

**INITIAL SITE INVESTIGATION
U.S. ROUTE 5 NORTH (MEMORIAL DRIVE)
ST. JOHNSBURY, VERMONT 05819**

SMS SITE 93-1481

**Prepared For
NYNEX
Boston, Massachusetts**

August 1995

**EMCON
Burlington, Vermont**

Environmental Engineers • Scientists • Constructors

SEP 21 10 29 AM '95

**INITIAL SITE INVESTIGATION
U.S. ROUTE 5 NORTH (MEMORIAL DRIVE)
ST. JOHNSBURY, VERMONT 05819**

SMS SITE #93-1481

Prepared for

**NYNEX
125 High Street
Boston, Massachusetts 02110**

**Latitude 44°-26'-20" N
Longitude 72°-01'-35" W**

Prepared by

**EMCON
1 Mill Street
Burlington, Vermont 05401**

EMCON Project No. 85554-001.000

August 1995

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EXECUTIVE SUMMARY

EMCON has conducted an initial site investigation at the NYNEX maintenance facility located at Route 5 North, Memorial Drive, in St. Johnsbury, Vermont. The property is leased by NYNEX of Boston, Massachusetts. The owner of the property is Thurston and Dimick Properties of St. Johnsbury, Vermont. The property is serviced by Rutland municipal water and sanitary systems. This investigation was initiated in response to the discovery of contamination during the removal of a 4,000 gallon gasoline underground storage tank (UST) on the property. The initial site investigation included a file review, the installation of three soil borings and one monitoring well, groundwater sampling for total petroleum hydrocarbons (TPHs) and volatile organic compounds (VOCs), a sensitive receptor survey, and characterization of soil stockpiled during the UST removal.

As a result of the initial site investigation, EMCON has concluded the following:

1. Photoionization detector (PID) readings in the soil borings installed on the site (SB-1 to SB-4) in the vicinity of the former dispenser and UST excavation indicated no VOCs present above Vermont Department of Environmental Conservation (VTDEC) soil guidelines.
2. No separate phase petroleum product or VOCs dissolved in groundwater were observed in the downgradient monitoring well above Vermont Groundwater Enforcement Standards (VGWES). Low level TPHs, however, were detected in groundwater at a concentration of 4.42 mg/l.
3. No sensitive receptors identified during this investigation have been impacted by the documented release of gasoline to the soil and groundwater at the NYNEX site.
4. Petroleum hydrocarbons were detected in onsite stockpiled soil. The analytical results are within acceptable guidelines for asphalt batching at Bardon Trimount soil recycling plant in Burlington, Massachusetts.

EMCON does not recommend implementing any additional corrective actions or further investigation at this time because:

- No impact to sensitive receptors have been identified.
- No known drinking water sources exist on or in the vicinity of the subject site.

- The TPH levels detected, through headspace analysis, in the soil samples collected from the soil borings were below Vermont Department of Environmental Conservation guidelines for corrective action.
- No separate phase product was identified in the downgradient monitoring well installed.
- No VOCs were detected in the groundwater samples collected from the downgradient monitoring well.
- The TPH levels detected in the groundwater samples collected from the downgradient monitoring well were at very low concentrations.

In addition, EMCON recommends off-site asphalt batching of stockpiled soils at the Bardon Trimount Recycling Plant in Burlington, Massachusetts. The results presented in this initial site investigation suggest that the NYNEX site has met the requirements as presented in the Vermont Department of Environmental Conservation Draft Site Management Activities Completed (SMAC) Classification Procedure, dated December 13, 1993. Therefore, EMCON recommends that the site be considered for a SMAC designation.

1.0 INTRODUCTION

EMCON has conducted Initial Site Investigation activities for NYNEX as required by the Vermont Department of Environmental Conservation Hazardous Materials Management Division, Sites Management Section (VTDEC) Draft Site Investigation Guidance Document (May 1994). This investigation was performed to determine the extent of gasoline contamination discovered during removal of an underground storage tank (UST) at the NYNEX facility located at Route 5 North in St. Johnsbury, Vermont. No other USTs or above ground storage tanks (ASTs) are known to exist at the site. The site is owned by Thurston and Dimick Properties and leased by NYNEX.

On October 8, 1993, a 4,000 gallon gasoline UST was removed at the NYNEX garage facility on Route 5 in St. Johnsbury, Vermont. The tank pull was conducted under the supervision of Ron Miller of Griffin International (Griffin). During the tank pull, soils screened around the dispenser pump had peak concentrations of 240 ppm as measured by a photoionization detector (PID). Soils are highly permeable, coarse sand and gravel. At a distance of eight feet east of the dispenser, contamination increased at depth to 30 ppm at 14 feet below ground surface (bgs), however, PID readings taken from samples from below the water table, which was encountered at 17 feet bgs, decreased to less than 3.0 ppm. No free product was encountered at the water table. An attempt was made to excavate all petroleum contaminated soils. A total of 100 cubic yards of petroleum contaminated soils were excavated before the excavation stopped. Peak PID readings remaining in the tank pit, after excavating PCS, were 42 ppm at 10 feet bgs along the north wall and 30 ppm at 14 feet bgs at the bottom of the southeast corner.

The nearest identified receptor is a small stream immediately to the north of the site. The stream flows west to the Passumpsic River, approximately 150 feet from the site.

Based on Griffin's report, the VTDEC requested additional investigation work at the site to determine the severity of gasoline contamination present. EMCON has based its technical approach on the requirements outlined in a letter from Charles Schwer, Supervisor at the VTDEC, dated October 28, 1993 (Appendix A). At the request of NYNEX, EMCON submitted a Site Investigation Expressway Notification form to the VTDEC (Appendix B).

1.1 PURPOSE

The VTDEC requires an Initial Site Investigation be conducted on properties where a release or suspected release of hazardous materials has occurred, as outlined in the VTDEC Draft Site Investigation Guidance Document (May 1994). In order to be responsive to the VTDEC guidelines, an Expressway Initial Site Investigation was conducted at the NYNEX St. Johnsbury facility. At the request of NYNEX, EMCON developed a Scope of Services consistent with the VTDEC Draft Site Investigation Guidance Document dated May 1994. The following items were addressed in the initial site investigation:

- define the degree and extent of contamination;
- define possible pathways for contaminant migration;
- present data that quantifies the amount of contaminants migrating along each pathway;
- define relevant sensitive receptors;
- determine the risk of contamination directly affecting receptors;
- identify what remedial actions may be appropriate to control, mitigate and monitor the effects of the release; and
- provide a preliminary recommendation, with justification, for remedial or monitoring action for the site.

1.2 SCOPE OF WORK

A Scope of Services was proposed by EMCON to perform the initial site investigation in accordance with the VTDEC Draft Site Investigation Guidance Document (May 1994) included the following tasks:

1. A records review was conducted to gather and evaluate available information at the VTDEC and town offices relevant to the environmental conditions at the subject property and adjacent properties.
2. Subsurface Investigation including installation of soil borings and monitoring wells, and the collection of groundwater samples for laboratory analyses.
3. A survey was also performed to determine the location and elevation of the monitoring wells/soil borings and groundwater level measurements were taken.

4. A receptor survey identified the sensitive receptors that have the potential to be adversely impacted by the contamination onsite.
5. The information collected during the above tasks has been summarized in this report.

2.0 SITE DESCRIPTION

2.1 SUBJECT PROPERTY

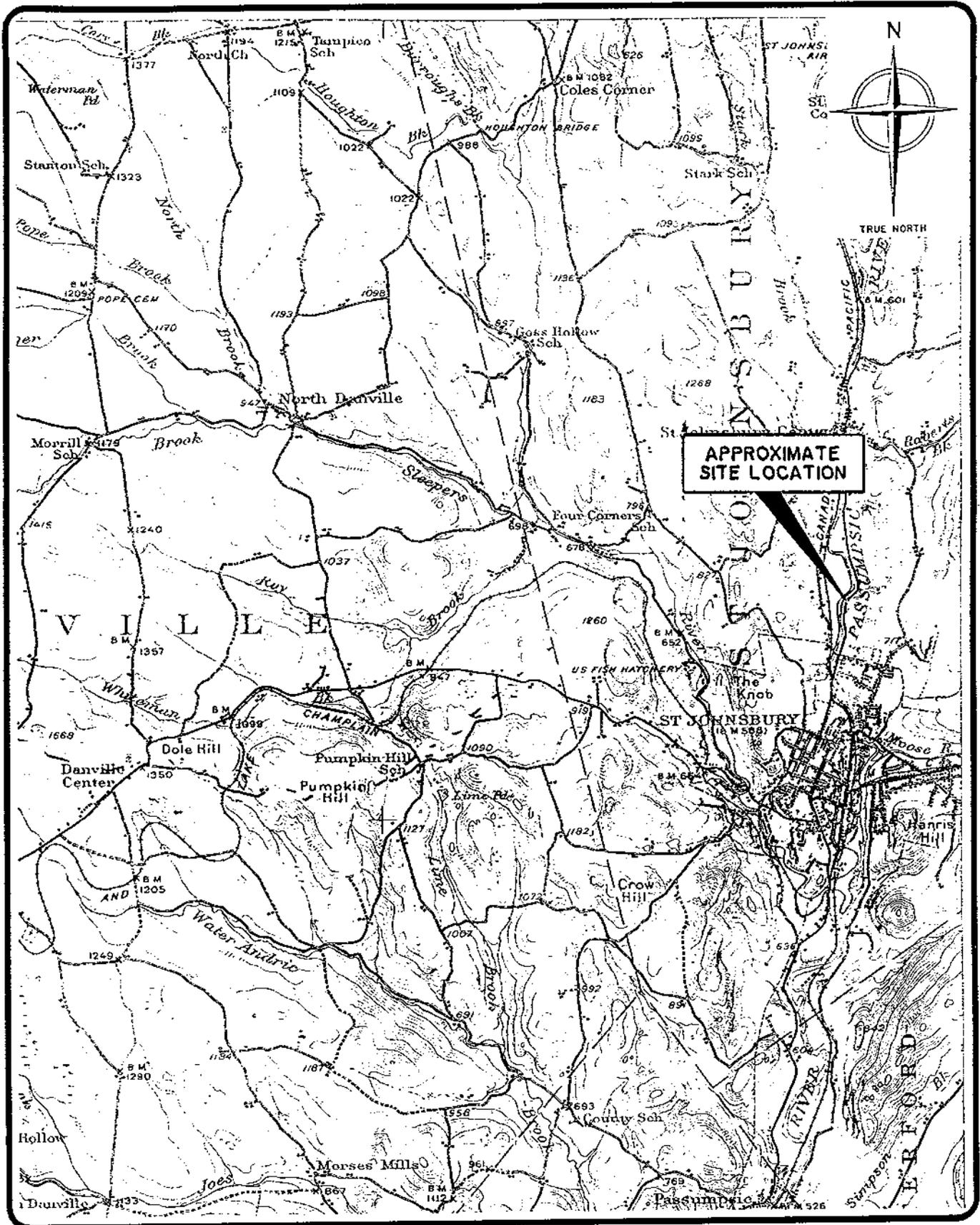
The NYNEX garage facility is located on Route 5 North, Memorial Drive in St. Johnsbury, Vermont. The latitude is 44°-26'-20" N and the longitude is 72°-01'-35" W as scaled from the United States Geological Survey (USGS) 15 minute quadrangle, St. Johnsbury, Vermont (Figure 1). The subject property is 4.7 acres in size. The site contains an 80 x 200 foot metal building on a slab foundation. A paved driveway and parking area surround the building. The topography in the vicinity of the building, driveway and parking areas is relatively level. However, abutting the north, east and south sides of the driveway/parking areas is a steep bank sloping up to a heavily wooded area (Figure 2). The building houses NYNEX vehicles and a maintenance area with limited office space. The gasoline dispenser and UST were located directly adjacent to the southeast building corner. The property is served by St. Johnsbury municipal water and sewer. Several underground utility corridors are located onsite, running from the Route 5 right-of-way to the building. Underground utilities include telephone, electric and water lines. There is also a floor drain system for the building which runs across the west side of the property.

