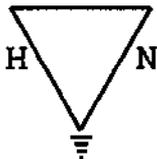


FEB 17 2000



## Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

February 16, 2000

Mr. Richard Spiese  
Hazardous Materials Specialist  
Hazardous Materials Management Division  
Agency of Natural Resources  
103 South Main Street  
Waterbury, VT 05671-0404

Re: SMS Site #98-2482  
Bennington Iron Works  
Bennington, Vermont

Dear Richard:

Heindel and Noyes was retained by A. Aaron & Sons (AAS) to review their project file for the Bennington Iron Works site, and to prepare the enclosed Site Investigation Report. We are providing this report to you to complete the work plan submitted to you by AAS on October 26, 1998.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dean A. Grover', is written over a light blue horizontal line.

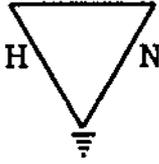
Dean A. Grover, P.E.  
Chief Engineer

DAG/cm

Enclosure

cc: Mr. Curtis Morin, President, Bennington Iron Works

U:\PROJECTS\BennIronWks\DAG0216Spiese.doc



**Heindel and Noyes**

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

## **BENNINGTON IRON WORKS Bennington, Vermont**

### **SITE INVESTIGATION SMS Site #98-2482**

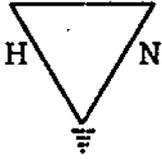
Prepared by:

Heindel and Noyes

Prepared for

A. Aaron & Sons, Inc..

February 16, 2000



# Heindel and Noyes

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- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

## BENNINGTON IRON WORKS Bennington, Vermont

### SITE INVESTIGATION SMS Site #98-2482

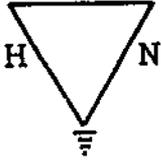
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##### APPENDICES:

- Appendix 1: UST Removal
- Appendix 2: Work Plan
- Appendix 3: Groundwater Laboratory reports
- Appendix 4: Off-site Source of Tetrachloroethene
- Appendix 5: Thin-spreading of Contaminated Soils



**Heindel and Noyes**

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# **BENNINGTON IRON WORKS**

## **Bennington, Vermont**

### **SITE INVESTIGATION**

### **SMS Site #98-2482**

#### **EXECUTIVE SUMMARY**

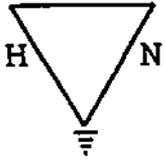
Gasoline-contaminated soils were generated during closure of three underground storage tanks (USTs) at the Bennington Iron Works (BIW) property in Bennington, Vermont, in September 1998. Contaminated soils were stockpiled onsite.

In accordance with an approved work plan, six monitoring wells were installed on the BIW property, sampled on September 8, 1999 and analyzed for solvents and petroleum products. These groundwater quality results showed no detectable petroleum products in any of the six groundwater samples. However, tetrachloroethene, a common dry-cleaning parts degreasing solvent, was observed in four of the six wells. Investigations by others have identified an offsite source of tetrachloroethene, likely from a dry-cleaning facility and waste oil tank located in Monument Plaza, approximately 1,000 feet southeast of the BIW site. Groundwater quality data from onsite and offsite wells strongly suggest that the tetrachloroethene originated from Monument Plaza.

A new double-walled 15,000 gallon UST was installed on the BIW site at the same location as the former UST, in November-December 1998. Some of the contaminated soils stockpiled at the BIW site were used to backfill the new UST, as was pre-authorized by the Vermont Sites Management Section. The remaining petroleum-contaminated soils were used as fill materials beneath a concrete slab during construction of a building addition to the BIW plant. The relocation of these soils was also authorized by the Sites Management Section.

This report recommends preservation of the existing monitoring well network on the BIW site for possible use in further evaluating the large-scale tetrachloroethene

contaminant plume. No other monitoring or remedial action is considered necessary at this site.



## Heindel and Noyes

P.O. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820  
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# BENNINGTON IRON WORKS

## Bennington, Vermont

### SITE INVESTIGATION

### SMS Site #98-2482

February 16, 2000

#### 1.0 INTRODUCTION

Heindel and Noyes has been retained by A. Aaron & Sons, Inc. (AAS) to examine a project file for the Bennington Iron Works (BIW) site, and to prepare this site investigation summary report.

BIW is a steel fabricating facility located on Morse Road in the Morse Industrial Park, in Bennington, Vermont. An orthophoto-based site location map is provided in Appendix 1, Page 1. BIW occupies about 14 acres within the Morse Industrial Park, and is surrounded by other industrial facilities, and vacant industrial lots.

Prior to their removal in September 1998, this facility contained three underground storage tanks (USTs). Each tank was 4,000 gallons in size, of single-walled steel construction, and was installed in 1979. Tank contents included over-the-road diesel, off-road-diesel, and gasoline. Former tank locations are provided on the BIW site map: *Water Table, PCE Concentration and PID Concentration*, dated February 7, 2000 located in a map pocket at the back of this report. State of Vermont tank permitting information is attached in Appendix 1, Pages 2-9, and includes a letter from the UST Section requiring removal of the tanks prior to December 22, 1998, since these tanks did not meet federal or state UST upgrade requirements.

The remainder of this report describes the following activities at BIW: closure of the three USTs; generation and onsite stockpiling of petroleum-contaminated soils and the subsequent thin-spreading of these soils; and installation, sampling, and analyses of onsite groundwater monitoring wells and offsite domestic water supply wells. This report also provides conclusions and recommendations for further site activities.

## 2.0 REMOVAL OF USTS

AAS performed removal oversight and complete field support for closure of all three USTs at BIW. Removal was performed on September 9 and 10, 1998, following the requisite 15-day advanced notification to the Vermont UST section. A completed Underground Storage Tank Permanent Closure Form and accompanying narrative, submitted to the state by AAS following tank closure, are attached in Appendix 1, Pages 10-21. Marc Coleman with the Vermont UST section was onsite during portions of the tank pull and soil stockpiling activities.

As the narrative describes, elevated photoionizable detectable (PID) volatile organic compounds (VOCs) were identified immediately adjacent to the fill pipe at the west end of the tanks, at a reported concentration of 364 ppm. AAS used an OVA 560B PID with a 10.6 eV lamp for soil screening. Additional gasoline-contaminated soils were encountered during excavation of the tank. Soils with PIDs greater than 10 ppm were relocated to a previously-prepared stockpile area on the BIW site (see site map for location of soil stockpile). Groundwater was encountered at about six feet below ground surface in the tank excavation, and a sheen was apparent on the surface of the groundwater. Soils surrounding the tank consisted of loose, sandy gravel. Approximately sixty cubic yards of impacted soil was stockpiled and polyencapsulated on the site.

Following removal of the tanks from the ground, AAS personnel observed no visible holes in any of the tanks. Mark Coleman observed pitting on the bottom side of the tanks. Since the highest PID levels were observed near the top of the tank, with declining levels toward the tank bottom, AAS personnel theorized that all soil

contamination within the excavation may have originated from tank over-fills. All three tanks were cleaned onsite and disposed of as scrap metal.

Following receipt of the tank closure form and narrative, Richard Spiese, Sites Manager for the Waste Management Division, issued a letter dated September 29, 1998, (Appendix 1, pages 22-23) requesting further subsurface investigation at the BIW facility to define the degree and extent of contamination, and to evaluate impacts to sensitive receptors.

### 3.0 SITE INVESTIGATION WORK PLAN

On October 26, 1998, AAS submitted a document entitled *Preliminary Work Plan - Supplemental Investigation* to Richard Spiese. A full copy of this work plan with cost estimates is attached, Appendix 2, Pages 1-8. The work plan provided details for installation of three downgradient monitoring wells on the subject property. An upgradient well was not proposed due to the presence of the large BIW building just upgradient of the former location of the USTs. In addition, the plan described a plan for groundwater dewatering (with concurrent treatment of recovered groundwater), that was anticipated for installation of the replacement 15,000 gallon UST at the same location as the former USTs. A sensitive receptor assessment was described, and the work plan mentioned using stockpiled contaminated soil as backfill material for the new tank, as was pre-authorized by the UST program.

Richard Spiese approved the work plan on November 16, 1998 (letter attached, Appendix 2, Page 9).

### 4.0 INSTALLATION OF NEW UST

The new 15,000 gallon double-walled UST installation was performed in late November or early December 1998. Prior to installation of a new 15,000 gallon double-walled UST, Aaron & Sons made preparations for de-watering the excavation by pumping groundwater to a 6500 gallon tanker truck, then discharging to the ground surface after

decontaminating the groundwater with granular activated carbon filters. However, the high volumes of water entering the excavation overwhelmed the carbon filtration system. After receiving authorization from Richard Spiese, AAS excavated two de-watering impoundments, DW#1 and DW#2, then pumped groundwater to DW#1 while installing the new UST. These impoundments are located on the site map. DW#2 was excavated, but was not used during the de-watering procedures.

During the dewatering of the tank excavation, grab samples of discharged groundwater were collected and analyzed at Spectrum Analytical, Inc. laboratory in Agwam, MA for EPA Method 502.2 constituents and for total petroleum hydrocarbons (TPH). Laboratory results are provided in Appendix 2, pages 10-18. Low levels of petroleum hydrocarbons were observed in some of the samples. However, the more surprising result was the presence of tetrachloroethene, a chlorinated solvent in these samples. On December 24, 1998, Richard Spiese issued a letter to Mr. Curtis Moran, President of Bennington Iron Works, requesting that "BIW expand the planned investigation to include the determination of the source of these chlorinated solvents". A copy of this letter is provided in Appendix 2, page 25.

Although not substantiated in the project file provided to Heindel & Noyes, it appears that a revised work plan was prepared by AAS, in which an additional three monitoring wells were proposed along the east (upgradient) side of the BIW property. These wells would investigate the water quality of groundwater entering the subject parcel, and would presumably provide additional information on the potential source of chlorinated solvents noted in groundwater in the vicinity of the closed underground storage tanks.

## **5.0 INSTALLATION OF ON-SITE MONITORING WELLS**

On August 26 and 27, 1999, Maxymillian Technologies installed six groundwater monitoring wells using a hollow stem auger drill rig. Two-inch diameter PVC monitoring wells were installed to thirteen feet below ground surface in all six wells. The wells were equipped with ten-foot 0.010-inch slotted screens, and approximately six feet of solid risers. Sand packs were applied to the screened sections, and approximately one-foot

thick bentonite seals were installed above the screened sections. The wells were finished with locking standpipes and concrete seals at the surface. Boring logs are attached in Appendix 2, Pages 19-24.

Split spoon soil samples were collected during installation of the wells, and PID screens were performed on these samples. PID levels are also provided on the boring logs. PID screens showed no levels above zero in all wells except MW-4, where an elevated PID level of 9 was observed in the split spoon sample 5-7 feet below ground surface (bgs), and a PID level of 5.5 in the 10-12 feet bgs sample. No information on the PID instrument or its calibration is provided in the test boring logs. The drillers made no written indications of visible or olfactory evidence of contamination in MW-4, or in any of the other wells.

## **6.0 GROUNDWATER SAMPLING AND ANALYSES; GROUNDWATER FLOW DIRECTIONS**

On September 8, 1999, the depth to groundwater was measured in each well, then the wells were purged and sampled by Maxymillian Technologies' personnel. Groundwater sampling field logs are provided in Appendix 3, Pages 1-6. No oil sheens or odors were observed in any of the well purge water. Dedicated bailers were left in the wells following this initial sampling round.

On September 21, 1999, Spectrum Analytical, Inc. issued results of laboratory analyses of the six groundwater samples for the volatile organic compounds by EPA Method 502.2. Laboratory reports are provided in Appendix 3, Page 8-28, and are summarized on a table prepared by Heindel and Noyes, Appendix 3, Page 7. These results are also plotted on the BIW site map, *Water Table, PCE Concentration and PID Concentration* provided in the map pocket at the back of this report.

The measurement of water table depths in of all six onsite monitoring wells was repeated by Heindel and Noyes on January 5, 2000. These data were used, along with survey data provided by MSK Engineering and Design, Inc., to construct groundwater contours on the water table/contaminant concentration map in the map pocket. As this

map shows, a groundwater flow direction toward the north is observed along the east side of the subject parcel. The flow direction turns toward the northwest in the northern portion of the subject parcel. Groundwater gradients are very low at this site, varying from 0.002 to 0.008 feet per foot.

## 7.0 ON-SITE GROUNDWATER QUALITY

No detectable petroleum hydrocarbons were observed in any of the groundwater samples collected from the six on-site monitoring wells on September 8, 1999 by Maxymillian Technologies' personnel. However, detectable tetrachloroethene was observed in four of the six wells, with an exceedance of the Vermont Chapter 12 Groundwater Enforcement Standard of five parts per billion (ppb) observed in two wells: MW-2 and MW-6. Since this chlorinated solvent was identified in groundwater wells that are located both upgradient and downgradient of the former USTs, the source is inferred to be upgradient to the BIW site.

We interviewed Jim Walker, Maintenance Supervisor at BIW (telecon 2-9-2000) and learned that, to his knowledge, no tetrachloroethene had ever been used at the facility. He has worked at BIW for 6-7 years. This further substantiates an offsite source of this solvent.

## 8.0 INVESTIGATION OF OFFSITE DOMESTIC WELLS

From December 1998 through May 1999, personnel from the Vermont Waste Management Division collected samples from shallow drinking water wells in the vicinity of the Bennington Iron Works property, to assess impacts to sensitive receptors from the tetrachloroethene identified in the groundwater on the BIW property and adjoining properties. Raw laboratory data are not provided with this report, but all water quality results are summarized in the table provided in Appendix 3, Page 7. Consistent with the results from the onsite BIW monitoring wells, no petroleum hydrocarbons were found in any of the shallow domestic wells, but tetrachloroethene was found in some wells at concentrations up to 8.0 ppb. Results of all analyses of domestic drinking water

wells are also plotted on the contaminant distribution/water table map in the map pocket.

The EPA maximum contaminant level (MCL) of 5.0 ppb for tetrachloroethene was exceeded in a number of wells. In samples collected in December 1998 (at three different times during the month), exceedances were noted in the W. Andrews well and the Mulvey well. Samples at the Johnson, Cummings, Willene/Martin, and Carpenter wells did not exceed the MCL. However, the Vermont Health Advisory level of 0.7 ppb for tetrachloroethene was exceeded in all of these wells except the Cummings well.

On May 5, 1999, Waste Management Division personnel collected a large round of domestic water samples near the BIW site, for analysis at the Vermont State Laboratory using EPA Method 8260 for volatile organic compounds. As the summary table indicates in Appendix 3, Page 7, twelve individual wells were sampled. Detectable tetrachloroethene was found in four wells, varying in concentrations from 2 to 4 ppb, and methyl-tert-butyl-ether (MTBE), a gasoline additive, was observed in three wells, varying from 1 to 4 ppb. These results are also plotted on the site map in the map pocket.

## 9.0 DEGREE AND EXTENT OF CONTAMINATION

With the exception of MTBE observed in the Metcalfe, Carpenter, and Johnson wells, no other evidence of petroleum contamination was observed in any of the onsite or offsite monitoring or domestic wells. The discontinuous nature and low levels of MTBE may suggest releases of minor quantities of gasoline (used in automobiles, lawnmowers, etc.) in close proximity to the shallow wells serving the Metcalfe, Carpenter, and Johnson residences.

Tetrachloroethene shows a discontinuous and wide distribution across the study area. Elevated levels are generally observed near the northeast corner to the BIW lot, and just north of the BIW maintenance building.

## 10.0 OFFSITE SOURCE OF TETRACHLOROETHENE

On June 11, 1999, William Norland, Hydrogeologist with Lincoln Applied Geology (LAG) submitted a work plan for investigation of widespread tetrachloroethene contamination in groundwater in the vicinity of Morse Drive, Harmon Road, and Buckley Drive in Bennington, Vermont. This work plan with a groundwater quality summary table and an annotated USGS topographic map is attached in Appendix 4, Pages 1-6. As the map and accompanying narrative indicate, high levels of tetrachloroethene were observed inside of and beside a waste oil underground storage tank, apparently excavated from the former Western Auto shop at the Monument Plaza Site, located about 1,000 feet southeast of BIW. Soil samples collected from beneath this UST showed high levels of 1,1,1-trichloroethane (2,900 parts per million; ppm) and tetrachloroethene (3,800 ppm). Although additional Phase I and eventually Phase II investigative work were proposed by LAG, the introductory information provided in the June 11, 1999 letter strongly suggests that the source of tetrachloroethene observed at the BIW site and environs originated from the Monument Plaza site.

The widespread occurrence of tetrachloroethylene is further substantiated by groundwater quality data collected in 1995 at the NASTECH warehouse site, abutting the BIW property to the northwest. In two of three groundwater monitoring wells that were installed and sampled on this site in April 1995 by Inchscape Testing Services low levels of tetrachloroethene were observed. A Site Management Activity Completed (SMAC) letter for the NASTECH site from George Desch of the Sites Management Section is provided in Appendix 3, Pages 29-30. This letter summarizes the identification of tetrachloroethylene at the NASTECH site, and at other sites upgradient of this property.

## 11.0 THIN-SPREADING OF STOCKPILED SOILS

A significant portion of the polyencapsulated soils at the Bennington Iron Works site was reportedly reintroduced to the grave of the former USTs while backfilling around the new 15,000 gallon UST. Reuse of this soil was pre-authorized by the SMS. On September

7, 1999, a composite sample of the remaining soil in the stockpile was collected by AAS, and submitted to Maxymillian Technologies laboratories for total petroleum hydrocarbon (TPH) analysis (EPA Method 8100M), and for aromatic and aliphatic hydrocarbon compounds (EPA Method 8260B). Laboratory results are attached in Appendix 5, Pages 1-7, and show xylenes at 4.79 milligrams per kilogram (mg/kg), and TPH at 1,750 mg/kg. These results were submitted by BIW to Richard Spiese on September 16, 1999. As indicated on the fax cover sheet with this submittal (Appendix 5, Page 8), Richard Spiese authorized the thinspreading of these soils on September 20, 1999. Thinspreading was authorized so long as the soils were placed at a new location "above the water table and in an area where people will not come into direct contact with [the soil]". The soils were subsequently spread under the foundation slab of a new building addition west of the Bennington Iron Works facility, as indicated on the site map.

## 12.0 CONCLUSIONS AND RECOMMENDATIONS

Based on a review of the project file provided for Bennington Iron Works A. Aaron & Sons, Inc., and collection of limited data for this site investigation, we offer the following conclusions:

1. Petroleum contamination was observed near the fill pipes of USTs at the Bennington Iron Works site, during pulling of this tank and two other USTs on September 9 and 10, 1998. Lower levels of PID detectable contamination were generally found near the base of the tank, so it is possible that all noted contamination was derived from tank over-fills and spills near the tanks. A. Aaron & Sons personnel reported no visible holes in any of the USTs removed, although some pitting was evident.
2. Following installation and one round of sampling and analysis of six monitoring wells on the BIW property on September 8, 1999, no detectable petroleum contaminants were observed in groundwater from any of the six wells. In addition, analyses of samples collected between December 1998 and May 1999

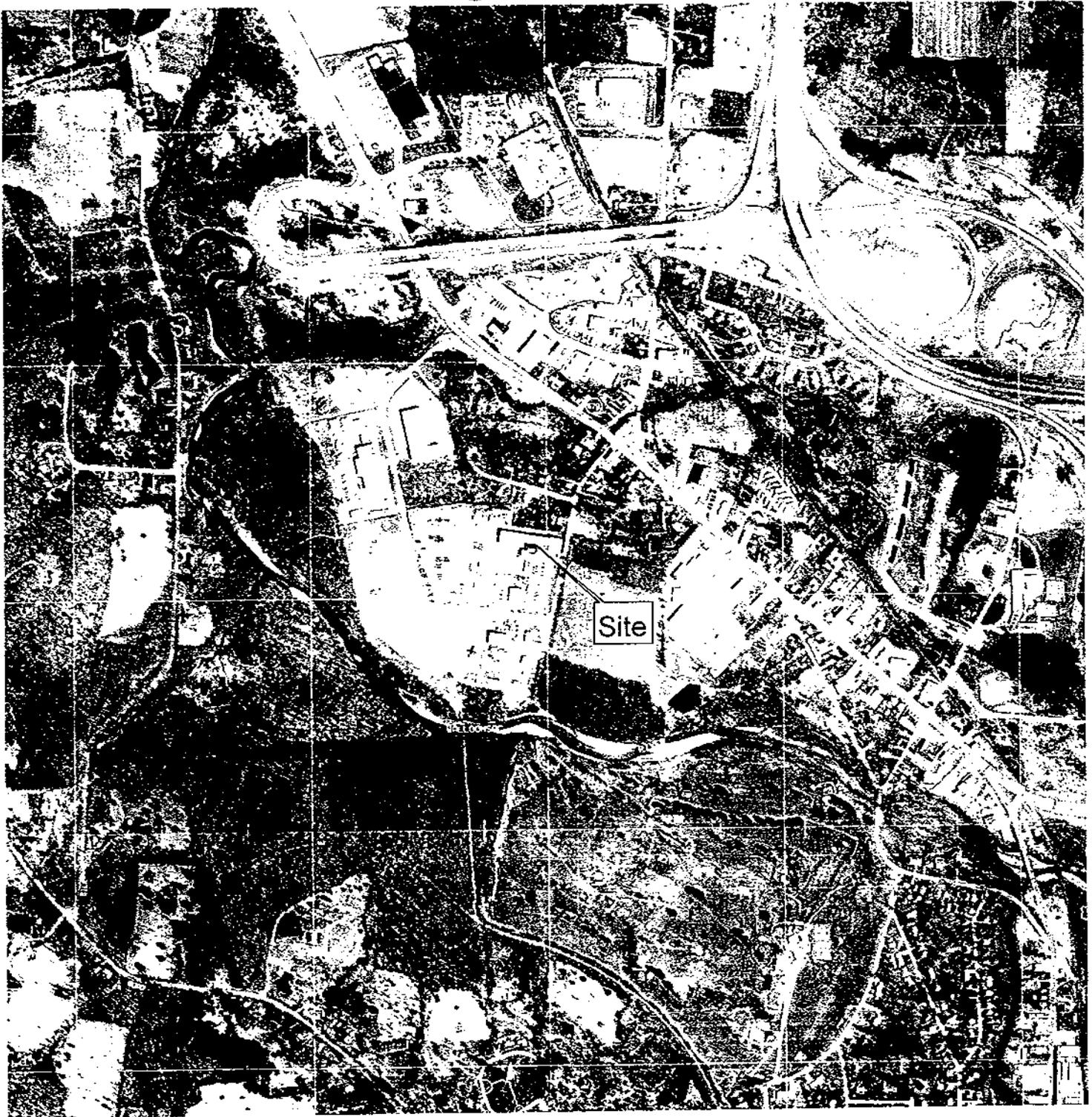
from twelve domestic drinking water supply wells abutting or in the vicinity of BIW also showed no detectable petroleum compounds. Very low levels of methyl-tert-butyl-ether were observed in three wells, but other intervening wells showed no indications of this gasoline additive.

