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NEW YORK STATE SUPERFUND CONTRACT

Immediate Investigation Work Assignment
Data Report

Mohonk Road Industrial Plant Site
Immediate Investigation Work Assignment

Site No. 356023

Work Assignment No. D002676-17

DATE: January 1997

Prepared for:

New York State
Department of
Environmental Conservation

50 Wolf Road, Albany, New York 12233
John Cahill, *Acting Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., *Director*

By:

Lawler, Matusky & Skelly Engineers LLP

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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW AND OBJECTIVES

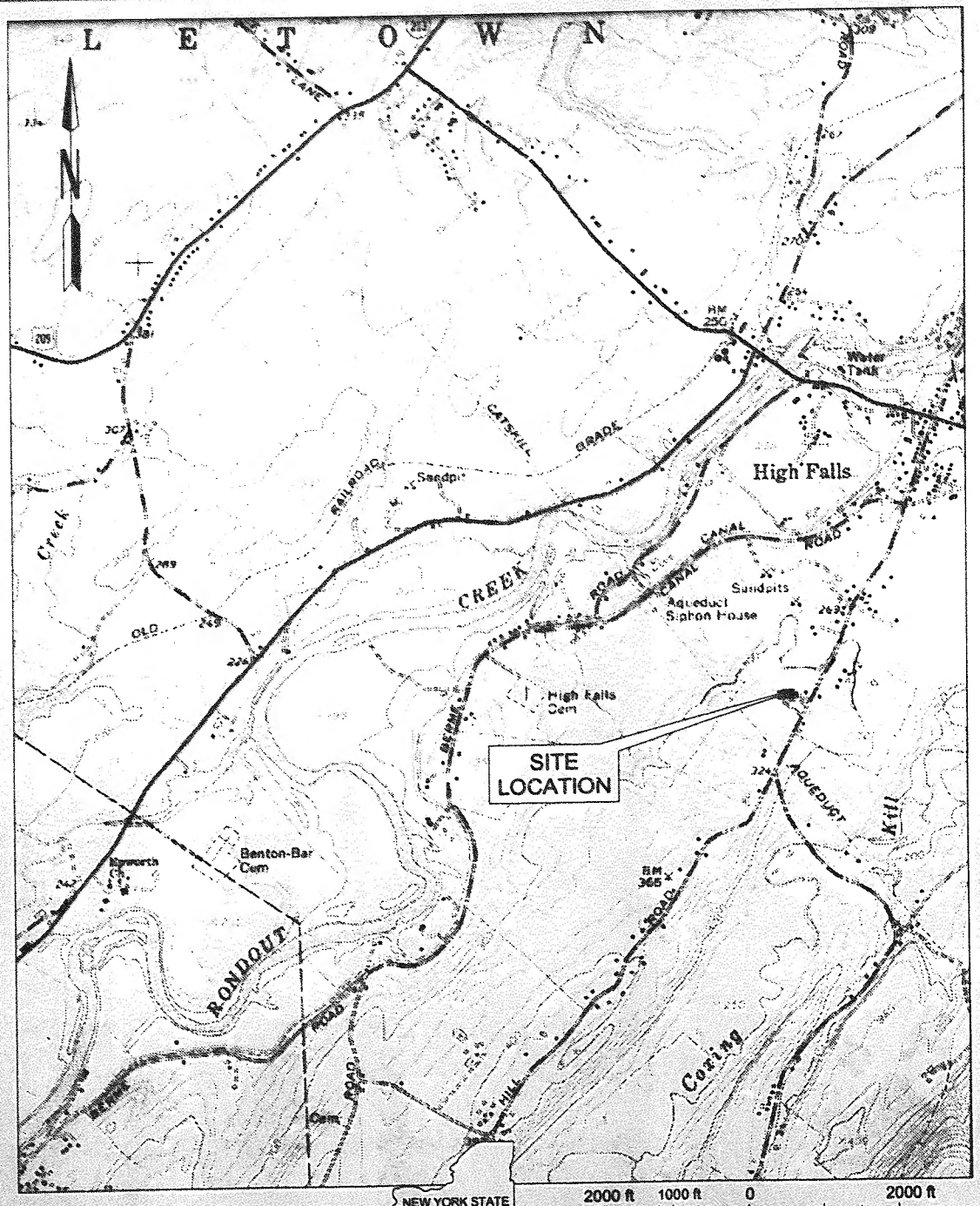
Lawler, Matusky & Skelly Engineers LLP (LMS) under a New York State Superfund Contract with the New York State Department of Environmental Conservation (NYSDEC) has been assigned an Immediate Investigation Work Assignment (IIWA) at the former Mohonk Road Industrial Plant (MRIP) (NYSDEC Site ID# 356023) in the Town of Marbletown, Hamlet of High Falls, Ulster County. This site is designated as a Class 2 site on the New York State Registry of Inactive Hazardous Waste Sites and is the suspected source of chlorinated solvent contamination to numerous residential wells, some of which are more than 1 mile from the site. The objectives of the IIWA project are to:

- Identify any potential on-site source areas that may be contributing to the recognized groundwater contamination, by completing a portion of the field investigation scope of work described in the Expanded Site Investigation (ESI) Work Plan completed by the NYSDEC and approved by the U.S. Environmental Protection Agency (EPA).
- Evaluate existing subsurface soil and shallow groundwater conditions at the site and determine what additional field investigation work may be required to characterize the nature and degree of contaminants.
- Based on the available data, recommend any Interim Remedial Measures (IRMs) that may be needed to address specific problems recognized at or in the vicinity of source areas.

1.2 SITE LOCATION AND DESCRIPTION

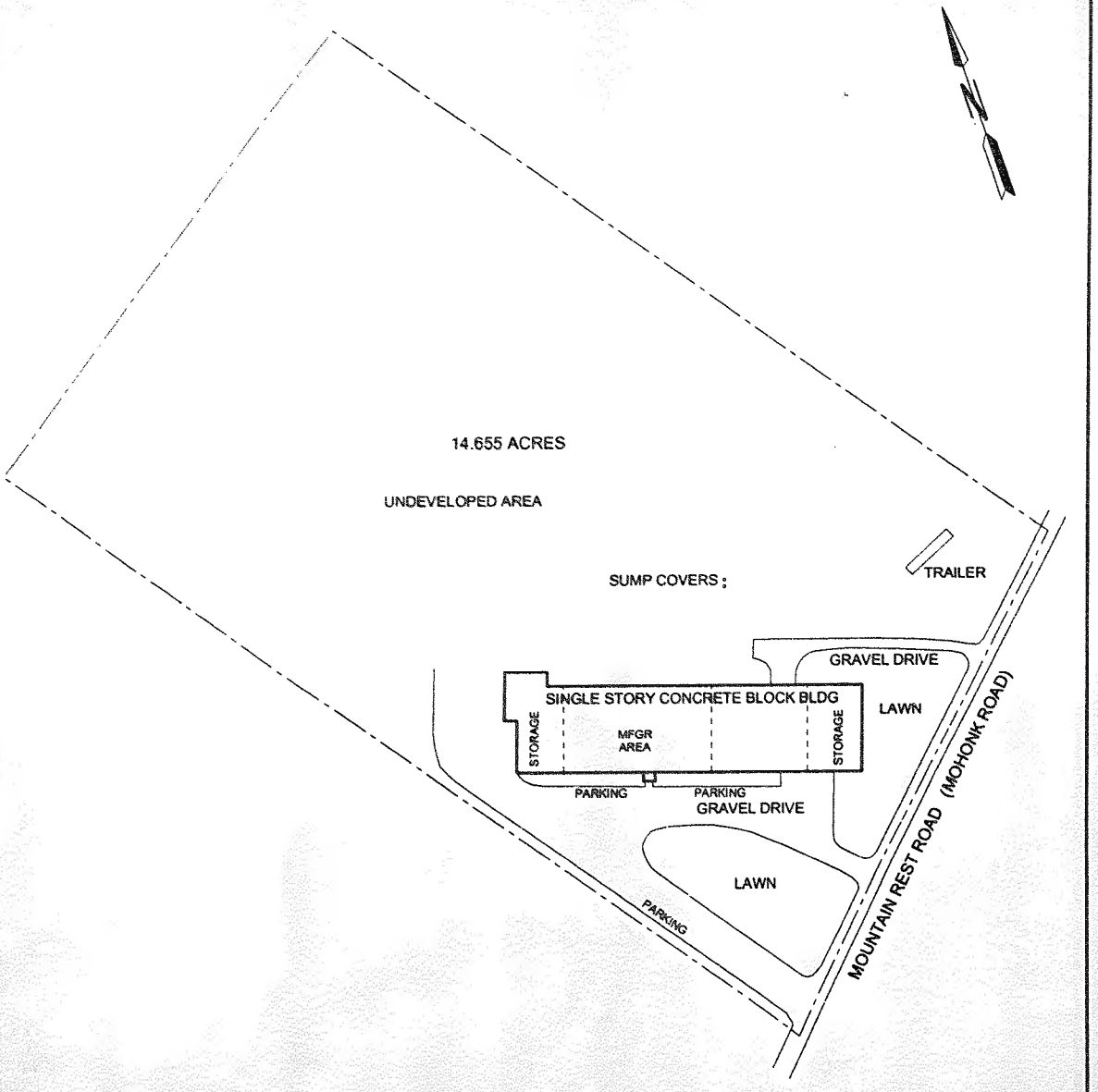
The MRIP site is located at 186 Mohonk Road outside of the hamlet High Falls, New York (Figure 1-1). The site is approximately 14.5 acres most of which is undeveloped property (Figure 1-2). The site is bounded on the southeast by Mohonk Road and to the northeast, northwest, and southwest by residential properties on large wooded lots. The property located to the southwest is currently used to store machinery and trucks utilized for paving operations.

The MRIP property is mostly undeveloped except for the southern corner of the site, which is occupied by an approximately 43,000-ft^2 building (Figure 1-2). The area south of the building consists of a large lawn and gravel driveway. The gravel drive also wraps around the side of the building providing access to loading docks along the western end of the building. The lawn



Map source:
USGS 7.5-minute Quadrangle Map,
Mohonk Lake, NY, 1964.

LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site Location** **Mohonk Road Industrial Plant** NYSDEC I.D. No. 356023	**Figure 1-1**



200 ft 0 200 ft

APPROXIMATE SCALE IN FEET

Map source: Richard T. Sherman, P.C., 1981.

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Figure 1-2

Site Map

MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023

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and driveway slopes gently down to a culvert that passes beneath Mohonk Road (Mountain Rest Road). A row of shrubs exists along the building and a row of mature trees is along the southwest property line.

The small open area immediately west of the building is level to the edge of the driveway. At the edge of the driveway, the fill that was placed to bring the driveway to grade drops down to a wooded section, which makes up most of the extreme western section of the property. The wooded area slopes gently to the north. Small piles of debris are present along the western fringes of the driveway. Large piles of discarded furniture mixed with other debris are located just north of the end of the drive, as are several large piles of gravel.

The area east of the building is grass lawn with several mature trees. The area slopes down toward Mohonk Road to a small retaining wall approximately 2 ft high along Mohonk Road. A set of stairs is located near the center of the of the retaining wall. Based on the arrangement of the trees and retaining wall with steps, it is likely that at one time this area (when it was a farm) contained a residence that was associated with the existing building.

A separate gravel drive provides access to a loading dock on the north side of the building. The steep slope along the perimeter of the building indicates that a substantial amount of fill was placed beneath the building prior to the building's construction. At the base of the fill, the ground surface slopes gently to the north. The slope steepens sharply as it approaches the northern property boundary. Most of the area is open except for small wooded areas that occur along some of the steeper slopes and along what were probably old property lines (based on the remnants of stone walls). An abandoned mobile home is located north of the northeast building corner.

Two sumps with concrete access covers believed to be associated with an abandoned septic system are located just over 100 ft north of the building in one of the wooded areas. An iron discharge pipe is located in an embankment north of the mobile home. Two PVC discharge pipes were also observed: one at the west end of building in line with the eastern edge of the garage, and one in some brush just south of the mobile home. Bedrock was observed outcropping north of the discharge point of the iron pipe on an adjacent property.

1.3 SITE BACKGROUND

1.3.1 Site History

The on-site structure was originally constructed as a chicken coop around 1940. The building may have also been a motel prior to being converted to a manufacturing facility in the early 1960s when a metal finisher, Varifab, moved into the building from the Rosendale area.

Consolidated Diesel purchased both Varifab and the property in about 1969 and continued operating the facility until 1972, when the property was conveyed to R.C. Ballard Corporation, who conducted a wet spray painting operation there. The property was purchased in 1975 by a Richard C. Wilson who operated there for six months.

In 1976 the property was purchased by Gelles Associates, which manufactured store display fixtures. In 1992 Banco Popular of Puerto Rico reposed the property. In 1993 the property was purchased by the Kithkin Corporation and is currently used by a wood products manufacturer.

In 1994 a resident on Mohonk Road contacted the New York State Department of Health (NYSDOH) concerning the quality of her drinking water. A water sample collected from the resident's well in April 1994 was found to contain the following volatile organic compounds: (VOCs) 1,1,1-trichloroethane; trichloroethene; 1,1-dichloroethene; and 1,1-dichloroethane. Over one hundred residences and businesses were then sampled by NYSDOH and Ulster County Department of Health (UCDOH). A large number of these wells were also contaminated. NYSDEC is providing granular activated carbon filtration systems to the residents and businesses whose water contains contaminants exceeding the NYSDOH drinking water standard of 5 micrograms per liter (μg/l). NYSDEC identified the MRIP site as the source of contamination, and in August of 1994 the site was designated as Class 2 site on the New York State Registry of Inactive Hazardous Waste Sites. The Class 2 designation indicates that the site poses a significant threat to the public health and the environment (NYSDEC 1996).

1.3.2 Previous Investigations

A Phase I Environmental Assessment was performed on the property by Enviropact, Inc., dated July 1992. The Phase I report documented the presence of 11 empty drums along the western rear perimeter of the building, as well as a partially filled drum in an adjacent waste pile. Other drums also noted inside the building contained Transultex F cutting oil and Luster FOS 1410. The loading dock area also contained one overflowing drum of waste oil and three full

An out of service 4000-gal fuel oil underground storage tank (UST) was also reported along the north side of the building. The Phase I report documents the current septic system as being in the front portion of the building below the parking area. The old septic system was reportedly abandoned in 1992 after the leach field became clogged by tree roots.

A Phase II investigation performed by Enviropact, Inc., dated 17 February 1993 documents the removal of a 6000-gal UST. The tank was previously believed to be a 4000-gal UST but was determined to be 6000 gal upon excavation. Five soil samples were collected from the tank excavation and analyzed for total petroleum hydrocarbons (TPH). The highest TPH concentration detected was 305 mg/kg. Soil samples were also collected adjacent to the metal dust accumulators for total metals content. No metals were detected in excess of regulatory levels.