2.2 SUBJECT PROPERTY NEIGHBORHOOD

The site is in an undeveloped area and is bounded to the north, east and south by a steep bank leading up to a wooded area. Route 5 bounds the NYNEX garage facility to the west. The Passumpsic River is located west of Route 5 and flows generally in a southerly direction.

2.3 ENVIRONMENTAL SETTING

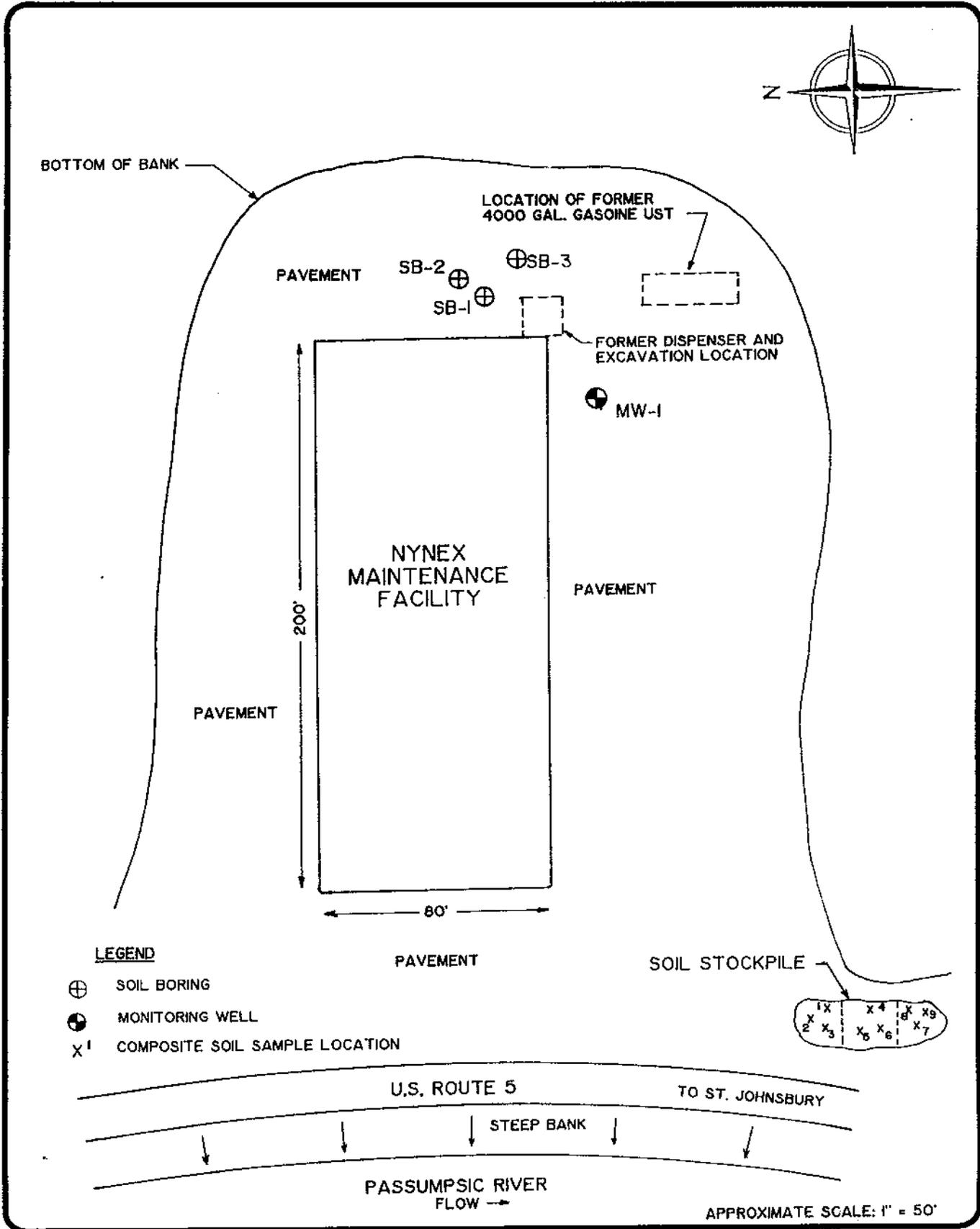
According to the United States Geological Survey (USGS) 15 minute topographic quadrangle map, the property is at an elevation of approximately 500 feet above mean sea level. There is a drainage stream located on the northeast section of the property which feeds to a culvert beneath Route 5 and into the Passumpsic River. The Passumpsic River is located approximately 250 feet to the west of the subject property. According to the Groundwater Favorability Map of the Nulhegan-Passumpsic River Basin, Vermont (1967), the surficial materials underlying the site area are thick deposits of coarse-grained, stratified,



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NYNEX
 SITE LOCATION PLAN
 ST. JOHNSBURY VERMONT
 SOURCE: USGS QUADRANGLE ST. JOHNSBURY, VT.

FIGURE
 1
 PROJECT NO.
 85554-001



- LEGEND**
- ⊕ SOIL BORING
 - MONITORING WELL
 - Xⁱ COMPOSITE SOIL SAMPLE LOCATION



DATE 7-21-95
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 REV _____

NYNEX
 ST. JOHNSBURY VERMONT
 SITE PLAN

FIGURE
 2
 PROJECT NO.
 85554-001

glacial drift that has excellent groundwater potential. The Vermont Geological Survey (1959) defines the bedrock unit beneath the site as the Waits River formation, containing calcareous granulites and calcareous schists that are composed of quartz, calcite, muscovite and biotite, and contain lime silicate minerals in the garnet and staurolite zones.

3.0 SITE AND REGULATORY HISTORY

According to the records at the St. Johnsbury Town Clerk's office, the subject property is owned by Thurston and Dimick Properties. The present and past owners of the property are listed on Table 1.

A regulatory file review for the subject property and surrounding properties was performed by EMCON personnel to obtain information relevant to the environmental conditions of the subject property and surrounding properties. The file review consisted of reviewing information from various town agencies in St. Johnsbury, Vermont and the VTDEC in Waterbury, Vermont. The VTDEC file review included a review of the Water Supply Division well head protection area (WHPA) maps, Active Vermont Hazardous Sites List, Closed Vermont Hazardous Sites List, National Priority List, Spill/Release file and Registered and Permitted Tank files, and Pulled UST List. United States Environmental Protection Agency (USEPA) records regarding the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Handler Index and Comprehensive Environmental Response Compensation Liability Information System (CERCLIS) were reviewed. Copies of the files reviewed at the VTDEC will be provided on request.

The following provides a description of the pertinent information obtained from the file search:

USEPA RCRA Index File

- The subject property is not listed (June 29, 1995) as a hazardous waste generator, treatment, storage or disposal facility.
- None of the abutting properties are listed as a hazardous waste generator, treatment, storage or disposal facility.

USEPA CERCLIS List

- The subject property is not listed on the USEPA CERCLIS list (June 19, 1995).
- None of the abutting properties are listed on the USEPA CERCLIS list.

Table 1
NYNEX
ST. JOHNSBURY, VERMONT
PROPERTY OWNERSHIP - ROUTE 5 NORTH

Property Owner	Date Acquired	Recorded Book/Page
Thurston and Dimick Properties	6/8/93	221/318
L. John Cain	2/26/81	NA
Passumpsic Corporation	11/9/70	139/305
Joseph Aswad, et. al.	NA	NA

VTDEC Active Hazardous Sites List

- The subject property is listed on the VTDEC Active Hazardous Sites list (June 29, 1995) as site #93-1481.
- A report dated December 12, 1994, for the subject property by ATC Environmental, Inc. was found in the VTDEC files. ATC was retained by Thurston and Dimick Properties, the current site owners. The report identified sensitive receptors and stockpiled soil screening. The ATC report identified the small drainage/stream on the property and the Passumpsic River. Also, the report confirmed that the subject property and surrounding area are serviced by municipal water and sewer. The report stated that there were no wetland or sensitive ecological areas on or adjacent to the subject property. ATC collected ten soil samples from the stockpile for headspace analysis (HSA). Readings in these samples ranged from non-detect to 8.0 ppm.

VTDEC Closed Hazardous Sites List

- The subject property is not listed on the VTDEC Closed Hazardous Sites List (June 29, 1995).

VTDEC Oil and Hazardous Materials Control Spill/Release List

- The VTDEC Oil and Hazardous Materials Control Spill/Release list revealed no record of oil or hazardous materials spills or releases at the subject or abutting properties.

VTDEC Underground Storage Tank Files

- There were no USTs registered for the subject property on the Underground Storage Tank Facilities file (March 1, 1995).

VTDEC Pulled Underground Storage Tank Files

- The subject property was listed as site No. 893 in the Pulled UST Files (March 1, 1995).

VTDEC Water Supply Division

- The WHPA map files (black and green books) for St. Johnsbury, Vermont were reviewed with Mr. Steve Sharp of the VTDEC Water Supply Division. The subject property is not identified as being within a WHPA.