3. Tetrachloroethene was encountered in groundwater sampled on November 19, 1998 from the former tank site excavation, in four of the six groundwater monitoring wells sampled on September 8, 1999 on the BIW parcel, and in a number of offsite, domestic drinking water supply wells sampled between December 1998 and May 1999. A wider investigation, currently being conducted by Lincoln Applied Geology has documented very high levels of tetrachloroethene inside and outside of a waste oil tank excavated from the former Western Auto shop at the Monument Plaza Shopping Center, located approximately 1000 feet southeast of the BIW property. Widespread distribution of tetrachloroethene observed in and around the BIW property appears to have originated at the Western Auto site. Further investigation is underway.

We offer the following recommendations for additional activities at the BIW site:

1. The six monitoring wells on the BIW site should be preserved for possible future use in the large-scale evaluation of tetrachloroethene groundwater contamination in this part of Bennington.
2. No further action is advised at this site, since no other significant on-site contaminant issues have been documented in this site investigation. Additional monitoring wells close to the former UST site are considered unnecessary. The three wells downgradient of the UST site were free of detectable petroleum products. Given the high hydraulic conductivity of the sands and gravels beneath the BIW site, any extensive contamination from the USTs would have been detected in these wells.

# Bennington Iron Works Bennington, Vermont



Site

Orthophoto Base Map

Orthophoto base from 1992.



1000 0 1000 Feet



P.O. Box 84708 - Burlington, Vermont - 05408-4708 - Tel: (802) 388-0437 - Fax: (802) 440-1014



State of Vermont

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist

RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Waste Management Division  
103 South Main Street / West Building  
Waterbury, VT 05671-0404  
802-241-3871

June 12, 1998

BENNINGTON IRON WORKS INC (UST Permittee)  
CURTIS L MORIN PRESIDENT  
PO BOX 798  
BENNINGTON, VT 05201

RE: Facility ID#: 4423145  
Bennington Iron Works, Bennington

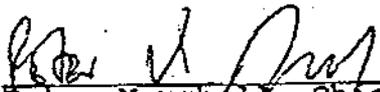
Dear UST Permittee:

According to the Vermont Underground Storage Tank (UST) records, the Agency issued an operational permit to you for the UST systems described in the attached document. Said permit expires on July 1, 1998. The UST systems at the above facility do not meet the federal or state upgrade requirements.

Act 132 of 1998 extended the upgrade deadline date for USTs systems to be provided with corrosion protection, overflow and spill equipment, from June 30 to December 22, 1998.

Pursuant to UST Regulation 8-302(5), the Agency hereby extends and continues the UST Permit issued to you until December 22, 1998. No permit fee is required to be paid for the extended time period.

Canute E. Dalmasse, Commissioner  
Department of Environmental Conservation

By:   
Peter Marshall, Chief, M & P Section  
for P. Howard Flanders, Director  
Waste Management Division

jm

RECEIVED

JUN 16 1998

BENNINGTON IRON WORKS, INC.

## PERMITTED TANK AND PIPING PAGE

Facility ID#: 4423145  
Facility Name: Bennington Iron Works  
Town: Bennington

Permittee: Bennington Iron Works Inc

Tank System ID#: 1  
Capacity: 4000  
Year Installed: 1979  
Product Stored: DIESEL  
Overfill/Spill: OVERFILL  
Tank Protection: NONE  
Leak Detection: IN TANK MONITOR

Pipe System ID#: 1  
Year Installed: 1979  
Pump Type: SUCTION  
Pipe Protection: NONE  
Leak Detection: LINE TESTED MAY 1995

Tank System ID#: 2  
Capacity: 4000  
Year Installed: 1979  
Product Stored: DIESEL  
Overfill/Spill: OVERFILL  
Tank Protection: NONE  
Leak Detection: IN TANK MONITOR

Pipe System ID#: 2  
Year Installed: 1979  
Pump Type: SUCTION  
Pipe Protection: NONE  
Leak Detection: LINE TESTED MAY 1995

Tank System ID#: 3  
Capacity: 4000  
Year Installed: 1979  
Product Stored: GASOLINE  
Overfill/Spill: OVERFILL  
Tank Protection: NONE  
Leak Detection: IN TANK MONITOR

Pipe System ID#: 3  
Year Installed: 1979  
Pump Type: SUCTION  
Pipe Protection: NONE  
Leak Detection: LINE TESTED MAY 1995



# State of Vermont

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0181 TDD>Voice  
1-800-253-0195 Voice>TDD

Waste Management Division  
103 South Main Street, West Building  
Waterbury, Vermont 05671-0404  
Telephone: (802) 241-3888

March 18, 1998

RECEIVED

MAR 23 1998

BENNINGTON IRON WORKS INC  
CURTIS L MORIN PRESIDENT  
P O BOX 798  
BENNINGTON VT 05201

BENNINGTON IRON WORKS INC

Dear Mr. Morin:

re: Facility ID#:4423145, Bennington Iron Works, Bennington  
Permittee: Bennington Iron Works, Inc.  
Tank owner: Bennington Iron Works, Inc.  
Operator: Bennington Iron Works, Inc.

The Department of Environmental Conservation has reviewed the above named permittee's renewal permit application for underground storage tank systems (USTs) at the above facility. Your application has been approved and enclosed is your Underground Storage Tank Permit for the operation of three USTs subject to the conditions therein mentioned.

Please review the UST Permit and the UST System Terms and Conditions (Conditions). Should you have questions on the permit, fees, or any other aspect of the regulations governing underground storage tanks, please do not hesitate to call the Management and Prevention Section staff at 241-3888.

For financial responsibility (Condition #11) the tanks are participating in the State of Vermont's Petroleum Clean Up Fund and by so doing are in compliance with this requirement of the UST Permit. The assessment fee is renewable on October 1 of each year. Payment of the assessment fees entitles permittees who are not in significant violation of their underground storage tank permit access to the Petroleum Cleanup Fund in the event of a release such that the Fund would pay:

- a) all uninsured corrective action costs, after the first \$10,000 has been paid by the permittee, up to \$1 million per occurrence, and
- b) all of the allowable third party bodily injury and property damage claims, again up to \$1 million per occurrence.

In compliance with condition #6 (release detection) the Permittee has implemented the following method for tanks:

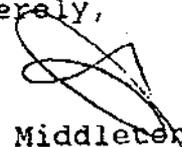
Automatic tank gauging system. Please remember that automatic tank gauging systems must be operated in "leak detect mode" in accordance with the manufacturer's instructions at least once a week. Automatic tank gauging systems do not fulfill requirements for leak detection of product lines.

Piping - The suction lines are required to be tested every three years. According to information received, the lines were last tested in May 1995.

For these tank systems to remain in service after June 1998, they are required to be upgraded with corrosion protection and equipped with overfilling and spill prevention devices.

A permit card is enclosed for display at the facility location pursuant to Condition #3. The permit card can be easily framed and displayed in a conspicuous location, sheltered from the weather.

Sincerely,

  
June Middleton  
UST Permit Administrator  
Management and Prevention Section

/jm/jg/bennironitm

Enclosure: Permit  
Permit card



State of Vermont

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

FACILITY IDENTIFICATION NUMBER 4423145

This certifies that Bennington Iron Works, Inc.

in accordance with 10 V.S.A. Chapter 59, as amended, and the Underground Storage Tank Regulations has been issued a permit for the underground storage tank facility located at and known as:

Bennington Iron Works, Harmon Road, Bennington

Effective 3/18/1998

Expires 7/1/1998

# of Permitted Tanks: three (3)

Must be posted in a conspicuous location at the facility

Richard G. Kelly  
Secretary, Agency of Natural Resources



# State of Vermont

Department of Fish and Wildlife  
 Department of Forests, Parks and Recreation  
 Department of Environmental Conservation  
 State Geologist  
 RELAY SERVICE FOR THE HEARING IMPAIRED  
 1-800-253-0191 TDD>Voice  
 1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES  
 Department of Environmental Conservation

Waste Management Division  
 103 South Main Street, West Building  
 Waterbury, Vermont 05671-0404  
 Telephone: (802) 241-3888

## UNDERGROUND STORAGE TANK PERMIT

PIN # RU96-0108

FACILITY ID # 4423145

PERMIT EXPIRATION DATE: 07/01/98  
 Reapply by: 06/01/98

Number of Permitted UST Systems: THREE (3)

Annual Permit fee: \$ 75.00

Financial Responsibility: Petroleum Cleanup Fund Assessment # 907

FACILITY NAME: BENNINGTON IRON WORKS

FACILITY LOCATION: HARMON ROAD  
 BENNINGTON, VERMONT

PERMITTEE: BENNINGTON IRON WORKS, INC.  
 TANK OWNER: BENNINGTON IRON WORKS, INC.  
 OPERATOR: BENNINGTON IRON WORKS, INC.

In compliance with provisions of 10 V.S.A. Chapter 59, Section 1927, the Vermont UST Regulations, and subject to the provisions, terms and conditions hereinafter specified, the Agency of Natural Resources (Agency), Department of Environmental Conservation (DEC), in response to a Renewal Permit Application for Underground Storage Tank Systems (Renewal UST Form), a copy of which is attached hereto and incorporated herein, issues to the above named Permittee an underground storage tank (UST) permit for the operation of the UST systems more particularly described in the attached Renewal UST Form and located at the above facility.

All of the provisions, terms and conditions set forth in the attached UST SYSTEM PERMIT TERMS AND CONDITIONS are incorporated herein by reference.

Dated at Waterbury, Vermont, this 18th day of March, 1998.

Canute E. Dalmasse, Commissioner  
 Department of Environmental Conservation

By: Peter W. Marshall  
 Peter W. Marshall, Chief, Management & Prevention Section  
 For P. Howard Flanders, Director  
 Waste Management Division

JM/jg/BENNINGTON



State of Vermont

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Waste Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404
Telephone: 802-241-3871

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

September 4, 1997

RECEIVED

RE: FINANCIAL RESPONSIBILITY FOR THE OPERATION OF UNDERGROUND STORAGE TANKS

SEP 10 1998

Dear Underground Storage Tank Permittee:

DENNINGTON IRON WORKS, INC.

The Vermont Petroleum CleanUp Fund (the Fund) established by Title 10 Chapter 59 Section 1941 has been extended until June 30, 2004, and remains an EPA approved financial assurance mechanism to satisfy the financial responsibility requirement of Underground Storage Tank Permits.

Enclosed is your 1999 fiscal year tank assessment invoice for payment by October 1, 1998. Payment of the yearly assessment is required if you plan to use the Petroleum CleanUp Fund to satisfy financial responsibility. All assessment fees are deposited to the Vermont Petroleum CleanUp Fund and are used for remediation/clean up at tank facilities, to satisfy third party claims, and also for the granting of zero interest loans to small retail gasoline outlets (less than 20,000 gallons per month) and municipalities with a population of less than 2500.

PLEASE DO NOT CONFUSE THIS INVOICE WITH YOUR ANNUAL PERMIT FEE WHICH IS NOW \$30 PER TANK, PER YEAR. (MUNICIPALITIES ARE EXEMPT FROM PAYING THE PERMIT FEE BUT NOT THE ASSESSMENT FEE.)

Payment of your assessment fee cannot be credited to your UST Facility without the information shown on the invoice as "TO BE COMPLETED BY PERMITTEE". To avoid delays, you must complete the invoice before mailing. The information concerning the gasoline gallons sold or used at the facility is needed to determine the applicability of Vapor Recovery Controls (Stage I and II). Please return the entire invoice form to the UST Program, a receipt will be issued to you. The receipt when issued will be your evidence of having satisfied financial responsibility by the Fund for the fiscal year (July 1 1998-June 30 1999).

For credit to your assessment number, the assessment invoice is required to be returned to the UST Program together with your check made payable to the Treasurer, State of Vermont. For your convenience a pre-addressed envelope is enclosed. Should you have questions, please call me at (802) 241-3871.

Sincerely, June Middleton
June Middleton, UST Permit Administrator

pcf99.jm

Chlorine Free 100% Recycled Paper

Regional Offices - Barre/Essex Jct/Pittsford/Rutland/N. Springfield/St. Johnsbury

Department of Environmental Conservation  
FY 1999 Petroleum Tank Assessment Fee Invoice

PERMITTEE:

Bennington Iron Works Inc  
Curtis L Morin President  
PO Box 798  
Bennington, VT 05201

Pursuant to Section 1943 of Title 10 V.S.A., Chapter 59, the assessment fee for the underground storage tanks (USTs) facility located at:

Facility Id#: 4423145      Assessment #: 907  
  
Bennington Iron Works  
Harmon Road  
Bennington, VT 05201

is due and payable by not later than October 1, 1998.

Said facility is classified as commercial or industrial and the assessment fee is \$200 per petroleum tank.

---

TO BE COMPLETED BY PERMITTEE: Facility Id: 4423145  
Phone #: \_\_\_\_\_

Total gallonage used per month: \_\_\_\_\_

TOTAL GALLONAGE OF GASOLINE USED PER MONTH (if none state "0") \_\_\_\_\_

Number of permitted tanks at the facility: 3

Assessment fee calculation: 3 tank(s) X \$200 fee/tank = \$600.00

---

Your check for the assessment fee should be made payable to the TREASURER, STATE OF VERMONT and sent to:

State of Vermont, Dept. of Environmental Conservation  
UST Program, West Building  
103 South Main Street  
Waterbury, Vermont 05671-0404

If the number of permitted tanks on this form is incorrect, please call the UST Program at 802-241-3871.

AARON & SONS, INC.  
HC BOX 690  
BENNINGTON, VT 05201-7702

RE: Facility ID#: 4423145 - Bennington Iron Works  
Bennington

Dear Sir or Madam:

On 9/09/98, the Underground Storage Tank (UST) Program was notified of tank activity requiring a site assessment with the completion of a closure form at the above facility. The completion of piping installation is also required to be notified 48 hours in advance prior to backfilling by the contractor.

Please remember the closure form, site map and narrative report must be returned to our office within 72 hours of the closure [Vermont UST Regulations and UST Closure and Site Assessment Requirement policy document]. If any of the following information is incorrect, or if you need to reschedule this activity, you must call the UST Program at 802-241-3888 at least 48 hours in advance.

Date of scheduled Closure: 9/10/98  
Date of scheduled Installation:

ACTIVITY: Tank System Closure \_\_\_\_\_ Tank System Replacement   
Piping Closure/Replacement \_\_\_\_\_

Tank systems being closed:		Number of new tanks installed:	
Tank Size	Product	Tank Size	Product
4000	DZ	15K/S	DZ
4000	DZ		
2000	GS		

Sincerely,

*Russell Thayer*  
UST Staff Member

CODES=  
GS = GAS, DZ = DIESEL, 24 = # 2&4 FUEL OIL, 56 = #5&6 FUEL OIL,

AV = AVIATION FUEL, KR = KEROSENE, UO = USED OIL, HO = HYDRAULIC OIL  
HZ = HAZARDOUS SUBSTANCE, AL = ALCOHOL BLENDS, MX = MIXTURE, UN = UNKNOWN  
CH = CHEMICAL, LO = LUBE OIL, DK = DIESEL/KEROSENE



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SITE ASSESSMENT NARRATIVE  
PREPARED FOR  
BENNINGTON IRON WORKS  
UST CLOSURE

On September 9, 1998, preclosure activities were initiated at Bennington Iron Works, for the scheduled removal of (3) underground storage tanks, each being 4000 gallon capacity, with two containing diesel fuel and one containing gasoline. The fuel company pumped the tanks of usable product, the island pumps were removed along with the canopy for reuse, and the concrete base which had supported the pumps and surrounded the fill pipes was broken up and removed. Preliminary PID readings were taken at the surface, the results of which are illustrated on the enclosed sketch, with the highest reading being some 364 ppm immediately adjacent to the gas tank fill pipe, where some spillage was apparent at the ground surface/former island location. The UST Program was contacted, and requested to review closure efforts the following day for guidance.

On September 10, 1998, excavation toward closure commenced, hampered somewhat by a previously unknown directly buried electrical line. An onsite location was chosen for impacted soil stockpile, and prepared with two layers of polyethylene sheeting. Each bucket removed from the ust site was screened via PID and segregated, with impacted soil reading above 10 ppm relocated to the prepared stockpile area. The tanks were removed, during the course of which, Marc Coleman of the UST Program arrived onsite.

Gasoline odor was apparent during the course of the excavation, and as the tank uncovering commenced, soil screening confirmed impact. The soil was found to be of a loose sandy gravel below that compacted for the parking and loading area. No ledge was discovered to depth. Groundwater was encountered immediately beneath the sand bedding upon which the tanks were placed, at a depth of approximately six feet beneath the ground surface. A sheen was apparent upon the surface of the groundwater.

Though no immediately apparent holes or leaks were noted, upon inspection by Mr. Coleman, deep pitting along the bottom of the gasoline tank was discovered, which may have allowed product impact to the underlying soil and groundwater. It is thought, however, that the impact noted more toward the surface of the excavation is due to product spillage, and may have migrated over time through these bony soils to produce the noted impact groundwater impact.

The final excavation to date measures some 34' long by 22' wide, and some 6' deep, or approximately to the bottom of the former tanks. Final monitoring locations and readings are illustrated on the enclosed sketch. All three tanks measured some 64" in diameter by 24' long, or some 4000 gallon capacity. The tanks were purged and cleaned on site, preparatory for scrap disposal by Bennington Iron Works personnel.

Currently, approximately 60 cubic yards of impacted soil are stockpiled and polyencapsulated at the site. The excavation remains open, pending approval of replacement ust, which is desired to be accomplished within the same general area. The permit application for the reinstallation is pending.

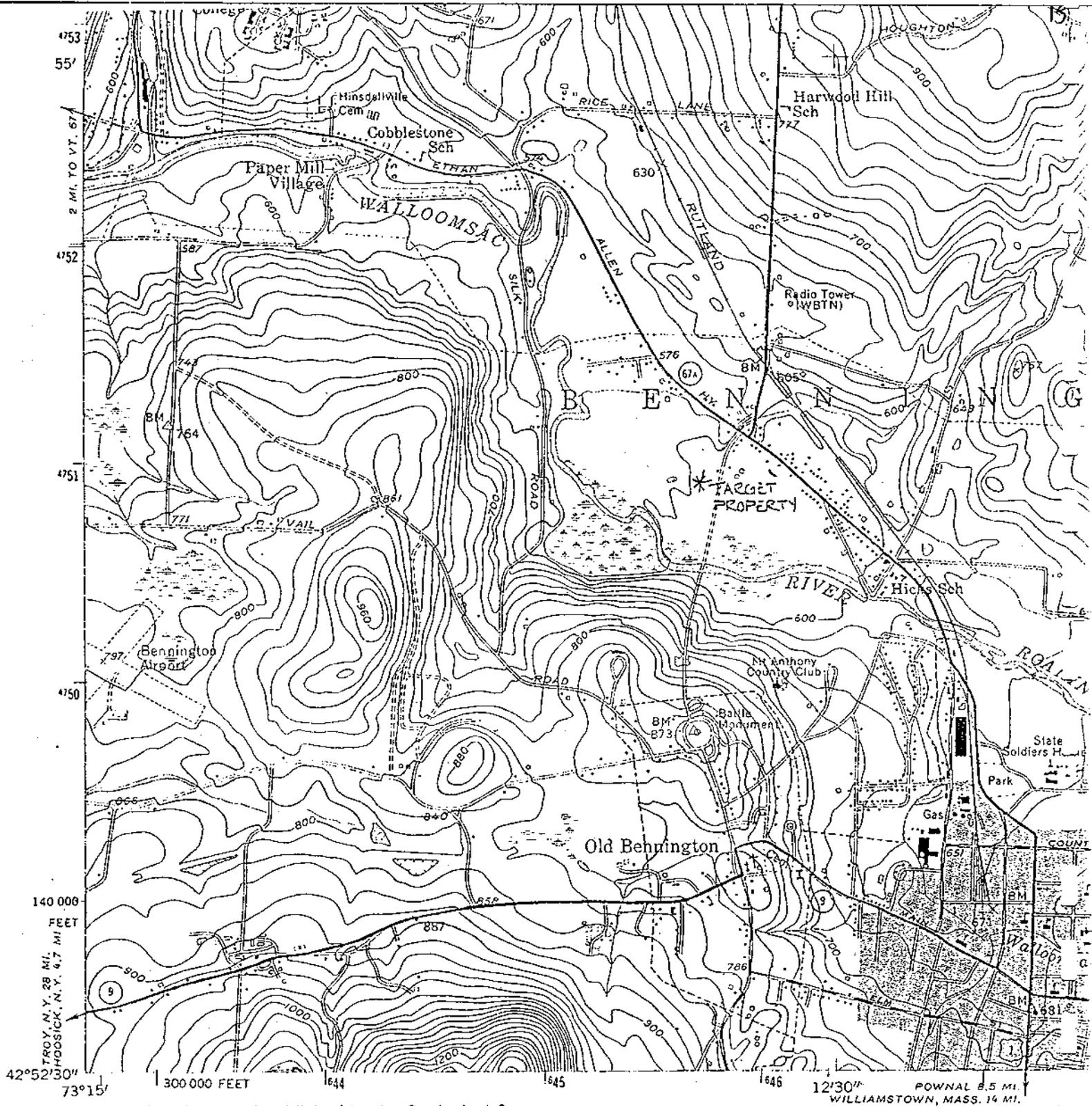
While onsite, Mr. Coleman suggested preliminary investigation, via test pits by excavator, in an attempt to determine groundwater direction, such that further investigation at the site could be better determined, i.e. if groundwater monitor wells are proposed in an attempt to determine extents of contamination, the proposed placements would be better determined. Three test pits were performed, with measurements as indicated on the enclosed sketch.

Bennington Iron Works occupies some 14 acres within the Morse Industrial Park, and is surrounded by other industrial facilities or vacant and available industrial sites, save for the area to the north and somewhat to the east of the site, which is commercial and residential in nature, is served by alternate

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access, and which immediately borders the ust closure site. The closest structures, however, are thought to be served by municipal water supply, and no basements were apparent. The Walloomsac River lies some quarter mile away, and downgradient of this site, which according to site development plans available, lies just outside the 100-year flood plain of this river.

We await assignment of a Sites Manager for this project, for consultation prior to generation of a work plan.



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USFS

Topography from aerial photographs by stereophotogrammetric methods. Aerial photographs taken 1942 and 1951.