Enviropact also collected two composite samples from a total of 10 drums on-site. The composite samples were analyzed for toxicity characteristic leaching procedure (TCLP) metals, VOCs, semivolatile organic compounds (SVOCs), PCBs, pH, and flash point. One composite sample was collected from drums inside and outside the loading dock and next to the wash/dry unit. The second composite sample of drums included drums inside the loading dock and waste oil outside. The drums contained the following VOCs (with the highest detected concentration indicated in parentheses): 1,1-dichloroethene (938 mg/kg), toluene (10,400 mg/kg), 1,1,1-trichloroethane (31,000 mg/kg), ethylbenzene (480 mg/kg), and xylene (10,100 mg/kg). The semivolatile compound bis(2-ethylhexyl)phthalate was also detected in one sample.

The only other documented sampling performed at the site was conducted by NYSDEC on 18 May 1995. Samples were collected from 0 to 2 ft. and analyzed for VOCs. Five samples were collected north of the building near the loading dock. One sample was collected at the septic tank area north of the building. One sample was collected between the driveways on the south side of the building, and the last sample was collected just off of the property southwest of the building. None of these soil samples had VOCs detected in excess of the NYSDEC soil cleanup objectives (Welling 1996).

1.3.3 Site Reconnaissance

On 30 September 1996 LMS personnel met representatives from NYSDEC at the site to perform a site reconnaissance. During the site visit the NYSDEC representatives pointed out five general areas where disposal was suspected to have occurred. The first area included the west and northwest sides of the building where waste drums were formerly stored, as well as the perimeter of the building and loading dock on the north side of the building. The second

area was the open area off the northwest end of the building. The third area was the edge of the driveway at the west end of the building. The fourth area was beneath the slab of the building where floor drains are or were present. The last area consisted of the two sumps believed to associated with the septic system located north of the building.

A drum partially filled with fluid was observed during the site visit off the northwest corner of the building. The soil beneath the drum was stained with what appeared to be oil. A small stainless steel pan found in the same area appeared to have contained paint thinner.

The locations of the two sumps north of the building are shown on Figure 1-2. The sumps consist of a 3.5-ft-diameter concrete cover with a removable 8-in^2. access cover. The cover to one of the sumps was removed during the site visit and water flow was observed within the sump. At about 1 ft below the top of the covers, the opening was reduced to about 2-ft in diameter by a corrugated steel pipe. A pipe could be seen at the south end of the southern sump. The sump had a strong septic and solvent odor.

A walk-through of the interior of the building was also performed as part of the site visit to note any floor drains or other interior features that might indicate former processes or waste disposal practices. The west end of the building was being used for the assembly of cabinets at the time of the site visit. Several floor drains were observed in the 1982 additions to the building at the east end and garage area at the northwest corner of the building. Waste disposal at the site is believed to have occurred prior to adding onto the building; therefore, the floor drains in the additions are not suspect. Several floor drains were observed in the older section of the building, which had been sealed with concrete. No other areas where waste disposal was likely to have taken place were observed in the building.

Two wells are present in the building: one well at the west end and the other in a doorway at the east end. The only well in service is the well at the west end of the building, which provides water to a faucet. This faucet is used only to manually flush the toilets in the restrooms. There is no on-site source of potable water. Additional details on the depth, construction, and pump settings on the two wells were not available.

CHAPTER 2

FIELD INVESTIGATION PROCEDURES

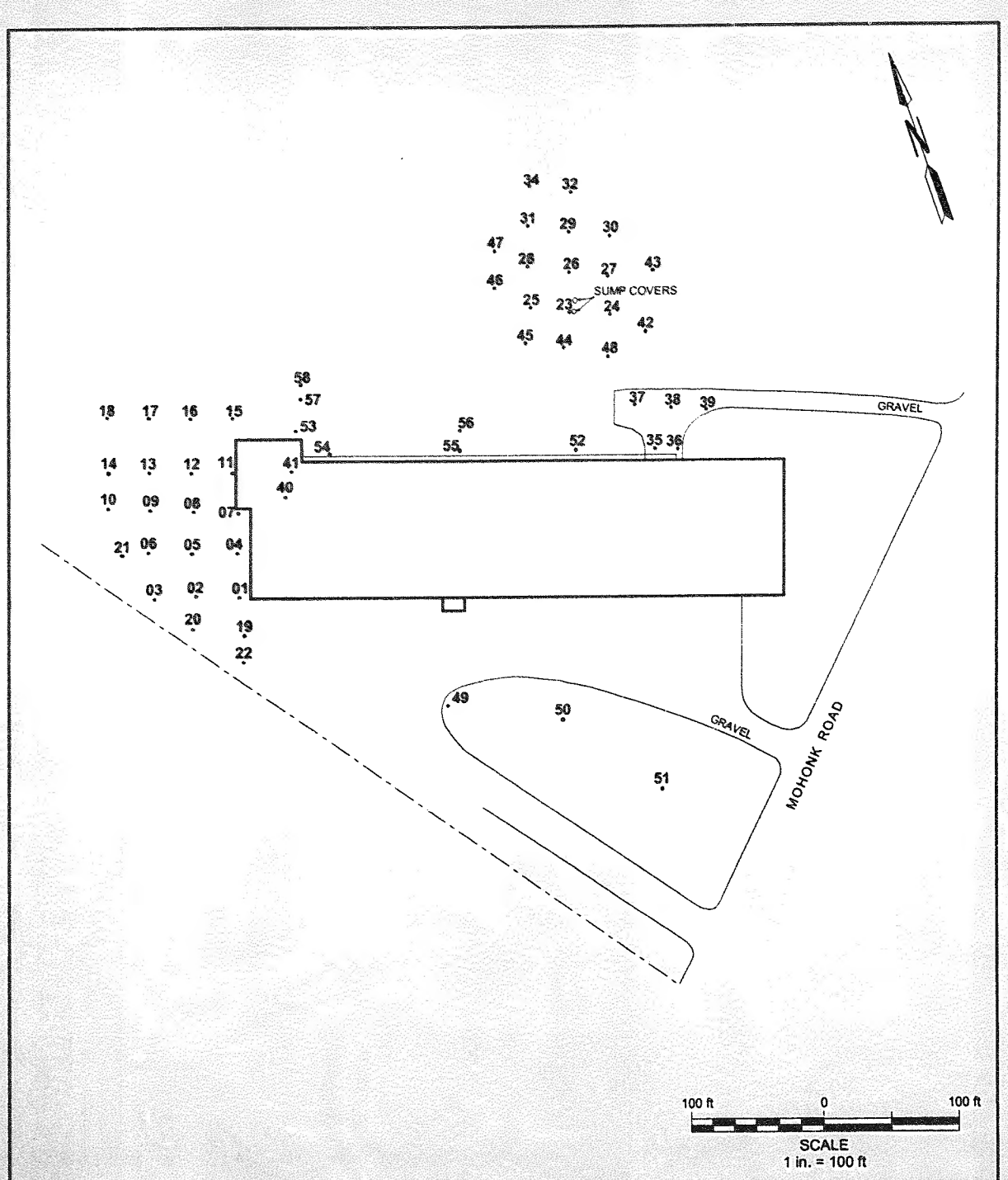
One of the objectives of this IIWA is to identify potential sources that may be contributing to the recognized chlorinated solvent plume affecting numerous residential drinking water wells in the High Falls area. To identify potential on-site sources, field screening of soil gas was conducted across the site. Based on the results of the soil gas sampling, soil sampling was conducted in areas exhibiting elevated soil gas results. In addition to the samples taken during the source area investigation, a number of additional groundwater samples were needed for the ESI. These samples were collected from five new monitoring wells installed across the site. All field investigation procedures and field screening were conducted following NYSDEC protocols and guidelines. Detailed descriptions of the procedures used are found below.

2.1 FIELD SCREENING

2.1.1 Soil Gas Screening

Between 7 and 17 October 1996 soil gas sampling was performed across the site (Figure 2-1). The purpose of the soil gas screening was to aid in the selection of locations for soil borings. A total of 57 soil gas probes were installed during this part of the investigation. Twenty-two soil gas samples were collected along the west side of the building using a 30-ft grid spacing, with the exception of the northernmost row, where a 40-ft spacing was used due to the presence of sand and gravel piles. Eighteen soil gas probes on a 30-ft grid system were installed around the septic tank north of the building. Twelve points were installed along the northern perimeter of the building focusing on the doorways and loading docks where waste may have been dumped. Two points were installed inside the building, adjacent to the loading dock at the western end of the building. A third point was attempted inside the building, but refusal was encountered at a depth of 18 in. in two locations. The refusal encountered at this location may be part of a structure remaining after the expansion of the building. The remaining three points were installed on the south side of the building in the grassy area between the driveways. These points were installed in an attempt to sample a septic leach field believed to be located in front of the building.

The soil gas samples were collected using a Concord 9200 truck-mounted direct-push probe unit. The probe unit is used to push rods fitted with an expendable drive point directly into the ground. Several soil gas points in the vicinity of the sumps north of the building were inexcessable to the probe unit due to vegetation or muddy conditions. These points were



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51 Soil gas point location
(Prefix **MRSG-** preceeds each point location number)

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Figure 2-1

Soil Gas Point Locations

MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023

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driven and removed by hand with a slide hammer. The rods were advanced to a depth of 4 ft and then raised 6-in. The rods were then capped with a fitting and an air pump attached to draw out the soil gas. The rods and pump were purged for a minimum of 5 min prior to collecting a sample. Samples were collected either by filling a syringe that could be injected directly into the mobile laboratory gas chromatograph (GC), or by filling a Tedlar bag. All soil gas samples were submitted to the on-site mobile laboratory for analysis.

2.1.2 Soil Screening

Based on the results of the soil gas sampling, 21 soil probes (Figure 2-2) were installed: 18 probes in areas exhibiting elevated soil gas results and three background locations. Of the 18 probes installed in areas exhibiting elevated soil gas results, seven were installed in the area west of the building, three along the northern perimeter of the building, and eight in the vicinity of the former septic system. Of the three background soil probes, two were installed on the east side of the building and a third was installed at the southwestern corner of the property.

The soil probes were advanced by LMS using a Concord 9200 truck-mounted direct-push probe unit, which hydraulically pushes a sampler directly into the ground. Two types of samplers were used that are similar in design with the exception of size. The macro-core sampler is about 4 ft long and has an inside diameter (I.D.) of 1.5 in. The macro core sampler is generally used for shallow soil sampling above the water table where the hole stays open. The large-bore sampler is 2 ft long with a 1 in. I.D. that can typically be driven to greater depths than the macro core sampler. The large-bore sampler can also be fitted with a drive point that can be removed upon reaching the sample depth, which allows sampling at discrete intervals. Both the macro-core and large-bore samplers are fitted with disposable acetate liners in which the soil is recovered. After removal from the probe, both ends of the liners were capped and holes were punched into the liner, allowing the soil to be scanned with a flame ionization detector (FID) for the presence of organic vapors.

Soil probes were typically advanced to a depth of 12 ft or to probe refusal using a macro-core sampler. Two probes, MRSS-6 and MRSS-8, were advanced with the large-bore sampler to refusal at depths of 14 and 15 ft below grade, respectively. These two borings were located adjacent to the drum storage and debris disposal areas at the western side of the building. The large-bore sampler was also used in several locations where refusal was encountered with the macro-core sampler prior to 12 ft; the large-bore sampler also encountered refusal at these locations.

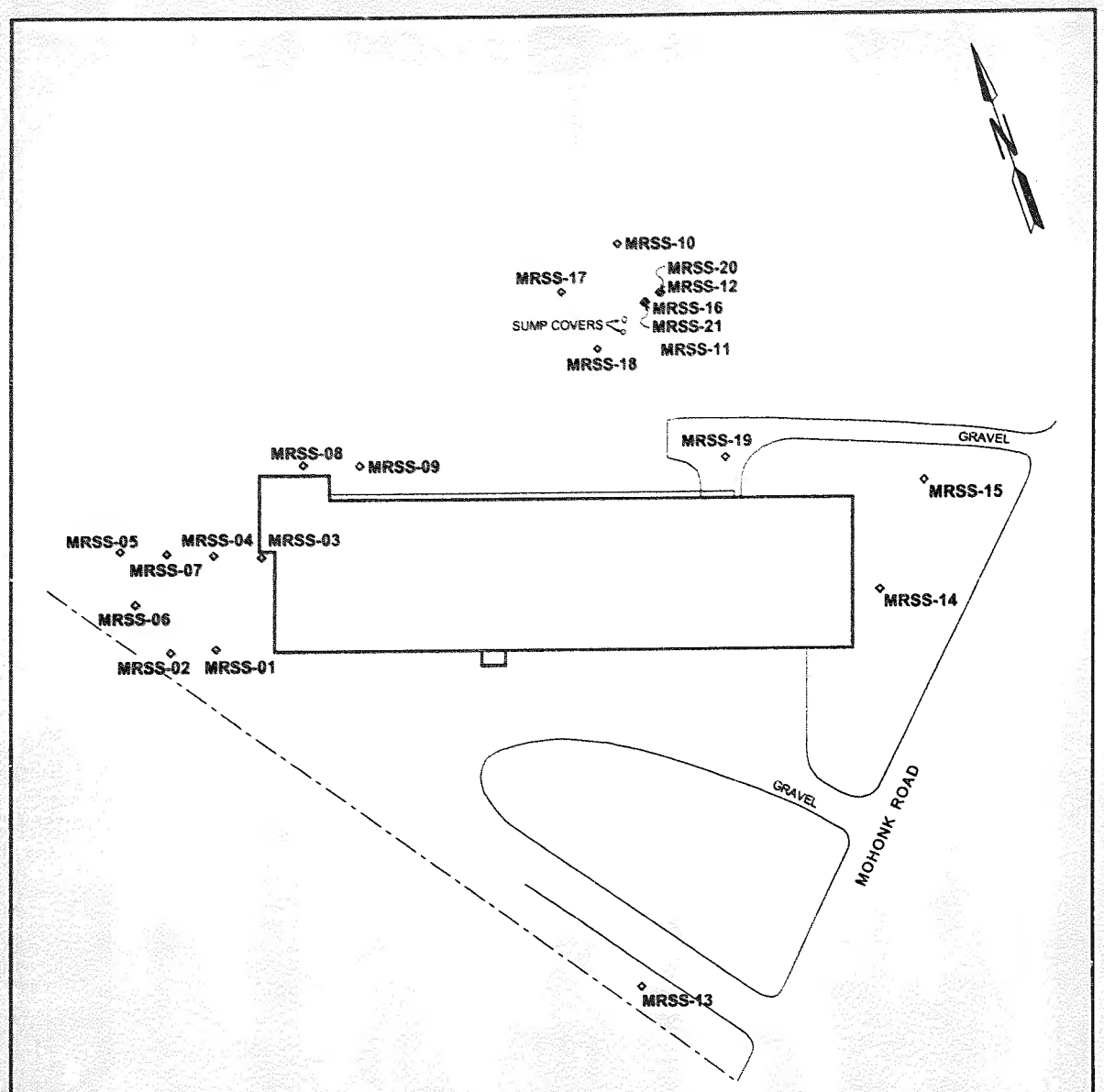

Figure 2-2

Probe Soil Screening Locations

MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023

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A minimum of one soil sample was collected from each liner and submitted to the mobile laboratory for chlorinated VOC analysis. The sample liners exhibiting elevated FID readings generally had two samples collected per 4 ft interval.