4.0 FIELD INVESTIGATION METHODOLOGY

4.1 SUBSURFACE INVESTIGATION

Prior to initiating onsite intrusive activities, EMCON prepared a site-specific Health and Safety Plan (HASP) detailing the potential health hazards, personal protective equipment and emergency information. As an initial task, EMCON conducted pre-work meetings with the drilling subcontractor to discuss project health and safety considerations. Prior to excavation activities a DIGSAFE permit was obtained and utility lines were cleared to the extent possible with facility and local personnel. Field activities were conducted in accordance with the HASP. All site personnel involved in field activities fulfilled requirements of OSHA Standard 29 CFR 1910.120.

4.1.1 Soil Borings/Soil Screening

The initial subsurface investigation scope of work included the drilling of three borings in the vicinity of the former UST to determine the severity of contamination at the site. On July 7, 1995, a total of four soil borings were advanced on the property. Three borings were stopped because large boulders were encountered and a fourth boring was advanced to the water table (15 feet) and completed as monitoring well MW-1. The soil borings were installed with a truck-mounted vibratory AE-6 drill rig by Adams Engineering under EMCON supervision.

Soil boring locations are shown on Figure 2. Drilling depths are shown on Table 2. Soil boring SB-1 was completed as a monitoring well. Soil borings SB-2, SB-3 and SB-4 were abandoned by backfilling with bentonite and capping with concrete.

Continuous barrel samples were collected with a polyethylene line 5 foot by 2.375-inch ID sampler. Geologic descriptions of the soil were recorded in the field in order to prepare detailed geologic logs in accordance with the Burmiester Soil Classification System.

Field screening tests utilizing the headspace analysis (HSA) method were conducted on each continuous barrel sample. The tests were performed using a HNu PID equipped with an 11.7 eV lamp. The PID was calibrated with 100 ppm isobutylene standard. Geologic descriptions of the soil and soil jar headspace readings are included on the soil boring logs in Appendix C. The core barrel sampler was decontaminated between uses with a tap water

Table 2
NYNEX
ST. JOHNSBURY, VERMONT
SOIL BORING DEPTHS

Boring No.	Depth	Comment
SB-1	23'-0"	Completed as MW-1
SB-2	7'-8"	Refusal
SB-3	13'-6"	Refusal
SB-4	12'-6"	Refusal

rinse, an Alconox® wash, a deionized water rinse, methanol rinse and air dry followed by a final deionized water rinse. Drilling equipment was decontaminated between borings.

4.1.2 Monitoring Well Installation

Monitoring well MW-1 was installed in soil boring SB-1 to collect groundwater samples and measure groundwater depth. The location of MW-1 was selected based on the anticipated groundwater flow to the west/southwest toward the Passumpsic River. The monitoring well is constructed of a 1.5-inch ID, schedule 40, threaded, flush-jointed, polyvinyl chloride (PVC) riser pipe with a 10 foot section of machine slotted (10-slot) PVC well screen. The well screen was vibrated into the borehole and positioned to intersect the water table surface. Native soil collapse was noted in the annular space of the borehole from the bottom of the boring to 15 feet. A clean filter sand was installed in the annular space from a depth of 15 feet to approximately 3.5 feet above the well screen. A bentonite slurry seal, 7 feet thick, was placed above the filter sand. The monitoring well was completed with a locking PVC compression fit plug and flush mounted protective casing cemented in place. The monitoring well construction diagram is included in Appendix C.

4.1.3 Monitoring Well Development

On July 6, 1995, MW-1 was developed by a peristaltic pump to remove drill cuttings, clean the well screen and improve the hydraulic connection between the well screen and the water bearing strata.

4.1.4 Groundwater Sampling

On July 13, 1995, groundwater samples were collected from MW-1. Prior to sampling the water level of the monitoring well was measured to the nearest 0.01 foot, using an electronic water sensor probe. To assure that representative formation water was being sampled, the monitoring wells were bailed until the pH, specific conductance and temperature values of the discharge stabilized to within 10 percent variation. A minimum of three well volumes was evacuated from the well.

Groundwater samples were then shipped to Toxikon of Woburn, Massachusetts for analyses. Groundwater samples were analyzed for VOCs by USEPA Method 8260 and for TPH by USEPA Method 418.1

4.1.5 Soil Stockpile Screening and Sampling

Soil samples were collected from the petroleum contaminated stockpile. The stockpile measured 36 feet long by 15 feet wide and 6 feet high. The pile was partitioned into three equal reference areas. Each reference area had three sample locations. These nine sample locations are referred to as S-1 through S-9. Soil samples were gathered from three sample areas and a PID HSA reading was obtained. Additionally, four soil composites were gathered from S-1 through S-9 for analytical testing.

The soil samples were then shipped to Alpha Analytical Laboratory of Westborough, Massachusetts for analyses. The soil samples were analyzed for TPH by USEPA Method 418.1, VOCs by USEPA Method 8020, Flashpoint, pH, reactivity, PCBs, paint filter test, arsenic, cadmium, chromium, mercury, lead, barium, selenium, silver, herbicides and pesticides.

4.2 SENSITIVE RECEPTOR SURVEY

A sensitive receptor survey was conducted to identify any sensitive receptors that have the potential to be adversely impacted by the contamination onsite. The survey included the following items:

- identification of nearby drinking water wells;
- PID field screening of any adjacent buildings; and
- description and inspection of nearby surface waters.

Mr. Doug Bunnell of St. Johnsbury Water Department was contacted on July 26, 1995. Mr. Bunnell confirmed that the subject property and adjacent properties are serviced by municipal water and sewer and that there are no known private wells in the vicinity of the subject property. The municipal water supply for the Village of St. Johnsbury is Stiles Pond, located several miles southeast of the site.

The NYNEX maintenance facility is constructed on a concrete slab and does not have a basement. However, EMCON personnel conducted air monitoring in floor drains located in the NYNEX maintenance facility with a PID.

5.0 RESULTS

5.1 REGULATORY REVIEW

A review of the VTDEC files included an examination of the following files: 1) a report by Griffin International, dated October 12, 1993, documenting the presence and removal of the former 4,000 gallon gasoline UST; and 2) a receptor survey and soil stockpile screening report dated December 12, 1994, by ATC Environmental during the VTDEC file review. No other USTs or environmental concerns were identified. No other known releases of oil or hazardous materials have occurred in close proximity to the subject property.

5.2 GEOLOGY

The subsurface materials consist mainly of a coarse-grained, stratified, glacial drift deposit. This material is loosely consolidated, has a low proportion of silt and clay, and contains various sizes of sub-angular to semi-rounded cobbles and boulders. The saturated portion of the glacial drift deposit represents the overburden aquifer on the subject property.

5.3 SOIL SCREENING

HSA measurements taken on each core barrel sample in the soil borings installed were non-detect. Gasoline odors or soil staining were not observed in the core barrel samples collected from the soil borings.

5.4 SOIL STOCKPILE SCREENING AND SAMPLING

HSA measurements were obtained from stockpile soil sample locations S-1 to S-3. These measurements ranged from 20.0 to 38.0 ppm. The stockpiled soil sample analytical results were compared to soil recycling testing requirements of Bardon Trimount Environmental Services recycling plant in Burlington, Massachusetts. The analytical results exhibited characteristics that are within acceptable limits for recycling. The Bardon Trimount soil recycling testing requirements are included in Appendix D. Complete analytical results and chain-of-custody form for the soil samples collected from the soil stockpile are included in Appendix E.

5.5 GROUNDWATER SAMPLING

Groundwater was measured at a depth of 15.26 feet below the top of the PVC on July 13, 1995. Free product was not observed during groundwater sampling. A groundwater sample was collected on July 13, 1995, from the newly installed monitoring well. The groundwater sample was submitted for laboratory analyses for VOCs including xylenes and methyl-t-butyl ether by USEPA Method 8260 and for TPH by USEPA Method 418.1. No VOCs above laboratory detection limits were detected in the groundwater sample or in the trip blank. TPH was detected at a concentration of 4.42 milligrams per liter (mg/l). Complete laboratory analytical results and chain-of-custody are included in Appendix F.

5.6 SENSITIVE RECEPTOR SURVEY

The sensitive receptor survey revealed that the subject site is not in a WHPA, and that there are no nearby drinking water supplies in the vicinity of the subject site. Air monitoring, conducted within the garage area of the facility with a PID did not indicate the presence of elevated volatile organic compounds (VOCs). No evidence of floating product or of a sheen was observed either the well or in the garage facility floor drains. No VOCs were detected with a PID in the building floor drains. The small drainage ditch/stream located on the northeast section of the property was dry.

6.0 SUMMARY AND CONCLUSIONS

One monitoring well and three soil borings were installed at the NYNEX maintenance facility in St. Johnsbury, Vermont. Difficult drilling conditions were encountered at each location due to the glacial deposits beneath the site consisting of cobbles and boulders. The monitoring well installed is likely to be downgradient of the UST and dispenser excavation, on the basis of topography with anticipated groundwater flow to the southwest toward the Passumpsic River.

PID field screening of soil samples by HSA during installation of the borings were below VTDEC guidelines. No VOCs were detected in the groundwater sample collected from the monitoring well installed. TPHs were detected in the groundwater sample at a concentration of 4.42 mg/l.

A regulatory review was conducted for the subject site and adjacent properties. No other releases of oil or hazardous materials, other than the known gasoline release, were identified for the NYNEX St. Johnsbury site.

The sensitive receptor survey conducted did not reveal any impact to the adjacent NYNEX building or floor drain system. Additionally there are no known drinking water supplies onsite or in the vicinity of the subject site.

As a result of the initial site investigation, EMCON has concluded the following:

1. PID readings in the soil borings installed on the site (SB-1 to SB-4) in the vicinity of the former dispenser excavation indicated no VOCs present above VTDEC soil guidelines of 20 ppm.
2. No separate phase floating layer of petroleum product was observed in the downgradient monitoring well (MW-1). No dissolved VOCs were detected in groundwater (MW-1). Low level TPHs were detected at a concentration of 4.42 mg/l, but are significantly below VTDEC guidelines.
3. No sensitive receptors identified during this investigation have been impacted by the documented release of gasoline to the soil and groundwater at the NYNEX site.

PID
was
malfunctioning!



4. A minor release of petroleum product occurred onsite, but was removed during the tank removal process. Residual soil and groundwater contaminants are below VTDEC remedial guidelines and appear to have no significant or harmful impact to potential receptors.
5. Analytical results for the composite soil sample collected from the stockpile exhibited characteristics which would be acceptable to Bardon Trimount soil recycling plant in Burlington, Massachusetts.