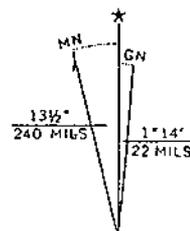
Field check 1954

Polyconic projection. 1927 North American datum  
10,000-foot grid based on Vermont coordinate system

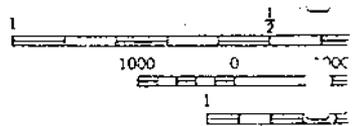
Red tint indicates area in which only landmark buildings are shown

Unchecked elevations are shown in brown

1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue



UTM GRID AND 1954 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET



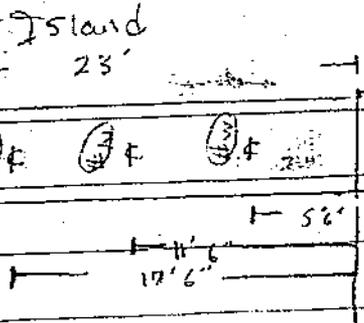
THIS MAP TO:

F R

DENVER, CO

A FOLDER DESCRIBING TC

Hood 24' 3 1/2"  
mounting plate 21' 5/8"  
outside measure



Sumps per pump  
1 1/2" x 24"

- # 3 on Rd Fuel
- # 2 gas
- # 1 of Rd

23 3/2

23 2"

21 5/8

2' 13/8"

1 3/4"

1' 11/16"

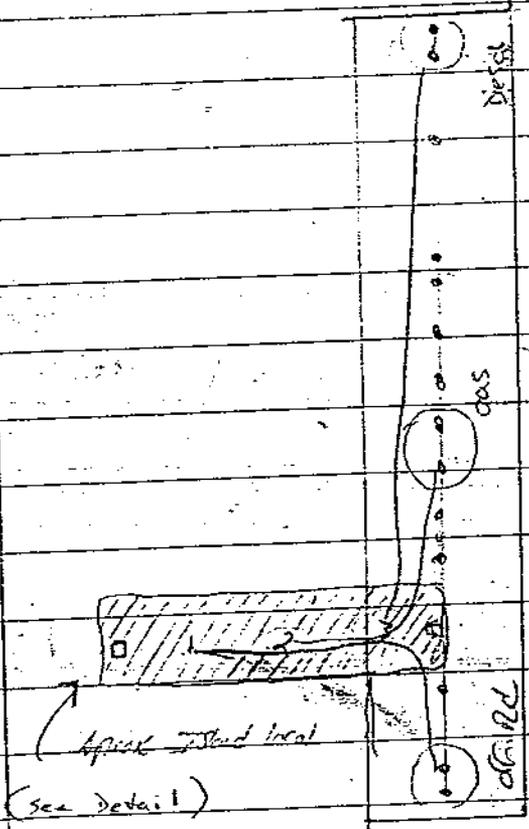
not enough  
suction line  
56' 1 1/2"

45"

30"

order 75'  
needed

Scale 1" = 10'



1 1/16"

5' rod on the

Tank

x 43'

John 20 min

- 781 341 1762 -

33'

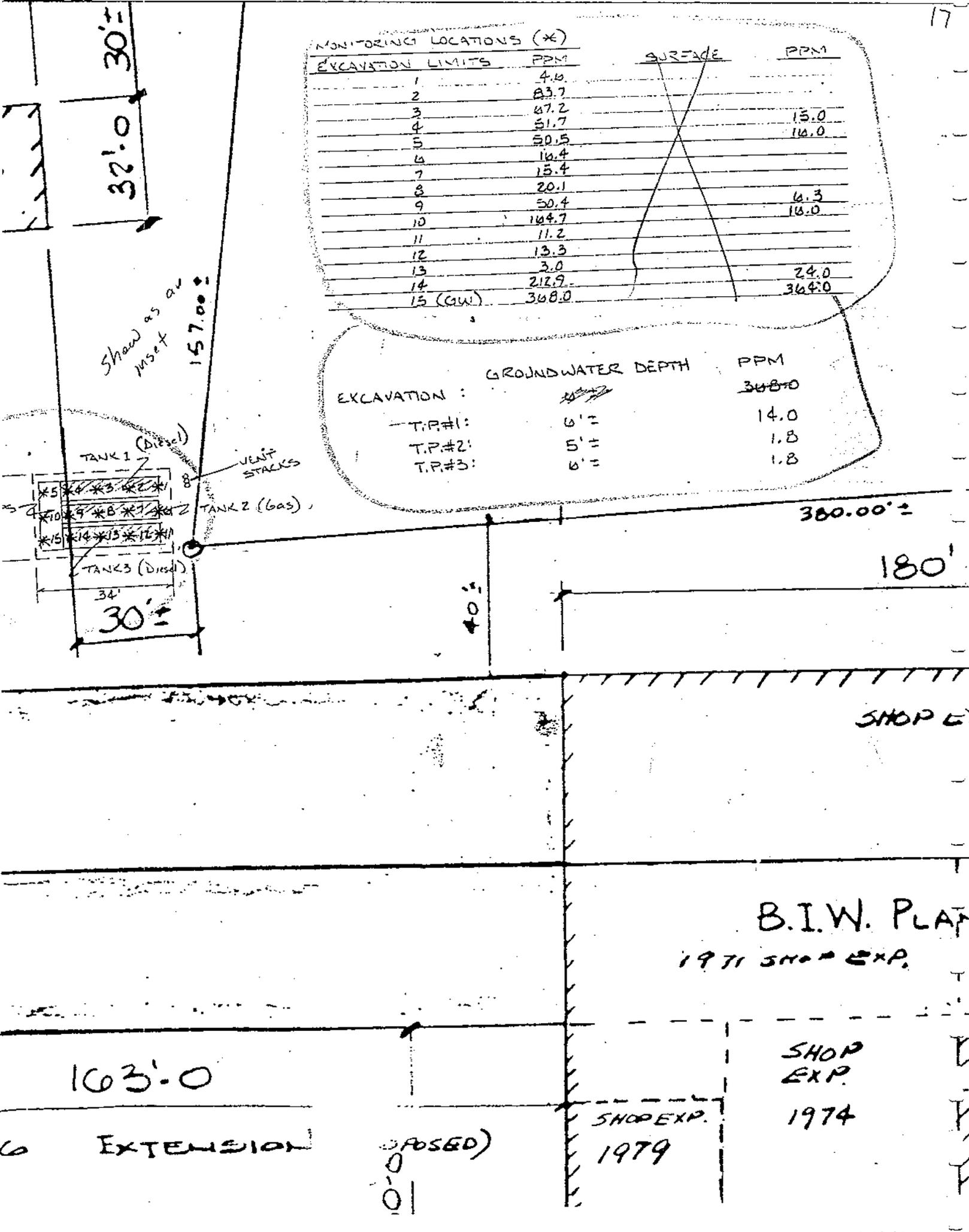
33'

35'

MONITORING LOCATIONS (\*)

EXCAVATION LIMITS	PPM	SURFACE	PPM
1	4.6		
2	83.7		
3	67.2		
4	51.7		15.0
5	50.5		16.0
6	16.4		
7	15.4		
8	20.1		
9	50.4		6.3
10	144.7		16.0
11	11.2		
12	13.3		
13	3.0		
14	212.9		24.0
15 (GW)	368.0		364.0

EXCAVATION :	GROUNDWATER DEPTH	PPM
	<del>10'</del>	368.0
T.P.#1:	6'	14.0
T.P.#2:	5'	1.8
T.P.#3:	6'	1.8



Show as an inset  
157'-0"

TANK 1 (Diesel)

VENT STACKS

TANK 2 (Gas)

TANK 3 (Diesel)

380'-0"

180'

SHOP EXP.

B.I.W. PLANT

1971 SHOP EXP.

SHOP EXP.

1974

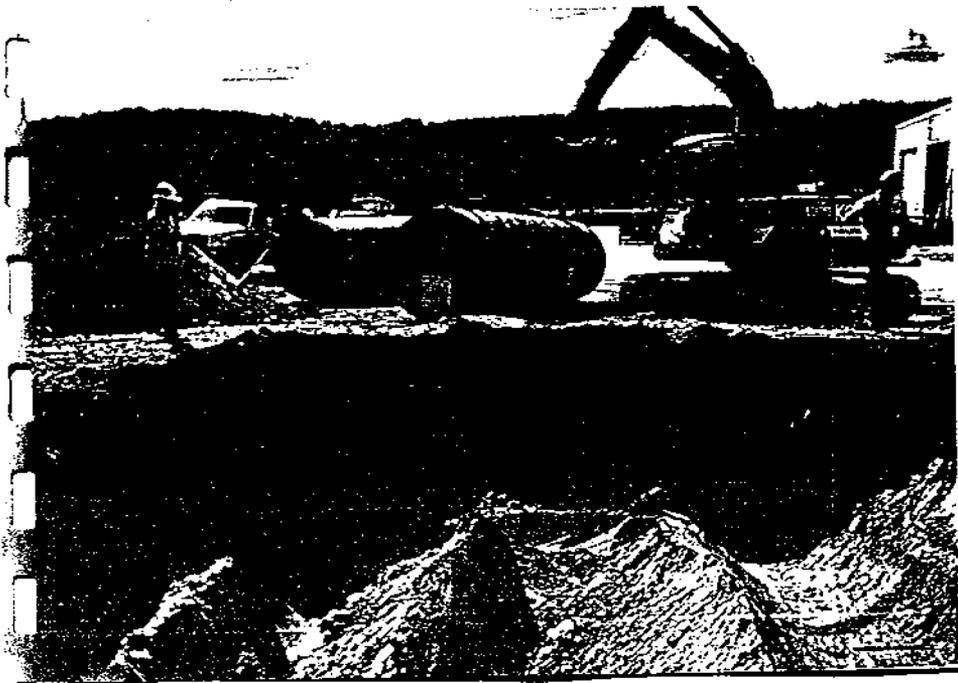
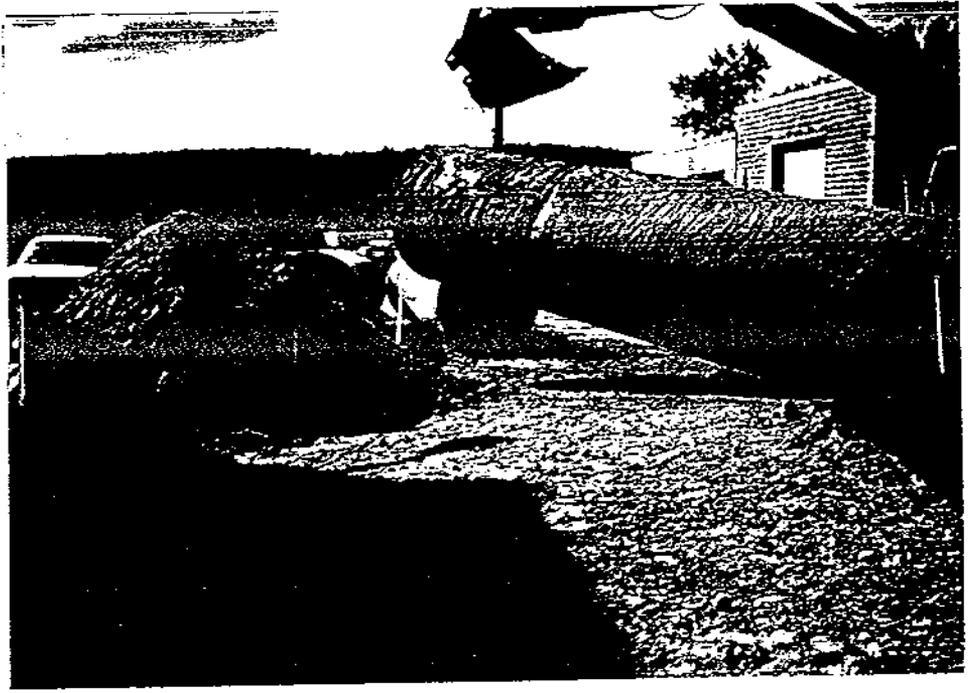
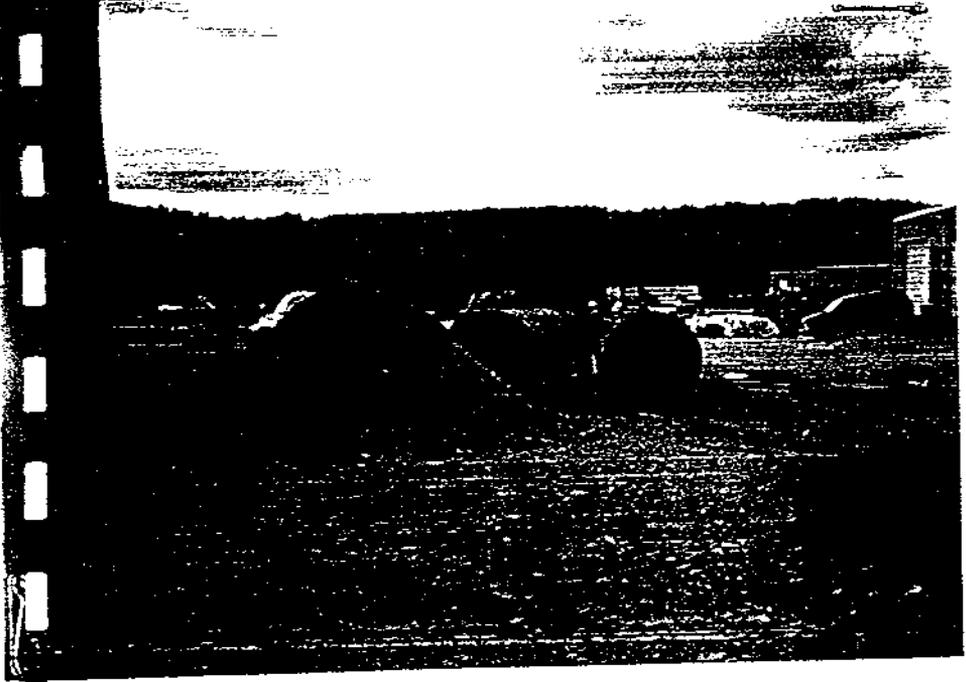
SHOP EXP.

1979

103'-0"

EXTENSION

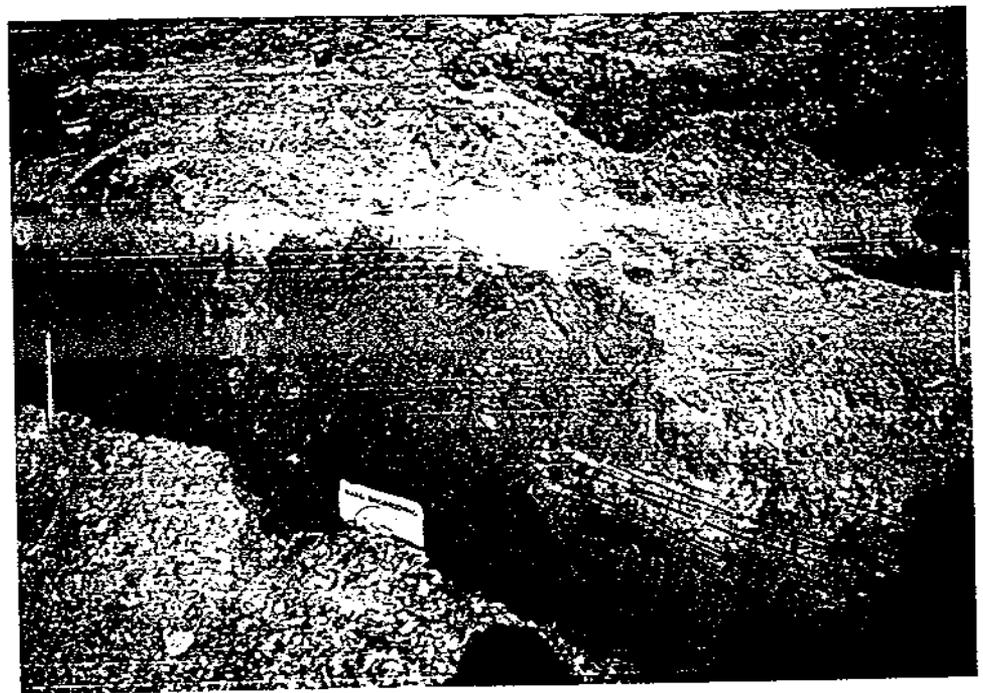
(CLOSED)



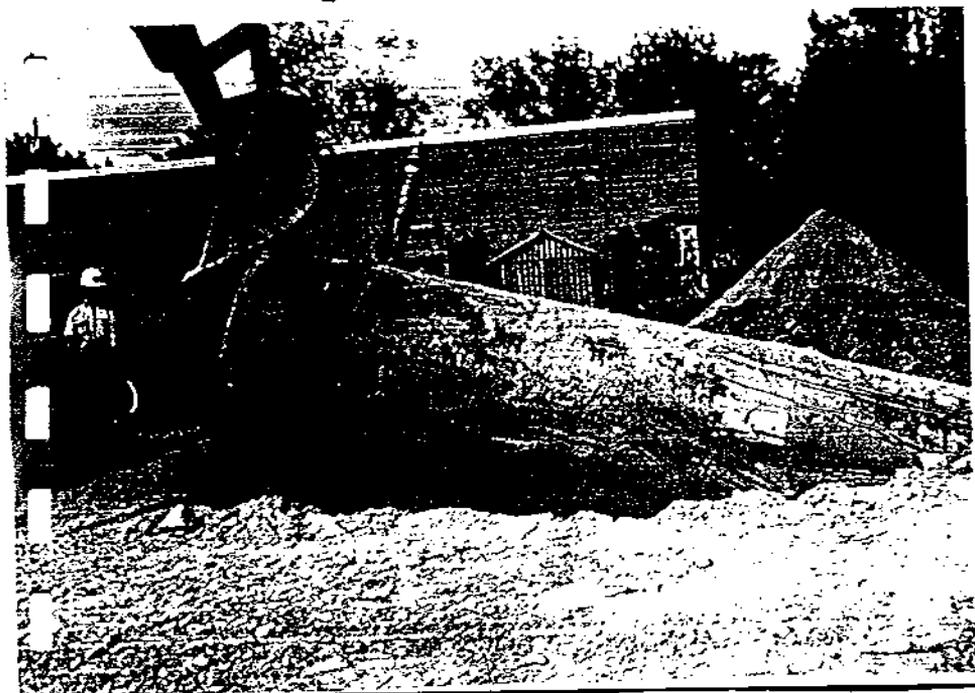




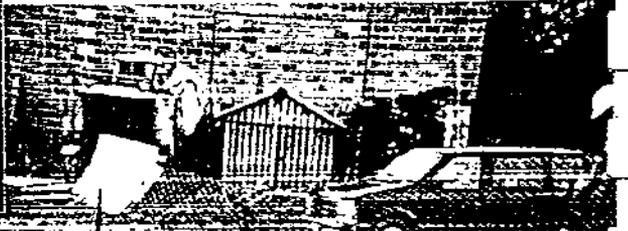
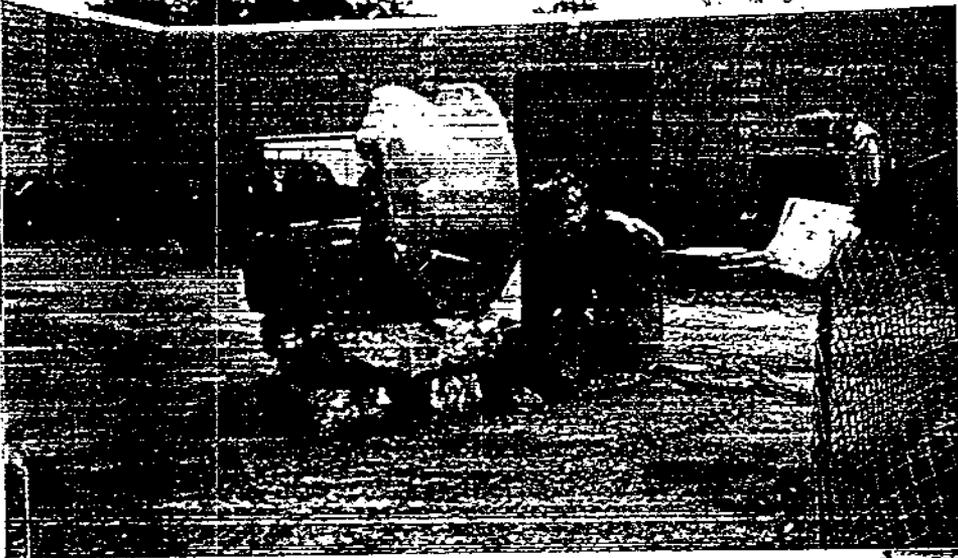
NOTE GROUNDWATER  
@ BASE



TANK #3



PUMP BASE REMOVAL



INITIAL EXCAVATION





State of Vermont

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Waste Management Division  
103 South Main Street/West Office  
Waterbury, Vermont 05671-0404  
(802) 241-3888  
FAX (802) 241-3296

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

September 29, 1998

MR CURTIS MORIN  
BENNINGTON IRON WORKS  
BENNINGTON VERMONT 05201

RE: Petroleum Contamination at Bennington Iron Works, Bennington, Vermont (SMS Site # 98-2482)

Dear Mr. Morin:

The Vermont Department of Environmental Conservation, Sites Management Section (SMS) has received the Underground Storage Tank (UST) closure report which outlines the subsurface conditions for the above referenced site. The fieldwork was conducted by Lori King of Aaron & Sons on September 10, 1998. The report is dated September 18, 1998 and summarizes the degree and extent of contamination encountered. The USTs removed include:

- UST #1 - 4,000 gallon diesel UST
- UST #2 - 4,000 gallon diesel UST
- UST #3 - 4,000 gallon gasoline UST

During the site activities, screened soils had concentrations up to 368 parts per million (ppm) as measured by a photoionization detector (PID). The peak PID readings were measured at depths of six feet below ground surface (fbgs) in the excavation. Approximately 60 cubic yards of excavated soil were stockpiled on-site due to the presence of PID elevated headspace readings. The limits of soil contamination were not defined.

Site soils consisted of primarily sands and gravel. Groundwater was encountered at a (maximum) depth of approximately 6 fbgs. Visual observations of groundwater during the UST removal exhibited signs of contamination in the form of free-product and sheens.

Based on the report information, the SMS has determined additional work is necessary to determine the severity of contamination. Due to the free product found at the site, the SMS requests that Bennington Iron Works retain the services of a qualified environmental consultant to perform the following:

- Further define the degree and extent of contamination to the soil.
- Determine the degree and extent of contamination, if any, to groundwater. A sufficient number of monitoring sites should be installed to adequately define the severity of site contamination. Analyze groundwater samples for volatile organic compounds found in gasoline and diesel. At sites proximal to water supply sources, determine the hydrologic relationship of the contaminated

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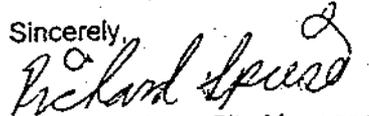
CurtisMorin Letter  
Bennington Iron Works Site  
September 29, 1998  
Page 3

The Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the Bennington Iron Works site if the Secretary concludes that Bennington Iron Works is in significant violation of the Vermont Underground Storage Tank Regulations or the Underground Storage Tank statute (10 V.S.A., Chapter 59).

We realize this may be a lot to absorb and respond to. We are here to help make this process as effective and

uncomplicated as possible. Please review the enclosed documents and call me with any questions you may have. I can be reached at (802) 241-3876.

Sincerely,



Richard Spiese, Site Manager  
Sites Management Section

Enclosures (3)

cc: Bennington Selectboard w/o enclosure  
Bennington Health Officer w/o enclosure  
DEC Regional Office w/o enclosure  
Lori King, Aaron & Sons w/o enclosure

rfs/112482.998

**Aaron & Sons, Inc.**

ENVIRONMENTAL SERVICES

"OUR BUSINESS IS WORKING FOR YOU"  
334 PLEASANT ST. BENNINGTON, VT 05201  
(802) 447-8633 (800) 287-8633 FAX (802) 447-3571

October 26, 1998

Richard Spiese, Site Manager  
Sites Management Section  
Hazardous Materials Management Program  
Waste Management Division  
103 South Main Street / West Office  
Waterbury, Vermont 05671-0404

Re: Bennington Iron Works  
SMS Site #98-2482

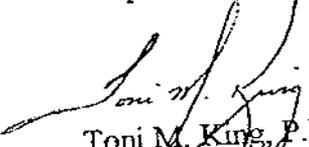
Mr. Spiese:

Pursuant to your directive of September 29, 1998, following is a preliminary work plan and cost estimate for the above-referenced site, summarizing the objectives and procedures for supplemental investigation.