2.1.3 Septic Tank Water Screening Sample

A water sample (MRSW-01) was collected from the old septic tank located north of the building (Figure 2-3). The sample was collected by lowering a 0.5-in.-diameter disposable Teflon bailer into the southern sump until it rested on top of the sludge at the bottom of the tank. Water was encountered at a depth approximately 3.0 ft below the sump cover. The tank appeared to have approximately 18 in. of water above the sludge layer. The bottom portion of the water in the bailer was collected for VOC analysis. The bailer was then relowered to collect water for two additional vials to ensure that the water from each vial came from the same interval. The sample was analyzed at the mobile laboratory for chlorinated VOCs.

2.1.4 Septic Tank Sludge Screening Sample

The sludge in the bottom of each sump located north of the building was sampled (MRSD-01 and MRSD-02) and analyzed for chlorinated VOCs (Figure 2-3). One sample was collected below each cover as the nature of the connection between the two covers is unknown. The samples were collected by lowering a macro-core sampler to the bottom of the septic tank and then retrieving the sampler with the sludge retained in the sampler. The sludge was then allowed to slide out of the sampler directly into the sample jar. The sludge was very soft with a high water content. The material exhibited a strong sewage and chemical odor upon being disturbed. The bottom of the septic tank was encountered at a depth of 6 ft and appeared to be solid, either concrete or steel. Approximately 1.5 ft of sludge was in the bottom of the tank. A pipe was visible near the top of the tank at both the northern and southern ends of the tank. The southern pipe was assumed to enter the tank from the building. The northern pipe was assumed to discharge to a leach field of unknown extent.

2.1.5 Dye Tracer Test of Septic System

On 16 October 1996 5 gal of fluoresceine dye followed by 5 gal of clean water were poured down one of the toilets in the restroom. The fluoresceine dye turns the water a bright fluorescent green that would be easily observable discharging into the septic system north of the building if that system were still connected to the building plumbing. No water, colored or otherwise, was observed entering the septic tank north of the building. The building plumbing

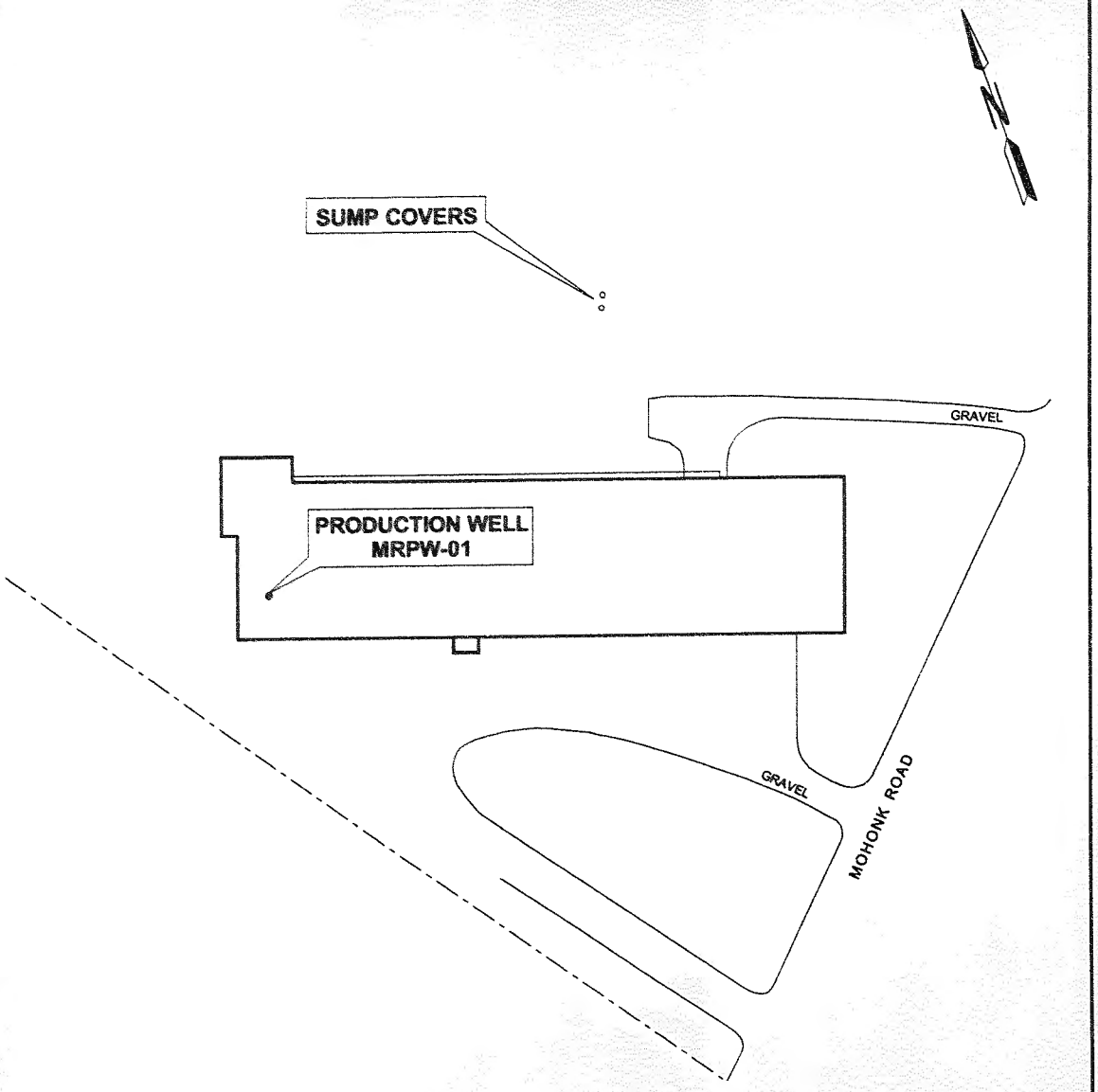

Figure 2-3

Production Well and Sump Locations

MOHONK ROAD INDUSTRIAL PLANT
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is believed to be connected to a septic system reportedly installed in 1992 under the parking area on the southern side of the building.

2.1.6 Building Tap Water Sample Screening

A tap water sample (MRPW-01) was collected from the faucet located near the western end of the building. The water was run for several minutes and then sampled directly from the faucet. The water supplying this faucet is believed to come from the well located at the eastern end of the building. The water from the faucet is used only to hand flush the toilets in the out of service restroom. The faucet in the only in service water source in the building.

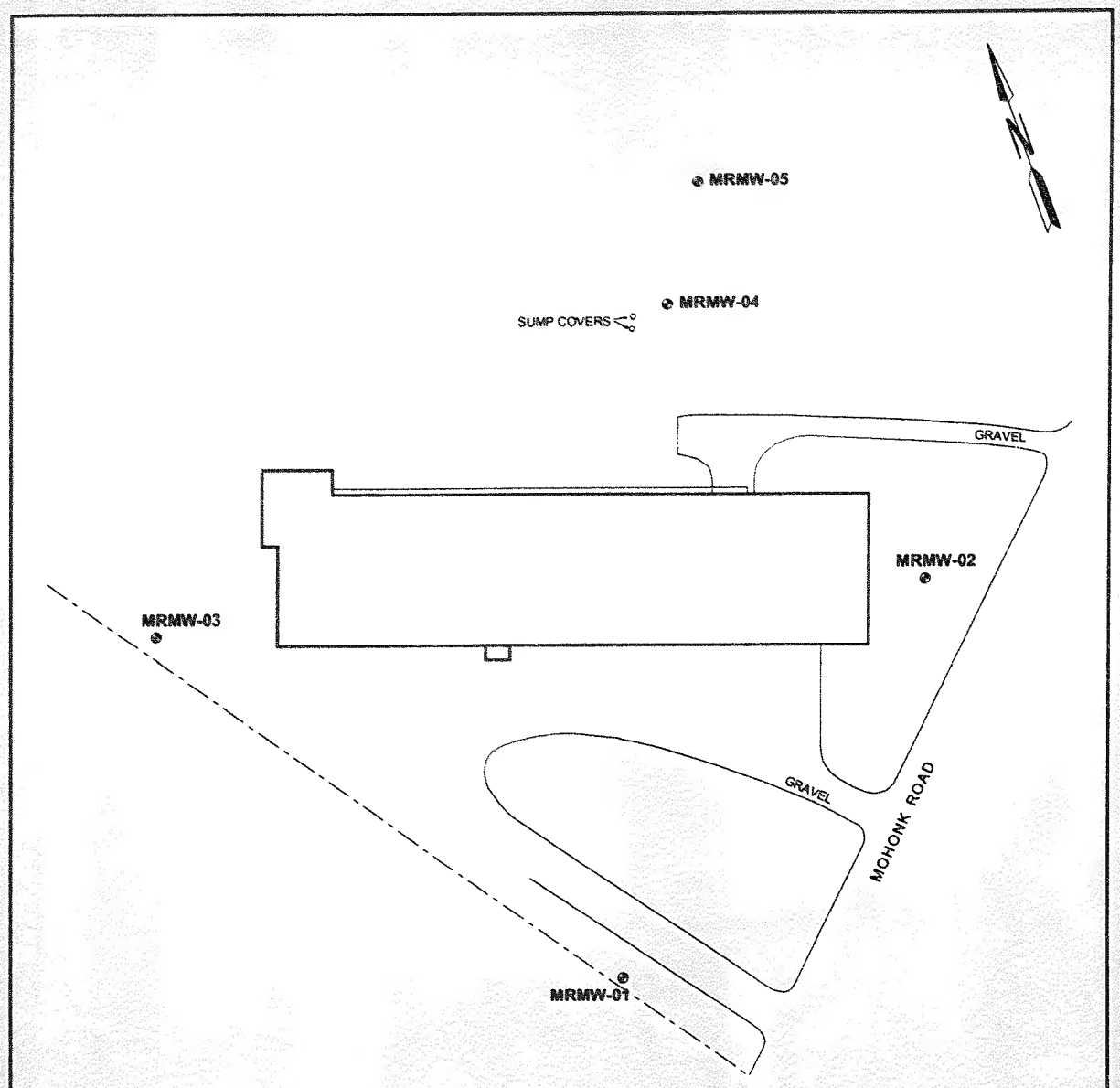
Samples collected for field screening were submitted to a mobile laboratory operated by Commonwealth Analytical. Commonwealth used a laboratory-grade Hewlett Packard Model 5890II GC outfitted with an electrolytic conductivity detector (ELCD). The analytical system also included an OI Analytical Model 4560 purge and trap concentrator, an OI Analytical MPM-16 multistation auto sampler, and a Dell 486DX/50 personal computer with a laser printer. Samples were analyzed for chlorinated VOCs using EPA Method 8010.

2.1.7 Monitoring Well Installation

From 11 through 13 November 1996 LMS and its subcontractor, American Auger, completed the installation of five monitoring wells at the MRIP site (Figure 2-4). The wells were completed as overburden/bedrock wells with 5 ft in the overburden and 5 ft of screen extending down into the bedrock.

The monitoring wells were installed using a Mobile B-57 drill rig mounted on an all-terrain skid rig. The borings were advanced through the overburden with 4.25-in. I.D. hollow-stem augers. Standard penetration tests (ASTM 1586-D) were performed continuously for the entire depth of the boring. The split spoons were opened and immediately screened for the presence of VOCs with an FID. Lithology, blow counts, FID readings, and other observations were recorded on the boring logs, which are presented as Appendix A. Bedrock was cored through the augers using a 4-in.-diameter HQ core barrel, which retains a 2.5-in.-diameter section of core. The boring logs in Appendix A also include a description of the bedrock, the rock quality index (RQD), and other observations.

The monitoring wells were installed using a 10-ft length of 2-in.-diameter 0.010 slot schedule 40 PVC screen. The screen was placed such that 5 ft extended above the bedrock and 5 ft extended down into the bedrock. A 0 grade Morie sand was placed around and 2 ft above the



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● Monitoring well location

MRMW-01

Figure 2-4

Monitoring Well Locations

MOHONK ROAD INDUSTRIAL PLANT
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well screen as a filter pack. A bentonite chip seal was placed directly above the filter pack and hydrated with potable water. Those wells having the top of the bentonite seal greater than 2-ft below the ground surface were grouted with a cement/bentonite grout. A locking protective casing was placed over the well and secured by concrete.

Monitoring well development was started by American Auger on 13 November 1996 using small submersible Whale Pumps. Development was performed by alternately pumping MW-01, -02, and -03 dry. Development was continued on 14 and 15 November using dedicated, disposable PVC bailers. The wells were purged dry three times on 14 November and twice on 15 November. An attempt was made to record water chemistries during development despite the slow recovery rate and low purge volumes while using the Whale Pumps. Water chemistries were not collected during bailing due to the low recovery rate and purge volumes. The water chemistry data collected using the Whale Pumps are presented in Appendix D.

2.1.8 Fracture Trace and Lineament Study

A fracture trace and lineament study was initiated by visiting the Mohonk Preserve Research Center and reviewing a report entitled Hydrogeology of the Northern Shawangunk Mountains. The report contained detailed information on the Shawangunk Mountains in general, but lacked any site-specific reformation. Aerial photographs were then obtained and reviewed for lineaments and fracture traces in close proximity to the site.

2.2 NYSDEC SAMPLES

2.2.1 Subsurface Soil Samples

On 15 October 1996 LMS returned to probe locations MRSS-02, -04, -07, and -13 to perform additional soil probes for NYSDEC to collect soil samples for base laboratory analysis. Three of these soil probes were installed in the area west of the building where samples submitted to the mobile laboratory had indicated the presence of elevated levels of chlorinated VOCs, and one background probe was installed at the southeastern corner of the property. Each soil probe was advanced approximately 1 ft from the original location and samples were collected for target compound list (TCL) VOC, base/neutral acid (BNA), pesticide/PCB, and target analyte list (TAL) metals plus cyanide analyses. The sample for VOCs was collected from the interval exhibiting the highest level of contamination during the soil screening. The remaining parameters were collected as a composite from 2 ft below grade to the termination depth of the boring. To obtain sufficient sample volume for the quality assurance/quality control (QA/QC) samples, the locations for the duplicate and matrix spike/matrix spike duplicate (MS/MSD)

samples had the VOCs collected from one boring and the remaining parameters collected from a boring offset by approximately 1 ft.