7.0 RECOMMENDATIONS

EMCON does not recommend implementing corrective actions or further investigation at this time because:

- No impact to sensitive receptors have been identified.
- No known drinking water sources exist on or in the vicinity of the subject site.
- No separate phase product was identified in the downgradient monitoring well installed.
- No VOCs were detected in the downgradient monitoring well installed.
- TPHs were detected in low concentrations in the monitoring well installed.
- PID readings in the soil borings installed were below VTDEC guidelines.

The results presented in this initial site investigation suggest that the NYNEX site has met the requirements as presented in the VTDEC HMMD Draft Site Management Activities Completed (SMAC) Classification Procedure (December 13, 1993). Therefore, EMCON recommends that the site should be considered for a SMAC designation.

8.0 LIMITATIONS

1. Observations described in this report were made under the conditions stated herein. Findings presented in the report were based solely upon the services described in NYNEX Work Order No. ES95852-A and not on tasks or procedures beyond the scope of the described services.
2. Information presented in this report was obtained from the parties herein referenced. EMCON did not attempt to independently verify the accuracy or completeness of information received from other parties during the course of this investigation.
3. Except as specified in this report, EMCON did not perform any other physical, chemical or biological testing.
4. The purpose of this investigation was to characterize the type and quantity of oil and/or hazardous materials released at the site and to characterize and evaluate the risk of harm that the site poses to health, safety, public welfare, and the environment. Further investigative site information which was not available to EMCON at the time of this investigation may result in a modification to the findings stated herein. This report has been prepared in accordance with generally accepted site assessment practices. No other warranty, expressed or implied, is made.
5. The results of the subsurface investigation are limited to information obtained from soil and groundwater samples collected from the ground surface to a depth of approximately 20 feet. No conclusions regarding soil or groundwater quality beneath these physical limits of the investigation are expressed or implied.

9.0 REFERENCES

City of St. Johnsbury Assessor's office records. Reviewed by EMCON personnel on July 6, 1995.

U.S. Environmental Protection Agency (USEPA) Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), June 29, 1995.

USEPA Resource Conservation and Recovery Act (RCRA) Generators, Treatment, Storage and Disposal Index, June 29, 1995. Reviewed by EMCON personnel on July 24, 1995.

U.S. Geological Survey (USGS) 15 Minute Topographic Quadrangle Map, St. Johnsbury, Vermont (1975).

USGS and Vermont Department of Water Resources, Groundwater Favorability Map of the Nulhegan River Basing, Vermont, 1967.

USGS, Vermont Geological Survey, 1972.

Vermont Department of Environmental Conservation (VTDEC) Hazardous Sites List, September 8, 1994. Reviewed by EMCON personnel on July 24, 1995.

VTDEC Oil and Hazardous Materials Spill/Release List, reviewed by EMCON personnel on July 24, 1995.

VTDEC Pulled UST Facilities List, March 1, 1995. Reviewed by EMCON personnel on July 24, 1995.

VTDEC Underground Storage Tank Facilities List, March 1, 1995. Reviewed by EMCON personnel on July 24, 1995.

Griffin International, UST Removal Documentation Report, October 1993.

APPENDIX A
VTDEC CORRESPONDENCE
GRIFFIN UST REMOVAL ASSESSMENT REPORT



State of Vermont

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

RECEIVED
11/4/93

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 244-5141

October 28, 1993

Mike LaRow
New England Telephone
125 High Street Room 1006
Boston, MA 02110

RE: Petroleum contamination at New England Telephone in St. Johnsbury
(Site #93-1481)

Dear Mr. LaRow:

The Sites Management Section (SMS) has received a report outlining the subsurface assessment for the above referenced site, conducted by Ron Miller of Griffin International on October 8, 1993. This report, dated October 12, summarizes the degree and extent of contamination encountered during the assessment. The tank pulled was a 4,000 gallon, gasoline, underground storage tank (UST) which was reportedly in good condition.

During the tank pull, soils screened around the dispenser pump had peak concentrations of 240 ppm as measured by a photoionization detector (PID). Soils were highly permeable, coarse sand and gravel and sloped towards the east of the tank pit. At a distance of eight feet east of the dispenser, contamination increased at depth to 30 ppm at 14 feet below ground surface (bgs). However, PID readings taken from samples from beneath the water table, which was encountered at 17 feet bgs, had measurements of 3.0 ppm. No free product was encountered at the water table. An attempt was made to excavate all petroleum contaminated soils (PCS). A total of 100 cubic yards of PCS was excavated before time constraints halted further excavation. Peak PID readings remaining in the tank pit, after excavating PCS, were 42 ppm at 10 feet bgs along the north wall and 30 ppm at 14 feet bgs at the bottom of the southeast corner. Based on a USGS Topographic Map, it appears that there is a small stream immediately to the north of the site and flowing west to the Passumpsic River reportedly 150 feet from the site.

Based on the above information, the SMS has determined that some additional work is necessary at the site in order to determine the severity of contamination present. Therefore, the SMS is requesting that New England Telephone retain the services of a qualified environmental consultant to perform the following:

1. Determine the degree and extent of contamination to groundwater. Since soil was found to contain evidence of contamination at the water table, a sufficient number of monitoring wells should be installed in locations which will adequately define the severity of contamination at

the site. Any soil borings taken should have split spoon samples screened with a PID in order to further define the degree and extent of contamination to soils. All groundwater samples taken should be analyzed for BTEX and MTBE compounds using EPA Method 8020.

3. Perform an assessment of the site to determine the potential for sensitive receptors to be impacted by the contamination. This should include basements of adjacent buildings, nearby surface water including the tributary to the Passumpsic River, and any public or private drinking water wells which are located within the vicinity of the site. If any water supplies appear at risk from this contamination, they should be sampled and analyzed using EPA 8020.

3. Develop a plan to treat and/or monitor the 100 cubic yards of stockpiled soils. The soils must remain located in an area such that they have a low potential to impact nearby receptors. They must also remain properly encapsulated in plastic. If the soils are to be moved offsite, the SMS or UST Program must grant permission prior to their transport.

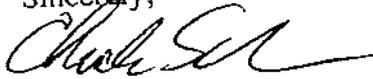
4. Determine the need for a long term treatment and/or monitoring plan which addresses the contamination present at the site. The need for such a plan should be based on the results of the above investigations.

5. Submit to the SMS a summary report which outlines the work performed as well as providing conclusions and recommendations. Included should be detailed well logs, analytical data, site map including the location of sensitive receptors and the stockpiled soils, area map, and a groundwater contour map.

Please have your consultant submit a preliminary work plan and cost estimate within fifteen days of your receipt of this letter so that it may be approved prior to the initiation of onsite work.

If you have any questions, please feel free to call.

Sincerely,



Chuck Schwer, Supervisor
Sites Management Section

cc: St. Johnsbury Selectboard
DEC Regional Office
Ron Miller, Griffin International, Inc.

Jan Sherwin, NET
Dave Hill, NET

mattm/wp/931481



12 October 1993

Mr. Marc Coleman
Management and Prevention Section
State of Vermont, DEC
103 South Main Street
Waterbury, VT 05671-0404

Dear Mr. Coleman:

On 8 October 1993, I inspected the removal of one underground storage tank (UST) system at the New England Telephone (NET) maintenance facility in St. Johnsbury, VT. NET owned the tank system, but leases the property. Please find attached the State of Vermont Tank Pull Forms and Site Map Forms for this assessment, and photographs of the tank and excavations.

The 4,000 gallon single-walled steel tank, piping, and dispenser were used to store gasoline for NET vehicles from their installation in about 1967 until several weeks prior to their removal. The UST system was removed by Calkins Excavating of Danville, Vermont during facility renovation, and was not replaced. Griffin screened several soil samples from around the tank system elements with an HNU Model PI-101 photoionization detector (PID). The PID was calibrated with isobutylene gas to a benzene reference.

Visual inspection of the tank upon removal indicated that it was in good condition, with some rust, but no apparent holes. Approximately three yards of soils around the fill pipe exhibited gasoline odor; two composite samples collected from these soils had PID readings of 34 and 120 parts per million (ppm). The soils around the fill pipe were excavated and placed on polyethylene pending disposal. No odors were detected in any other soils surrounding the tank. PID readings on samples collected from those soils ranged from 0.0 to 1.8 ppm, and averaged approximately 0.3 ppm.

Soils immediately beneath the dispenser were discolored and exhibited an "old" gasoline odor, but did not appear to be saturated with gasoline. A sample collected from immediately beneath the dispenser had a PID reading of 88 ppm. The average PID reading of soils within five feet of the dispenser was approximately 100 ppm. Initial excavation efforts suggested that the petroleum-containing soils might be restricted both laterally and vertically. PID readings on soil samples collected from immediately beneath the pump were as follows: 3' (depth): 100 ppm; 5': 90 ppm;

7': 65 ppm; 8': 2.8 ppm; 11': 4.8 ppm. After receiving approval from the general contractor on the site, an attempt was made to remove all of the petroleum-containing soils from beneath the dispenser.

Continued excavation east of the dispenser suggested that petroleum had apparently migrated preferentially downward toward the east, probably along east-dipping sand and gravel zones within the soil. Approximately eight feet east of the dispenser, soils from near the surface to a depth of six feet contained no odors or elevated PID readings, but soils from six to twelve feet had "old" gasoline odors and PID readings that ranged from 40 to 90 ppm. Several feet farther east, PID readings were less than 2 ppm to a depth of 10 feet, then increased to 15 ppm at 12 feet and 30 ppm at 14 feet. A small test pit in the bottom of the excavation encountered groundwater at approximately 17 feet below the surface. A soil sample collected from immediately beneath the water table surface had a PID reading of 3.0 ppm.

Because of the coarse nature of the soils, the apparent sloped migration, and the slightly elevated PID reading on a sample beneath the water table surface, it was determined that excavation of all of the petroleum-containing soils would not be feasible. Approximately 100 yards of excavated soils, which likely contained most of the residual petroleum that had been released from the dispenser, were stockpiled on and covered with polyethylene pending a decision on disposal.

Final PID readings were as follows:

West Wall (under bldg)	South Wall	Southeast Corner	North Wall
4': 1.0 ppm	4': 6.0 ppm	4': 0.0 ppm	4': 1.6 ppm
9': 0.8 ppm	8': 5.8 ppm	8': 1.6 ppm	
	10': 1.7 ppm	10': 1.8 ppm	10': 42 ppm
	12': 6.8 ppm	12': 15 ppm	12': 1.4 ppm
	14': 3.0 ppm	14': 30 ppm	14': 5.0 ppm

A steep embankment slopes upward toward the south and east from the tank area. One building is located on the site. The building is built on a concrete slab, and does not have a basement. The Passumpsic River, which flows generally southward, lies approximately 150 feet west of the building. Soils at the site consist principally of coarse-to-fine sand, with irregularly shaped, discontinuous zones of sand and gravel. Groundwater was encountered at approximately 17 feet below the surface, and likely flows generally westward, toward the Passumpsic River. All buildings in the area are believed to be served by municipal water and sewer supplies.