If you are in agreement with the content of the plan, we would ask that you so indicate in writing, either through separate response, or by signing and returning this correspondence in authorization for Aaron & Sons to begin additional work.

Should you require additional information or clarification, please do not hesitate to contact us.

Respectfully submitted,

  
Toni M. King, P.E.  
Project Engineer

c: Bennington Iron Works

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## PRELIMINARY WORK PLAN SUPPLEMENTAL INVESTIGATION

### Project Overview

Closure of (3) 4000 gallon underground storage tanks, (1) containing gasoline and (2) containing diesel fuel, was initiated by Aaron & Sons on September 9, 1998. The specifics of the work were included in the Underground Storage Tank Closure Report and accompanying site assessment narrative previously submitted to the Underground Storage Tank (UST) Program, and forwarded to the Sites Management Section.

Impacted soils were discovered via monitoring with PID, work was suspended, and the UST Program was contacted for direction. On September 10, 1998, with the approval of the UST Program, impacted soils were removed to facilitate remaining ust closure, amounting to some 60 cubic yards total. These soils are currently polyencapsulated on-site, in an out-of-the-way location within a fenced industrial yard, relatively away from property lines, in an area of restricted access, with low potential to impact nearby receptors.

Groundwater was encountered within the ust excavation at a depth of approximately six feet beneath ground surface, immediately beneath the sand bedding of the removed ust's. A sheen was apparent on the groundwater surface, and the highest PID reading (368.0 ppm) was measured at this depth.

As discussed with the Sites Management Section and the UST Program, a replacement ust is to be installed in the same general area as the removed ust's. The excavation will require dewatering to a holding tanker and the discharge will be via activated carbon canisters, either to the same excavation if of sufficient holding volume to complete the installation; via overland flow, taking care not to allow offsite migration or routing to established surface water flow; or to an additional, proximate and slightly downgradient, excavation. Discussion has ensued with the Wastewater Management Division (DEC, VANR) which has indicated that discharge permitting will not be required, as the discharge will not be to a surface water of the state or to a wastewater treatment facility. Discussion with other Site Managers has included recommendation for analysis of discharge, namely for volatile organic compounds (EPA Method 8021B) to assure successful treatment.

### Work Plan Objectives

The objectives of proposed/required additional work include determination of severity of contamination and assessment of possibility of contaminant impact to nearby receptors.

Work Plan Activities

Installation of Ground Water Monitoring Wells:

The degree and extent of contamination, if any, to groundwater, will be addressed. Three groundwater monitor wells will be installed at downgradient locations of the former tank locations, as illustrated on the enclosed plan. Due to the complexities in building and site constraints, and the minimal potential for on-site or off-site upgradient sources of petroleum, no upgradient well is proposed. Further discussions with the SMS have indicated, however, a preference for the installation of a "source" monitor well, some five to ten feet downgradient of the ust removal site. Prior to starting the site work, a Health and Safety Plan will be prepared, and Dig Safe will again be contacted to identify underground utilities in the vicinity of the site.

The borings will be advanced using a truck-mounted drilling rig and hollow stem augers. No drilling fluids will be used to advance the borings or to install the wells. Down-hole drilling equipment will be steam cleaned prior to drilling each boring. Soil samples will be obtained during drilling using a split-spoon sampler. The sampling equipment will be cleaned prior to collecting each sample. The samples will be collected into clean glass jars and the headspace of the samples will be screened in the field for VOC's using a calibrated photoionization detector. It is anticipated that each boring will extend approximately 10 feet into the groundwater. The maximum depth of the borings/wells is expected to be approximately 15 to 20 feet deep. If the headspace readings indicate that the auger cuttings are potentially impacted, the cuttings will be containerized and stored on-site for treatment and disposal.

Each boring will be completed as a groundwater monitoring well consisting of 2-inch diameter, threaded, schedule 80 PVC well screen and riser pipe. The well screen will be 10 feet long (0.02-inch slot width), and will be installed to intercept the water table so that petroleum floating on the groundwater, if any, can readily enter the well and be detected. Groundwater is expected to be approximately 5 to 6 feet below grade. A silica sand filter pack will be installed in the annulus around the well screen and will be extended to a minimum of 1 foot above the top of the screen. A minimum 1-foot-thick bentonite clay seal will be placed immediately above the sand pack and the remaining annulus will be backfilled with a cement grout to the ground surface. A flush-mounted protective road box will be cemented over the well head at the ground surface. The well head will be fitted with a PVC cap. Well construction details will be recorded on a well construction log to be prepared for each well.

Following installation, the well will be developed by purging and bailing, with a minimum of 3 times the standing volume of water in the well purged during development. The purge water will be collected and contained onsite until the groundwater quality has been evaluated and appropriate treatment and disposal of the water can be determined.

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Following installation and development, and prior to sampling, the elevations of the wells will be surveyed relative to a local site datum. The well elevations and measured depths will be used to evaluate the direction of groundwater flow.

#### Groundwater Sampling and Analysis:

Groundwater samples will be obtained from each well using a dedicated PVC bailer. The samples will be collected into clean sample containers provided by the laboratory for the specific analyses to be performed. EPA-recommended sample containers, sample preservation methods, sample holding times and analytical methods will be employed during this investigation. The samples will be maintained under chain-of-custody protocol from the time of collection through delivery to the laboratory. The samples will be analyzed for volatile organic compounds by EPA Method 8021B.

#### Soil Sampling and Analysis:

Prior to new ust installation, the limits of the excavation soils will be sampled and analyzed for volatile organic compounds found in gasoline and diesel, by EPA Method 8021B. Two composite samples will be taken, one confirming the vertical and one the horizontal, contaminant migration and severity.

#### Sensitive Receptor Assessment :

If any site adjacent building basements appear to be within a distance and direction which could be cause for concern of potential impact, wall and floor construction and susceptibility to vapor migration will be noted. PID measurements will be made in cracks and/or joints likely impacted. If the airspace has been impacted, confirmatory sampling and laboratory analyses will be performed using EPA method TO-2. Note within the cost estimate that air sampling and laboratory analysis has not been included, as it is not yet known if, or how many, will be required. Should this prove the case during the course of the investigation, subsequent cost estimates will be provided to cover this event.

Updated information will include nearby surface waters, proximate drinking water sources, wetlands, sensitive ecologic areas, outdoor or indoor air, sewers, or utility corridors. Note within the cost estimate that water supply sampling and laboratory analysis has not been included, as it is not yet known if, or how many, will be required. Should this prove the case during the course of the investigation, subsequent cost estimates will be provided to cover this event.

Given the nature of the release, the observed site conditions, and the distance to the nearest surface water, it is unlikely that the site would have a measurable impact on surface water. However, the potential to significantly impact water bodies will be re-evaluated upon receipt of the groundwater quality data for the site.

Evaluate the Need for Long Term Treatment and/or Monitoring:

Based on the groundwater quality data and the findings of the sensitive receptor survey, the need for long term groundwater monitoring and treatment will be evaluated. The groundwater quality at the site will be compared to applicable and relevant water quality guidelines and standards, and if concentrations at the site significantly exceed these criteria, a semi-quantitative risk assessment will be performed, including potential exposure points identification, potentially exposed population identification, exposure point concentration estimation, and potential exposure pathway and frequency and duration of exposures estimation. If a potentially significant risk is indicated, a groundwater monitoring program and, if appropriate, a conceptual groundwater treatment plan will be proposed.

Treatment, Monitoring, and/or Disposal of Stockpiled Soils:

Discussions with the Sites Management Section and the UST Program have indicated that the currently impacted and stockpiled soils may be utilized as backfill material following the replacement ust installation, in recognition that impacted soils still remain in and around the removed ust site with no proposed effort at full excavation and removal, with due regard to no allowance of contact between the new ust and the backfilled, impacted soils and adequate buffer between these soils and those finally at ground surface.

As such, a final volume of impacted soils is not yet available. It is intended that the summary report of work plan activities will establish the plan of monitoring and/or treatment of any remaining soils, with regard to economy of scale.

Recovery of Free Phase Petroleum Product:

It is doubtful that measurable free phase petroleum product will be discovered in a volume sufficient for active recovery, beyond the sheen previously encountered. However, should this prove the case, either within the ust excavation or installation of groundwater monitor wells, it will be done so in accordance with applicable requirements and data record. Again, should this prove the case, subsequent cost estimates will be provided to cover this event.

Preparation of Supplemental Investigation Summary Report:

Work activities will be documented in a written report, intended to be submitted to the Sites Management Section within thirty days of activity completion, containing details, conclusions and recommendations, discussion of determination of the need for long-term treatment and/or monitoring, analytical data, site sketches with important feature and receptor locations, and photographic documentation.

COSTS

Costs to date, exclusive of ust removal and installation, including impacted soil segregation and stockpile, preliminary test pit investigations:

Excavator (w/operator):	13 hrs @ \$85.00/hr	
Project Engineer:	9.5 hrs @ \$70.00/hr	
Technician:	8 hrs @ \$45.00/hr	
Foreman:	4 hrs @ \$35.00/hr	
Laborers:	25 hrs @ \$30.00/hr	
Materials:	polyethylene, 4 rolls, \$78 ea	
Total:		\$3,332.00

Work Plan: Consultation with owner and SMS, generation of work plan, and work plan cost estimates:

Project Engineer:	10 hrs @ \$70.00/hr	
Technician:	2 hrs @ \$45.00/hr	
Total Plan:		\$ 790.00

Installation of Monitor Wells:

Subcontract Driller (4 wells, one day):	\$3,200.00	
Consultant (P.E., 10 hrs @ \$70.00/hr):	\$ 700.00	
PID, 1 day @ \$150.00/day:	\$ 150.00	
Survey, site plan:	\$ 500.00	
Total:		\$4,550.00

Ground Water and Soil Sampling and Analyses:

Staff Engineer, 8 hrs @ \$60.00/hr:	\$ 480.00	
Project Engineer, 2 hrs @ \$70.00/hr:	\$ 140.00	
Subcontract Laboratory		
4 ea, 8021B, water @ \$100.00 ea		
2 ea, 8021B, soil @ \$125.00 ea	\$ 650.00	
Total:		\$1,270.00

Sensitive Receptor Assessment:

Project Engineer: 2 hrs @ \$70.00/hr  
Staff Engineer: 8 hrs @ \$60.00/hr

Total: \$ 620.00

Data Dissemination, Evaluation, Report:

Project Engineer: 4 hrs @ \$70.00/hr  
Staff Engineer: 12 hrs @ \$60.00/hr

Total: \$1000.00

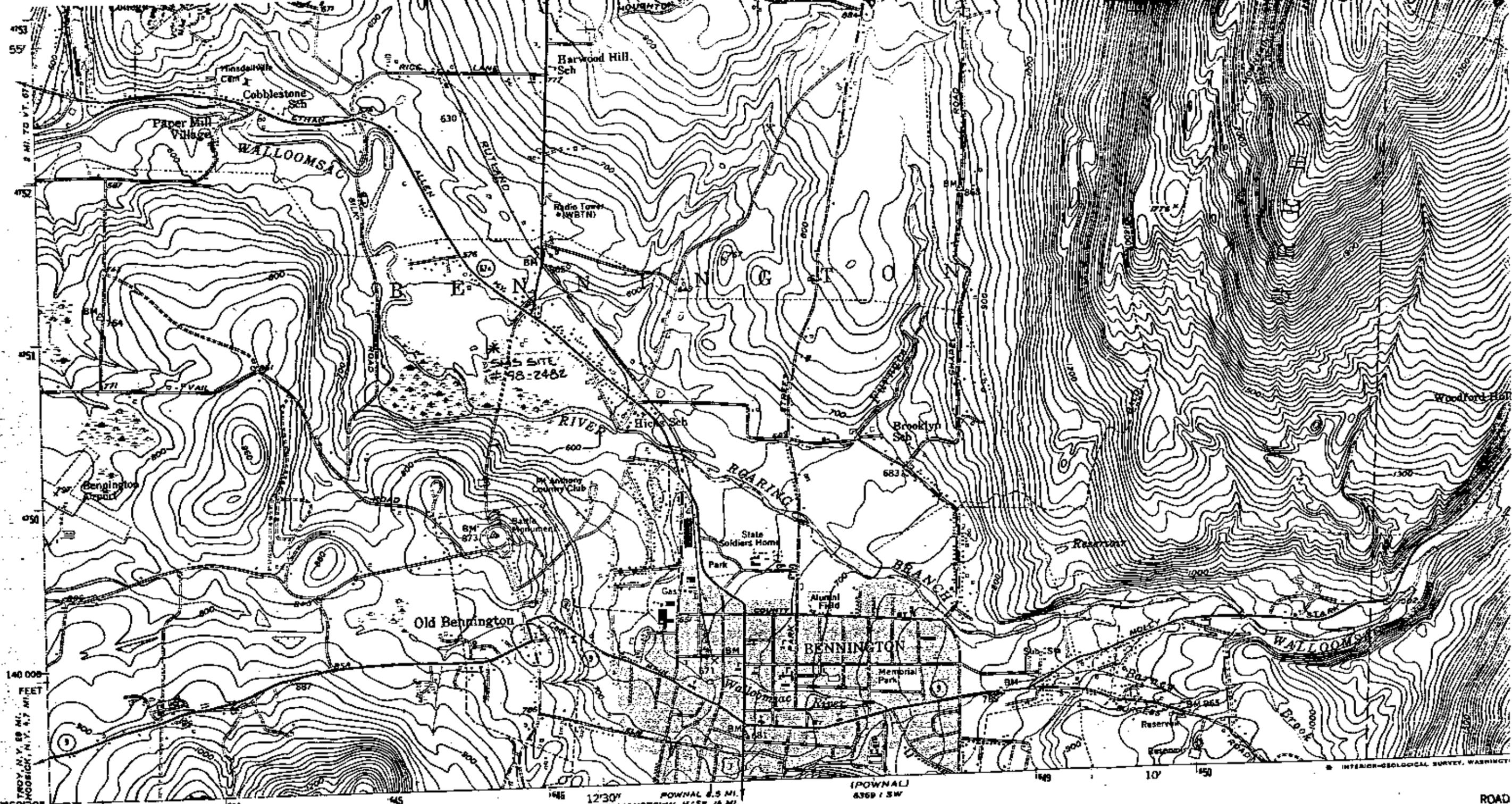
Petroleum Cleanup Fund administrative charges:

Administration: 8 hrs @ \$30.00/hr

Total, PCF admin: \$ 240.00

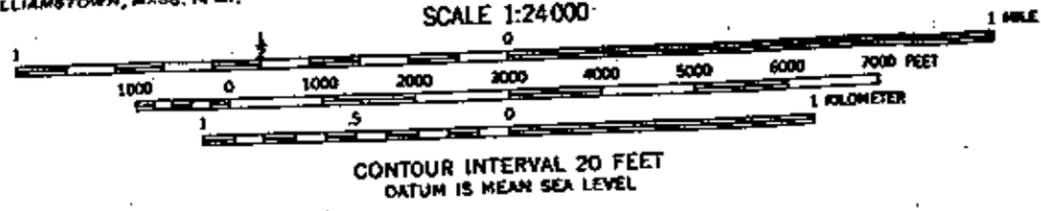
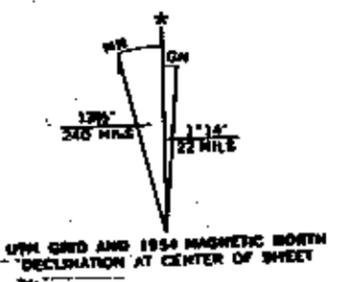
Total work plan project,  
excluding ust closure and replacement costs:

\$11,802.00



(NORTH POWNAL)  
639 14 SE

Mapped, edited, and published by the Geological Survey  
 Control by USGS, USC&GS, and USFS  
 Topography from aerial photographs by stereophotogrammetric methods. Aerial photographs taken 1942 and 1951.  
 Field check 1954  
 Polyconic projection. 1927 North American datum  
 10,000-foot grid based on Vermont coordinate system  
 Red tint indicates area in which only landmark buildings are shown  
 Unchecked elevations are shown in brown  
 1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue



QUADRANGLE LOCATION

ROAD  
 Heavy-duty ———  
 Medium-duty ———  
 U.S. Rd. □

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY  
 DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22082  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



# State of Vermont

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Waste Management Division  
103 South Main Street/West Office  
Waterbury, Vermont 05671-0404  
(802) 241-3888  
FAX (802) 241-3296

November 16, 1998

MR CURTIS MORIN  
BENNINGTON IRON WORKS  
BENNINGTON VERMONT 05201

RE: Petroleum Contamination at Bennington Iron Works, Bennington, Vermont (SMS Site # 98-2482)

Dear Mr. Morin:

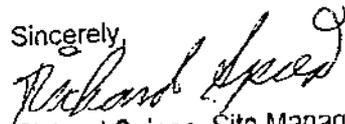
The Vermont Department of Environmental Conservation, Sites Management Section (SMS) has received and reviewed the October 26, 1998 Aaron & Sons work plan and cost estimate to further characterize the degree and extent of petroleum contamination at the Bennington Iron Works facility. The SMS approves of the work plan as proposed, however, the Vermont Petroleum Cleanup Fund (PCF) will not be able to reimburse all of the costs proposed for this work in the cost estimate.

Relating to the work plan, the allowable amounts for PCF reimbursement for an initial site assessment, not including analytical expenses, is \$5,400.00. The costs proposed in the work plan for this work is \$7,820.00. The allowable costs for this work is taken from the costs of numerous initial site investigations by consultants all over the state. At this time the SMS will allow the expected laboratory subcontractor projected costs for analysis of the water and soil samples for reimbursement from the PCF. I have enclosed Attachment 2: Consultants Fee Schedule from the Site Investigation Guidance document for your review and records. Please pay particular attention to the first table in this attachment; Costs of Initial Site Assessment.

Pertaining to the costs per date for the soil segregation and stockpile and preliminary test pit investigation, the SMS believes that the costs outlined in the Aaron and Sons, Inc. letter are excessive. The SMS does not see how it could take 59.5 hours to stockpile 60 cubic yard of soil and dig three test pits. Therefore, if total costs at this site exceed the required \$10,000.00 in allowable expenses before the PCF will begin reimbursing you for additional costs, then the SMS will need to see additional documentation from Aaron & Sons, Inc. which support the costs for this work before the full amount of \$3,332.00 will be considered eligible for reimbursement from the PCF. Additional documentation should include providing the entire bill for all work performed at your facility pertaining to the underground storage tank removal, a detailed account of work performed and the time it took on each task, and individual billing sheets for each person working on site. Additionally, the SMS will need material and subcontractor billing invoices before these costs can be reimbursed.

In summary, the SMS approves of the Aaron & Sons, Inc. work plan, but cannot pre-approve full reimbursement of all of the costs proposed in the cost estimate for this work. Additionally, the SMS believes that the costs to date for the soil segregation and stockpiling and preliminary test pit investigation is excessive, and will require additional information to be submitted if all of these costs are to be reimbursed from the PCF. Please feel free to contact me at (802) 241-3880 should you have any questions.

Sincerely,

  
Richard Spiese, Site Manager  
Sites Management Section

rfs/112482.098

cc: Toni King, Aaron & Sons



1801 EAST STREET  
PITTSFIELD, MA 01201  
413 499-3050  
FAX 413 443-0511

# Technical Report

prepared for

Aaron & Sons, Inc.  
334 Pleasant Street  
Bennington, VT 05201

Project: Bennington Iron works

December 7, 1998

## Laboratory Report

INITIAL  
DISCHARGEClient ID: AARON  
Lab ID No: AB26501Location: Benn. Iron Works  
Client Job No: 98057Matrix: Water  
Sampled on 11/19/98 by MAXYMILLIAN  
Received on 11/24/98 by MBR  
QC and Data Review by AMPreservative: Refrigeration  
Container: 1 Amber Glass Liter  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB26501	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	12/04/98	DG
Bromobenzene	Not detected	0.5	12/04/98	DG
Bromochloromethane	Not detected	0.5	12/04/98	DG
Bromodichloromethane	Not detected	0.5	12/04/98	DG
Bromoform	Not detected	0.5	12/04/98	DG
Bromomethane	Not detected	0.5	12/04/98	DG
n-Butylbenzene	7.1	0.5	12/04/98	DG
sec-Butylbenzene	Not detected	0.5	12/04/98	DG
tert-Butylbenzene	Not detected	0.5	12/04/98	DG
Carbon tetrachloride	Not detected	0.5	12/04/98	DG
Chlorobenzene	Not detected	0.5	12/04/98	DG
Chloroethane	Not detected	0.5	12/04/98	DG
Chloroform	Not detected	0.5	12/04/98	DG
Chloromethane	Not detected	0.5	12/04/98	DG
2-Chlorotoluene	Not detected	0.5	12/04/98	DG
4-Chlorotoluene	Not detected	0.5	12/04/98	DG
Dibromochloromethane	Not detected	0.5	12/04/98	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	12/04/98	DG
1,2-Dibromoethane	Not detected	0.5	12/04/98	DG
Dibromomethane	Not detected	0.5	12/04/98	DG
1,2-Dichlorobenzene	Not detected	0.5	12/04/98	DG
1,3-Dichlorobenzene	Not detected	0.5	12/04/98	DG
1,4-Dichlorobenzene	Not detected	0.5	12/04/98	DG
Dichlorodifluoromethane	Not detected	0.5	12/04/98	DG
1,1-Dichloroethane	Not detected	0.5	12/04/98	DG
1,2-Dichloroethane	Not detected	0.5	12/04/98	DG
1,1-Dichloroethene	Not detected	0.5	12/04/98	DG
cis-1,2-Dichloroethene	Not detected	0.5	12/04/98	DG
trans-1,2-Dichloroethene	Not detected	0.5	12/04/98	DG
1,2-Dichloropropane	Not detected	0.5	12/04/98	DG
1,3-Dichloropropane	Not detected	0.5	12/04/98	DG
2,2-Dichloropropane	Not detected	0.5	12/04/98	DG
1,1-Dichloropropene	Not detected	0.5	12/04/98	DG
cis-1,3-Dichloropropene	Not detected	0.5	12/04/98	DG

Continued next page...

