>Brimley</u>	Reporting Address: <u>11 N</u>	Billing Address: <u>11 N</u>
Endyne Project Number: <u>1555</u>	Company: <u>11 N</u> Contact Name/Phone #: <u>Mr. B...</u>	Sampler Name: <u>DB</u> Phone #: <u>802-879-4333</u>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135384	SW1	160	-		3/14/99	2	100ml	See lab results for HPL	*8260	HPL	no
135385	Stream sediment (SW1)	Soil	-		3/14/99	2	100ml	Stream sediment	*8260	no	no

Relinquished by: Signature <u><i>David B...</i></u>	Received by: Signature <u><i>William J...</i></u>	Date/Time <u>3/14/99 1:40 PM</u>
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):										

** 8260 and 8010/8020 w/Field IS*