In summary, one gasoline UST system was removed from the NET facility in St. Johnsbury, VT. A small volume of petroleum-containing soils was removed from around the fill pipe. Neither the gasoline tank nor the piping appear to have leaked. There was apparently a petroleum release to the subsurface in the vicinity of the dispenser, however. Soils immediately beneath the dispenser were not saturated with petroleum, and exhibited an "old", or weathered, odor. Thus it appears likely that the dispenser was not actively releasing petroleum; the source of the release may have

been from a previous dispenser. Most of the petroleum-containing soils near the dispenser were excavated and polyencapsulated on site. The removal of the bulk of petroleum-containing soils will likely limit future impacts to groundwater, and should accelerate soil and groundwater restoration by the natural processes of dilution, dispersion, and degradation. Excavation of all of the petroleum-containing soils was not feasible, because the petroleum had apparently migrated downward and toward the east along sloping zones of highly permeable soil. Groundwater beneath the site may have been slightly impacted. No evidence of residual petroleum was detected in soils underlying the on-site building.

Recommendations

Although the bulk of petroleum-containing soils have likely been removed, the degree and extent of soil and groundwater impacts are unknown. Therefore, Griffin recommends a limited site assessment at the site, to include installation of three groundwater monitoring wells, laboratory analysis of groundwater samples, a receptor risk assessment, and a summary report.

Please give me a call if you have any questions or comments about this work.

Sincerely,



Ron Miller
Geologist

- c. Mr. Mike LaRow, New England Telephone
- Mr. Dana Calkins, Calkins Excavating
- Mr. David Legendre, Legendre and Sons

Ref: 4445tpi.doc
Attachments

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
TANK PULL FORM

TODAY'S DATE: 10/8/93

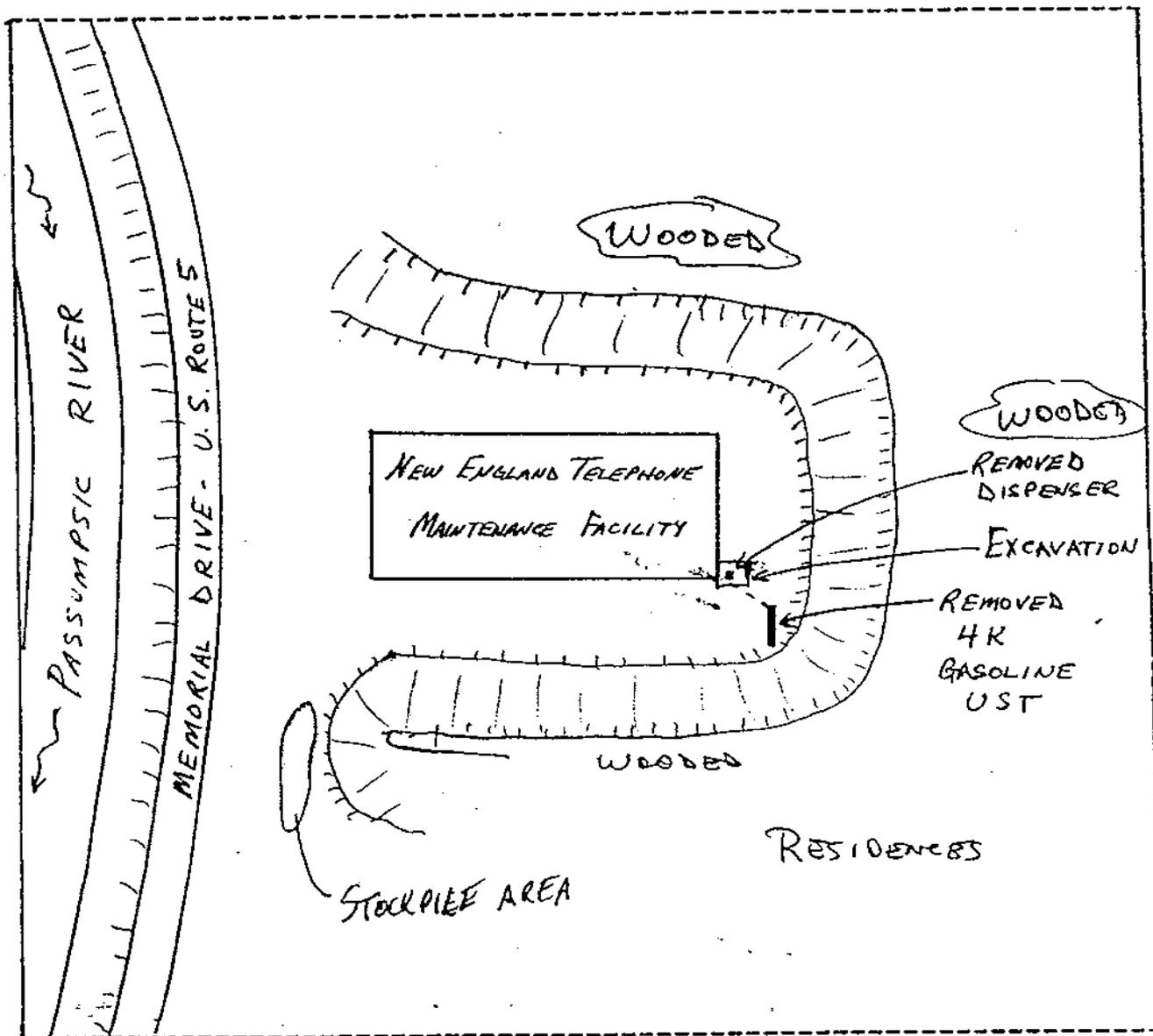
INSPECTOR: Ron Miller

DATE OF REMOVAL: 10/8/93

BUSINESS NAME: New England Telephone
St. Johnsbury, VT

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 103 SOUTH MAIN STREET
 WATERBURY, VERMONT 05671-0404
 (802) 244-8702

Date of Removal: 10/8/93 Date of Assessment: 10/8/93
 Person & Company Doing Assessment: Ron Miller - Griffin International, Inc.
 Telephone Number: 879-7708

Business Name Where Tank(s) Located: New England Telephone Maintenance Facility
 Number of Employees: ~20
 Street Address & Town/City: Memorial Drive
St. Johnsbury, VT 05819

Owner of Tank(s): New England Telephone Contact Person: Mike LaRow
 Address: 125 High Street, Room 1006 Phone Number: (617) 743-6824
 Town/City: Boston, MA 02110

UST Facility ID Number: VTD 980915649

Tank #	Product	Size	Condition
1	<u>Gasoline</u>	<u>4,000 gallon</u>	<u>Good</u>
2			
3			
4			

Reason for Tank Removal (check one): abandoned routine replacement
 tank or piping leaking liability

Replacement Tank(s)? yes no Number of Replacement Tanks: _____

DEC UST Permit(s) Obtained? yes no N/A

DEC-Permitted Tank(s) Still On-Site? yes no Number of Tanks: _____

Out of Service Tank(s) On-Site? yes no Number of Tanks: _____

Heating Oil Tank(s) On-Site? yes no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? yes no Estimated Volume: 135 gallons

Transported By: Not yet determined

Size of Excavation (ft²): DISPENSER - 180 - Depth: 3' - 17' Soil Type: SAND, w/ SAND & GR
TANK - 250 - Concentrations Detected with PID: Peak = 240 - Dispenser Average = 60 - dispenser L

Type of PID: HNU PI-101 Number of Readings (please put locations on attached drawing): 0.3 - tank
120 - Around All

Calibration Info. (date, time, type of gas): 10/8/93 1230H. 15.6 butylene tetroene

Free Phase Product Encountered? yes no Approx. Amount: _____

Cont. Soils Stockpiled? yes no Amount (yd³): 100

Cont. Soils Backfilled? yes no Amount (yd³): _____

Groundwater Encountered? yes no Depth to Groundwater: 17'

Monitoring Wells Installed? yes no Number: _____ Screen Depth: _____

On-Site Drinking Well? yes no (if yes: rock gravel spring)

Public Water Supply Well(s) Within 1/4 Mile? yes no unknown, none rep.
 Distance to nearest: Unknown

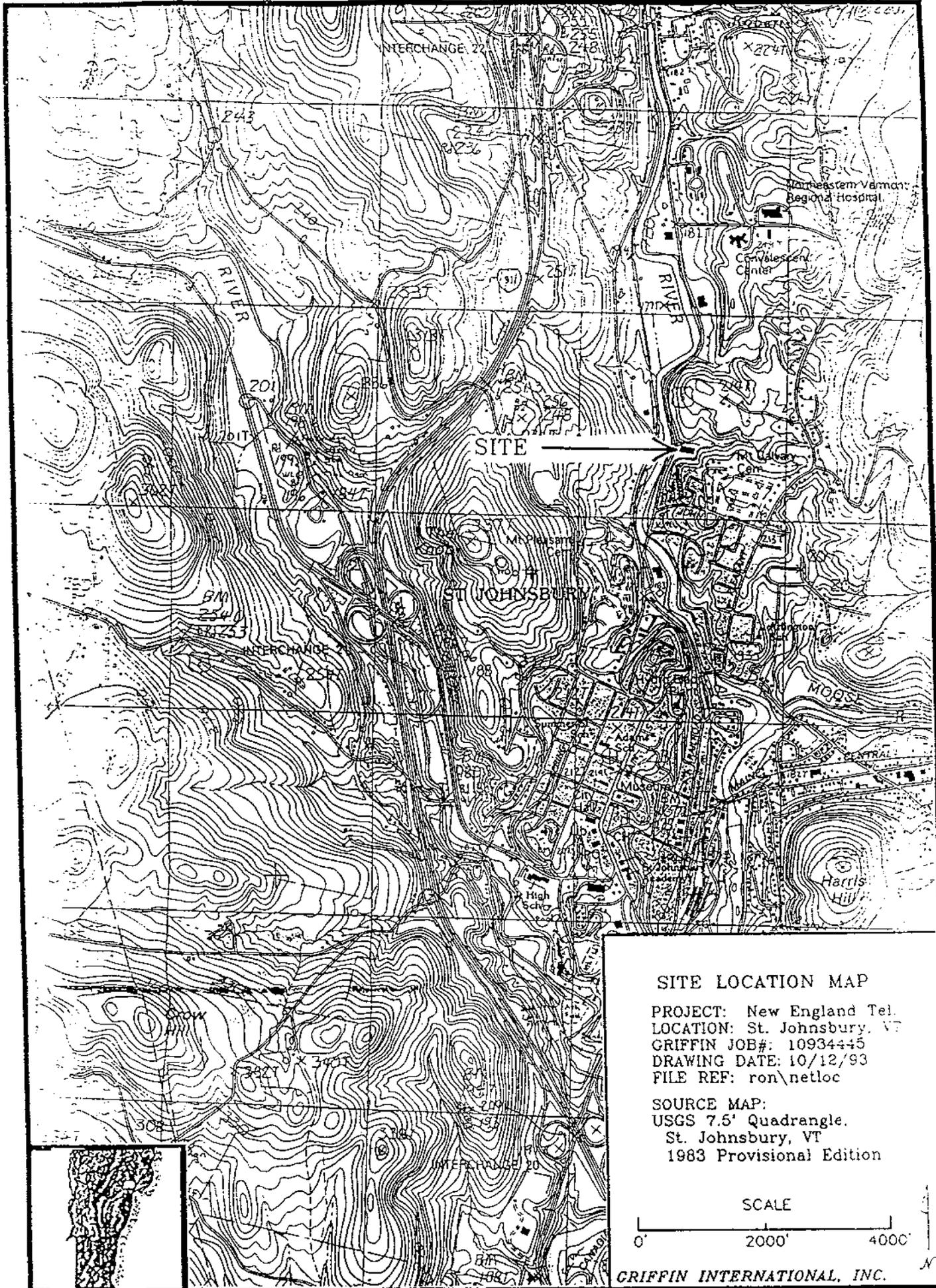
Private Water Supply Well(s) Within 1/4 Mile? yes no How Many? None report
 unknown