EPA Method 502.2-SW846 8021

Parameter for AB26501	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	12/04/98	DG
Ethylbenzene	Not detected	0.5	12/04/98	DG
Hexachlorobutadiene	Not detected	0.5	12/04/98	DG
Isopropylbenzene	Not detected	0.5	12/04/98	DG
4-Isopropyltoluene	Not detected	0.5	12/04/98	DG
Methylene chloride	Not detected	0.5	12/04/98	DG
Naphthalene	Not detected	0.5	12/04/98	DG
Propylbenzene	Not detected	0.5	12/04/98	DG
Styrene	Not detected	0.5	12/04/98	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	12/04/98	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	12/04/98	DG
Tetrachloroethene	5.4	0.5	12/04/98	DG
Toluene	Not detected	0.5	12/04/98	DG
1,2,3-Trichlorobenzene	Not detected	0.5	12/04/98	DG
1,2,4-Trichlorobenzene	Not detected	0.5	12/04/98	DG
1,1,1-Trichloroethane	Not detected	0.5	12/04/98	DG
1,1,2-Trichloroethane	Not detected	0.5	12/04/98	DG
Trichloroethene	Not detected	0.5	12/04/98	DG
Trichlorofluoromethane	Not detected	0.5	12/04/98	DG
1,2,3-Trichloropropane	Not detected	0.5	12/04/98	DG
1,2,4-Trimethylbenzene	Not detected	2.0	12/04/98	DG
1,3,5-Trimethylbenzene	55	0.5	12/04/98	DG
Vinyl chloride	Not detected	0.5	12/04/98	DG
o-Xylene	Not detected	0.5	12/04/98	DG
m,p-Xylenes	Not detected	1.0	12/04/98	DG
Methyl-t-butyl ether	8.7	0.5	12/04/98	DG
Surrogate compound recovery(%):			12/04/98	DG
BFB Surrogate Recovery (%)	97		12/04/98	DG
CLB-d5 Surrogate Recovery (%)	97			

TEL:

**SPECTRUM ANALYTICAL, INC.**  
Laboratory Report

ANDREWS  
WATER SUPPLY

Client ID: A-WELL  
Lab ID No: AB27188

Location: Aaron & Sons - BIW - Benn, VT  
Client Job No: 98057

Matrix: Water  
Sampled on 12/01/98 by MAXYMILLIAN  
Received on 12/04/98 by DDR  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

**Volatile Organics**  
EPA Method 502.2-SW846 8021

Parameter for AB27188	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	12/14/98	CH
Bromobenzene	Not detected	0.5	12/14/98	CH
Bromochloromethane	Not detected	0.5	12/14/98	CH
Bromodichloromethane	Not detected	0.5	12/14/98	CH
Bromoform	Not detected	0.5	12/14/98	CH
Bromomethane	Not detected	0.5	12/14/98	CH
n-Butylbenzene	Not detected	0.5	12/14/98	CH
sec-Butylbenzene	Not detected	0.5	12/14/98	CH
tert-Butylbenzene	Not detected	0.5	12/14/98	CH
Carbon tetrachloride	Not detected	0.5	12/14/98	CH
Chlorobenzene	Not detected	0.5	12/14/98	CH
Chloroethane	Not detected	0.5	12/14/98	CH
Chloroform	Not detected	0.5	12/14/98	CH
Chloromethane	Not detected	0.5	12/14/98	CH
2-Chlorotoluene	Not detected	0.5	12/14/98	CH
4-Chlorotoluene	Not detected	0.5	12/14/98	CH
Dibromochloromethane	Not detected	0.5	12/14/98	CH
1,2-Dibromo-3-chloropropane	Not detected	0.5	12/14/98	CH
1,2-Dibromoethane	Not detected	0.5	12/14/98	CH
Dibromomethane	Not detected	0.5	12/14/98	CH
1,2-Dichlorobenzene	Not detected	0.5	12/14/98	CH
1,3-Dichlorobenzene	Not detected	0.5	12/14/98	CH
1,4-Dichlorobenzene	Not detected	0.5	12/14/98	CH
Dichlorodifluoromethane	Not detected	0.5	12/14/98	CH
1,1-Dichloroethane	Not detected	0.5	12/14/98	CH
1,2-Dichloroethane	Not detected	0.5	12/14/98	CH
1,1-Dichloroethene	Not detected	0.5	12/14/98	CH
cis-1,2-Dichloroethene	Not detected	0.5	12/14/98	CH
trans-1,2-Dichloroethene	Not detected	0.5	12/14/98	CH
1,2-Dichloropropane	Not detected	0.5	12/14/98	CH
1,3-Dichloropropane	Not detected	0.5	12/14/98	CH
2,2-Dichloropropane	Not detected	0.5	12/14/98	CH
1,1-Dichloropropene	Not detected	0.5	12/14/98	CH
cis-1,3-Dichloropropene	Not detected	0.5	12/14/98	CH

Volatile Organics  
EPA Method 502.2-SW846 8021

Parameter for AB27188	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	12/14/98	CH
Ethylbenzene	Not detected	0.5	12/14/98	CH
Hexachlorobutadiene	Not detected	0.5	12/14/98	CH
Isopropylbenzene	Not detected	0.5	12/14/98	CH
4-Isopropyltoluene	Not detected	0.5	12/14/98	CH
Methylene chloride	Not detected	0.7	12/14/98	CH
Naphthalene	Not detected	0.5	12/14/98	CH
Propylbenzene	Not detected	0.5	12/14/98	CH
Styrene	Not detected	0.5	12/14/98	CH
1,1,1,2-Tetrachloroethane	Not detected	0.5	12/14/98	CH
1,1,2,2-Tetrachloroethane	8.0	0.5	12/14/98	CH
Tetrachloroethene	Not detected	0.5	12/14/98	CH
Toluene	Not detected	0.5	12/14/98	CH
1,2,3-Trichlorobenzene	Not detected	0.5	12/14/98	CH
1,2,4-Trichlorobenzene	Not detected	0.5	12/14/98	CH
1,1,1-Trichloroethane	Not detected	0.5	12/14/98	CH
1,1,2-Trichloroethane	Not detected	0.5	12/14/98	CH
Trichloroethene	Not detected	0.5	12/14/98	CH
Trichlorofluoromethane	Not detected	0.5	12/14/98	CH
1,2,3-Trichloropropane	Not detected	0.5	12/14/98	CH
1,2,4-Trimethylbenzene	Not detected	0.5	12/14/98	CH
1,3,5-Trimethylbenzene	Not detected	0.5	12/14/98	CH
Vinyl chloride	Not detected	0.5	12/14/98	CH
o-Xylene	Not detected	1.0	12/14/98	CH
m,p-Xylenes	Not detected	0.5		
Methyl-t-butyl ether				
Surrogate compound recovery(%):			12/14/98	CH
BFB Surrogate Recovery (%)	116		12/14/98	CH
CLB-d5 Surrogate Recovery (%)	116			

SPECTRUM ANALYTICAL, INC.  
Laboratory Report

MULVEY  
WATER SUPPLY

Client ID: M-WELL  
Lab ID No: AB27189

Location: Aaron & Sons - BIW - Ferris, VT  
Client Job No: 98057

Matrix Water  
Sampled on 12/01/98 by MAXYMILLIAN  
Received on 12/04/98 by DDR  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

Volatile Organics  
EPA Method 502.2-SW846 8021

Parameter for AB27189	Result (in ug/L)	MDL	Analyzed 12/14/98	Analyst CD
Benzene	Not detected	0.5	12/14/98	CD
Bromobenzene	Not detected	0.5	12/14/98	CD
Bromochloromethane	Not detected	0.5	12/14/98	CD
Bromodichloromethane	Not detected	0.5	12/14/98	CD
Bromoform	Not detected	0.5	12/14/98	CD
Bromomethane	Not detected	0.5	12/14/98	CD
n-Butylbenzene	Not detected	0.5	12/14/98	CD
sec-Butylbenzene	Not detected	0.5	12/14/98	CD
tert-Butylbenzene	Not detected	0.5	12/14/98	CD
Carbon tetrachloride	Not detected	0.5	12/14/98	CD
Chlorobenzene	Not detected	0.5	12/14/98	CD
Chloroethane	Not detected	0.5	12/14/98	CD
Chloroform	Not detected	0.5	12/14/98	CD
Chloromethane	Not detected	0.5	12/14/98	CD
2-Chlorotoluene	Not detected	0.5	12/14/98	CD
4-Chlorotoluene	Not detected	0.5	12/14/98	CD
Dibromochloromethane	Not detected	0.5	12/14/98	CD
1,2-Dibromo-3-chloropropane	Not detected	0.5	12/14/98	CD
1,2-Dibromoethane	Not detected	0.5	12/14/98	CD
Dibromomethane	Not detected	0.5	12/14/98	CD
1,2-Dichlorobenzene	Not detected	0.5	12/14/98	CD
1,3-Dichlorobenzene	Not detected	0.5	12/14/98	CD
1,4-Dichlorobenzene	Not detected	0.5	12/14/98	CD
Dichlorodifluoromethane	Not detected	0.5	12/14/98	CD
1,1-Dichloroethane	Not detected	0.5	12/14/98	CD
1,2-Dichloroethane	Not detected	0.5	12/14/98	CD
1,1-Dichloroethene	Not detected	0.5	12/14/98	CD
cis-1,2-Dichloroethene	Not detected	0.5	12/14/98	CD
trans-1,2-Dichloroethene	Not detected	0.5	12/14/98	CD
1,2-Dichloropropane	Not detected	0.5	12/14/98	CD
1,3-Dichloropropane	Not detected	0.5	12/14/98	CD
2,2-Dichloropropane	Not detected	0.5	12/14/98	CD
1,1-Dichloropropene	Not detected	0.5	12/14/98	CD
cis-1,3-Dichloropropene	Not detected	0.5	12/14/98	CD

**Volatile Organics**  
EPA Method 502.2-SW846 8021

Parameter for AB27189	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	12/14/98	CD
Ethylbenzene	Not detected	0.5	12/14/98	CD
Hexachlorobutadiene	Not detected	0.5	12/14/98	CD
Isopropylbenzene	Not detected	0.5	12/14/98	CD
4-Isopropyltoluene	Not detected	0.5	12/14/98	CD
Methylene chloride	Not detected	0.5	12/14/98	CD
Naphthalene	Not detected	0.5	12/14/98	CD
Propylbenzene	Not detected	0.5	12/14/98	CD
Styrene	Not detected	0.5	12/14/98	CD
1,1,1,2-Tetrachloroethane	Not detected	0.5	12/14/98	CD
1,1,2,2-Tetrachloroethane	Not detected	0.5	12/14/98	CD
Tetrachloroethene	6.4	0.5	12/14/98	CD
Toluene	Not detected	0.5	12/14/98	CD
1,2,3-Trichlorobenzene	Not detected	0.5	12/14/98	CD
1,2,4-Trichlorobenzene	Not detected	0.5	12/14/98	CD
1,1,1-Trichloroethane	Not detected	0.5	12/14/98	CD
1,1,2-Trichloroethane	Not detected	0.5	12/14/98	CD
Trichloroethene	.72	0.5	12/14/98	CD
Trichlorofluoromethane	Not detected	0.5	12/14/98	CD
1,2,3-Trichloropropane	Not detected	0.5	12/14/98	CD
1,2,4-Trimethylbenzene	Not detected	0.5	12/14/98	CD
1,3,5-Trimethylbenzene	Not detected	0.5	12/14/98	CD
Vinyl chloride	Not detected	0.5	12/14/98	CD
o-Xylene	Not detected	1.0	12/14/98	CD
m,p-Xylenes	Not detected	0.5		
Methyl-t-butyl ether				
Surrogate compound recovery(%):			12/14/98	CD
BFB Surrogate Recovery (%)	121		12/14/98	CD
CLB-d5 Surrogate Recovery (%)	117			

**SPECTRUM ANALYTICAL, INC.**  
Laboratory Report

FINAL  
DISCHARGE

Client ID: GW-DISCH  
Lab ID No: AB27190

Location: Aaron & Sons - BIW - Benn, VT  
Client Job No: 98057

Matrix Water  
Sampled on 12/01/98 by MAXYMILLIAN  
Received on 12/04/98 by DDR  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

**Volatile Organics**  
EPA Method 502.2-SW846 8021

Parameter for AB27190	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	0.68	0.5	12/14/98	CH
Bromobenzene	Not detected	0.5	12/14/98	CH
Bromochloromethane	Not detected	0.5	12/14/98	CH
Bromodichloromethane	Not detected	0.5	12/14/98	CH
Bromoform	Not detected	0.5	12/14/98	CH
Bromomethane	Not detected	0.5	12/14/98	CH
n-Butylbenzene	12	0.5	12/14/98	CH
sec-Butylbenzene	2.5	0.5	12/14/98	CH
tert-Butylbenzene	Not detected	0.5	12/14/98	CH
Carbon tetrachloride	Not detected	0.5	12/14/98	CH
Chlorobenzene	Not detected	0.5	12/14/98	CH
Chloroethane	Not detected	0.5	12/14/98	CH
Chloroform	Not detected	0.5	12/14/98	CH
Chloromethane	Not detected	0.5	12/14/98	CH
2-Chlorotoluene	Not detected	0.5	12/14/98	CH
4-Chlorotoluene	Not detected	0.5	12/14/98	CH
Dibromochloromethane	Not detected	0.5	12/14/98	CH
1,2-Dibromo-3-chloropropane	Not detected	0.5	12/14/98	CH
1,2-Dibromoethane	Not detected	0.5	12/14/98	CH
Dibromomethane	Not detected	0.5	12/14/98	CH
1,2-Dichlorobenzene	Not detected	0.5	12/14/98	CH
1,3-Dichlorobenzene	Not detected	0.5	12/14/98	CH
1,4-Dichlorobenzene	Not detected	0.5	12/14/98	CH
Dichlorodifluoromethane	Not detected	0.5	12/14/98	CH
1,1-Dichloroethane	Not detected	0.5	12/14/98	CH
1,2-Dichloroethane	Not detected	0.5	12/14/98	CH
1,1-Dichloroethene	Not detected	0.5	12/14/98	CH
cis-1,2-Dichloroethene	Not detected	0.5	12/14/98	CH
trans-1,2-Dichloroethene	Not detected	0.5	12/14/98	CH
1,2-Dichloropropane	Not detected	0.5	12/14/98	CH
1,3-Dichloropropane	Not detected	0.5	12/14/98	CH
2,2-Dichloropropane	Not detected	0.5	12/14/98	CH
1,1-Dichloropropene	Not detected	0.5	12/14/98	CH
cis-1,3-Dichloropropene	Not detected	0.5	12/14/98	CH

Volatile Organics  
EPA Method 502.2-SWS46 8021

Parameter for AB27190	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	12/14/98	CH
Ethylbenzene	8.3	0.5	12/14/98	CH
Hexachlorobutadiene	Not detected	0.5	12/14/98	CH
Isopropylbenzene	2.8	0.5	12/14/98	CH
4-Isopropyltoluene	1.3	0.5	12/14/98	CH
Methylene chloride	Not detected	0.5	12/14/98	CH
Naphthalene	8.6	0.5	12/14/98	CH
Propylbenzene	7.7	0.5	12/14/98	CH
Styrene	Not detected	0.5	12/14/98	CH
1,1,1,2-Tetrachloroethane	Not detected	0.5	12/14/98	CH
1,1,2,2-Tetrachloroethane	Not detected	0.5	12/14/98	CH
Tetrachloroethene	21	0.5	12/14/98	CH
Toluene	5.4	0.5	12/14/98	CH
1,2,3-Trichlorobenzene	Not detected	0.5	12/14/98	CH
1,2,4-Trichlorobenzene	Not detected	0.5	12/14/98	CH
1,1,1-Trichloroethane	Not detected	0.5	12/14/98	CH
1,1,2-Trichloroethane	Not detected	0.5	12/14/98	CH
Trichloroethene	Not detected	0.5	12/14/98	CH
Trichlorofluoromethane	Not detected	0.5	12/14/98	CH
1,2,3-Trichloropropane	Not detected	0.5	12/14/98	CH
1,2,4-Trimethylbenzene	100	0.5	12/14/98	CH
1,3,5-Trimethylbenzene	36	0.5	12/14/98	CH
Vinyl chloride	Not detected	0.5	12/14/98	CH
o-Xylene	33	0.5	12/14/98	CH
m,p-Xylenes	78	1.0	12/14/98	CH
Methyl-t-butyl ether	2.7	0.5	12/14/98	CH
Surrogate compound recovery(%):			12/14/98	CH
BFB Surrogate Recovery (%)	128		12/14/98	CH
CLB-d5 Surrogate Recovery (%)	121			

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-1  
SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/26/99 COMPLETED: 8/26/99

SAMPLING						Sample Description	Stratum Change General Descr.	Equipment Installed	PID Readings	Remarks
Depth	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	6,11,10,5	24/12	21	Wet, light brown, medium dense, medium to coarse sand and gravel.			0	
10	2	10 - 12	9,13,20,18	24/10	33	Wet, dense, light brown, coarse sand with trace medium gravel.			0	
15										
20										
25										
30										
35										
40										

REMARKS:  
Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser.  
Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-2  
SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT:~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/26/99 COMPLETED: 8/26/99

<del>SAMPLING</del>						Sample- Description	Stratum Change General Descr.	Equipment Installed	PID Readings	R m k s
Depth	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	9,17,14,12	24/8	31	Wet, dense, orange/brown, medium sand and gravel with trace silt.			0	
10	2	10 - 12	23,11,22,40	24/6	33	Same.			0	
15										
20										
25										
30										
35										
40										

REMARKS:

Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser.  
Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-3  
SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/26/99 COMPLETED: 8/26/99

Depth	SAMPLING					Sample Description	Stratum Change General Descr.	Equipment Installed	PID Readings	Remarks
	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	6,21,10,17	24/8	31	Wet, dense, grey/brown medium sand with trace gravel over orange/brown coarse sand and gravel.			0	
10	2	10 - 12	14,9,10,9	24/12	19	Wet, medium dense, orange/brown, coarse sand and gravel.			0	
15										
20										
25										
30										
35										
40										

REMARKS:

Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser.  
Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-4  
SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/27/99 COMPLETED: 8/27/99

SAMPLING						Sample Description	Stratum Change General Descr.	Equipment Installed	PID Readings	Remarks
Depth	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	7,7,13,14	24/8	20	Wet, medium dense, light brown medium sand and gravel over grey fine sand with trace silt.			9	
10	2	10 - 12	8,25,25,28	24/10	50	Wet, very dense, light brown coarse sand and gravel.			5.5	
15										
20										
25										
30										
35										
40										

REMARKS:

Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser.  
Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-5  
SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/27/99 COMPLETED: 8/27/99

Depth	SAMPLING					Sample Description	Stratum Change General Descr.	Equipment Installed	PID Readings	Remarks
	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	10,11,23,20	24/8	34	Wet, dense, light brown, medium to coarse sand and gravel.			0	
10	2	10 - 12	11,20,20,13	24/10	40	Wet, dense, dark brown, medium to coarse sand and gravel.			0	
15										
20										
25										
30										
35										
40										

REMARKS:  
Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser.  
Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.

**MAXYMILLIAN**  
Technologies

1801 East Street  
Pittsfield, MA 01201

**TEST BORING LOG**

REPORT OF BORING NO.: MW-6

SHEET 1 OF 1

PROJECT LOCATION: BENNINGTON IRON WORKS  
BENNINGTON, VT  
CLIENT: AARON & SONS  
FILE NO.: 99159

~~SAMPLING EQUIPMENT~~  
TYPE: Split Spoon  
HAMMER: 140 lbs.  
FALL: 30 inches

GROUND WATER  
DATE: DEPTH:  
DATE: DEPTH:  
DATE: DEPTH:

BORING CO: MT  
FOREMAN: R. MASON  
GEOLOGIST: T. CZELUSNIAK

BORING LOCATION:  
SURFACE ELEVATION:  
DATE STARTED: 8/27/99 COMPLETED: 8/27/99

**SAMPLING**

Depth	SAMPLING					Sample Description	Stratum Change General Descr.	Equipment Installed	PID Readings	Remarks
	No.	Depth	Blows/6"	Penet/ Recovery	"N" Value					
5	1	5 - 7	6,8,17,13	24/6	25	Wet, medium dense, brown, fine sand with trace silt and gravel.			0	
10	2	10 - 12	15,7,12,8	24/6	19	Wet, medium dense, light brown, medium to coarse sand and gravel.			0	
15										
20										
25										
30										
35										
40										

REMARKS:

Installed 2" ID PVC monitoring well at 13' with 10' slotted (.010") screen and approximately 6' of solid riser. Well sand from 13' to 2.5', bentonite from 2.5' to 1.5', cuttings from 1.5' to 0.5'. Installed locking standpipe and concrete seal at surface.



State of Vermont

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Waste Management Division  
103 South Main Street/West Office  
Waterbury, Vermont 05671-0404  
(802) 241-3888  
FAX (802) 241-3296

December 24, 1998

MR CURTIS MORIN  
BENNINGTON IRON WORKS  
BENNINGTON VERMONT 05201

RE: Chlorinated Solvent Contamination at Bennington Iron Works, Bennington, Vermont (SMS Site # 98-2482)

Dear Mr. Morin:

The Vermont Department of Environmental Conservation, Sites Management Section (SMS) has received and reviewed the tank de-watering discharge results and drinking water results from surrounding water supplies taken by Aaron & Sons as part of ongoing work to further characterize the degree and extent of petroleum contamination at the Bennington Iron Works facility. The results of these samples showed low levels of petroleum contamination in groundwater being discharged during de-watering activities and in groundwater under the Bennington Iron Works (BIW) site. Of greater concern to the SMS is that in addition to these low levels of petroleum contamination, chlorinated solvents (namely tetrachloroethane and lower levels of trichloroethene) were identified in the tank excavation de-watering discharge and in two private water supplies located next to the BIW site.

Based on these findings, the SMS requests that BIW expand the planned current investigation to include the determination of the source of these chlorinated solvents. This work may include a review of historic use of these chemicals on the site as well as additional borings/monitoring wells to further investigate the source of this contamination. If BIW can show that the source of this contamination is coming on to the BIW site via groundwater migration from another up gradient source, then the SMS will not require BIW to perform any additional investigation into the source, degree, or extent of this contamination. Otherwise, the SMS may require additional mitigation of the source of this contamination.

Please have your consultant modify the existing work plan as appropriate to investigate this matter. Unfortunately, because chlorinated solvents are not motor fuels stored in tanks, the Vermont Petroleum Cleanup Fund (PCF) may not be accessed to assist with this investigation. However, the work proposed in Aaron & Sons October 26, 1998 work plan will be covered by the PCF up to the allowable limits I outlined in my response to Aaron & Sons work plan and cost estimate. The SMS has recently re-sampled the two known affected water supplies (Andrews and Mulvey residence). We will be sampling the other water supplies located at residences along Buckley Drive in the near future. We will forward the results of these sampling rounds to you once they become available.

The SMS requests that you initiate this work at your earliest convenience. Please feel free to contact me at (802) 241-3880 should you have any questions.