NYSDEC returned to the site for a second soil sampling event on 17 October 1996 to collect samples in the area adjacent to the septic system north of the building. Two probes were installed east of the building as background sample locations. Four borings were advanced adjacent to the septic system. One probe was offset 1 ft from the screening probe MRSS-11, and three probes (MRSS-16, 17, and 18) were placed just outside the tree line on the western, southern and eastern sides of the septic tank.

2.2.2 Septic Tank Sludge Sample

After collecting a water sample, a sludge sample was collected from the bottom of the southernmost sump on the northern side of the building. The sample was collected using the same methodology as that used for the screening sample described in Section 2.1.4. The sample was submitted for TCL VOA, BNA, pesticide/PCB, and TAL metals plus cyanide analyses.

2.2.3 Groundwater Samples

Groundwater samples were collected on 26 November 1996 from the five on-site monitoring wells. On 25 November the monitoring wells were purged by bailing them dry with a dedicated, disposable PVC bailer. The wells were allowed to recover and then bailed dry a second time. Groundwater chemistries (temperature, pH, conductivity, and turbidity) were recorded before and after bailing. Static water level measurements were also taken prior to bailing each well. Groundwater purging information is recorded on the well sampling forms presented in Appendix B.

Groundwater samples were collected using dedicated, disposable teflon bailers. Each well was sampled for TCL VOC, BNA, pesticides/PCB, TAL metals, and cyanide in the order listed. Groundwater chemistries (temperature, pH, conductivity, and turbidity) were recorded prior to and after sampling. Water level measurements were also recorded prior to and after sampling. Groundwater sampling data are documented on the well sampling forms presented in Appendix B.

QA/QC samples were collected at two of the monitoring wells. An MS/MSD was collected from MW-03 because it exhibited a higher recovery rate and stored a larger volume of water. A duplicate sample was collected at MW-04 and labeled as MW-06 as MW-04 was expected to contain the highest level of contamination. The sample containers were provided by the on-

site NYSDEC representative and were prepreserved. NYSDEC maintained custody of the samples both prior to and after sampling.

CHAPTER 3

RESULTS

3.1 SOIL GAS SCREENING RESULTS

3.1.1 Area West of the Building

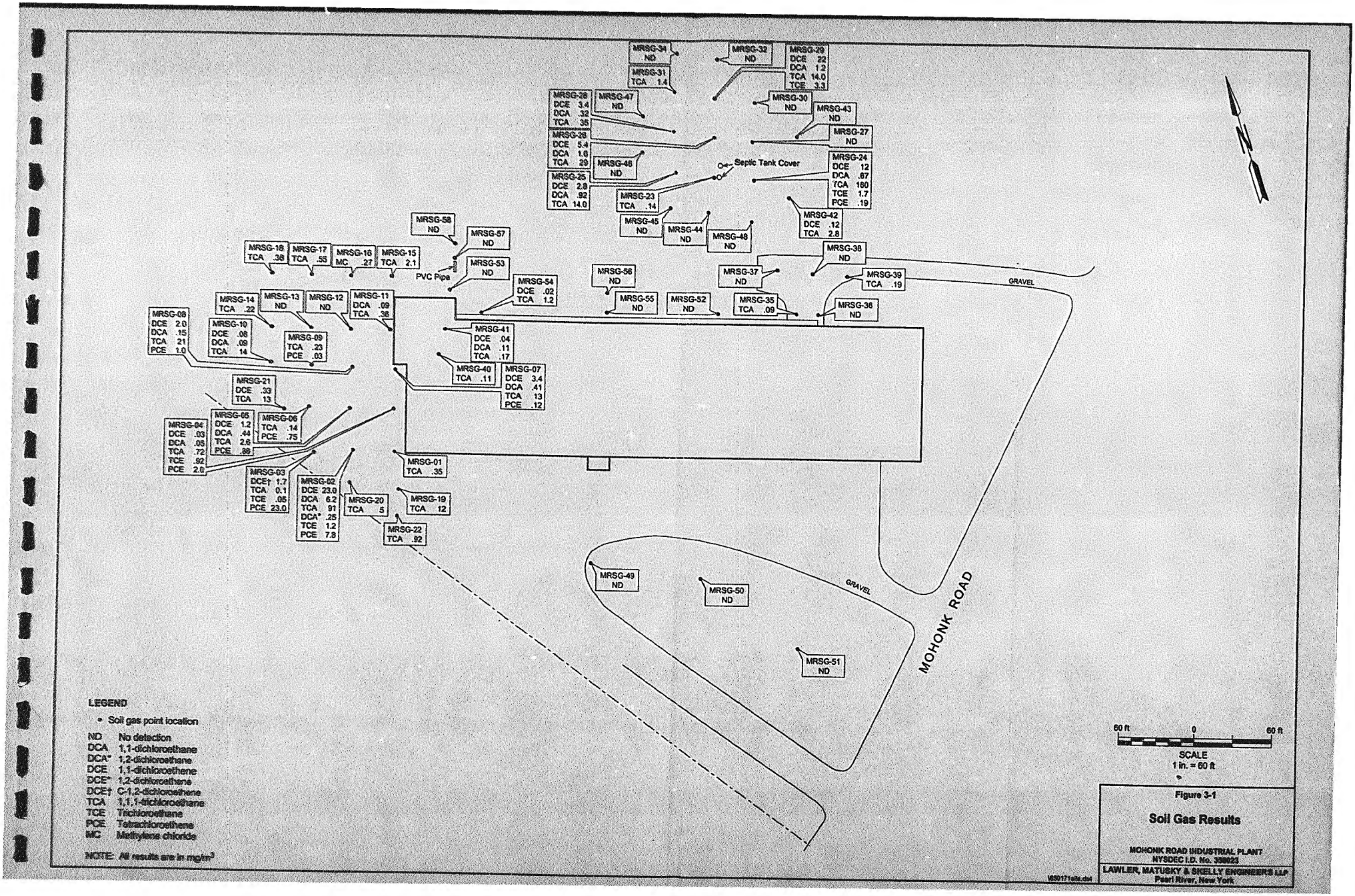
Twenty-two soil gas points (MRSG-01 to -22) were installed west of the building in the open-grass-and gravel- covered area (Figure 3-1). 1,1-Dichloroethene was detected in seven of the samples at concentrations ranging from 0.03 to 23.0 mg/m^3. Methylene chloride was detected in one sample at a concentration of 0.27 mg/m^3. 1,1-Dichloroethane was detected in seven samples at concentrations ranging from 0.5 to 6.2 mg/m^3. Cis-1,2-dichloroethane was detected in one sample at a concentration of 1.7 mg/m^3. 1,1,1-Trichloroethane was detected in 19 samples at concentrations ranging from 0.1 to 91 mg/m^3. 1,2-Dichloroethane was detected in one sample at 0.25 mg/m^3. Trichloroethene was detected in eight samples at concentrations ranging from 0.3 to 23 mg/m^3. The highest concentrations detected were from samples MRSG-02 and -03 near the western edge of the driveway.

3.1.2 Sump Area North of the Building

Eighteen soil gas points (MRSG-23 to -34 and MRSG-42 to -48) were installed in the area surrounding the sumps north of the building (Figure 3-1). No sample was collected at grid location MRSG-33 as chlorinated VOCs were not detected in the sample points immediately south (MRSG-30) and west (MRSG-32). 1,1-Dichloroethene was detected in six samples at concentrations ranging from 0.12 to 12.0 mg/m^3. 1,1-Dichloroethane was detected in five samples at concentrations between 0.32 and 1.6 mg/m^3. 1,1,1-Trichloroethane was detected in seven samples at concentrations ranging from 1.4 to 160 mg/m^3. Trichloroethene was detected in two samples at concentrations of 1.7 and 3.3 mg/m^3. Tetrachloroethene was detected in two samples at concentrations of 0.14 and 0.19 mg/m^3. The soil gas samples collected side- and downgradient of the sumps exhibited high VOC levels.

3.1.3 Northern Building Perimeter

Fourteen soil gas points (MRSG-35 to -41 and MRSG-52 to -58) were installed along the northern perimeter of the building, including the area adjacent to the loading dock on the northern side of the building and the loading docks on the western side, which are now enclosed to form a garage (Figure 3-1). Two of the sample locations contained 1,1-dichloroethene at


MRSG-34 ND
MRSG-32 ND
MRSG-29 DCE .22 DCA 1.2 TCA 14.0 TCE 3.3
MRSG-31 TCA 1.4
MRSG-28 DCE 3.4 DCA .32 TCA .35
MRSG-47 ND
MRSG-30 ND
MRSG-43 ND
MRSG-27 ND
MRSG-26 DCE 5.4 DCA 1.6 TCA 29
MRSG-46 ND
Septic Tank Cover
MRSG-24 DCE .12 DCA .67 TCA 160 TCE 1.7 PCE .19
MRSG-25 DCE 2.8 DCA .92 TCA 14.0
MRSG-23 TCA .14
MRSG-45 ND
MRSG-44 ND
MRSG-48 ND
MRSG-42 DCE .12 TCA 2.8
MRSG-58 ND
MRSG-57 ND
MRSG-18 TCA .38
MRSG-17 TCA .55
MRSG-16 MC .27
MRSG-15 TCA 2.1
PVC Pipe
MRSG-53 ND
MRSG-54 DCE .02 TCA 1.2
MRSG-56 ND
MRSG-38 ND
MRSG-37 ND
MRSG-39 TCA .19
GRAVEL
MRSG-55 ND
MRSG-52 ND
MRSG-35 TCA .09
MRSG-36 ND
MRSG-14 TCA .22
MRSG-13 ND
MRSG-12 ND
MRSG-11 DCA .09 TCA .36
MRSG-08 DCE 2.0 DCA .15 TCA 21 PCE 1.0
MRSG-10 DCE .08 DCA .09 TCA 14
MRSG-09 TCA .23 PCE .03
MRSG-41 DCE .04 DCA .11 TCA .17
MRSG-40 TCA .11
MRSG-07 DCE 3.4 DCA .41 TCA 13 PCE .12
MRSG-21 DCE .33 TCA 13
MRSG-04 DCE .03 DCA .05 TCA .72 TCE .92 PCE 2.0
MRSG-05 DCE 1.2 DCA .44 TCA 2.6 PCE .89
MRSG-06 TCA .14 PCE .75
MRSG-01 TCA .35
MRSG-03 DCE† 1.7 TCA 0.1 TCE .05 PCE 23.0
MRSG-02 DCE 23.0 DCA 6.2 TCA 91 DCA* .25 TCE 1.2 PCE 7.8
MRSG-20 TCA 5
MRSG-19 TCA 12
MRSG-22 TCA .92
MRSG-49 ND
MRSG-50 ND
GRAVEL
MOHONK ROAD
MRSG-51 ND
LEGEND
• Soil gas point location
ND No detection
DCA 1,1-dichloroethane
DCA* 1,2-dichloroethane
DCE 1,1-dichloroethene
DCE* 1,2-dichloroethene
DCE† C-1,2-dichloroethene
TCA 1,1,1-trichloroethane
TCE Trichloroethene
PCE Tetrachloroethene
MC Methylene chloride
NOTE: All results are in mg/m³
60 ft 0 60 ft
SCALE
1 in. = 60 ft
Figure 3-1
Soil Gas Results
MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York
1650171site.dwt

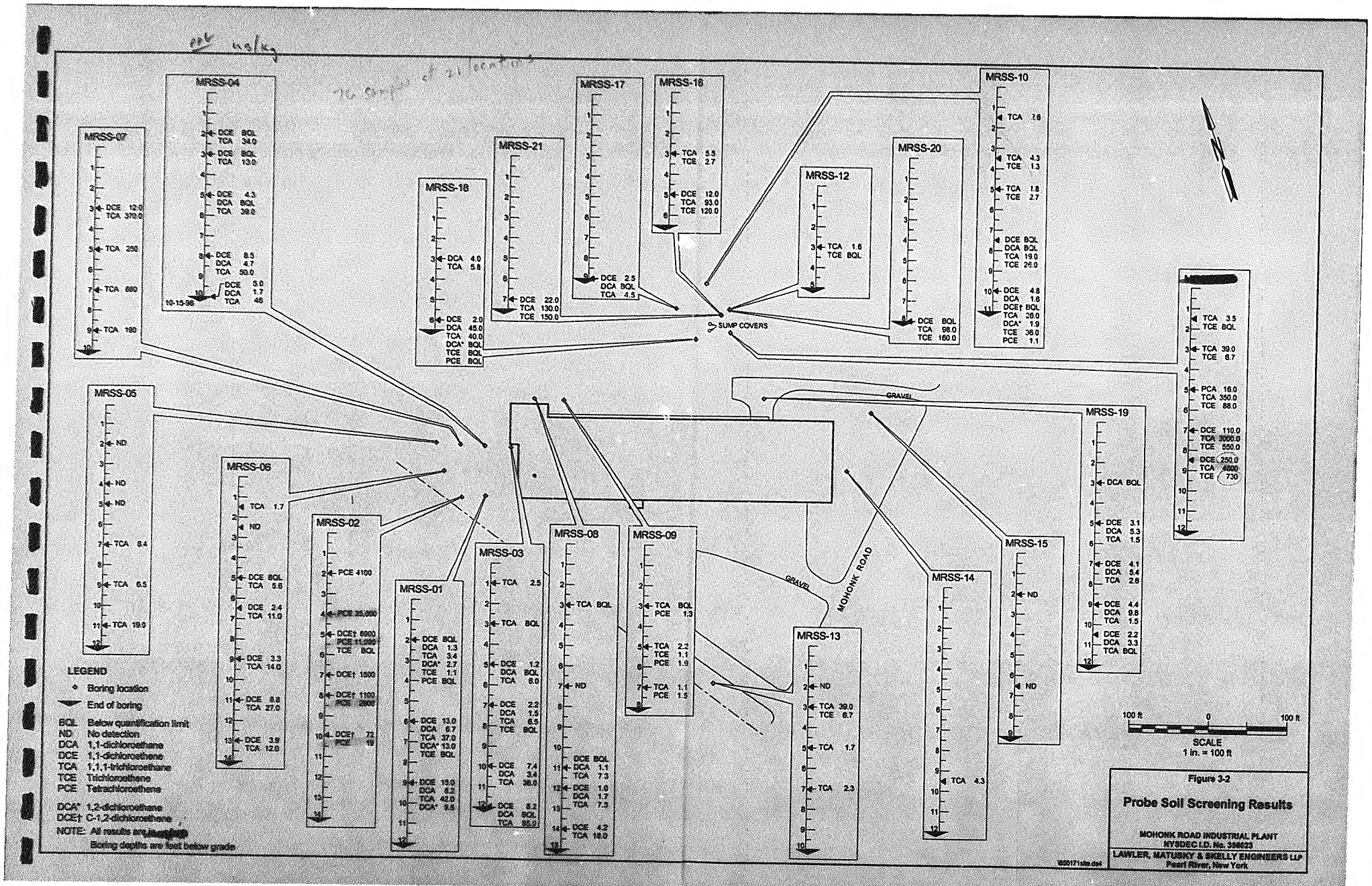


Figure 3-2

Probe Soil Screening Results

MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

concentrations of 0.02 and 0.04 mg/m^3. 1,1-Dichloroethane was detected at one location at a concentration of 0.11 mg/m^3. 1,1,1-Trichloroethane was detected at four locations at concentrations ranging from 0.11 to 1.2 mg/m^3. The low-level detections all occurred in areas adjacent to the loading docks either on the northern or western side of the building.