Samples Collected for Laboratory Analysis? yes no How Many? _____
 (check all that apply: soil groundwater drinking water)

Receptors Affected (check all that apply):
 soil residential; # of houses/people: _____
 groundwater surface water; name/type of water body: _____

Signature of Owner or Authorized Representative: _____
 Date: _____
 Signature of Person Performing Site Assessment: [Signature]
 Date: 10/12/93

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

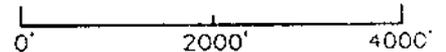


SITE LOCATION MAP

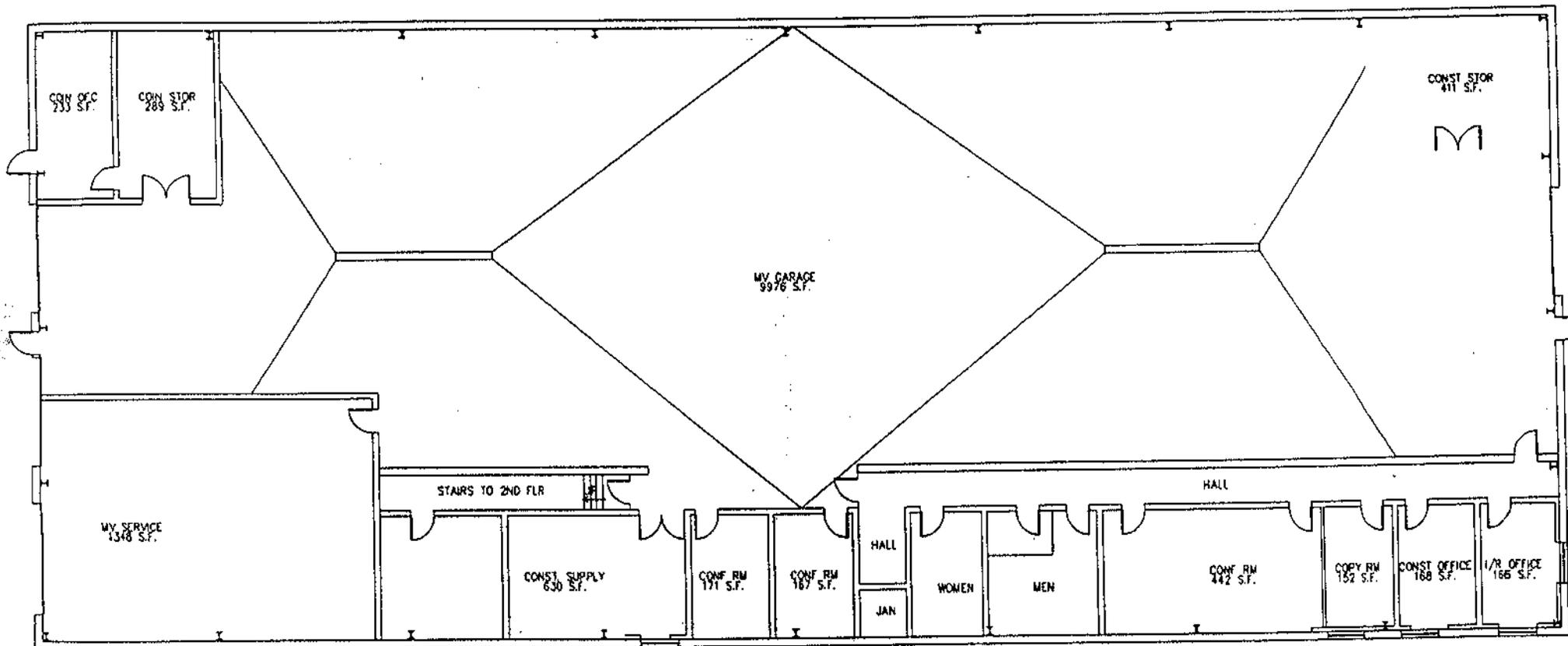
PROJECT: New England Tel.
LOCATION: St. Johnsbury, VT
GRIFFIN JOB#: 10934445
DRAWING DATE: 10/12/93
FILE REF: ron\netloc

SOURCE MAP:
USGS 7.5' Quadrangle.
St. Johnsbury, VT
1983 Provisional Edition

SCALE



GRIFFIN INTERNATIONAL, INC.



NA CORE 448 S.F. NA NONASSNBL 843 S.F.

DATE OF LAST CHANGE: 03/01/95

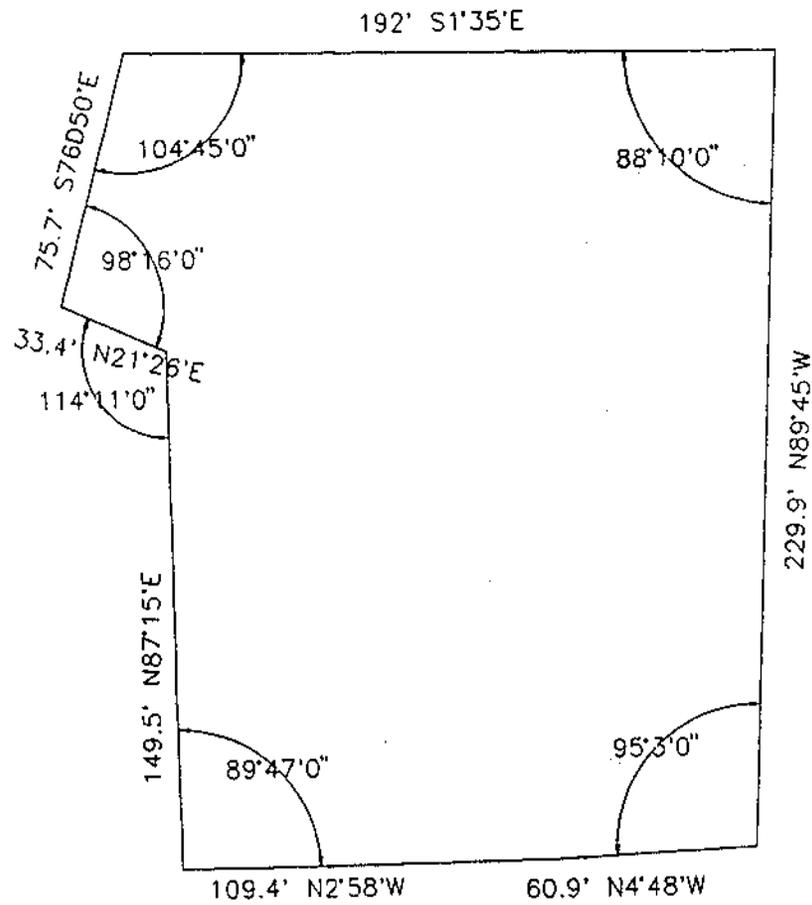
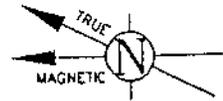
• VERIFY ALL MEASUREMENTS WHEN USING PLANS FOR CONSTRUCTION PURPOSES •

NYNEX
ASSET MANAGEMENT

MEMORIAL DRIVE
ST. JOHNSBURY, VT

01

GROSS AREA	=	15448 S.F.
CORE AREA	=	448 S.F.
NONASSIGNABLE	=	843 S.F.
VACANT	=	0 S.F.
TOTAL ASSIGNED	=	14153 S.F.



SO. MAIN STREET

19 SO. MAIN STREET
ST. JOHNSBURY,
VT

REAL ESTATE CODE: 4795-6



New England Telephone

REAL ESTATE OPERATIONS 125 HIGH ST. BOSTON
TELEPHONE: (617) 740-6830 05/11/93

LAND AREA: 42,681 S.F.
BLDC. AREA:
NET AREA:
SCALE: 1" = 40'

APPENDIX B
SITE INVESTIGATION EXPRESSWAY NOTIFICATION



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
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
Hazardous Materials Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 244-5141

SITE INVESTIGATION EXPRESSWAY NOTIFICATION

Site Owner: NYNEX

Site Name, Town: NYNEX facility, St. Johnsbury, VT (Site No. 93-1481)

X Yes, this site will participate in the Site Investigation Expressway Process.

No, this site will not participate in the Site Investigation Expressway Process.

If yes, please complete the checklist below:

Contamination present in soils above action levels X Yes No

If yes, summarize levels:

PID soil screening results 3 - 240 ppm. PID readings of soil remaining in Tank Pit after excavation 30-42 ppm.