Sincerely,  
*Richard Spiese*  
Richard Spiese, Site Manager  
Sites Management Section

rfs/122482.098  
cc: Toni King, Aaron & Sons  
Terrance Morse, Bennington Water/Wastewater Superintendent

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-1  
 Sample Location: BENNINGTON IRON WORKS Date: 9/8/99 Time: 0950  
 Sampled By: T. CZELUSNIAK  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>6.10</u>	Riser	<input checked="" type="checkbox"/>	Casing	<u>—</u>
Total Well Depth:	<u>15.70</u>	Riser	<input checked="" type="checkbox"/>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>9.60</u>				
Volume of Water in Well					
0.75" diameter wells = 0.023 x LWC =	<u>—</u>				gallons
1" diameter wells = 0.041 x LWC =	<u>—</u>				gallons
1.25" diameter wells = 0.064 x LWC =	<u>—</u>				gallons
1.5" diameter wells = 0.092 x LWC =	<u>—</u>				gallons
2" diameter wells = 0.163 x LWC =	<u>1.5</u>				gallons
3" diameter wells = 0.367 x LWC =	<u>—</u>				gallons
4" diameter wells = 0.653 x LWC =	<u>—</u>				gallons
6" diameter wells = 1.469 x LWC =	<u>—</u>				gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 5 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: BROWN Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature: — pH: — Conductivity: —

ANALYSES

8021B — —  
— — —  
— — —

COMMENTS

BAILER LEFT HANGING IN WELL

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-2  
 Sample Location: BENNINGTON IRON WORKS  
 Sampled By: T. CZELUSNIAK Date: 9/8/99 Time: 0940  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>7.71</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Total Well Depth:	<u>15.75</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>8.04</u>				
Volume of Water in Well					
0.75" diameter wells = 0.023 x LWC =	<u>          </u>				gallons
1" diameter wells = 0.041 x LWC =	<u>          </u>				gallons
1.25" diameter wells = 0.064 x LWC =	<u>          </u>				gallons
1.5" diameter wells = 0.092 x LWC =	<u>          </u>				gallons
2" diameter wells = 0.163 x LWC =	<u>          </u>		<u>1.3</u>		gallons
3" diameter wells = 0.367 x LWC =	<u>          </u>				gallons
4" diameter wells = 0.653 x LWC =	<u>          </u>				gallons
6" diameter wells = 1.469 x LWC =	<u>          </u>				gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 4 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: ORANGE Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature:            pH:            Conductivity:           

ANALYSES

8021B  
            
          

COMMENTS

BAILER LEFT HANGING IN WELL

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-3  
 Sample Location: BENNINGTON IRON WORKS Date: 9/8/99 Time: 1015  
 Sampled By: T. CZELUSNIAK  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>8.45</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Total Well Depth:	<u>15.70</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>7.25</u>				
Volume of Water in Well					
0.75" diameter wells = 0.023 x LWC =	<u>—</u>				gallons
1" diameter wells = 0.041 x LWC =	<u>—</u>				gallons
1.25" diameter wells = 0.064 x LWC =	<u>—</u>				gallons
1.5" diameter wells = 0.092 x LWC =	<u>—</u>				gallons
2" diameter wells = 0.163 x LWC =	<u>1.2</u>				gallons
3" diameter wells = 0.367 x LWC =	<u>—</u>				gallons
4" diameter wells = 0.653 x LWC =	<u>—</u>				gallons
6" diameter wells = 1.469 x LWC =	<u>—</u>				gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 4 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: BROWN Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature: — pH: — Conductivity: —

ANALYSES

8021B  
—  
—

COMMENTS

BAILER LEFT HANGING IN WELL

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-4  
 Sample Location: BENNINGTON IRON WORKS  
 Sampled By: T. CZELUSNIAK Date: 9/8/99 Time: 1045  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>9.61</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Total Well Depth:	<u>15.78</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>6.17</u>				
Volume of Water in Well					

0.75" diameter wells = 0.023 x LWC = \_\_\_\_\_ gallons  
 1" diameter wells = 0.041 x LWC = \_\_\_\_\_ gallons  
 1.25" diameter wells = 0.064 x LWC = \_\_\_\_\_ gallons  
 1.5" diameter wells = 0.092 x LWC = \_\_\_\_\_ gallons  
 2" diameter wells = 0.163 x LWC = 1 gallons  
 3" diameter wells = 0.367 x LWC = \_\_\_\_\_ gallons  
 4" diameter wells = 0.653 x LWC = \_\_\_\_\_ gallons  
 6" diameter wells = 1.469 x LWC = \_\_\_\_\_ gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 3 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: BROWN Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature: \_\_\_\_\_ pH: \_\_\_\_\_ Conductivity: \_\_\_\_\_

ANALYSES

8021B  
 \_\_\_\_\_  
 \_\_\_\_\_

COMMENTS

BAILER LEFT HANGING IN WELL

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-5  
 Sample Location: BENNINGTON IRON WORKS Date: 9/8/99 Time: 1050  
 Sampled By: T. CZELUSNIAK  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>10.73</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Total Well Depth:	<u>15.65</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>4.92</u>				
Volume of Water in Well					
	0.75" diameter wells = 0.023 x LWC =				gallons
	1" diameter wells = 0.041 x LWC =				gallons
	1.25" diameter wells = 0.064 x LWC =				gallons
	1.5" diameter wells = 0.092 x LWC =				gallons
	2" diameter wells = 0.163 x LWC =		<u>0.8</u>		gallons
	3" diameter wells = 0.367 x LWC =				gallons
	4" diameter wells = 0.653 x LWC =				gallons
	6" diameter wells = 1.469 x LWC =				gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 3 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: ORANGE Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature: \_\_\_\_\_ pH: \_\_\_\_\_ Conductivity: \_\_\_\_\_

ANALYSES

8021B \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COMMENTS

BAILER LEFT HANGING IN WELL

GROUNDWATER SAMPLING FIELD LOG



Client: AARON + SONS Job No. 99159 Well No. MW-6  
 Sample Location: BENNINGTON IRON WORKS  
 Sampled By: T. CZELUSNIAK Date: 9/8/99 Time: 1020  
 Sampling Method: BAILER  
 Weather: PARTLY CLOUDY 75°

WATER TABLE

Depth to LNAPL:	<u>—</u>	Riser	<u>—</u>	Casing	<u>—</u>
Depth to Groundwater:	<u>9.91</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Total Well Depth:	<u>15.70</u>	Riser	<u>✓</u>	Casing	<u>—</u>
Length of Water Column (LWC):	<u>5.79</u>				
Volume of Water in Well					
0.75" diameter wells = 0.023 x LWC =	<u>—</u>				gallons
1" diameter wells = 0.041 x LWC =	<u>—</u>				gallons
1.25" diameter wells = 0.064 x LWC =	<u>—</u>				gallons
1.5" diameter wells = 0.092 x LWC =	<u>—</u>				gallons
2" diameter wells = 0.163 x LWC =	<u>0.9</u>				gallons
3" diameter wells = 0.367 x LWC =	<u>—</u>				gallons
4" diameter wells = 0.653 x LWC =	<u>—</u>				gallons
6" diameter wells = 1.469 x LWC =	<u>—</u>				gallons

PHYSICAL APPEARANCE AT START

Color: CLEAR Odor: NO Turbidity: VERY LOW  
 Was an Oil Film or Layer apparent? NO

PREPARATION OF WELL FOR SAMPLING

Amount of Water Removed Before Sampling: 3 gallons  
 Did Well Go Dry? NO

PHYSICAL APPEARANCE DURING SAMPLING

Color: ORANGE Odor: NO Turbidity: HIGH  
 Was an Oil Film or Layer Apparent? NO

PARAMETERS

Temperature: — pH: — Conductivity: —

ANALYSES

8021B  
—  
—

COMMENTS

BAILER LEFT HANGING IN WELL

**WATER QUALITY RESULTS**

**Bennington Iron Works**

Bennington, Vermont

Well	Lab	Test	Compound	Units	VGES[1]	VAL/VHA[2]	MCL[2]	12/01/98	12/21/98	12/29/98	03/26/99	04/07/99	05/05/99	09/08/99
MW-01	SAI	502.2	Tetrachloroethene	ug/l	5									ND / < 1
			All other parameters											
MW-02	SAI	502.2	Tetrachloroethene	ug/l	5									7.2
			All other parameters											
MW-03	SAI	502.2	Tetrachloroethene	ug/l	5									0.77
			All other parameters											
MW-04	SAI	502.2	Tetrachloroethene	ug/l	5									0.74
			All other parameters											
MW-05	SAI	502.2	Tetrachloroethene	ug/l	5									ND
			All other parameters											
MW-06	SAI	502.2	Tetrachloroethene	ug/l	5									8.6
			All other parameters											
Percey	DEC	8260	Tetrachloroethene	ug/l		0.7	5						ND	ND
			All other parameters										ND	ND
Metcalfe	DEC	8260	Tetrachloroethene	ug/l		0.7	5						ND	ND
			MTBE	ug/l		40							1.0	1.0
			All other parameters										ND	ND
Miller	DEC	8260	Tetrachloroethene	ug/l		0.7	5				6.0		4.0	
			All other parameters									ND		ND
W. Andrews	DEC[3]	8260	Tetrachloroethene	ug/l		0.7	5	8.0	5.0[4]			3.0	4.0	
			All other parameters					ND	ND			ND	ND	
Johnson	DEC	8260	Tetrachloroethene	ug/l		0.7	5				ND	ND	ND	ND
			MTBE	ug/l		40					ND	3.0		4.0
			All other parameters								ND	ND		ND
Mulvey	DEC[3]	8260	Tetrachloroethene	ug/l		0.7	5	6.4	4.0					3.0
			Trichloroethene	ug/l					0.72	ND				ND
			All other parameters						ND	ND				ND
Cummings	DEC	8260	Tetrachloroethene	ug/l		0.7	5				ND	ND	ND	ND
			All other parameters								ND	ND		ND
Willene/Martin	DEC	8260	Tetrachloroethene	ug/l		0.7	5				1.0	1.0		2.0
			All other parameters								ND	ND		ND
Carpenter	DEC	8260	Tetrachloroethene	ug/l		0.7	5				ND	ND		ND
			MTBE	ug/l		40					4.0	2.0		2.0
			All other parameters							ND	ND		ND	
A. Watson	DEC	8260	Tetrachloroethene	ug/l		0.7	5							ND
			All other parameters											ND
T. Watson	DEC	8260	Tetrachloroethene	ug/l		0.7	5							ND
			All other parameters											ND
R. Andrews	DEC	8260	Tetrachloroethene	ug/l		0.7	5							ND
			All other parameters											ND

[1] Vermont Groundwater Protection Rule and Strategy, November 1997

[2] Vermont Drinking Water Guidance, December 1998.

[3] The 12/1/98 sample was analyzed at SAI for 8021B

[4] = sampled at well, sample from tap = 3.0 ppb

Lab: DEC = State of Vermont Agency of Natural Resources; SAI = Spectrum Analytical, Inc

Blank = Not Sampled on this date

Note: Shaded values exceed VT Groundwater Enforcement Standard in monitor wells and VT Action Levels in drinking water supply wells.

U:\PROJECTS\Benningtonironworks\Wq\GW quality



1801 EAST STREET  
PITTSFIELD, MA 01201  
413 499-3050  
FAX 413 443-0511

# Technical Report

PROJECT NAME & NUMBER: Bennington Iron Works

prepared for

Maxymillian Technologies, Inc.  
1801 East Street  
Pittsfield, MA 01201

Attention: T. Czelusniak

September 23, 1999



Issue Date  
23 Sept.99

Report Number  
1999/Maxy/BennIronWorks/090899

## LABORATORY SERVICES TECHNICAL REPORT

### PREPARED FOR:

Maxymillian Technologies, Inc.  
1801 East Street  
Pittsfield, MA 01201  
(413) 499-3050

PROJECT: Bennington Iron Works

ATTENTION: T. Czelusniak

Six (6) water samples for 8021B VOCs analysis and one (1) Trip Bank were received by the Maxymillian Technologies' Analytical Laboratory on September 8, 1999. A ten (10) business day turnaround time was requested.

All samples were analyzed within the method specified maximum allowed holding times. All quality control was within laboratory determined acceptable limits.

8021B VOCs samples were analyzed at *Spectrum Analytical, Inc.* Agawam, MA.

All samples are analyzed by EPA approved methodologies. The MT analytical laboratory is a MA DEP and NY DOH certified testing facility.

MA Certification Number      M-MA 146

NY Certification Number      11477

Report Reviewed By:

Date:

9/23/99

John M. Massimiano  
Laboratory Director



Issue Date  
23 Sept.99

Report Number  
1999/Maxy/BennIronWorks/090899

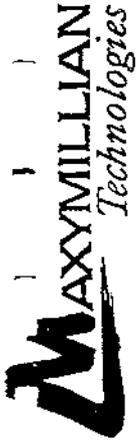
### SAMPLE RECEPTION INFORMATION

Project: Bennington Iron Works  
Purchase Order:  
Requested TAT: 10 Business Days

Quantity	Matrix	Analysis Method	Description	Collection Date	Preservative
6	Water	8021B	VOCs	08 September 99	Cool 4° C/HCl
1	Trip Blank	8021B	VOCs	08 September 99	Cool 4° C/HCl

Samples inspected upon receipt by:  
LM

Date Received  
08 September 99



# CHAIN OF CUSTODY RECORD

Client: MIT  
 Date: 9/18/99  
 Report To: T. Czelusniak  
 Address: \_\_\_\_\_  
 Telephone: \_\_\_\_\_

Project Name: Bennington Iron Works  
 Project Number: 99159  
 Address: Bennington, VT  
 Date Samples Collected: 9/18/99  
 By: TCC

ID#	Sampling Information			Analysis Required	# Of Cont.	Type of Cont.	Pres.	Comments: (special instruction, cautions, etc.)
	Date	Time	Location					
MW-1	9/18/99	0950	well	SOAIB	2	40ml	HEC	
MW-2	"	0940	"	"	"	"	"	
MW-3	"	1015	"	"	"	"	"	
MW-4	"	1045	"	"	"	"	"	
MW-5	"	1050	"	"	"	"	"	
MW-6	"	1020	"	"	"	"	"	
TB-1	"	0730	"	"	1	"	"	

Relinquished by: [Signature] Date: 9/18/99  
 Received by: [Signature] Date: 9/18/99  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Turnaround: 24 hrs. \_\_\_\_\_ 48 hrs. \_\_\_\_\_ 1 week \_\_\_\_\_ 2 weeks \_\_\_\_\_ 4 weeks \_\_\_\_\_ Other \_\_\_\_\_

REMARKS: (special instructions, sample storage, non-standard sample bottles, etc.)



SPECTRUM ANALYTICAL, INC.

Massachusetts Certification M-MA 138  
Connecticut Approval # PH 0777  
Rhode Island # 98 & Maine # n/a  
New Hampshire ID # 2538  
New York ID #11393  
Florida HRS87448

Maxymillian Technologies  
86 South Main Street  
Lanesboro, MA 01237

September 21, 1999

Attn: John Massimiano

Client Project No.: 99159

Location: Bennington Iron Works

<u>Lab ID No.</u>	<u>Client ID</u>	<u>Analysis Requested</u>
AB56204	MW-1	Aromatic and Halogenated VOCs
AB56205	MW-2	Aromatic and Halogenated VOCs
AB56206	MW-3	Aromatic and Halogenated VOCs
AB56207	MW-4	Aromatic and Halogenated VOCs
AB56208	MW-5	Aromatic and Halogenated VOCs
AB56209	MW-6	Aromatic and Halogenated VOCs
AB56210	TB-1	Aromatic and Halogenated VOCs

Authorized by

Hanibal Tayeh  
President/Laboratory Director

ENVIRONMENTAL ANALYSES

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-1  
Lab ID No: AB56204

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56204	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	09/17/99	DG
Bromobenzene	Not detected	1.0	09/17/99	DG
Bromochloromethane	Not detected	1.0	09/17/99	DG
Bromodichloromethane	Not detected	1.0	09/17/99	DG
Bromoform	Not detected	1.0	09/17/99	DG
Bromomethane	Not detected	1.0	09/17/99	DG
n-Butylbenzene	Not detected	1.0	09/17/99	DG
sec-Butylbenzene	Not detected	1.0	09/17/99	DG
tert-Butylbenzene	Not detected	1.0	09/17/99	DG
Carbon tetrachloride	Not detected	1.0	09/17/99	DG
Chlorobenzene	Not detected	1.0	09/17/99	DG
Chloroethane	Not detected	1.0	09/17/99	DG
Chloroform	Not detected	1.0	09/17/99	DG
Chloromethane	Not detected	1.0	09/17/99	DG
2-Chlorotoluene	Not detected	1.0	09/17/99	DG
4-Chlorotoluene	Not detected	1.0	09/17/99	DG
Dibromochloromethane	Not detected	1.0	09/17/99	DG
1,2-Dibromo-3-chloropropane	Not detected	1.0	09/17/99	DG
1,2-Dibromoethane	Not detected	1.0	09/17/99	DG
Dibromomethane	Not detected	1.0	09/17/99	DG
1,2-Dichlorobenzene	Not detected	1.0	09/17/99	DG
1,3-Dichlorobenzene	Not detected	1.0	09/17/99	DG
1,4-Dichlorobenzene	Not detected	1.0	09/17/99	DG
Dichlorodifluoromethane	Not detected	1.0	09/17/99	DG
1,1-Dichloroethane	Not detected	1.0	09/17/99	DG
1,2-Dichloroethane	Not detected	1.0	09/17/99	DG
1,1-Dichloroethene	Not detected	1.0	09/17/99	DG
cis-1,2-Dichloroethene	Not detected	1.0	09/17/99	DG
trans-1,2-Dichloroethene	Not detected	1.0	09/17/99	DG
1,2-Dichloropropane	Not detected	1.0	09/17/99	DG
1,3-Dichloropropane	Not detected	1.0	09/17/99	DG
2,2-Dichloropropane	Not detected	1.0	09/17/99	DG
1,1-Dichloropropene	Not detected	1.0	09/17/99	DG
cis-1,3-Dichloropropene	Not detected	1.0	09/17/99	DG

Volatile Organics  
EPA Method 502.2-SW846 8021

Parameter for AB56204	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	1.0	09/17/99	DG
Ethylbenzene	Not detected	1.0	09/17/99	DG
Hexachlorobutadiene	Not detected	1.0	09/17/99	DG
Isopropylbenzene	Not detected	1.0	09/17/99	DG
4-Isopropyltoluene	Not detected	1.0	09/17/99	DG
Methylene chloride	Not detected	2.5	09/17/99	DG
Naphthalene	Not detected	1.5	09/17/99	DG
Propylbenzene	Not detected	1.0	09/17/99	DG
Styrene	Not detected	1.0	09/17/99	DG
1,1,1,2-Tetrachloroethane	Not detected	1.0	09/17/99	DG
1,1,2,2-Tetrachloroethane	Not detected	1.0	09/17/99	DG
Tetrachloroethene	Not detected	1.0	09/17/99	DG
Toluene	Not detected	1.0	09/17/99	DG
1,2,3-Trichlorobenzene	Not detected	1.0	09/17/99	DG
1,2,4-Trichlorobenzene	Not detected	1.0	09/17/99	DG
1,1,1-Trichloroethane	Not detected	1.0	09/17/99	DG
1,1,2-Trichloroethane	Not detected	1.0	09/17/99	DG
Trichloroethene	Not detected	1.0	09/17/99	DG
Trichlorofluoromethane	Not detected	1.0	09/17/99	DG
1,2,3-Trichloropropane	Not detected	1.0	09/17/99	DG
1,2,4-Trimethylbenzene	Not detected	1.0	09/17/99	DG
1,3,5-Trimethylbenzene	Not detected	1.0	09/17/99	DG
Vinyl chloride	Not detected	1.0	09/17/99	DG
o-Xylene	Not detected	1.0	09/17/99	DG
m,p-Xylenes	Not detected	2.0	09/17/99	DG
Methyl-t-butyl ether	Not detected	1.0	09/17/99	DG
BFB Surrogate Recovery (%)	95	0.00	09/17/99	DG
CLB-d5 Surrogate Recovery (%)	100	0.00	09/17/99	DG

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-2  
Lab ID No: AB56205

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56205	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	09/17/99	DG
Bromobenzene	Not detected	0.5	09/17/99	DG
Bromochloromethane	Not detected	0.5	09/17/99	DG
Bromodichloromethane	Not detected	0.5	09/17/99	DG
Bromoform	Not detected	0.5	09/17/99	DG
Bromomethane	Not detected	0.5	09/17/99	DG
n-Butylbenzene	Not detected	0.5	09/17/99	DG
sec-Butylbenzene	Not detected	0.5	09/17/99	DG
tert-Butylbenzene	Not detected	0.5	09/17/99	DG
Carbon tetrachloride	Not detected	0.5	09/17/99	DG
Chlorobenzene	Not detected	0.5	09/17/99	DG
Chloroethane	Not detected	0.5	09/17/99	DG
Chloroform	Not detected	0.5	09/17/99	DG
Chloromethane	Not detected	0.5	09/17/99	DG
2-Chlorotoluene	Not detected	0.5	09/17/99	DG
4-Chlorotoluene	Not detected	0.5	09/17/99	DG
Dibromochloromethane	Not detected	0.5	09/17/99	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/17/99	DG
1,2-Dibromoethane	Not detected	0.5	09/17/99	DG
Dibromomethane	Not detected	0.5	09/17/99	DG
1,2-Dichlorobenzene	Not detected	0.5	09/17/99	DG
1,3-Dichlorobenzene	Not detected	0.5	09/17/99	DG
1,4-Dichlorobenzene	Not detected	0.5	09/17/99	DG
Dichlorodifluoromethane	Not detected	0.5	09/17/99	DG
1,1-Dichloroethane	Not detected	0.5	09/17/99	DG
1,2-Dichloroethane	Not detected	0.5	09/17/99	DG
1,1-Dichloroethene	Not detected	0.5	09/17/99	DG
cis-1,2-Dichloroethene	Not detected	0.5	09/17/99	DG
trans-1,2-Dichloroethene	Not detected	0.5	09/17/99	DG
1,2-Dichloropropane	Not detected	0.5	09/17/99	DG
1,3-Dichloropropane	Not detected	0.5	09/17/99	DG
2,2-Dichloropropane	Not detected	0.5	09/17/99	DG
1,1-Dichloropropene	Not detected	0.5	09/17/99	DG
cis-1,3-Dichloropropene	Not detected	0.5	09/17/99	DG

Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56205	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/17/99	DG
Ethylbenzene	Not detected	0.5	09/17/99	DG
Hexachlorobutadiene	Not detected	0.5	09/17/99	DG
Isopropylbenzene	Not detected	0.5	09/17/99	DG
4-Isopropyltoluene	Not detected	0.5	09/17/99	DG
Methylene chloride	Not detected	0.5	09/17/99	DG
Naphthalene	Not detected	0.5	09/17/99	DG
Propylbenzene	Not detected	0.5	09/17/99	DG
Styrene	Not detected	0.5	09/17/99	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/17/99	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/17/99	DG
Tetrachloroethene	7.2	0.5	09/17/99	DG
Toluene	Not detected	0.5	09/17/99	DG
1,2,3-Trichlorobenzene	Not detected	0.5	09/17/99	DG
1,2,4-Trichlorobenzene	Not detected	0.5	09/17/99	DG
1,1,1-Trichloroethane	Not detected	0.5	09/17/99	DG
1,1,2-Trichloroethane	Not detected	0.5	09/17/99	DG
Trichloroethene	Not detected	0.5	09/17/99	DG
Trichlorofluoromethane	Not detected	0.5	09/17/99	DG
1,2,3-Trichloropropane	Not detected	0.5	09/17/99	DG
1,2,4-Trimethylbenzene	Not detected	0.5	09/17/99	DG
1,3,5-Trimethylbenzene	Not detected	0.5	09/17/99	DG
Vinyl chloride	Not detected	0.5	09/17/99	DG
o-Xylene	Not detected	0.5	09/17/99	DG
m,p-Xylenes	Not detected	1.0	09/17/99	DG
Methyl-t-butyl ether	Not detected	0.5	09/17/99	DG
BFB Surrogate Recovery (%)	105		09/17/99	DG
CLB-d5 Surrogate Recovery (%)	96		09/17/99	DG