3.1.4 Open Area North of the Building

Three soil gas points were installed north of the building in the area where it was believed a leach field might exist (Figure 3-1). No detectable chlorinated VOCs were detected in any of these samples.

3.2 SOIL SCREENING RESULTS

3.2.1 Area West of the Building

Thirty-seven soil samples were collected from seven probes installed in the area west of the building. Figure 3-2 shows the probe locations, analytical results, and sample depths. 1,1-Dichloroethene was detected in 19 of the samples at concentrations ranging from below the minimum quantitation limit (BQL) to 15.0 μg/kg. 1,1-Dichloroethane was detected in six samples at concentrations ranging from BQL to 6.7 μg/kg. Cis-1,2-dichloroethene was detected in four samples at concentrations ranging from 72 to 6900 μg/kg. 1,1,1-Trichloroethane was detected in 27 samples at concentrations ranging from BQL to 660 μg/kg. 1,2-Dichloroethane was detected in three samples at concentrations ranging from 2.7 to 13 μg/kg. Trichloroethene was detected in three samples at concentrations ranging from BQL to 1.1 μg/kg. Tetrachloroethene was detected in six samples at concentration ranging from BQL to 25,000 μg/kg. The highest concentrations of 1,2-dichloroethene and tetrachloroethene were detected at MRSS-02. The highest concentration of 1,1,1-trichloroethane was detected in MRSS-07.

3.2.2 Sump Area North of the Building

Eighteen soil samples were collected from eight probes installed in the north of the building adjacent to the sumps. Figure 3-2 shows the probe locations, analytical results, and sample depths. 1,1-Dichloroethene was detected in 10 of the samples at concentrations ranging from BQL to 250 μg/kg. 1,1-Dichloroethane was detected in five samples at concentrations ranging from BQL to 45 μg/kg. Cis-1,2-dichloroethene was detected in one sample at BQL. 1,1,1-Trichloroethane was detected in 18 samples at concentrations ranging from 1.6 to 4600 μg/kg. 1,2-Dichloroethane was detected in two samples at concentrations of BQL and 1.9 μg/kg. Trichloroethene was detected in 15 samples at concentrations ranging from BQL to 730 μg/kg.

Tetrachloroethene was detected in two samples at concentrations of BQL and 1.1 μg/kg. The highest concentrations were detected in the area east of the sump at MRSS-11.

3.2.3 Northern Building Perimeter

Thirteen soil samples were collected from three probes (MRSS-08, -09, and -19) installed along the northern perimeter of the building. One of the borings (MRSS-19) was placed directly in front of the loading dock. Figure 3-2 shows the probe locations, analytical results, and sample depths. 1,1-Dichloroethene was detected in seven of the samples at concentrations ranging from BQL to 4.4 μg/kg. 1,1-Dichloroethane was detected in seven samples at concentrations ranging from BQL to 9.8 μg/kg. 1,1,1-Trichloroethane was detected in 11 samples at concentrations ranging from BQL to 18 μg/kg. Trichloroethene was detected in one sample at 1.1 μg/kg. Tetrachloroethene was detected in three samples at concentrations ranging from 1.3 to 1.9 μg/kg. All three probes had relatively low levels of VOCs, with the highest concentrations occurring at MRSS-08.

3.2.4 Background Probes East and South of the Building

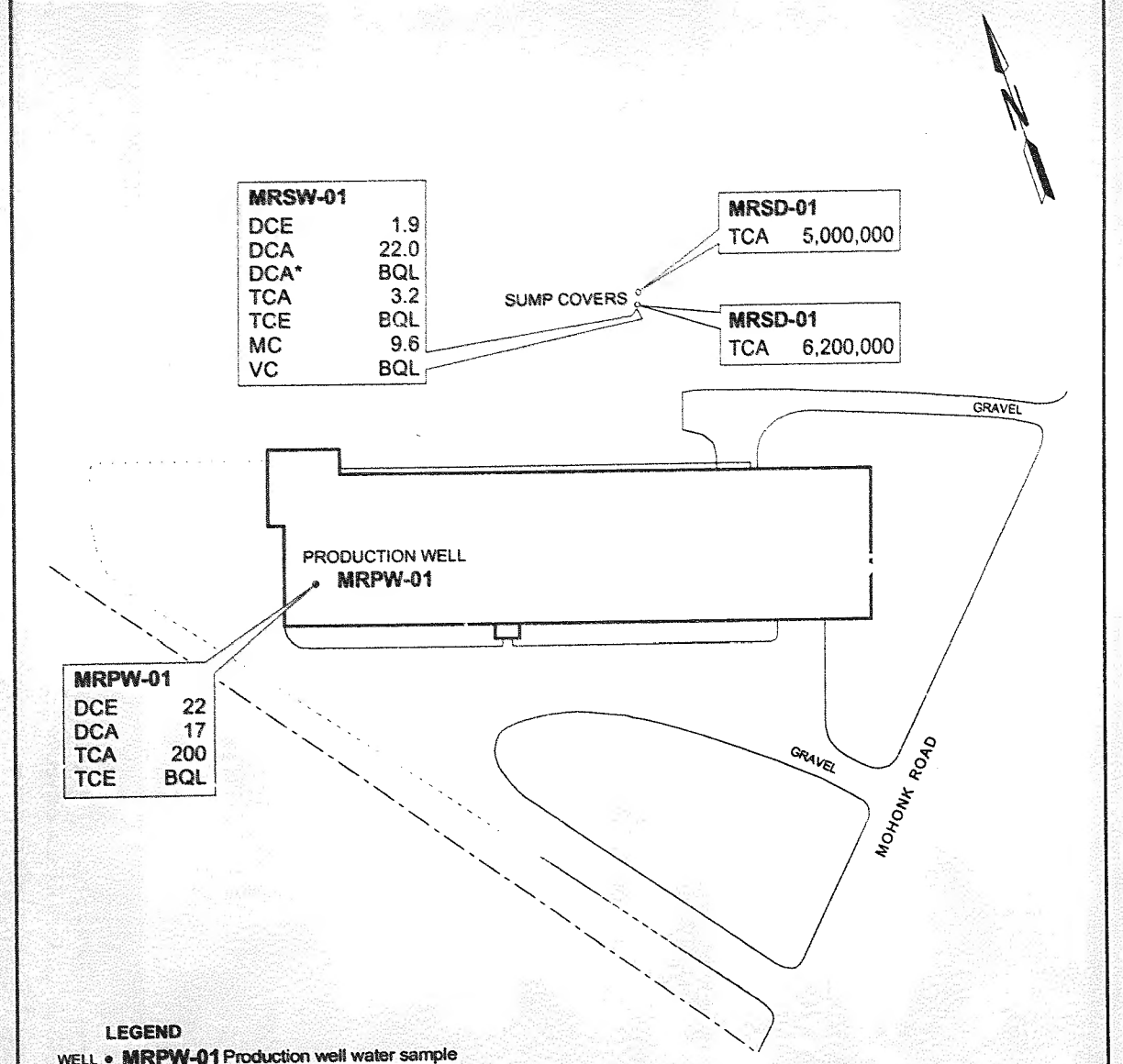
Seven soil samples were collected from three background probes installed along the southern property line (MRSS-13) and east of the building (MRSS-14 and -15). Figure 3-2 shows the probe locations, analytical results, and sample depths. 1,1,1-Trichloroethane was detected in four samples at concentrations ranging from 1.7 to 39 μg/kg. Trichloroethene was detected in one sample at 6.7 μg/kg. The highest concentrations were detected in MRSS-13 along the southern property boundary.

3.3 SEPTIC TANK WATER SCREENING RESULTS

One water sample was collected from the southernmost sump associated with the old septic system (Figure 3-3). The sample contained 1,1-dichloroethene at 1.9 μg/l, methylene chloride at 9.6 μg/l, 1,1-dichloroethane at 22 μg/l, 1,1,1-trichloroethane at 3.2 μg/l, and cis-1,2-dichloroethene, 1,2-dichloroethane, and trichloroethene at BQL.

3.4 SEPTIC TANK SLUDGE SCREENING SAMPLE RESULTS

A sludge sample was collected from each sump associated with the old septic system north of the building (Figure 3-3). Both samples had to be analyzed at a 500,000 times dilution as the samples contained a large 1,1,1-trichloroethane fraction. The large dilution may have masked the presence of other VOCs present at lower concentrations. Sample MRSD-01 had 1,1,1-



LEGEND

WELL • **MRPW-01** Production well water sample

SUMP COVER ○ **MRSW-01** Sump surface water sample

MRSD-01 Sump sediment sample

BQL	Below detection limit
DCA	1,1-dichloroethane
DCA*	1,2-dichloroethane
DCE	1,1-dichloroethene
TCA	1,1,1-trichloroethane
TCE	Trichloroethane
PCE	Tetrachloroethene
MC	Methylene chloride
VC	Vinyl chloride

NOTE: Aqueous (PW- and SW) results are in µg/l
Sediment (SD-) results are in µg/kg

100 ft 0 100 ft

SCALE
1 in. = 100 ft

\650171site.ds4

Figure 3-3

Production Well and Sump Sample Results

MOHONK ROAD INDUSTRIAL PLANT
NYSDEC I.D. No. 356023

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Pearl River, New York

trichloroethane at a concentration of 6,200,000 µg/kg (or 0.62%) and MRSD-02 contained 5,000,000 µg/kg (or 0.5%).

3.5 BUILDING TAP WATER RESULTS

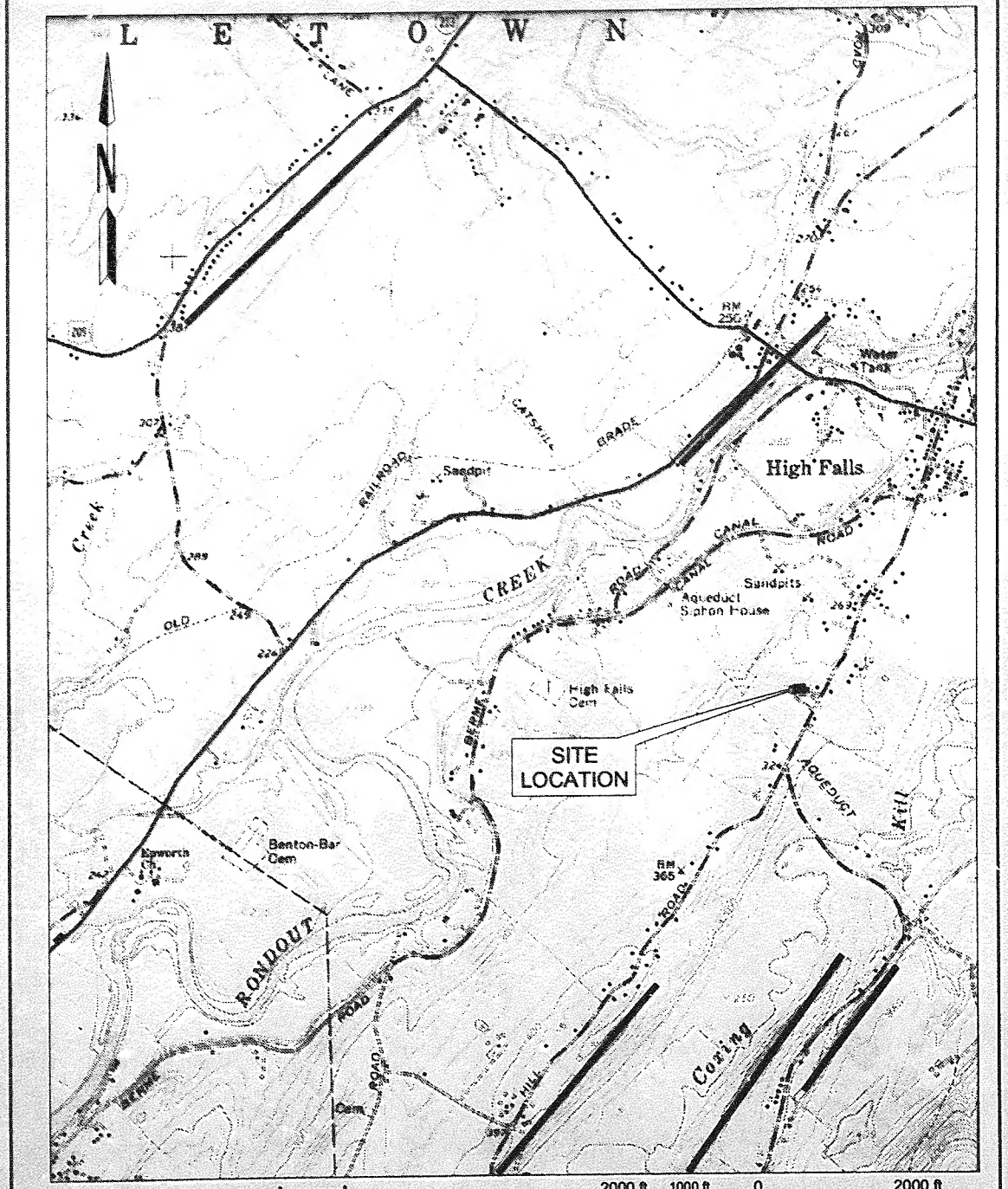
A tap water sample was collected from the faucet inside the building and submitted to the mobile laboratory for chlorinated VOC analysis. 1,1-dichloroethene was detected at a concentration of 22 µg/l, 1,1-dichloroethane at 17 µg/l, 1,1,1-trichloroethane at 200 µg/l, and trichloroethene was detected BQL.