Free product observed Yes X No

Groundwater contamination observed X Yes No

Surface water contamination observed Yes X No

Suspected release of hazardous substances X Yes No

If yes, please explain:

Leak from gasoline UST and/or piping

Affected receptors Yes X No

If yes, please identify receptors including names and addresses of third party receptors:

[Blank lines for identifying receptors]

Please provide an estimated date of when you expect to submit Site Investigation Report: 9/8/95

APPENDIX C
SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM



PROJECT: NYNEX St. Johnsbury, Vermont
CLIENT: NYNEX
CONTRACTOR: Adams Engineering

PROJECT NO: 85554-001.000

RIG:

GS ELEV: *NA/1.*
N-S COORD: *NA*
E-W COORD: *NA*
WL REF ELEV: *NA/1.*
DATE STARTED: 07/06/95
DATE FINISHED: 07/06/95
OPERATOR: G. Adams
GEOLOGIST: J. Hayes

GROUNDWATER DATA (feet)				CASING	SAMPLE	TUBE	CORE
DATE 7/6/95	GW DEPTH	GW ELEV 2.0-22.0	INTAKE	TYPE	NO		
				DIAM.	2-2/8" OD		
				WEIGHT	140 lbs		
				FALL	30"		

WELL CONSTRUCT	DEPTH (feet)	SAMPLE NUMBER	SAMPLE & TYPE	RECOVERY (inches)	N-VALUE	LOG	HNU	FIELD DESCRIPTION (Modified Burmister Methodology)	REMARKS
								No sample collected. Drilled through asphalt pavement.	
		S-1	X				0	Light brown SILT and fine SAND, some medium to coarse Sand, trace fine Gravel, dry.	
		S-2	X				0	Light brown, medium and coarse SAND, some fine Sand, little Silt, trace fine to medium Gravel, dry.	
		S-3	X				0	Light brown, medium and coarse SAND, some fine Sand, little Silt, trace fine to medium Gravel, dry.	
	5	S-4	X				0	Light brown, medium and coarse SAND, some fine Sand, little Silt, little fine to medium Gravel, dry.	
		S-5	X				0	Light brown, fine to medium SAND, some coarse Sand, little Silt, trace fine to medium Gravel, dry.	
		S-6	X				0	Light brown, fine to coarse SAND, some fine to medium Gravel, little Silt, trace coarse Gravel, dry.	
		S-7	X				0	Light brown, SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-8	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
	10	S-9	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-10	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-11	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-12	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-13	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
		S-14	X				0	Light brown SILT and FINE SAND, little coarse Sand, trace fine Gravel, dry.	
	15	S-15	X				0	Medium brown, fine to coarse SAND, little fine to medium Gravel, trace Silt, moist.	
		S-16	X				0	Medium brown SILT and FINE SAND, little medium Sand, moist.	
		S-17	X				0	Medium brown SILT and FINE SAND, little medium Sand, moist.	
		S-18	X				0	Medium brown SILT and FINE SAND, little medium Sand, moist.	
		S-19	X				0	Medium brown SILT and FINE SAND, some medium to coarse Sand, little fine to medium Gravel, moist to wet.	
	20	S-20	X				0	Medium brown SILT and FINE SAND, some medium to coarse Sand, little fine to medium Gravel, wet.	
		S-21	X				0	Medium brown SILT and FINE SAND, some medium to coarse Sand, little fine to medium Gravel, wet.	
							0	Medium brown SILT and FINE SAND, some medium to coarse Sand, little fine to medium Gravel, wet.	
	25							Hole collapsed to 16 feet. Vibrated 1.5" ID PVC well to 22 feet.	
								END OF BORING AT 23 FEET	
								NOTES 1. PID is a photoionization detector headspace analysis reading measured in parts per million. 2. Well is constructed of 1.5-inch diameter PVC.	



PROJECT: NYNEX St. Johnsbury, Vermont
CLIENT: NYNEX
CONTRACTOR: Adams Engineering

PROJECT NO: 85554-001.000

RIG:

GS ELEV: *NAft.*
N-S COORD: *NA*
E-W COORD: *NA*
WL REF ELEV: *NAft.*
DATE STARTED: 07/06/95
DATE FINISHED: 07/06/95
OPERATOR: G. Adams
GEOLOGIST: J. Hayes

GROUNDWATER DATA (feet)				CASING	SAMPLE	TUBE	CORE
DATE	GW DEPTH	GW ELEV	INTAKE	TYPE	NO		
				DIAM.	2-2/8" OD		
				WEIGHT	140 lbs		
				FALL	30"		

WELL CONSTRUCT	DEPTH (feet)	SAMPLE NUMBER	SAMPLE & TYPE	RECOVERY (inches)	N-VALUE	LOG	HNU	FIELD DESCRIPTION (Modified Burmister Methodology)	REMARKS
	5							Light brown SILT and FINE SAND, little coarse to medium Sand, trace fine to medium Gravel, dry. Piece of rock in tip.	HNu malfunction
	6.5							Light brown SILT and FINE SAND, little coarse to medium Sand, trace fine to medium Gravel, dry. No odor or staining. Refusal at 6.5 feet.	
	7.8							Light brown SILT and FINE SAND, little coarse to medium Sand, trace fine to medium Gravel, dry. No odor or staining. Refusal at 7.8 feet	
								END OF BORING AT 7.8 FEET	

APPENDIX D
BARDON TRIMOUNT SOIL RECYCLING TESTING REQUIREMENTS

BARDON TRIMOUNT ENVIRONMENTAL SERVICES70 Blanchard Road
Burlington, MA 01803Recycling Plant Location1101 Turnpike Street
Stoughton, MA 02072EPA ID MAD981213531
Permit #S-90-020

Soil Recycling Testing Requirements

Test Required	Test Frequency	Limits			
		Gas Contamination	Oil Contamination		
TPH:	100 cu. yds.	---	50,000 ppm		
VOLATILE ORGANICS (EPA 8240):	100 cu. yds. (gas cont. soil)	500 ppm total VOC 5 ppm chlorinated (total)	----		
	500 cu. yds. (oil cont. soil)	----	500 ppm total VOC 5 ppm chlorinated (total)		
FLASHPOINT:	500 cu. yds.	140 F min.	140 F min.		
PH:	"	Between 2 and 12.5	Between 2 and 12.5		
REACTIVITY: (sulfide and cyanide)	"	Non-reactive	Non-reactive		
PCE'S:	"	2 ppm	2 ppm		
PAINT FILTER:	"	No free liquids	No free liquids		
METALS:	"	TOTAL (ppm)	TCLP* (ppm)	TOTAL (ppm)	TCLP* (ppm)
		30	5	30	5
Arsenic		30	1	30	1
Cadmium		500	5	500	5
Chromium		10	0.2	10	0.2
Mercury		1,000	5	1,000	5
Lead					

*TCLP metals are not necessary if Total levels indicate that, mathematically, TCLP levels can not be exceeded (20 times rule).

GC/PID is required if source of contamination is not known.

soil shall be accepted for recycling if any hazardous contaminant is present.

BTES/1100.B

APPENDIX E
STOCKPILED SOIL ANALYTICAL RESULTS

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

CERTIFICATE OF ANALYSIS

Client: Emcon Laboratory Job Number: L9505009
Address: Chace Mill Box B15 Invoice Number: 75479
1 Mill Road Date Received: 07-JUL-95
Burlington, VT 05401 Date Reported: 21-JUL-95
Attn: Nicholas Nowlan Delivery Method: FedEx
Project Number: 85554-001-000
Site: NYNEX

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L9505009-01	SS-1	St. Johnsbury, VT

Authorized by: James R. Roth

James R. Roth, PhD - Laboratory Manager

ALPHA ANALYTICAL LABORATORIES
 CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9505009-01
 SS-1

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP ANALYSIS	ID
Volatile Organics by GC/MS				1	8260	18-Jul 18-Jul	DB
Methylene chloride	ND	ug/kg	50.				
1,1-Dichloroethane	ND	ug/kg	15.				
Chloroform	ND	ug/kg	15.				
Carbon tetrachloride	ND	ug/kg	10.				
1,2-Dichloropropane	ND	ug/kg	35.				
Dibromochloromethane	ND	ug/kg	10.				
1,1,2-Trichloroethane	ND	ug/kg	15.				
2-Chloroethylvinyl ether	ND	ug/kg	100				
Tetrachloroethene	ND	ug/kg	15.				
Chlorobenzene	ND	ug/kg	35.				
Trichlorofluoromethane	ND	ug/kg	50.				
1,2-Dichloroethane	ND	ug/kg	15.				
1,1,1-Trichloroethane	ND	ug/kg	10.				
Bromodichloromethane	ND	ug/kg	10.				
trans-1,3-Dichloropropene	ND	ug/kg	15.				
cis-1,3-Dichloropropene	ND	ug/kg	10.				
Bromoform	ND	ug/kg	10.				
1,1,2,2-Tetrachloroethane	ND	ug/kg	10.				
Benzene	ND	ug/kg	10.				
Toluene	ND	ug/kg	15.				
Ethylbenzene	ND	ug/kg	10.				
Chloromethane	ND	ug/kg	100				
Bromomethane	ND	ug/kg	20.				
Vinyl chloride	ND	ug/kg	35.				
Chloroethane	ND	ug/kg	20.				
1,1-Dichloroethene	ND	ug/kg	15.				
trans-1,2-Dichloroethene	ND	ug/kg	15.				
Trichloroethene	ND	ug/kg	10.				
1,2-Dichlorobenzene	ND	ug/kg	100				
1,3-Dichlorobenzene	ND	ug/kg	100				
1,4-Dichlorobenzene	ND	ug/kg	100				
Methyl tert butyl ether	ND	ug/kg	100				
Xylenes	ND	ug/kg	10.				
cis-1,2-Dichloroethene	ND	ug/kg	10.				
Dibromomethane	ND	ug/kg	100				
1,4-Dichlorobutane	ND	ug/kg	100				
Iodomethane	ND	ug/kg	100				
1,2,3-Trichloropropane	ND	ug/kg	100				
Styrene	ND	ug/kg	10.				
Dichlorodifluoromethane	ND	ug/kg	100				
Acetone	ND	ug/kg	100				
Carbon Disulfide	ND	ug/kg	100				
2-Butanone	ND	ug/kg	45.				
Vinyl Acetate	ND	ug/kg	100				
4-Methyl-2-pentanone	ND	ug/kg	100				
2-Hexanone	ND	ug/kg	100				
Ethyl methacrylate	ND	ug/kg	100				
Acrolein	ND	ug/kg	250				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9505009-01
SS-1