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-3  
Lab ID No: AB56206

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56206	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	09/17/99	CH
Bromobenzene	Not detected	0.5	09/17/99	CH
Bromochloromethane	Not detected	0.5	09/17/99	CH
Bromodichloromethane	Not detected	0.5	09/17/99	CH
Bromoform	Not detected	0.5	09/17/99	CH
Bromomethane	Not detected	0.5	09/17/99	CH
n-Butylbenzene	Not detected	0.5	09/17/99	CH
sec-Butylbenzene	Not detected	0.5	09/17/99	CH
tert-Butylbenzene	Not detected	0.5	09/17/99	CH
Carbon tetrachloride	Not detected	0.5	09/17/99	CH
Chlorobenzene	Not detected	1.0	09/17/99	CH
Chloroethane	Not detected	0.5	09/17/99	CH
Chloroform	Not detected	0.5	09/17/99	CH
Chloromethane	Not detected	0.5	09/17/99	CH
2-Chlorotoluene	Not detected	0.5	09/17/99	CH
4-Chlorotoluene	Not detected	0.5	09/17/99	CH
Dibromochloromethane	Not detected	0.5	09/17/99	CH
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/17/99	CH
1,2-Dibromoethane	Not detected	0.5	09/17/99	CH
Dibromomethane	Not detected	0.5	09/17/99	CH
1,2-Dichlorobenzene	Not detected	0.5	09/17/99	CH
1,3-Dichlorobenzene	Not detected	0.5	09/17/99	CH
1,4-Dichlorobenzene	Not detected	0.5	09/17/99	CH
Dichlorodifluoromethane	Not detected	0.5	09/17/99	CH
1,1-Dichloroethane	Not detected	0.5	09/17/99	CH
1,2-Dichloroethane	Not detected	0.5	09/17/99	CH
1,1-Dichloroethene	Not detected	1.0	09/17/99	CH
cis-1,2-Dichloroethene	Not detected	0.5	09/17/99	CH
trans-1,2-Dichloroethene	Not detected	0.5	09/17/99	CH
1,2-Dichloropropane	Not detected	0.5	09/17/99	CH
1,3-Dichloropropane	Not detected	0.5	09/17/99	CH
2,2-Dichloropropane	Not detected	0.5	09/17/99	CH
1,1-Dichloropropene	Not detected	0.5	09/17/99	CH
cis-1,3-Dichloropropene	Not detected	0.5	09/17/99	CH

Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56206	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/17/99	CH
Ethylbenzene	Not detected	0.5	09/17/99	CH
Hexachlorobutadiene	Not detected	0.5	09/17/99	CH
Isopropylbenzene	Not detected	0.5	09/17/99	CH
4-Isopropyltoluene	Not detected	0.5	09/17/99	CH
Methylene chloride	Not detected	0.5	09/17/99	CH
Naphthalene	Not detected	0.5	09/17/99	CH
Propylbenzene	Not detected	0.5	09/17/99	CH
Styrene	Not detected	0.5	09/17/99	CH
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/17/99	CH
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/17/99	CH
Tetrachloroethene	0.77	0.5	09/17/99	CH
Toluene	Not detected	1.0	09/17/99	CH
1,2,3-Trichlorobenzene	Not detected	0.5	09/17/99	CH
1,2,4-Trichlorobenzene	Not detected	0.5	09/17/99	CH
1,1,1-Trichloroethane	Not detected	0.5	09/17/99	CH
1,1,2-Trichloroethane	Not detected	0.5	09/17/99	CH
Trichloroethene	Not detected	1.0	09/17/99	CH
Trichlorofluoromethane	Not detected	0.5	09/17/99	CH
1,2,3-Trichloropropane	Not detected	0.5	09/17/99	CH
1,2,4-Trimethylbenzene	Not detected	0.5	09/17/99	CH
1,3,5-Trimethylbenzene	Not detected	0.5	09/17/99	CH
Vinyl chloride	Not detected	0.5	09/17/99	CH
o-Xylene	Not detected	0.5	09/17/99	CH
m,p-Xylenes	Not detected	1.0	09/17/99	CH
Methyl-t-butyl ether	Not detected	0.5	09/17/99	CH
BFB Surrogate Recovery (%)	90		09/17/99	CH
CLB-d5 Surrogate Recovery (%)	88		09/17/99	CH

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-4  
Lab ID No: AB56207

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56207	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	09/17/99	DG
Bromobenzene	Not detected	0.5	09/17/99	DG
Bromochloromethane	Not detected	0.5	09/17/99	DG
Bromodichloromethane	Not detected	0.5	09/17/99	DG
Bromoform	Not detected	0.5	09/17/99	DG
Bromomethane	Not detected	0.5	09/17/99	DG
n-Butylbenzene	Not detected	0.5	09/17/99	DG
sec-Butylbenzene	Not detected	0.5	09/17/99	DG
tert-Butylbenzene	Not detected	0.5	09/17/99	DG
Carbon tetrachloride	Not detected	0.5	09/17/99	DG
Chlorobenzene	Not detected	0.5	09/17/99	DG
Chloroethane	Not detected	0.5	09/17/99	DG
Chloroform	Not detected	0.5	09/17/99	DG
Chloromethane	Not detected	0.5	09/17/99	DG
2-Chlorotoluene	Not detected	0.5	09/17/99	DG
4-Chlorotoluene	Not detected	0.5	09/17/99	DG
Dibromochloromethane	Not detected	0.5	09/17/99	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/17/99	DG
1,2-Dibromoethane	Not detected	0.5	09/17/99	DG
Dibromomethane	Not detected	0.5	09/17/99	DG
1,2-Dichlorobenzene	Not detected	0.5	09/17/99	DG
1,3-Dichlorobenzene	Not detected	0.5	09/17/99	DG
1,4-Dichlorobenzene	Not detected	0.5	09/17/99	DG
Dichlorodifluoromethane	Not detected	0.5	09/17/99	DG
1,1-Dichloroethane	Not detected	0.5	09/17/99	DG
1,2-Dichloroethane	Not detected	0.5	09/17/99	DG
1,1-Dichloroethene	Not detected	0.5	09/17/99	DG
cis-1,2-Dichloroethene	Not detected	0.5	09/17/99	DG
trans-1,2-Dichloroethene	Not detected	0.5	09/17/99	DG
1,2-Dichloropropane	Not detected	0.5	09/17/99	DG
1,3-Dichloropropane	Not detected	0.5	09/17/99	DG
2,2-Dichloropropane	Not detected	0.5	09/17/99	DG
1,1-Dichloropropene	Not detected	0.5	09/17/99	DG
cis-1,3-Dichloropropene	Not detected	0.5	09/17/99	DG

Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56207	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/17/99	DG
Ethylbenzene	Not detected	0.5	09/17/99	DG
Hexachlorobutadiene	Not detected	0.5	09/17/99	DG
Isopropylbenzene	Not detected	0.5	09/17/99	DG
4-Isopropyltoluene	Not detected	0.5	09/17/99	DG
Methylene chloride	Not detected	0.5	09/17/99	DG
Naphthalene	Not detected	0.5	09/17/99	DG
Propylbenzene	Not detected	0.5	09/17/99	DG
Styrene	Not detected	0.5	09/17/99	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/17/99	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/17/99	DG
Tetrachloroethene	0.74	0.5	09/17/99	DG
Toluene	Not detected	0.5	09/17/99	DG
1,2,3-Trichlorobenzene	Not detected	0.5	09/17/99	DG
1,2,4-Trichlorobenzene	Not detected	0.5	09/17/99	DG
1,1,1-Trichloroethane	Not detected	0.5	09/17/99	DG
1,1,2-Trichloroethane	Not detected	0.5	09/17/99	DG
Trichloroethene	Not detected	0.5	09/17/99	DG
Trichlorofluoromethane	Not detected	0.5	09/17/99	DG
1,2,3-Trichloropropane	Not detected	0.5	09/17/99	DG
1,2,4-Trimethylbenzene	Not detected	0.5	09/17/99	DG
1,3,5-Trimethylbenzene	Not detected	0.5	09/17/99	DG
Vinyl chloride	Not detected	0.5	09/17/99	DG
o-Xylene	Not detected	0.5	09/17/99	DG
m,p-Xylenes	Not detected	1.0	09/17/99	DG
Methyl-t-butyl ether	Not detected	0.5	09/17/99	DG
BFB Surrogate Recovery (%)	101		09/17/99	DG
CLB-d5 Surrogate Recovery (%)	94		09/17/99	DG

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-5  
Lab ID No: AB56208

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56208	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	09/18/99	DG
Bromobenzene	Not detected	0.5	09/18/99	DG
Bromochloromethane	Not detected	0.5	09/18/99	DG
Bromodichloromethane	Not detected	0.5	09/18/99	DG
Bromoform	Not detected	0.5	09/18/99	DG
Bromomethane	Not detected	0.5	09/18/99	DG
n-Butylbenzene	Not detected	0.5	09/18/99	DG
sec-Butylbenzene	Not detected	0.5	09/18/99	DG
tert-Butylbenzene	Not detected	0.5	09/18/99	DG
Carbon tetrachloride	Not detected	0.5	09/18/99	DG
Chlorobenzene	Not detected	0.5	09/18/99	DG
Chloroethane	Not detected	0.5	09/18/99	DG
Chloroform	Not detected	0.5	09/18/99	DG
Chloromethane	Not detected	0.5	09/18/99	DG
2-Chlorotoluene	Not detected	0.5	09/18/99	DG
4-Chlorotoluene	Not detected	0.5	09/18/99	DG
Dibromochloromethane	Not detected	0.5	09/18/99	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/18/99	DG
1,2-Dibromoethane	Not detected	0.5	09/18/99	DG
Dibromomethane	Not detected	0.5	09/18/99	DG
1,2-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,3-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,4-Dichlorobenzene	Not detected	0.5	09/18/99	DG
Dichlorodifluoromethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethane	Not detected	0.5	09/18/99	DG
1,2-Dichloroethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethene	Not detected	0.5	09/18/99	DG
cis-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
trans-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
1,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,3-Dichloropropane	Not detected	0.5	09/18/99	DG
2,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,1-Dichloropropene	Not detected	0.5	09/18/99	DG
cis-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG

Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56208	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG
Ethylbenzene	Not detected	0.5	09/18/99	DG
Hexachlorobutadiene	Not detected	0.9	09/18/99	DG
Isopropylbenzene	Not detected	0.5	09/18/99	DG
4-Isopropyltoluene	Not detected	0.5	09/18/99	DG
Methylene chloride	Not detected	0.5	09/18/99	DG
Naphthalene	Not detected	0.5	09/18/99	DG
Propylbenzene	Not detected	0.5	09/18/99	DG
Styrene	Not detected	0.5	09/18/99	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
Tetrachloroethene	Not detected	0.5	09/18/99	DG
Toluene	Not detected	0.5	09/18/99	DG
1,2,3-Trichlorobenzene	Not detected	0.8	09/18/99	DG
1,2,4-Trichlorobenzene	Not detected	0.5	09/18/99	DG
1,1,1-Trichloroethane	Not detected	0.5	09/18/99	DG
1,1,2-Trichloroethane	Not detected	0.5	09/18/99	DG
Trichloroethene	Not detected	0.5	09/18/99	DG
Trichlorofluoromethane	Not detected	0.5	09/18/99	DG
1,2,3-Trichloropropane	Not detected	0.5	09/18/99	DG
1,2,4-Trimethylbenzene	Not detected	0.5	09/18/99	DG
1,3,5-Trimethylbenzene	Not detected	0.5	09/18/99	DG
Vinyl chloride	Not detected	0.5	09/18/99	DG
o-Xylene	Not detected	0.5	09/18/99	DG
m,p-Xylenes	Not detected	1.0	09/18/99	DG
Methyl-t-butyl ether	Not detected	0.5	09/18/99	DG
BFB Surrogate Recovery (%)	93		09/18/99	DG
CLB-d5 Surrogate Recovery (%)	95		09/18/99	DG

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: MW-6  
Lab ID No: AB56209

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56209	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	09/18/99	DG
Bromobenzene	Not detected	0.5	09/18/99	DG
Bromochloromethane	Not detected	0.5	09/18/99	DG
Bromodichloromethane	Not detected	0.5	09/18/99	DG
Bromoform	Not detected	0.5	09/18/99	DG
Bromomethane	Not detected	0.5	09/18/99	DG
n-Butylbenzene	Not detected	0.5	09/18/99	DG
sec-Butylbenzene	Not detected	0.5	09/18/99	DG
tert-Butylbenzene	Not detected	0.5	09/18/99	DG
Carbon tetrachloride	Not detected	0.5	09/18/99	DG
Chlorobenzene	Not detected	0.5	09/18/99	DG
Chloroethane	Not detected	0.5	09/18/99	DG
Chloroform	Not detected	0.5	09/18/99	DG
Chloromethane	Not detected	0.5	09/18/99	DG
2-Chlorotoluene	Not detected	0.5	09/18/99	DG
4-Chlorotoluene	Not detected	0.5	09/18/99	DG
Dibromochloromethane	Not detected	0.5	09/18/99	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/18/99	DG
1,2-Dibromoethane	Not detected	0.5	09/18/99	DG
Dibromomethane	Not detected	0.5	09/18/99	DG
1,2-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,3-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,4-Dichlorobenzene	Not detected	0.5	09/18/99	DG
Dichlorodifluoromethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethane	Not detected	0.5	09/18/99	DG
1,2-Dichloroethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethene	Not detected	0.5	09/18/99	DG
cis-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
trans-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
1,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,3-Dichloropropane	Not detected	0.5	09/18/99	DG
2,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,1-Dichloropropene	Not detected	0.5	09/18/99	DG
cis-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG

Volatile Organics  
EPA Method 502.2-SW846 8021

Parameter for AB56209	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG
Ethylbenzene	Not detected	0.5	09/18/99	DG
Hexachlorobutadiene	Not detected	0.5	09/18/99	DG
Isopropylbenzene	Not detected	0.5	09/18/99	DG
4-Isopropyltoluene	Not detected	0.5	09/18/99	DG
Methylene chloride	Not detected	0.5	09/18/99	DG
Naphthalene	Not detected	0.5	09/18/99	DG
Propylbenzene	Not detected	0.5	09/18/99	DG
Styrene	Not detected	0.5	09/18/99	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
Tetrachloroethene	8.6	0.5	09/18/99	DG
Toluene	Not detected	0.5	09/18/99	DG
1,2,3-Trichlorobenzene	Not detected	0.5	09/18/99	DG
1,2,4-Trichlorobenzene	Not detected	0.5	09/18/99	DG
1,1,1-Trichloroethane	Not detected	0.5	09/18/99	DG
1,1,2-Trichloroethane	Not detected	0.5	09/18/99	DG
Trichloroethene	Not detected	0.5	09/18/99	DG
Trichlorofluoromethane	Not detected	0.5	09/18/99	DG
1,2,3-Trichloropropane	Not detected	0.5	09/18/99	DG
1,2,4-Trimethylbenzene	Not detected	0.5	09/18/99	DG
1,3,5-Trimethylbenzene	Not detected	0.5	09/18/99	DG
Vinyl chloride	Not detected	0.5	09/18/99	DG
o-Xylene	Not detected	0.5	09/18/99	DG
m,p-Xylenes	Not detected	1.0	09/18/99	DG
Methyl-t-butyl ether	Not detected	0.5	09/18/99	DG
BFB Surrogate Recovery (%)	96		09/18/99	DG
CLB-d5 Surrogate Recovery (%)	94		09/18/99	DG

## SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: TB-1  
Lab ID No: AB56210

Location: Bennington Iron Works  
Client Job No: 99159

Matrix: Water  
Sampled on 09/08/99 by MAXYMILLIAN  
Received on 09/09/99 by KC  
QC and Data Review by DDR

Preservative: Refrigeration, HCl  
Container: 1 VOA Vial  
Condition of Sample as Received: Satisfactory  
Delivered by: Federal Express

## Volatile Organics

EPA Method 502.2-SW846 8021

Parameter for AB56210	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	0.5	09/18/99	DG
Bromobenzene	Not detected	0.5	09/18/99	DG
Bromochloromethane	Not detected	0.5	09/18/99	DG
Bromodichloromethane	Not detected	0.5	09/18/99	DG
Bromoform	Not detected	0.5	09/18/99	DG
Bromomethane	Not detected	0.5	09/18/99	DG
n-Butylbenzene	Not detected	0.5	09/18/99	DG
sec-Butylbenzene	Not detected	0.5	09/18/99	DG
tert-Butylbenzene	Not detected	0.5	09/18/99	DG
Carbon tetrachloride	Not detected	0.5	09/18/99	DG
Chlorobenzene	Not detected	0.5	09/18/99	DG
Chloroethane	Not detected	0.5	09/18/99	DG
Chloroform	Not detected	0.5	09/18/99	DG
Chloromethane	Not detected	0.5	09/18/99	DG
2-Chlorotoluene	Not detected	0.5	09/18/99	DG
4-Chlorotoluene	Not detected	0.5	09/18/99	DG
Dibromochloromethane	Not detected	0.5	09/18/99	DG
1,2-Dibromo-3-chloropropane	Not detected	0.5	09/18/99	DG
1,2-Dibromoethane	Not detected	0.5	09/18/99	DG
Dibromomethane	Not detected	0.5	09/18/99	DG
1,2-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,3-Dichlorobenzene	Not detected	0.5	09/18/99	DG
1,4-Dichlorobenzene	Not detected	0.5	09/18/99	DG
Dichlorodifluoromethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethane	Not detected	0.5	09/18/99	DG
1,2-Dichloroethane	Not detected	0.5	09/18/99	DG
1,1-Dichloroethene	Not detected	0.5	09/18/99	DG
cis-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
trans-1,2-Dichloroethene	Not detected	0.5	09/18/99	DG
1,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,3-Dichloropropane	Not detected	0.5	09/18/99	DG
2,2-Dichloropropane	Not detected	0.5	09/18/99	DG
1,1-Dichloropropene	Not detected	0.5	09/18/99	DG
cis-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG

Volatile Organics  
EPA Method 502.2-SW846 8021

Parameter for AB56210	Result (in ug/L)	MDL	Analyzed	Analyst
trans-1,3-Dichloropropene	Not detected	0.5	09/18/99	DG
Ethylbenzene	Not detected	0.5	09/18/99	DG
Hexachlorobutadiene	Not detected	0.5	09/18/99	DG
Isopropylbenzene	Not detected	0.5	09/18/99	DG
4-Isopropyltoluene	Not detected	0.5	09/18/99	DG
Methylene chloride	Not detected	1.5	09/18/99	DG
Naphthalene	Not detected	0.5	09/18/99	DG
Propylbenzene	Not detected	0.5	09/18/99	DG
Styrene	Not detected	0.5	09/18/99	DG
1,1,1,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
1,1,2,2-Tetrachloroethane	Not detected	0.5	09/18/99	DG
Tetrachloroethene	Not detected	0.5	09/18/99	DG
Toluene	Not detected	0.5	09/18/99	DG
1,2,3-Trichlorobenzene	Not detected	0.5	09/18/99	DG
1,2,4-Trichlorobenzene	Not detected	0.5	09/18/99	DG
1,1,1-Trichloroethane	Not detected	0.5	09/18/99	DG
1,1,2-Trichloroethane	Not detected	0.5	09/18/99	DG
Trichloroethene	Not detected	0.5	09/18/99	DG
Trichlorofluoromethane	Not detected	0.5	09/18/99	DG
1,2,3-Trichloropropane	Not detected	0.5	09/18/99	DG
1,2,4-Trimethylbenzene	Not detected	0.5	09/18/99	DG
1,3,5-Trimethylbenzene	Not detected	0.5	09/18/99	DG
Vinyl chloride	Not detected	0.5	09/18/99	DG
o-Xylene	Not detected	0.5	09/18/99	DG
m,p-Xylenes	Not detected	1.0	09/18/99	DG
Methyl-t-butyl ether	Not detected	0.5	09/18/99	DG
BFB Surrogate Recovery (%)	92		09/18/99	DG
CLB-d5 Surrogate Recovery (%)	91		09/18/99	DG

Spectrum Analytical, Inc.  
Laboratory Report Supplement

References

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- Standard Methods for Comparison of Waterborne Petroleum Oils by Gas Chromatography. ASTM D 3328. 1982.
- Oil Spill Identification System. U.S. Coast Guard CG-D-52-77. 1977.
- Handbook for Analytical Quality Control in Water and Wastewater Laboratories. EPA 600/4-79-019. EMSL 1979.
- Choosing Cost-Effective QA/QC (Quality Assurance/Quality Control) Programs for Chemical Analyses. EPA 600/4-85/056. EMSL 1985.

Report Notations

Not Detected, Not Det, ND or nd	=	<i>The compound was not detected at a concentration equal to or above the established method detection limit.</i>	
NC	=	<i>Not Calculated</i>	
MCL	=	<i>EPA Maximum Contamination Level</i>	
VOA	=	<i>Volatile Organic Analysis</i>	
BFB	=	<i>4-Bromofluorobenzene</i>	<i>(An EPA 624 Surrogate)</i>
p-DFB	=	<i>1,4-Difluorobenzene</i>	<i>(An EPA 624 Surrogate)</i>
CLB-d5	=	<i>Chlorobenzene-d5</i>	<i>(An EPA 624 Surrogate)</i>
BCP	=	<i>2-Bromo-1-chloropropane</i>	<i>(An EPA 601 Surrogate)</i>
TFT	=	<i>a,a,a-Trifluorotoluene</i>	<i>(An EPA 602 Surrogate)</i>
Decachlorobiphenyl	=	<i>(an EPA 608/8080 Surrogate)</i>	

Definitions

**Surrogate Recovery** = The recovery (expressed as a percent) of a non-method analyte (see surrogates listed above) added to the sample for the purpose of monitoring system performance.

**Matrix Spike Recovery** = The recovery (expressed as a percent) of method analytes added to the sample for the purpose of determining any effect of sample composition on analyte recovery.

**Laboratory Replicate** = Two sample aliquots taken in the analytical laboratory and analyzed separately with identical procedures. Analyses of laboratory duplicates give a measure of the precision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.

**Field Duplicate** = Two separate samples collected at the same time and place under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analysis of Field duplicates give a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

**Relative Percent Difference (%RPD)** = The precision measurement obtained on duplicate/replicate analyses. %RPD is calculated as:

$$\%RPD = \frac{(\text{value1} - \text{value2})}{\text{ave. value}} * 100\%$$



# CHAIN OF CUSTODY RECORD

P.O. # 45026

Client: <u>MAXYMILLIAN TECHNOLOGIES, INC.</u> Date: <u>9/8/99</u> Report To: <u>J. MASSIMIANO</u> Address: <u>86 SO. MAIN ST, LANESBORO, MA 01237</u> Telephone: <u>(413) 448-2966 FAX (413) 447-7625</u>	Project Name: <u>BENNINGTON IRON WORKS</u> Project Number: <u>99159</u> Address: _____ Date Samples Collected: <u>9/8/99</u> By: <u>TCZ</u>
---	---

Sampling Information					Analysis Required	# Of Cont.	Type of Cont.	Pres.	Comments: (special instruction, cautions, etc.)
ID#	Date	Time	Location	Sample Type					
mw-1	9/8/99		WELL	WATER	8021 B	2	40ml	HCl	AB 56204
mw-2	↓		↓	↓	↓	↓	↓	↓	56205
mw-3	↓		↓	↓	↓	↓	↓	↓	56206
mw-4	↓		↓	↓	↓	↓	↓	↓	56207
mw-5	↓		↓	↓	↓	↓	↓	↓	56208
mw-6	↓		↓	↓	↓	↓	↓	↓	56209
TB-1	↓		-	↓	↓	1	↓	↓	56210

REMARKS: (special instructions, sample storage, non-standard sample bottles, etc.)