3.6 NYSDEC SAMPLES

The soil, sludge, sump water, and groundwater samples collected for and retained by NYSDEC were submitted to a base laboratory by NYSDEC. These samples were collected for the preparation of an ESI package to be submitted to EPA by NYSDEC. The full data packages for the soil, sludge, and groundwater samples were not available at the time this report was issued.

3.7 FRACTURE TRACE AND LINEAMENT STUDY RESULTS

Very few recognizable lineaments and fracture traces were identified in the immediate vicinity of the site. Several regional lineaments were identified and are plotted on Figure 3-4. Any lineaments, if present, in the immediate vicinity of the site are obscured by field plowing and vegetation. Regionally, numerous lineaments can be identified in the area east of the site and north of Rondout Creek, which trend north-northeast. Some of the fields between these lineaments contain fracture traces that run east-west. The lack of clearly defined lineaments and fracture traces in this area is likely a function of the underlying bedrock. The bedrock at the site is composed of a very hard quartz conglomerate known as the Shawangunk Formation. For the most part, this formation exhibits limited primary porosity and only limited secondary porosity associated with minor, often unconnected, fractures. Only when major structural features such as folds and faults are encountered are heavily fractured zones found. The areas east and southeast of the site along the main spine of the Shawangunk Mountains exhibit such folding and faulting and many lineaments are found there (Coates et al. 1994).



Map source:
USGS 7.5-minute Quadrangle Map,
Mohonk Lake, NY, 1964.

\650\171USGS.ds4

LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Lineament Features Map** **Mohonk Road Industrial Plant** NYSDEC I.D. No. 356023	**Figure 3-4**

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

The site evaluation and IIWA data clearly indicate the presence of two on-site sources of contamination at the MRIP. The first source area is consists of the soil below the gravel driveway at the western end of the building. Tetrachloroethene (25,000 µg/kg) and cis-1,2-dichloroethene (6900 µg/kg) were detected in MRSS-02 and 1,1,1-trichloroethane was detected at 660 µg/kg at MRSS-07. Fifty-five gallon drums were reportedly stored along the western exterior wall of the building; however, soil gas samples collected adjacent to the drum storage area do not indicate that significant leakage or spillage occurred at the drum storage site. The spotty nature of the contaminants in this area is likely due to periodic spillage or dumping of waste at the edge of the driveway. The significantly lower concentrations detected in many of the borings as depth increased is likely due to the presence of the contaminant in the groundwater. The depth to groundwater was measured in MRMW-03 at approximately 4 ft below the existing grade.

The second source area includes the two sumps associated with the former septic system north of the building. 1,1,1-Trichloroethane was detected in the sludge from the sumps at concentrations up to 0.6% (6,200,000 µg/kg). Soil samples collected from probes installed near the sumps contained 1,1-dichloroethene at up to 250 µg/kg, 1,1,1-trichloroethane up to 4600 µg/kg, and trichloroethene up to 730 µg/kg. If these sumps are part of an abandoned septic system, typical construction would include a series of laterals surrounded by gravel branching out from the sump to allow water to infiltrate into the soil. Although the septic system is believed to be abandoned, water was observed entering the sumps around the sump covers during periods of high rainfall. A water sample collected from the southern sump exhibited VOC levels of up to 22 µg/l. The sludge in the sump contained 1,1,1-trichloroethane at near-percent levels (Figure 3-3). Apparently at sometime in the past high concentrations of 1,1,1-TCA were discharged directly to the septic system. The laterals from septic system are the likely source of chlorinated VOCs detected in soil samples (MRSS-11 and MRSS-10) collected adjacent to the sump (Figure 3-2). The strong solvent odor detected in MRMW-04 installed adjacent to the sump also supports the conclusion that the VOC contamination is able to infiltrate into the bedrock below the sumps. The groundwater below the site generally flows to the north toward the Rondout Creek.

4.2 RECOMMENDATIONS

LMS recommends that an IRM be conducted for the former septic system and that additional remedial investigations be conducted to characterize the nature and extent of the on-site contamination and the groundwater contamination plume that extends off site.

4.2.1 Interm Remedial Measures

The recommended IRM for the former septic system should include the removal of the two sumps found to contain the most heavily contaminated water and sludges. The excavation to remove the two sumps can be completed in a few days and will result in a minimal amount of contaminated materials, which should be properly disposed of off-site. The removal should be guided by the collection of a number of soil samples and on-site mobile laboratory analysis. It is anticipated that a number of laterals leave the two sumps and lead out into a leach field. The number of laterals and the size of the leach field is not known at this time. As part of the IRM LMS recommends uncovering the laterals and then, through a limited number of test pits and on-site mobile laboratory analysis, determining the extent of the laterals, the size of the leach field, and the extent of any contamination associated with the laterals and leach field. The IRM should contain a contingency to remove the laterals and leach field if the laterals and leach field are found to be of limited extent. This material would also be properly disposed of off-site. If the laterals are numerous or lead to an extensive, heavily contaminated leach field, they will be left in place and dealt with as part of the final site remediation.

4.2.2 Remedial Investigation

LMS recommends that a remedial investigation be performed at the site that would include the following:

- Records review and file search
- Additional on-site source characterization
- On-site hydrogeologic investigation
- Off-site hydrogeologic investigation
- Completion of ESI related tasks

The records and file search should be performed to provide background information to aid in the development of a remedial investigation work plan. The file search should include any data

that might be obtained through UCDOH or other sources on the location of a second septic system on the property. If plans cannot be found to locate the second septic system, some type of tracer study or alternative method should be conducted to find this septic system.

The additional on-site source characterization should expand upon the data collected during the IIWA to delineate the extent of the two source areas discovered during the IIWA. This should include the area south and west of soil probe locations MRSS-02 and MRSS-06, which might be off the site property. Any other potential source areas, including other septic systems identified through a file search, should also be investigated.

The vertical and horizontal extent of groundwater contamination should be determined using a series of nested wells to delineate the groundwater plume. The results of the groundwater samples collected during the IIWA will be reviewed to determine the need for additional overburden/bedrock interface wells during the development of a remedial investigation work plan. Deep bedrock wells in the vicinity and downgradient of the source areas will be required to delineate the extent of the plume. Bedrock wells should be cored to log the bedrock and identity any fracture zones facilitating groundwater migration. If it is determined during the development of the remedial investigation work plan that bedrock wells need to be installed at multiple depths, only the deepest well of the cluster need be cored.

Water samples should also be collected from the Rondout Creek downgradient of the site to ensure that the site is not contributing significant levels of VOC contamination to the stream. The hydrogeologic investigation will determine the direction of groundwater flow and the most likely pathway for plume migration.

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Welling, William B. 1996. Figure entitled Soil Sampling Locations for samples collected 18 May 1995.

APPENDIX A

BORING LOGS

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA

Boring I.D.: MRWW-1

Site Location: High Falls, NY
Job Number: 650-171
Client: NYSDEC
NYSDEC Site I.D. #: 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4.25" HSA / HQ core
Date Begin/End: 11 November 1996
Surface Elevation:
Depth to Water: 4.92
Total Depth: 18.5

DEPTH (FT)	SAMPLER	BLOWS / 6-in	RECOVERY (IN)	NCR%	ROD	FID	LITHOLOGY
2	SS	9	0.4			Bkg	
		20					
		12					
		9					
4	SS	12	0				
		10					
		11					
		13					
6	SS	5	1.2			Bkg	
		8					
		10					
		11					
8	SS	13	1.6			Bkg	
		15					
		19					
		15					
10	SS	9	1.0			Bkg	
		22					
		33					
		36					
12	SS	15	1.5			Bkg	
		17					
		31					
		50/4					
14	HQ Core		5.0	93	Excellent		
16							
18							

GEOLOGIC DESCRIPTION

and = 35-50% f = fine
some = 20-35% m = medium
little = 10-20% c = coarse
trace = 0-10%

Brown silt, little fine sand, trace fine gravel. Dry.

Brown silt, trace to little fine sand, trace fine gravel. Lightly mottled with gray.

Brown clayey silt, trace fine sand and fine gravel. Moist.

8.0-8.5 Brown clayey silt, trace fine sand and fine gravel. Moist.
8.5-9.0 Brown clayey silt, some fine gravel, little fine sand. Moist.

10-10.6 Brown clayey silt, some fine gravel, little fine sand. Moist.
10.6-11.5 Brown fine sandy silt, little fine gravel. Moist.

11.5-11.9 Cobbly material.

11.9-18.5 Bedrock - Meta (?) Conglomerate

12.9 - *Horizontal fracture*

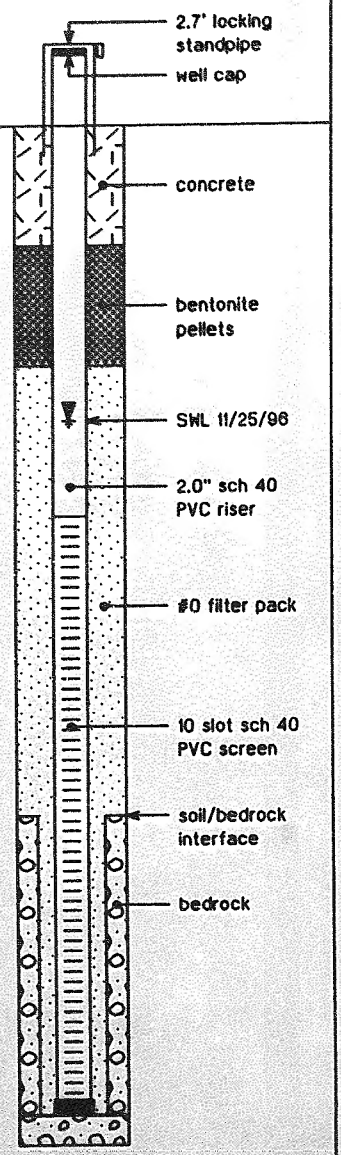
13.2 - *Horizontal fracture*

14.6 - *Horizontal fracture*

14.9 - *Horizontal fracture*

END OF BORING - 18.5 FT

WELL DIAGRAM



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TEST BORING/MONITORING WELL CONSTRUCTION LOG

Page 1 of 1

Project Name: Mohonk Road IINA

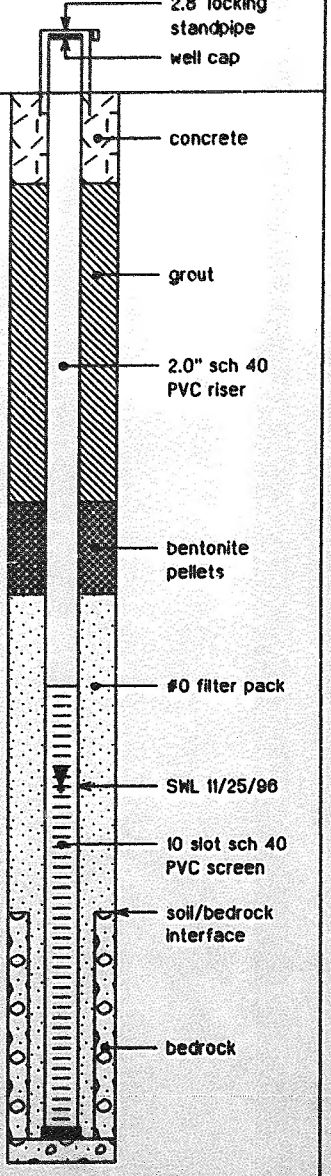
Boring I.D.: MRMW-2

Site Location: High Falls, NY
Job Number: 650-171
Client: NYSDEC
NYSDEC Site I.D. #: 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4.25" HSA / HQ core
Date Begin/End: 11 - 12 November 1996
Surface Elevation:
Depth to Water: 15.22
Total Depth: 23

DEPTH (FT)	SAMPLER	BLOWS / 6-in	RECOVERY (ft)	NCR %	RQD	PID	LITHOLOGY	GEOLOGIC DESCRIPTION
								and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
0	SS	10 7 8 20	0.7			Bkg		Brown silt, little fine gravel, trace asphalt, metal fragments. Fill.
2	SS	5 7 7 9	0.5			1.0		Black, brown and gray silt and fine gravel. Wet. Fill.
4	SS	12 11 9 10	0.5			Bkg		Brown silt, little fine sand, trace fine gravel and clay. Fill. Wet.
6	SS	6 9 6 3	1.4			Bkg		Brown silt, little fine gravel and fine sand, trace clay. Moist.
8	SS	100/4	0.2			Bkg		Brown and black silt, some fine sand, little gravel. Large metal fragment in tip of spoon. Fill.
10	SS	25 22 33 39	1.0			Bkg		Brown silt, little fine gravel, trace clay. Moist.
12	SS	60 50/4"	0.3			Bkg		Brown fine and medium sandy silt, some fine gravel. Wet.
14	SS	32 26 27 13	0.5			Bkg		Brown fine and medium sandy silt, some fine gravel. Wet.
16	SS	20 36 50/5"	1.0			Bkg		Brown fine and medium sandy silt, some fine gravel. Wet.
18	HQ Core		5.0	84	Good			18.0 - 23.0 Bedrock - Conglomeritic quartzite, silica cemented.
20								
22								END OF BORING - 23 FT
24								

WELL DIAGRAM



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TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IINA

Boring I.D.: MRMW-3

Site Location: High Falls, NY
Job Number: 650-171
Client: NYSDEC
NYSDEC Site I.D. #: 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4.25" HSA / HQ core
Date Begin/End: 12 November 1996
Surface Elevation:
Depth to Water: 4.11
Total Depth: 24.5

DEPTH (FT)	SAMPLER	BLOWS / 6-in	RECOVERY (FT)	HCRS	RSD	PID	LITHOLOGY
2	SS	3 2	0.6			Bkg	
	SS	8 8					
4	SS	9 8	1.0			10	
	SS	8 7					
6	SS	2 3	0.1			4	
	SS	5 4					
8	SS	6 15	1.4			10	
	SS	19 19					
10	SS	31 15	1.5			1.0	
	SS	13 19					
12	SS	25 12	0				
	SS	12 13	1.0			1.0	
14	SS	19 11					
	SS	22 19	1.8			1.0	
16	SS	13 34	0			30	
	SS	38 50/4"					
18	HQ Core	100/2"	2.0				
20	HQ Core		5.0	100	Excellent		
22							
24							

GEOLOGIC DESCRIPTION

and = 35-50%
some = 20-35%
little = 10-20%
trace = 0-10%

f = fine
m = medium
c = coarse

Gray and brown silt, trace fine sand and fine gravel. Fill.

Gray and brown clayey silt, trace fine sand and fine gravel. Wet. Strong petroleum odor.

Gray clayey silt, little fine sand. Strong petroleum odor.

6.0-6.6 Gray clayey silt, little fine sand. Strong petroleum odor.
6.6-6.8 Gray silty fine and medium sand, little fine gravel, trace clay. Wet.
6.8-7.4 Gray and brown mottled silt, trace fine sand and fine gravel. Moist.