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP ANALYSIS	ID
Volatile Organics by GC/MS continued				1	8260	18-Jul 18-Jul	DB
Acrylonitrile	ND	ug/kg	100				
Bromochloromethane	ND	ug/kg	50.				
2,2-Dichloropropane	ND	ug/kg	50.				
1,2-Dibromoethane	ND	ug/kg	50.				
1,3-Dichloropropane	ND	ug/kg	50.				
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.				
Bromobenzene	ND	ug/kg	50.				
n-Butylbenzene	ND	ug/kg	50.				
sec-Butylbenzene	ND	ug/kg	50.				
tert-Butylbenzene	ND	ug/kg	50.				
o-Chlorotoluene	ND	ug/kg	50.				
p-Chlorotoluene	ND	ug/kg	50.				
1,2-Dibromo-3-chloropropane	ND	ug/kg	50.				
Hexachlorobutadiene	ND	ug/kg	50.				
Isopropylbenzene	ND	ug/kg	50.				
p-Isopropyltoluene	ND	ug/kg	50.				
Naphthalene	ND	ug/kg	50.				
n-Propylbenzene	ND	ug/kg	50.				
1,2,3-Trichlorobenzene	ND	ug/kg	50.				
1,2,4-Trichlorobenzene	ND	ug/kg	50.				
1,3,5-Trimethylbenzene	ND	ug/kg	50.				
1,2,4-Trimethylbenzene	ND	ug/kg	50.				
trans-1,4-Dichloro-2-butene	ND	ug/kg	50.				
Ethyl ether	ND	ug/kg	250				

SURROGATE RECOVERY

Toluene-d8	93.0	%					
4-Bromofluorobenzene	93.0	%					
Dibromofluoromethane	93.0	%					

Polychlorinated Biphenyls 1 8080 12-Jul 18-Jul DB

Arochlor 1221	ND	ug/kg	250				
Arochlor 1232	ND	ug/kg	250				
Arochlor 1242/PCB 1016	ND	ug/kg	250				
Arochlor 1248	ND	ug/kg	250				
Arochlor 1254	450	ug/kg	250				
Arochlor 1260	ND	ug/kg	250				
Arochlor 1262	ND	ug/kg	250				
Arochlor 1268	ND	ug/kg	250				

SURROGATE RECOVERY

2,4,5,6-Tetrachloro-m-xylene	100.	%					
Decachlorobiphenyl	89.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L9505009

Parameter	Value 1	Value 2	RPD	Units
pH	DUPLICATE for sample(s) 01			
	8.5	8.6	1	SU
Hydrocarbons, Total	DUPLICATE for sample(s) 01			
	28000	28000	0	mg/kg
Total Metals	DUPLICATE for sample(s) 01			
Arsenic, Total	1.4	1.3	8	mg/kg
Cadmium, Total	ND	ND	NC	mg/kg
Chromium, Total	11.	9.6	16	mg/kg
Lead, Total	5.4	5.8	7	mg/kg
Total Metals	DUPLICATE for sample(s) 01			
Mercury, Total	ND	ND	NC	mg/kg

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L9505009

Parameter	% Recovery
Hydrocarbons, Total	SPIKE for sample(s) 01 100
Total Metals	SPIKE for sample(s) 01
Arsenic, Total	106
Cadmium, Total	85
Chromium, Total	90
Lead, Total	78
Total Metals	SPIKE for sample(s) 01
Mercury, Total	100

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L9505009

Parameter	MS %	MSD %	RPD
Volatile Organics by GC/MS Spike Recovery MS/MSD for sample(s) 01			
1,1-Dichloroethene	102	87	16
Trichloroethene	101	97	4
Benzene	101	96	5
Toluene	104	94	10
Chlorobenzene	101	100	1

ALPHA ANALYTICAL LABS
ADDENDUM I

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. 1986.
3. Standard Methods for Examination of Water and Waste Water. APHA-AWWA-WPCF. 17th Edition. 1989.

GLOSSARY OF TERMS AND SYMBOLS

- REF Reference number in which test method may be found.
- METHOD Method number by which analysis was performed.
- ID Initials of the analyst.

ALPHA

Analytical Laboratories, Inc.

Eight Walkup Drive
Westborough, MA 01581-1019
508-898-9220 FAX 508-898-9193

CHAIN OF CUSTODY RECORD and ANALYSIS REQUEST RECORD

No. 53483
Sheet 1 of 1

Company Name: EMCON	Project Number: 5554-001	Project Name/Location: NYNEX / ST. Johnsbury, VT	Date Received in Lab: 7/7	Date Due: 7/21
Company Address: Chace Mill, 1 Mill Street Burlington, VT 05401	P.O. Number:	Project Manager: Nicholas Nowlan	Alpha Job Number: (Lab use only) 9505009	
Phone Number: 802-658-6884	FAX No.: 658-594			

ALPHA Lab # (Lab Use Only)	Sample I.D.	Containers (number/type)	Matrix / Source	Method Preserve. (number of containers)						Solubles - F.F.	Sampling Date Time	Analysis Requested
				Unpres.	Ice	Nitric	Sulfuric	HCl	Other			
5009-1	SS-1	G	S							7/6/95 10:30	TPH (IR-418.1), VOCs (2260), Flash point, (TS) pH, Reactivity, PCBs, Paint Filter Test, Total As, Cd, Cr, Pb, Hg, Bi, Se, Ag, Herbicide/Pesticide (Four Containers)	

Sampler's Signature: <i>[Signature]</i>	Affiliation: EMCON	Date: 7/6/95	Time: 13:00	NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
ADDITIONAL COMMENTS: Samples shipped FedEx on 7/6/95 priority Cancel Pest/Herb TBase Ag per Nick Nowlan 7/7/95				1	<i>[Signature]</i>	<i>[Signature]</i>	7/7/95	10:00
				2				
				3				

APPENDIX F
GROUNDWATER ANALYTICAL RESULTS

Received: 07/14/95

07/19/95 10:02:15

REPORT EMCON
TO CHACE MILL, 1 MILL STREET
BURLINGTON, VT 05401
802-658-6884; 5014 (FAX)

PREPARED TOXIKON CORPORATION
BY 225 WILDWOOD AVE
WOBURN, MA 01801

Paul Lezberg
CERTIFIED BY

ATTEN NICK NOWLAN

ATTEN PAUL LEZBERG
PHONE (617)933-6903

CONTACT PAUL

CLIENT EMCON VT SAMPLES 3

COMPANY EMCON
FACILITY CHACE MILL, 1 MILL STREET
BURLINGTON, VT 05401

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE
CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS,
DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778
FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-c.

WORK ID NYNEX ST JOHNSBURY, VT

TAKEN 7/13/95

VERIFIED BY: *Douglas E. Keely*

TRANS _____

TYPE WATER

P.O. # _____

INVOICE under separate cover

SAMPLE IDENTIFICATION

TEST CODES and NAMES used on this workorder

- 01 MW-1
- 02 MW-1
- 03 TRIP BLANK

- 8260 PURGEABLE ORGANICS VOA
- TPH IR TPH BY IR

Received: 07/14/95

Results by Sample

SAMPLE ID MW-1FRACTION 01A TEST CODE 8260 NAME PURGEABLE ORGANICS VOADate & Time Collected 07/13/95 11:40:00 Category WATER**EPA 8260 PURGEABLE ORGANICS**

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	10	m-Xylene	ND	5.0
Vinyl Chloride	ND	10	p-Xylene	ND	5.0
Chloroethane	ND	10	1,2-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,3-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	1,4-Dichlorobenzene	ND	5.0
Trichlorofluoromethane	ND	10	Naphthalene	ND	10
1,1-Dichloroethane	ND	5.0	n-Propylbenzene	ND	10
Trans-1,2-Dichloroethene	ND	5.0	Bromobenzene	ND	5.0
Chloroform	ND	5.0	Bromochloromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	n-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	sec-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	tert-Butylbenzene	ND	10
Bromodichloromethane	ND	5.0	2-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	4-Chlorotoluene	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Dibromochloromethane	ND	5.0	1,2-Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dibromomethane	ND	5.0
Benzene	ND	5.0	Dichlorodifluoromethane	ND	10
1,1-Dichloropropene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
2-2-Dichloropropane	ND	5.0	1,3-Dichloropropane	ND	5.0
Bromoform	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Hexachlorobutadiene	ND	10	1,2,3-Trichlorobenzene	ND	5.0
Isopropylbenzene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0	1,2,4-Trichlorobenzene	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Toluene	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Ethyl Benzene	ND	5.0			
p-Isopropyltoluene	ND	10			

Notes and definitions for this report:

DATE RUN 07/18/95
 ANALYST CM
 INSTRUMENT HP-V2
 DIL. FACTOR 1
 UNITS ug/L
 COMMENTS _____

ND = Not detected at detection limit

Page 3
Received: 07/14/95

TOXIKON CORP. REPORT
Results by Sample

Work Order # 95-07-186

SAMPLE ID <u>MW-1</u>	SAMPLE # <u>02</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>07/13/95 11:40:00</u> Category <u>WATER</u>
TPH IR <u>4.42</u>	
mg/L DL=1.0	

Received: 07/14/95

Results by Sample

SAMPLE ID TRIP BLANKFRACTION 03ATEST CODE 8260NAME PURGEABLE ORGANICS VOADate & Time Collected 07/13/95 11:40:00Category WATER**EPA 8260 PURGEABLE ORGANICS**

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	10	m-Xylene	ND	5.0
Vinyl Chloride	ND	10	p-Xylene	ND	5.0
Chloroethane	ND	10	1,2-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,3-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	1,4-Dichlorobenzene	ND	5.0
Trichlorofluoromethane	ND	10	Naphthalene	ND	10
1,1-Dichloroethane	ND	5.0	n-Propylbenzene	ND	10
Trans-1,2-Dichloroethene	ND	5.0	Bromobenzene	ND	5.0
Chloroform	ND	5.0	Bromochloromethane	ND	5.0
1,2-Dichloroethane	ND	5.0	n-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	sec-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	tert-Butylbenzene	ND	10
Bromodichloromethane	ND	5.0	2-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	4-Chlorotoluene	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Dibromochloromethane	ND	5.0	1,2-Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dibromomethane	ND	5.0
Benzene	ND	5.0	Dichlorodifluoromethane	ND	10
1,1-Dichloropropene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
2-2-Dichloropropane	ND	5.0	1,3-Dichloropropane	ND	5.0
Bromoform	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Hexachlorobutadiene	ND	10	1,2,3-Trichlorobenzene	ND	5.0
Isopropylbenzene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Tetrachloroethene	ND	5.0	1,2,4-Trichlorobenzene	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Toluene	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Ethyl Benzene	ND	5.0			
p-Isopropyltoluene	ND	10			

Notes and definitions for this report:

DATE RUN 07/18/95
 ANALYST CM
 INSTRUMENT HP-V2
 DIL. FACTOR 1
 UNITS ug/L
 COMMENTS

ND = Not detected at detection limit

Received: 07/14/95

Test Methodology

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