FAX RESULTS WHEN AVAILABLE

Relinquished by: L. Milette Date: 9/8/99  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: Jed X Date: 9/9/99  
 Received by: D. T. M. O. L. K. Date: 10.4.09 AM  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Turnaround: 24 hrs. \_\_\_\_\_ 48 hrs. \_\_\_\_\_ 1 week \_\_\_\_\_ 2 weeks  4 weeks \_\_\_\_\_ Other \_\_\_\_\_



# State of Vermont

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Hazardous Materials Management Division  
103 South Main Street / West Building  
Waterbury, Vermont 05671-0404  
(802) 241-3888  
FAX (802) 241-3296

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0191 TDD>Voice  
1-800-253-0195 Voice>TDD

February 16, 1999

LANCE MATTESON  
BCIC  
PO BOX 257  
NORTH BENNINGTON VT 05257

RE: Site Management Activity Completed, NASTEC Warehouse, Bennington (VTDEC Site #95-1767).

Dear Mr. Matteson:

The Vermont Department of Environmental Conservation, Sites Management Section (SMS) has reviewed the December 1998 analytical data which were collected from the above referenced site as well as the rest of the information contained in the site file. Based on the information submitted, the SMS now makes the following conclusions:

- On April 10, 11 and 19 1995, a field investigation was conducted on the site. Three monitoring wells were advanced and groundwater samples were collected. Analytical results from these wells indicated that very low levels of tetrachloroethane (PCE) existed in two wells in concentrations which were slightly above the Vermont Groundwater Enforcement Standard (VTGES) of 5.0 parts per billion (ppb).
- A soil gas survey was also conducted in April 1995 and no on-site source of contamination was found.
- Groundwater samples collected in December 1998 indicate that one monitoring well contained a concentration of PCE at 5.6 ppb, which is just over the VTGES for PCE (the VTGES is 5.0 ppb).
- There is no information in the site files that suggest that companies which utilized the NASTEC Warehouse facility ever used PCE.
- Groundwater flow directions indicate that all wells which contained levels of PCE (in 1995 and in 1998) are located hydrogeologically upgradient from the NASTEC Warehouse facility.
- There is evidence from other active SMS sites which are located in the area and which are located hydrogeologically upgradient from the NASTEC Warehouse site, that suggests that there is a low level groundwater plume of PCE in the immediate area. Convincing evidence also indicates that

the source of this contamination is located hydrogeologically upgradient from the site and it is, therefore, not emanating from the subject property.

- Pursuant to Vermont Statute §6615, there shall be no liability to a site owner if it can be determined that a release of hazardous materials were caused by a third party on another property.

Based on the above, the SMS feels that there is convincing evidence which indicates that any contamination on the subject property originated from an upgradient source on another property. Because of this fact, and in accordance with §6615, the SMS is assigning this site a Site Management Activity Completed (SMAC) designation. This designation means that based on the information you have submitted, the SMS is not aware of any threat to human health or the environment presented by your site. In making this determination, the SMS is not certifying that your property is free of contamination that may have occurred or may still be present due to other activities on the site that have not been evaluated or identified. This designation means that based on the information you have submitted and the actions you have taken, the SMS has determined that you do not need to perform any additional remedial or investigative work on this site. Any additional information which may come to light in the future may be cause for reconsideration of this decision.

The SMS usually requires sites that are being SMACed to have their monitoring wells be properly closed pursuant to Section 12.3.5 in Appendix A of the Vermont Water Supply Rule-Chapter 21. However, since it has been determined that there is a possible upgradient source of contamination in the area, and since ongoing work is being performed by the SMS on an abutting property, the SMS feels that these wells should remain open at this time so that they may be used if subsequent investigations are conducted from the abutting property.

Please feel free to call with any questions.

Sincerely,



George Desch, Chief  
Sites Management Section

cc: Rick Vandenberg, Lincoln Applied Geology  
Jeff Nick, The Davis Company  
Timothy Corcoran, Bennington Town Clerk  
DEC Regional Office



June 11, 1999

Mr. Richard Spiese  
Sites Management Section  
Vermont Department of  
Environmental Conservation  
103 South Main Street/West Building  
Waterbury, Vermont 05671-0404

RE: VDEC/Bennington - Work Plan and Revised Cost Estimate for Phase I Contaminant Investigation

Dear Mr. Spiese:

Lincoln Applied Geology, Inc. (LAG) has reviewed the correspondence, water quality, and soil quality data associated with the site properties south of Route 67A along Morse Drive, Harmon Road, and Buckley Drive in Bennington, Vermont. A U.S.G.S. topographic map included as **Figure 1** shows the site properties and businesses, roads, and surface water bodies. The available water quality database indicates that ground water in the vicinity has been contaminated with dissolved petroleum compounds and solvents. The Vermont Department of Environmental Conservation (VDEC) has tasked LAG with developing a work plan and cost estimate to determine the source of the dissolved solvents that have been detected in shallow private water supply wells and ground water monitor wells in the area. The cost estimate included as **Attachment A** is for conducting background file reviews, interviews (in person and telephone), and site visits to gather detailed information on past and present contaminant sources, extent and degree of ground water contamination, the locations of water supply wells, and possible locations for the installation of soil borings and ground water monitor wells. A Phase II work plan and cost estimate will be prepared and presented to the VDEC based on the information gathered during the Phase I investigation.

Levels of tetrachloroethylene [or perchloroethylene (PCE)] detected in four water supplies and two ground water monitor wells were used to estimate the extent of the dissolved PCE plume shown on **Figure 1**. The historical water quality data for the site is included as **Table 1**. The three ground water monitor wells located on the BCIC Nastech property have shown the shallow aquifer ground water flow direction to be towards the northwest. In 1994 a waste oil underground storage tank (UST) was apparently excavated from the former Western Auto shop at the Monument Plaza site (VDEC Site #94-1587) located about 1,200 feet southeast of Harmon Road. The UST contained 1,1,1-trichloroethane (1,1,1-TCA) and PCE. Soil samples collected from beneath the UST after its excavation contained 1,1,1-TCA at 2,900 parts per million (ppm) and PCE at 3,800 ppm. Ground water samples collected from the vicinity of the former UST contained 1,1-Dichloroethane (1,1-DCA), 1,1,1-TCA, and PCE at 23 parts per billion (ppb), 110 ppb, and 14 ppb, respectively. Another potential PCE source is a former dry cleaning business that was located in the present Sherwin Williams paint store within the Monument Plaza. Since PCE was found in the UST and in soils beneath the UST, waste PCE from the former dry cleaner may have been disposed of in the UST.

Mr. Richard Spiese  
Page 2  
June 11, 1999

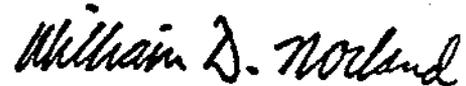
Based on: the location of Monument Plaza hydraulically upgradient of the site to the southeast; the presence of 1,1-DCA, 1,1,1-TCA, and PCE in soil and shallow ground water at the former waste oil UST location; the shallow aquifer ground water flow direction toward the northwest; and the presence of 1,1,1-TCA, PCE, and trichloroethylene (TCE) contaminants in shallow ground water from two monitor wells, four water supply wells, and a pit excavation on the Bennington Iron Works (BIW) property, strongly suggests that the Monument Plaza site is the most probable source of the solvent contamination.

In order to conclusively determine the contaminant source, LAG proposes to conduct site visits to: review files and information available at the Bennington Town Clerk and Assessors offices relative to past businesses and ownership in the area; interview persons familiar with potential solvent contaminant sources, both past and present; more accurately locate the private water supply wells, ground water monitoring wells, and past businesses in the area on Town tax maps; and have an environmental site assessment database review of the site properties and surrounding areas (including Sanborn fire insurance maps) performed by Environmental Data Resources, Inc. (EDR). VDEC files will be briefly reviewed relative to nearby hazardous waste sites, spills, RCRA generators, existing and pulled USTs, and Act 250 permits, and aerial photographs will be reviewed. Copies of underground sewer and water utility maps have already been ordered from the Bennington Sewer and Water department.

Following completion of these Phase I tasks, LAG will present a summary report with recommendations and a Phase II work plan and cost estimate for additional contaminant-related work. Depending upon what the Phase I investigation reveals, the Phase II work may include: installation of several shallow ground water monitoring wells in order to determine the source, degree, and extent of the dissolved PCE (and other solvents) plume; the collection and analyses of water quality samples; and the generation of a summary report.

Included as **Attachment A** is the revised cost estimate for performing Phase I of the investigation. Please review it and call me at (800) 477-4384 if you have any questions or comments.

Sincerely,  
Lincoln Applied Geology, Inc.



William D. Norland  
Hydrogeologist

WDN/wn  
Enclosures  
F:\CLIENTS\SITES\IVDEC\BENNINGT\2COST.699



Lincoln Applied Geology, Inc  
Environmental Consultants

Project: VDEC/Bennington  
 Location: Bennington, Vermont

Table 1  
 VDEC Site # n/a  
 Sheet 1 of 1

Ground Water Quality Results (ppb)

Data Point	Compound	04/19/95	11/19/98	12/01/98	12/21/98	12/23/98	03/26/99	04/07/99
BCIC AQ-01	MTBE		ND					
	PCE		ND					
BCIC AQ-02	MTBE		ND					
	PCE		11					
BCIC AQ-03	MTBE		ND				ND	
	PCE		43			5.6		
B.I.W. Pit	MTBE			8.7				
	PCE		5.4					
Andrews	MTBE				ND			ND
	PCE			8				3
Mulvey	MTBE				ND			
	PCE			6.4			3	ND
Willene	MTBE				1	ND	1	ND
	PCE							3
Johnson	MTBE				ND	ND	ND	
	PCE							ND
Cummings	MTBE				ND	ND	ND	ND
	PCE							2
Carpenter	MTBE				ND	4	ND	
	PCE							ND
Miller	MTBE						6	
	PCE							
Metcalfe	MTBE							ND
	PCE							1
Percy	MTBE							ND
	PCE							ND

NOTES:  
 ND = Contaminant Not Detected  
 BOLD where GQES exceeded  
 MTBE = Methyl tert butyl ether (GQES 40 ppb)  
 PCE = Perchloroethylene (GQES 5 ppb)



Attachment A  
Revised Cost Estimate

2571



**Bennington/VDEC  
Bennington, Vermont  
Revised Cost Estimate for  
Phase I  
Contaminant Investigation**

June 11, 1999

**Task I Scheduling, VDEC File Reviews, Act 250 (Rutland) and EDR Report**

Senior Hydrogeologist -	8	hr(s) @	\$75.00	per hour	\$	600.00
Mileage -	150	mile(s) @	\$0.35	per mile	\$	52.50
1962 and 1974 Aerial Photographs -	2	set(s) @	\$40.15	per set	\$	80.30
Orthophotographs -	2	photo(s) @	\$17.88	per photo	\$	35.76
EDR Report (Geocheck plus Sanborn Maps) -			\$220.00		\$	220.00
Report Copies -			\$15.00		\$	15.00
<b>Total Task I</b>						<b>\$ 1,003.56</b>

**Task II Site Visit, Interviews, Locations for Site Map**

Senior Hydrogeologist -	2	hr(s) @	\$75.00	per hour	\$	150.00
Scientist/Project Manager -	12	hr(s) @	\$55.00	per hour	\$	660.00
Mileage -	250	mile(s) @	\$0.35	per mile	\$	87.50
Per Diem -	1	day(s) @	\$120.00	per day	\$	120.00
Utility Maps Copies -					\$	15.00
<b>Total Task II</b>						<b>\$ 1,032.50</b>

**Task III Phase I Summary Report**

Principal -	1	hr(s) @	\$85.00	per hour	\$	85.00
Senior Hydrogeologist -	5	hr(s) @	\$75.00	per hour	\$	375.00
Scientist/Project Manager -	8	hr(s) @	\$55.00	per hour	\$	440.00
CAD Operator -	5	hr(s) @	\$40.00	per hour	\$	200.00
Administrative Assistant -	3	hr(s) @	\$35.00	per hour	\$	105.00
<b>Total Task III</b>						<b>\$ 1,205.00</b>

**Grand Total Tasks I, II, and III** **\$ 3,241.06**



**FAX COVER SHEET**

**To:** Dan Morrison  
**Company:** Aaron & Sons  
**Phone:**  
**Fax:** (802) 447-3571

**From:** Tom Czelusniak  
**Company:** Maxymillian Technologies  
**Phone:** (413)499-3050  
**Fax:** (413)443-0511

**Date:** 9/10/99  
**Pages including  
this cover page:** 7

**Comments:**

Dan – composite soil sample results from the contaminated soil stockpile at Bennington Iron Works. Original to follow in the mail.



1801 EAST STREET  
PITTSFIELD, MA 01201  
413 499-0330  
FAX 413 443-0511

# Technical Report

PROJECT NAME & NUMBER: Bennington Iron Works

prepared for

Maxymillian Technologies, Inc.  
1801 East Street  
Pittsfield, MA 01201

Attention: T. Czelusniak

September 7, 1999



Issue Date  
07 Sept.99

Report Number  
1999/Maxy/BenIronWorks/082699

### LABORATORY SERVICES TECHNICAL REPORT

**PREPARED FOR:**

Maxymillian Technologies, Inc.  
1801 East Street  
Pittsfield, MA 01201  
(413) 499-3050

**PROJECT:** Bennington Iron Works

**ATTENTION:** T. Czelusniak

One (1) soil sample for TPH analysis and one (1) soil sample for BTEX analysis were received by the Maxymillian Technologies' Analytical Laboratory on August 26, 1999. A ten (10) business day turnaround time was requested.

All samples were analyzed within the method specified maximum allowed holding times. All quality control was within laboratory determined acceptable limits.

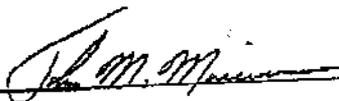
All samples are analyzed by EPA approved methodologies. The MT analytical laboratory is a MA DEP and NY DOH certified testing facility.

MA Certification Number M-MA 146

NY Certification Number 11477

Report Reviewed By:

Date:

 \_\_\_\_\_ 9/7/99

John M. Massimiano  
Laboratory Director



Issue Date  
07 Sept. 99

Report Number  
1999/Mxy/BennIronWorks/C82699

SAMPLE RECEPTION INFORMATION

Project Purchase Order Requested TAT  
Bennington Iron Works 10 Business Days

Quantity	Matrix	Analysis Method	Description	Collection Date	Preservative
1	Soil	8100M	TPH	26 August 99	Cool 4° C
1	Soil	8260B	BTEX	26 August 99	Cool 4° C/Methanol

Samples inspected upon receipt by:  
LM

Date Received  
26 August 99



Issue Date  
07 Sept. 99

Report Number  
1999/Maxy/BearIronWorks/082699

**Volatile Organic Compounds**

Sample ID	Stockpile	Analyst	Instrument
Analysis EPA Method 8260B	Extraction Method 5035	JM	GC-MS
Parameter	Sample Result (mg/Kg)	MDL (mg/Kg)	
Benzene	ND	0.500	
Toluene	ND	0.500	
Ethylbenzene	ND	0.500	
m,p-Xylene	ND	0.500	
p-Xylene	4.79	0.500	
Total Xylenes	4.79		

Sample Analysis Information, QC Lot Identification  
Extraction Date: 27 August 99  
Analysis Date: 03 Sept. 99

QC Lot:  
0827998260-S

Surrogate Compound % Recovery, QC Lot Identification  
1,2-Dichloroethane-d4: 99.6%  
Toluene-d8: 88.3%

4-Bromofluorobenzene  
103%

**Total Petroleum Hydrocarbons**

Analysis Required	Extraction Method	Analyst	Instrument	MDL
EPA Method 8100M	3550B	CR	GC-FID	
Sample ID	Stockpile			MDL (mg/Kg)
				15.0
Parameter	(mg/Kg)			
TPH	1,750			

QC Lot:  
0613996100-S

MDL = Analytical Method Detection Limit.  
ND = Analyte of interest was not detected at the laboratory determined Analytical Method Detection Limit.



Issue Date  
07 Sept. 99

Report Number  
1999/Maxy/BeamIronWorks/082699

### QC LOT INFORMATION / VOLATILE ORGANIC COMPOUNDS

QA/QC Lot:	Compound	MS/MSD Limit	% Recovery MS	% Recovery MSD	% RPD	RPD Limit
0827998250-S	1,1-Dichloroethene	45-113	98.8%	98.3%	4.24%	11
	Benzene	65-111	89.1%	87.5%	3.64%	8
	Trichloroethene	65-114	90.0%	88.8%	3.08%	8
	Toluene	82-120	85.9%	86.1%	1.60%	11
	Chlorobenzene	62-114	86.4%	86.6%	1.59%	9

Note: % Recovery and RPD Limits are determined by demonstrated laboratory performance.

### QC LOT INFORMATION /TPH

QA/QC Lot:	Sample ID.	MS/MSD Limit	% Recovery MS	% Recovery MSD	% RPD	RPD Limit
0813998100-S	NA	80-118	108%	106%	1.81%	16

Note: % Recovery and RPD Limits are determined by demonstrated laboratory performance.





BENNINGTON IRON WORKS, INC.

HARMON ROAD • P.O. BOX 798 • BENNINGTON, VERMONT 05201 • 802-442-3145 • FAX 802-447-3440

FAX COVER SHEET

TO: Richard Spiese

FROM: Art Morin

DATE: 9/16/99

NO. OF PAGES TO FOLLOW: 4

SPECIAL INSTRUCTIONS: Richard: Ple find attached a "Technical Report" which is the analysis of the contaminated soil excavated during the tank removal. Is this soil ok to use as fill for our new addition foundation? Ple advise. Thanks.

Mr. Morin,

As long as the soil is used above the water table and in an area where people will not come into direct contact of it, it may be used as fill for the new foundation.

RFJ  
9/20/99

Massachusetts Sales Office: One Lakeside Office Park, Wakefield, MA 01880; Telephone (781) 246-3165 \* Fax (781) 246-3762  
Mailing Address: P.O. Box 105, Stoneham, MA 02180  
New Hampshire Sales Office: 36 Bow Lane, Pembroke, NH 03275; Telephone (603) 225-1161 \* Fax (603) 225-1084  
New York Sales Office: 26 Reed Parkway, Marcellus, NY 13108; Telephone (315) 673-9556 \* Fax (315) 673-4766

LANDS OF MILLER STRUCTURES

LANDS OF BOC (WASTED)

Orange 97 Buckley Drive  
PCE=ND, ND, ND  
MTBE=ND, ND, ND

Johnson 103 Buckley Drive  
PCE=ND, ND, ND  
MTBE=ND, ND, ND

Andrew 100 Buckley Drive  
PCE=8.0, 5.0, 4.0  
MTBE=ND, ND, ND  
WELL (ABANDONED)

Huber 104 Buckley Drive  
PCE=6.4, 4.0, 3.0  
MTBE=ND, ND, ND

Carpenter 101 Buckley Drive  
WELL  
PCE=ND, ND, ND  
MTBE=4.0, 2.0, 2.0

A. Watson 238 Harmon Road  
PCE=ND  
MTBE=ND

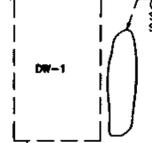
R. Andrew 230 Harmon Road  
PCE=ND  
MTBE=ND

T. Watson 232 Harmon Road  
PCE=ND  
MTBE=ND

Metcalf Harmon Road  
PCE=ND, ND  
MTBE=1.0, 1.0

Percy 234 Harmon Road  
PCE=ND, ND  
MTBE=ND, ND

FORMER LOCATION OF  
CONTAMINATED SOIL PILE  
(~60 CUBIC YARDS); THIN  
SPREAD FOLLOWING 9/20/99  
STATE APPROVAL



DW-1  
PCE=ND, <1  
92.42

DEWATERING IMPOUNDMENTS  
(APPROX. SIZES AND LOCATIONS)



DW-2  
(NOT USED)

STORAGE YARD

RETAINING WALL  
TOP WALL ELEV. 100.9

DELIVERY ENTRANCE

CONTAMINATED SOILS STOCKPILED  
BENEATH THIS NEW ADDITION.

LANDS OF ALICE CONE  
C/O CONE READY

CLAYD PILE

STORAGE YARD

LANDS OF ABACUS AUTOMATION

W-5  
PCE=ND  
98.11

MORSE ROAD

HARMON ROAD

LANDS OF BLS BENNINGTON LIMITED PARTNERSHIP

STORAGE YARD

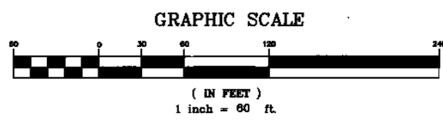
LANDS OF SUBURBAN PROPANE

TEST PIT PID RESULTS		
EXCAVATION DEPTH (FT)	GROUNDWATER DEPTH (FT)	PID (ppm)
TP#1 6±	5±	14.0
TP#2 5±	5±	1.8
TP#3 6±	6±	1.8

TEST PIT LOCATION  
2" PVC MONITORING WELL WITH PCE CONCENTRATIONS  
AND GROUNDWATER ELEVATIONS.

WATER TABLE DATA FROM 1/05/08 BY HENDEL & NOYES  
DATUM IS FFL FOR B/W BUILDING=100.90 FT., PROVIDED  
BY MSK ENGINEERING AND DESIGN, INC.  
PCE AND MTBE CONCENTRATIONS IN ORIGIN WELLS OBTAINED ON 9/08/99 (ppb) (EPA 502.2)  
PCE AND MTBE CONCENTRATIONS IN NEIGHBORING WELLS SAMPLED AT VARIOUS  
TIMES FROM 12/98 TO 5/99 - SEE REPORT FOR DETAILS (ppb) (EPA 8260)

BASE MAP PROVIDED BY MSK ENGINEERING & DESIGN, INC.  
BUCKLEY ROAD AND NEIGHBORING HOUSES WERE DIGITIZED FROM  
195000 ORTHOPHOTOS, DATED 1991.  
PID RESULTS OBTAINED BY AARON & SONS, INC. WITH AN  
OVM 5608 (10.6 EV LAMP)  
\* - SPECIFIC LOCATION OF WELL UNKNOWN AT THESE RESIDENCES.



LOCATION	EXCAVATION DEPTH (ft)	AT GRADE
1	4.6	
2	83.7	
3	67.2	
4	51.7	15.0
5	50.5	
6	16.4	
7	15.4	
8	20.1	
9	50.4	6.3
10	164.7	16.0
11	11.2	
12	13.3	
13	3.0	
14	212.9	38.8
15 (GW)	388.0	384.0

**Bennington Iron Works**  
BENNINGTON, VERMONT

WATER TABLE (ft.), PCE CONCENTRATION (ppb),  
AND PID CONCENTRATION (ppm)

**Heindel and Noyes**  
Hydrogeology • Ecology •  
Environmental Engineering •  
CONSULTING ENGINEERS AND SCIENTISTS

P.O. BOX 81788  
BENNINGTON, VERMONT 05208-0788

Prepared by:  
Information & Visualization Services

SCALE: 1"=80'  
PROJECT NO. 99381  
FILE: CARENHROMSITEPLAN  
DATE: FEBRUARY 16, 2000  
DRAWN BY: M. Leman  
PROJ. MGR: C. Heindel  
APPROVED: B. Brown

DRAFT  FINAL

PID MEASUREMENTS  
A. AARON & SONS, INC.