8.0-8.5 Gray clayey silt, little fine sand, trace gravel. Wet. Fill.
8.5-9.5 Brown silt, little fine to coarse sand, trace clay. Moist.

Brown silt, little fine to coarse sand, little clay and fine gravel. Wet at 12.7.

14.0-14.4 Brown silt, some fine sand, little fine gravel. Wet.
14.4-15.2 Brown silty fine to medium sand, little fine gravel. Wet.
15.2-15.6 Brown fine sand and silt, trace gravel. Wet.

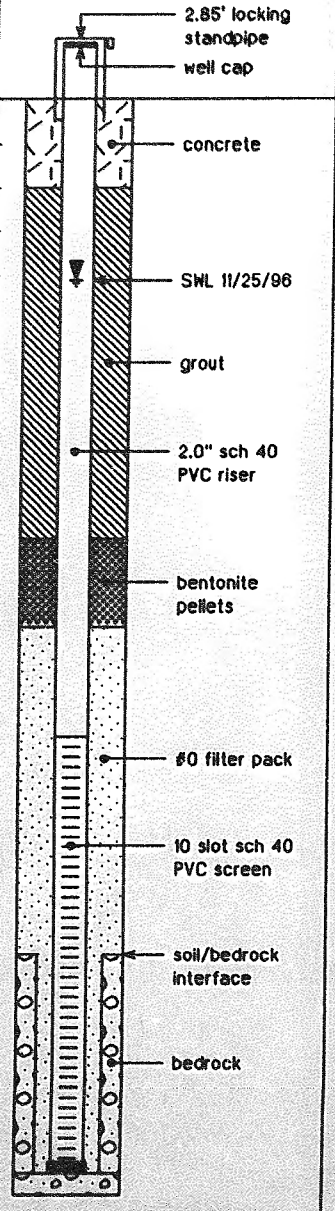
17.0-17.8 Boulder

17.8-19.5 Brown fine sand and silt, trace gravel. Wet.

19.5 - 24.5 Bedrock - white/gray conglomeritic quartzite.

END OF BORING - 24.5 FT

WELL DIAGRAM



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TEST BORING/MONITORING WELL CONSTRUCTION LOG

Page 1 of 1

Project Name: Mohonk Road IINA

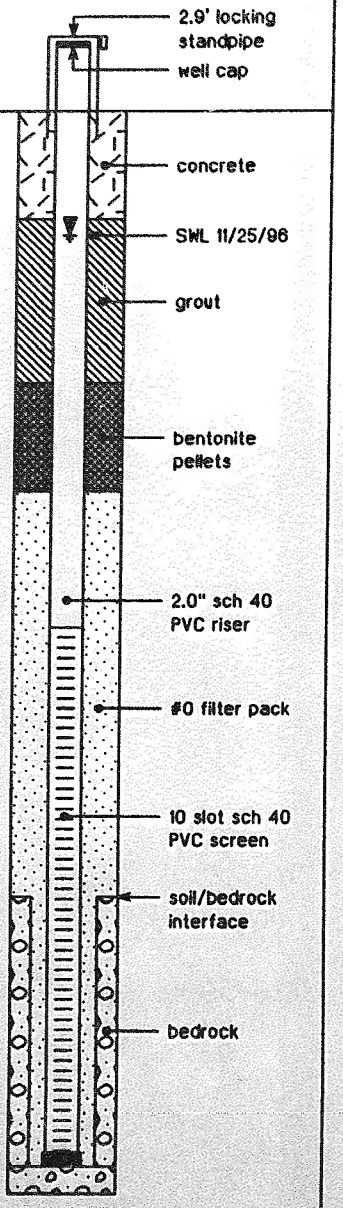
Boring I.D.: MRMW-4

Site Location: High Falls, NY
Job Number: 650-171
Client: NYSDEC
NYSDEC Site I.D. #: 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4.25" HSA / HQ core
Date Begin/End: 13 November 1996
Surface Elevation:
Depth to Water: 2.31
Total Depth: 19.5

DEPTH (FT)	SAMPLER	BLOWS / 6-in	RECOVERY (ft)	HCRX	RQD	PID	LITHOLOGY	GEOLOGIC DESCRIPTION
								and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
0	SS	2	1.0			0.5		Brown silty clay, trace fine sand. Moist.
		3						
		5						
2	SS	12	1.4			0.3		Brown silt, some clay, trace fine sand. Moist.
		13						
		16						
4	SS	15	0.8			1.5		Brown silt, some fine sand, little clay, little fine gravel. Wet
		16						
		3						
6	SS	11	1.0			4.0		Brown silt, little fine sand, trace fine gravel. Moist.
		13				8.0		
		26						
8	SS	20	1.5			35		Brown silt, little fine sand, trace fine gravel. Moist.
		10				40		
		20						
10	HQ Core	40	2.8					Brown silt and fine gravel, some cobbles. Auger refusal at 9.5 ft.
		6						
		12						
12		46						
		50/3"						
14								14.5 - 19.5 Bedrock - Conglomeritic quartzite.
16	HQ Core		5.0	100	Excellent			
18								
20								END OF BORING - 19.5 FT

WELL DIAGRAM



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TEST BORING/MONITORING WELL CONSTRUCTION LOG	Page 1 of 1
Project Name: Mohonk Road IIWA	**Boring I.D.: MWW-5**

Site Location: High Falls, NY
Job Number: 650-171
Client: NYSDEC
NYSDEC Site I.D. #: 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4.25" HSA / HQ core
Date Begin/End: 12 - 13 November 1998
Surface Elevation:
Depth to Water: 9.38
Total Depth: 14.5

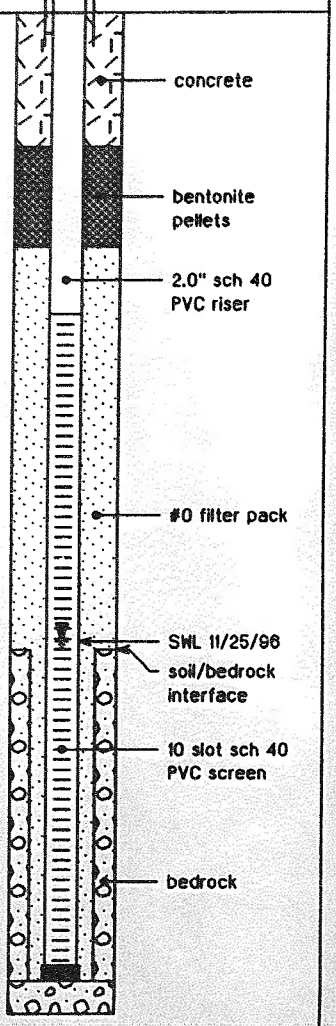
GEOLOGIC DESCRIPTION

and = 35-50%
some = 20-35%
little = 10-20%
trace = 0-10%

f = fine
m = medium
c = coarse

DEPTH (FT)	SAMPLER	BLOWS / 6-in	RECOVERY (ft)	NCR%	RQD	PID	LITHOLOGY	GEOLOGIC DESCRIPTION
2	SS	2 3 5 11	1.2			Bkg		Brown silt, little clay, trace fine sand. Moist.
4	SS	20 31 22 17	1.5			Bkg		Brown silt, little fine to coarse sand and fine gravel, trace clay. Moist.
6	SS	9 14 9 10	1.3			Bkg 0.5		Brown silt, little fine to coarse sand and fine gravel, trace clay. Wet at 4.8 ft.
8	SS	11 11 11 12	1.2			Bkg		8.0-8.6 Brown fine sandy silt, little fine gravel. Wet. 8.6-7.2 Brown silty fine sand, little fine gravel. Wet.
10	SS	4 4 50/0	0.8			Bkg		Brown silt, little fine sand and fine gravel. Wet.
12	HQ Core		5.0	99	Excellent			9.5 - 14.5 Bedrock 9.5-10.6 White/light gray conglomerate. 10.6-11.4 Dark gray shale/blue stone. 11.4-14.5 White/gray conglomerate, few *horizontal fractures.*
14								END OF BORING - 14.5 FT
16								

WELL DIAGRAM



Lawler, Matusky & Skelly Engineers LLP

APPENDIX B

WELL CONSTRUCTION DIAGRAMS

MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 650-171

PROJECT NAME: Mohonk Rd Industrial Plant

WELL No.: MW-01

CLIENT: NYSDEC

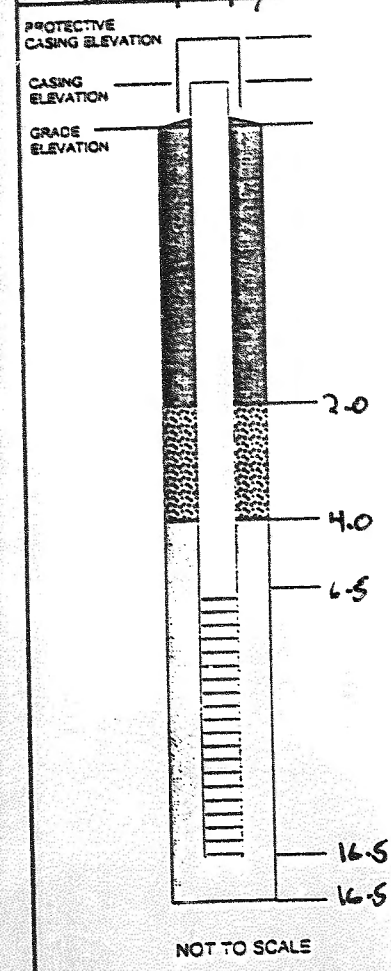
LOCATION: 186 Mohonk Rd, High Falls, NY

DATE DRILLED: 11-11-96

DATE DEVELOPED: 11-13-96 to 11-15-96

WELL CONSTRUCTION COMPLETED: 11-11-96

DEVELOPING METHOD: whale pump / bailer



NOT TO SCALE

INSPECTOR: J. Hornburg

DRILLING CONTRACTOR: American Auger

TYPE OF WELL: monitoring

STATIC WATER LEVEL: 11.83 — DATE: 11-14-96

MEASURING POINT: TOC — TOTAL DEPTH OF WELL: — TOTAL DEPTH OF BORING: 16.5'

DRILLING METHOD: HSA / HQ core — TYPE:

DIAMETER: 4¼ HSA / HQ core — CASING:

SAMPLING METHOD: 2" SPT — TYPE:

DIAMETER: 2" — WEIGHT: 140 lb.

FALL: 30" — INTERVAL: 2' ft

RISER PIPE LEFT IN PLACE — MATERIAL: PVC

DIAMETER: 2" — LENGTH: 9.5' — JOINT TYPE: Flush threaded

SCREEN — MATERIAL: PVC

INTERVAL: 6.5 - 16.5 — DIAMETER: 2"

STRATIGRAPHIC UNITS SCREENED: till / bedrock — SLOT SIZE: 0.010

FILTER PACK — GRADE: O

SAND: — GRAVEL: — NATURAL:

AMOUNT: 300 lb — INTERVAL: 4.0 - 16.5'

SEAL(s) 2.0 - 4.0 ft

CHECK APPLICABLE		INTERVAL:	AMOUNT:
Portland Cement			
Bentonite Slurry			
Bentonite Pellets	✓	2.0 - 4.0	75 lb
Other:			

LOCKING CASING: ☐ NO ☑ YES KEY NO: 3252

NOTES: Overburden / Bedrock interface well.

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MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 650-171

WELL NO.: MW-02

PROJECT NAME: Mohawk Rd Industrial Plant

CLIENT: NYSDEC

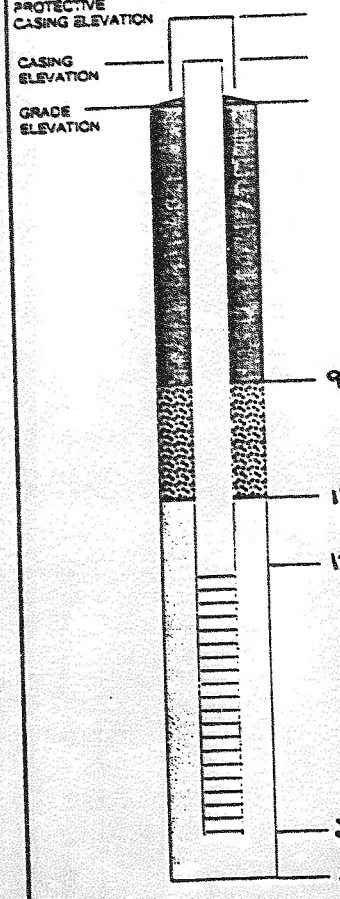
LOCATION: 186 Mohawk Rd, High Falls, NY.

DATE DRILLED: 11-11-96 / 11-12-96

DATE DEVELOPED: 11-13-96 & 11-15-96

WELL CONSTRUCTION COMPLETED: 11-12-96

DEVELOPING METHOD: Whale pump / bailer



NOT TO SCALE

INSPECTOR: J. Thornburg

DRILLING CONTRACTOR: American Auger

TYPE OF WELL: Monitoring well

STATIC WATER LEVEL: 17.81 — DATE: 11-14-96

MEASURING POINT: TOC — TOTAL DEPTH OF WELL: 23.0' — TOTAL DEPTH OF BORING: 23.0'

DRILLING METHOD — TYPE: HSA / HQ core

DIAMETER: 4¼ HSA / 4" HQ core — CASING: N/A

SAMPLING METHOD — TYPE: SPT

DIAMETER: 2" — WEIGHT: 140

FALL: 30" — INTERVAL: 2'

RISER PIPE LEFT IN PLACE — MATERIAL: PVC

DIAMETER: 2" — LENGTH: 16.0' — JOINT TYPE: Flush Threaded

SCREEN — MATERIAL: PVC

INTERVAL: 13.0 - 23.0' — DIAMETER: 2"

STRATIGRAPHIC UNITS SCREENED: till / bedrock — SLOT SIZE: 0.010

FILTER PACK — GRADE: 0

SAND: X — GRAVEL: — NATURAL:

AMOUNT: 250 # — INTERVAL: 11.0 - 23.0

SEAL(s) 9.0 - 11.0

CHECK APPLICABLE		INTERVAL:	AMOUNT:
Portland Cement			
Bentonite Slurry			
Bentonite Pellets	✓	9.0 - 11.0	75 #
Other:			

LOCKING CASING: ☐ NO ☑ YES KEY NO: 3252

NOTES: Overburden / Bedrock interface wells.

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MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 650-171-

WELL No.: MW-03

PROJECT NAME: Mohawk Rd Industrial Plant

CLIENT: NYSDEC

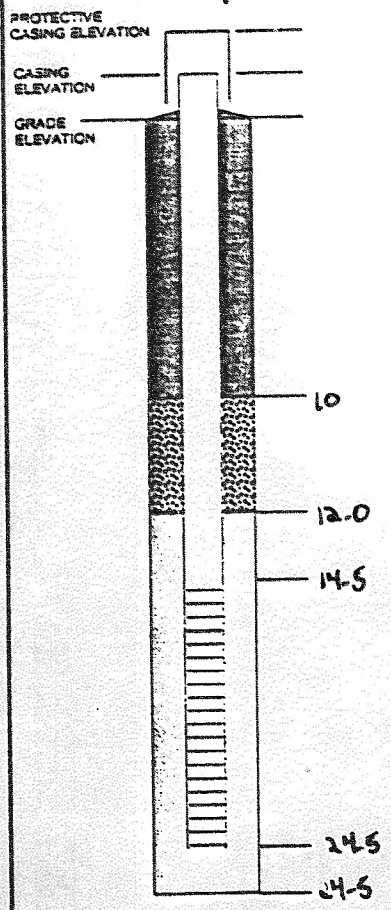
LOCATION: 186 Mohawk Rd, High Falls, N.Y.

DATE DRILLED: 11-12-96

DATE DEVELOPED: 11-13-96 to 11-15-96

WELL CONSTRUCTION COMPLETED: 11-12-96

DEVELOPING METHOD: whale pump / bailer



NOT TO SCALE

INSPECTOR: J. Thornburg

DRILLING CONTRACTOR: American Auger

TYPE OF WELL: monitoring

STATIC WATER LEVEL: 7.80 — DATE: 11-14-96

MEASURING POINT: TOC — TOTAL DEPTH OF WELL: 24.5 — TOTAL DEPTH OF BORING: 24.5

DRILLING METHOD — TYPE: HSA / HQ coring

DIAMETER: 4¼ HSA / 4" core — CASING: N/A

SAMPLING METHOD — TYPE: SPT

DIAMETER: 2" — WEIGHT: 140

FALL: 30" — INTERVAL: 2 ft.

RISER PIPE LEFT IN PLACE — MATERIAL: PVC

DIAMETER: 2" — LENGTH: 15.0' — JOINT TYPE: Flush Threaded

SCREEN — MATERIAL: PVC

INTERVAL: 14.5 - 24.5 ft — DIAMETER: 2"

STRATIGRAPHIC UNITS SCREENED: till / bedrock — SLOT SIZE: 0.010

FILTER PACK — GRADE: 0

SAND: — GRAVEL: — NATURAL:

AMOUNT: 250 # — INTERVAL: 12.0 - 24.5

SEAL(s) 10-12 ft

NOTES: Overburden / Bedrock interface wells.

CHECK APPLICABLE		INTERVAL:	AMOUNT:
Portland Cement			
Bentonite Slurry			
Bentonite Pellets	✓	10 - 12'	50 #
Other:			

LOCKING CASING: ☐ NO ☑ YES KEY NO: 3252

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MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 650-171

WELL No.: MW-04

PROJECT NAME: Mohawk Rd Industrial Plant

CLIENT: NYSDEC

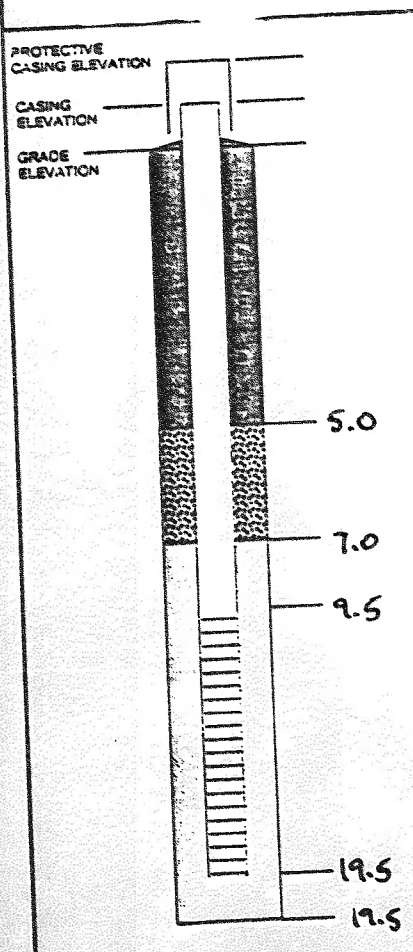
LOCATION: 186 Mohawk Rd, High Falls, NY.

DATE DRILLED: 11-12-96

DATE DEVELOPED: 11-14-96 to 11-15-96

WELL CONSTRUCTION COMPLETED: 11-12-96

DEVELOPING METHOD:



NOT TO SCALE

INSPECTOR: J. Thornburg

DRILLING CONTRACTOR: American Augers

TYPE OF WELL: monitoring

STATIC WATER LEVEL: 5.38 — DATE: 11-14-96

MEASURING POINT: TOC — TOTAL DEPTH OF WELL: 19.5 ft — TOTAL DEPTH OF BORING: 19.5 ft.

DRILLING METHOD — TYPE: HSA / HQ coring

DIAMETER: 4¼" HSA / 4" HQ — CASING: N/A

SAMPLING METHOD — TYPE: SPT

DIAMETER: 2" — WEIGHT: 140 lb

FALL: 30" — INTERVAL: 2 ft

RISER PIPE LEFT IN PLACE — MATERIAL: PVC

DIAMETER: 2" — LENGTH: 2.5 — JOINT TYPE: Flush Threaded

SCREEN — MATERIAL: PVC

INTERVAL: 9.5 - 19.5 — DIAMETER: 2"

STRATIGRAPHIC UNITS SCREENED: Till / Bedrock — SLOT SIZE: 0.010

FILTER PACK — GRADE: 0

SAND: — GRAVEL: — NATURAL:

AMOUNT: 250 # — INTERVAL: 7.0 - 19.5

SEAL(s)

CHECK APPLICABLE		INTERVAL:	AMOUNT:
Portland Cement			
Bentonite Slurry			
Bentonite Pellets	✓	5.0 - 7.0	50 #
Other:			

LOCKING CASING: ☐ NO ☑ YES — KEY NO: 3252

NOTES: Overburden / Bedrock Interface wells.

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MONITORING WELL COMPLETION LOG

PROJECT NUMBER: 650-171

WELL NO.: MW-05

PROJECT NAME: Mohonk Rd Industrial Plant

CLIENT: NYSDEC

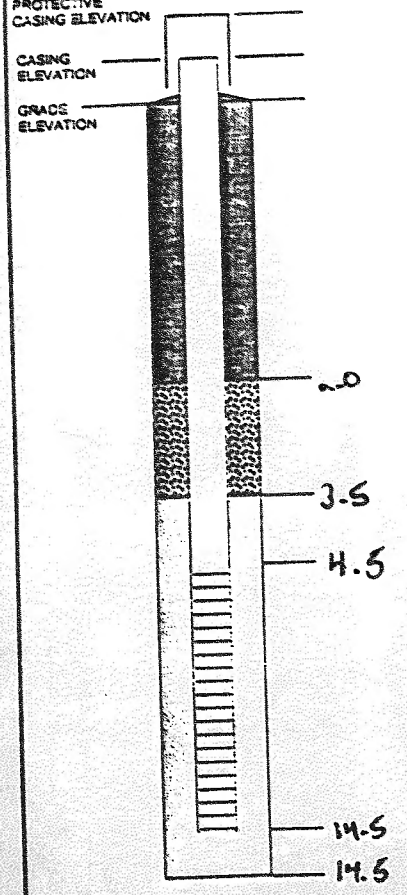
LOCATION: 186 Mohonk Rd, High Falls, NY.

DATE DRILLED: 11-12-96

DATE DEVELOPED: 11-14-96 and 11-15-96

WELL CONSTRUCTION COMPLETED: 11-13-96

DEVELOPING METHOD: Bailer



NOT TO SCALE

INSPECTOR: J. Harnburg

DRILLING CONTRACTOR: American Auger

TYPE OF WELL: monitoring

STATIC WATER LEVEL: 9.10 — DATE: 11-14-96

MEASURING POINT: TOC — TOTAL DEPTH OF WELL: 14.5' — TOTAL DEPTH OF BORING: 14.5 ft.

DRILLING METHOD — TYPE: HSA / HQ core

DIAMETER: 4¼ HSA / 4" HQ — CASING: NA

SAMPLING METHOD — TYPE: SPT

DIAMETER: 2" — WEIGHT: 140

FALL: 30" — INTERVAL: 2 ft

RISER PIPE LEFT IN PLACE — MATERIAL: PVC

DIAMETER: 2" — LENGTH: 7.5 ft — JOINT TYPE: Flush threaded.

SCREEN — MATERIAL: PVC

INTERVAL: 4.5 to 14.5' — DIAMETER: 2"

STRATIGRAPHIC UNITS SCREENED: Till / Bedrock — SLOT SIZE: 0.010

FILTER PACK — GRADE: O

SAND: — GRAVEL: — NATURAL:

AMOUNT: 200 # — INTERVAL: 3.5' to 14.5'

SEAL(s)

CHECK APPLICABLE		INTERVAL:	AMOUNT:
Portland Cement			
Bentonite Slurry			
Bentonite Pellets	✓	2.0 to 3.5'	75 #
Other:			

LOCKING CASING: ☐ NO ☑ YES — KEY NO: 3252

NOTES: Overburden / Bedrock interface wells.

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

APPENDIX C

WELL SAMPLING FORMS

WELL SAMPLING LOG

Date: 11-25-96
Crew: JT / ML
Job No: 650-171
Project: Mohawk Road Industrial Plant
Project Site: 186 Mohawk Rd

Well ID No: MW-01
Well Condition: New
Well Depth/Diameter: 19.08 / 2" PVC
Well Casing Type: PVC
Screened Interval: Bottom 10 ft.
Casing Ht/Lock No: 2.7 to TOC, 3252
Reference Pt: Notch, TOC
Depth to Water (DTW): 7.62 11:16 11-25-96
Water Column; Ht/Vol: 11.46 ft
Purge Est:

Purge Date/Time(s): 11-25-96 1126
Purge Method: Bail
Depth(s): Top / Bottom
Rates (gpm): .25 gpm
Purged Volume: 5 gal. to dry
DTW After Purging: 17.62

Yield Rate: (D)-M-H
Purge Observations: Initially clear, quickly > 200 NTU

METERS USED

Temp: NYSDEC TCL
pH: CP-113
Cond: NYSDEC TCL
Turb: NYSDEC DRT-15C

DTW Before Sampling: 11.91
Sample Date/Time(s): 11/26/96 1245
Sampling Method: Teflon bailer (disp.)
Sampling Depth(s): total column
DTW After Sampling: 15.94
Sampling Observations:
Chain-of-Custody No(s): Sample retained by NYSDEC (Mike Komoroski
Analytical Lab(s): Western

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
.5 gal	11.7	7.3	257	17
3 gal	12.1	7.2	870	200+
4 gal	12.2	7.3	96	200+

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	12.1	7.7	1230	32
End	12.2	7.6	1220	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC			
SVOC			
Pest/PCB			
Metals		HNO_3	N
CN^-		NaOH	

Comments:
13.81 @ 1400 Bailed another 1.5 to dry NTU = 200+

Air Temp: 35°
Weather Conditions: Cloudy, drizzle

Crew Chief Signature: [signature] Date: 11-26-96

WELL SAMPLING LOG

Date: 11-25-96
Crew: JT / ML
Job No: 650-171
Project: Mohawk Road Industrial Plant
Project Site: 186 Mohawk Rd

Well ID No: MW-02
Well Condition: New
Well Depth/Diameter: 25.35 / 2"
Well Casing Type: PVC
Screened Interval: Bottom 10 ft.
Casing Ht/Lock No: 2.20 / 3252
Reference Pt: TOC
Depth to Water (DTW): 18.02
Water Column; Ht/Vol: 7.33
Purge Est:

Purge Date/Time(s): 11-25-96 / 1206
Purge Method: Bailer
Depth(s): top / bottom
Rates (gpm): .25 gpm
Purged Volume: 3 gal
DTW After Purging: 24.20

Yield Rate: (L)M-H
Purge Observations:

METERS USED

Temp: NYSDEC TCL
pH: CP-113
Cond: NYSDEC TCL
Turb: NYSDEC DRT-1FC

DTW Before Sampling: 16.85
Sample Date/Time(s): 11-26-96 / 11:15
Sampling Method: Teflon disp. Bailer
Sampling Depth(s): Top / mid column
DTW After Sampling: 18.55
Sampling Observations:
Chain-of-Custody No(s): Samples retained by NYSE Mike Komrosk
Analytical Lab(s): Weston

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	12.0	7.6	459	80
End	12.5	7.7	460	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC			
SVOC			
Pest / PCB			
Metals		HNO_3	N
CN^-		NaOH	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
.25	12.5	7.5	457	14
2	12.6	7.3	450	200+
3	12.9	7.3	645	200+

Comments: TLC needs new battery
19.29 @ 1445 T~12.7, pH 7.6, C=620 NTU=200+. Bailed 3 gallons T~12.9 C=621, pH 7.6, NTU=200+

Air Temp: 35
Weather Conditions: Cloudy, drizzle

Crew Chief Signature: [signature] Date: 11-26-96

WELL SAMPLING LOG

Date: 11-25-96
Crew: JT/ML
Job No: 650-171
Project: Mohawk Road Industrial Plant
Project Site: 186 Mohawk Rd

Well ID No: MW-03
Well Condition: New
Well Depth/Diameter: 27.80 / 2"
Well Casing Type: PVC
Screened Interval: Bottom 10'
Casing Ht/Lock No: 2.85 / 3252
Reference Pt: TOC
Depth to Water (DTW): 6.96 11-25-96 1139
Water Column; Ht/Vol: 20.24
Purge Est:

Purge Date/Time(s): 11-26-96 / 1145
Purge Method: Bailer
Depth(s): top down
Rates (gpm): .25 gpm
Purged Volume: 5 gal. to dry
DTW After Purging: 26.1 1158

Yield Rate: (L) M-H
Purge Observations: P. Hydrocarbon Odor

METERS USED

Temp: NYSDEC TCL
pH: CP-13
Cond: NYSDEC TCL
Turb: NYSDEC DRT-15C

DTW Before Sampling: 6.47'
Sample Date/Time(s): 11-26-96/1145
Sampling Method: Teflon disp. Bailer
Sampling Depth(s): Total Column
DTW After Sampling: 21.70
Sampling Observations: Samples retrieved by mike komaroski
Chain-of-Custody No(s): NYSDEC
Analytical Lab(s): Westen

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	11.3	7.4	3360	23
End	10.8	8.2	3120	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC			
SVOC			
Pest/PCB			
Metals		HNO_3	N
CN^-		NaOH	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
.25	11.4			
3	11.2			
4	11.5			
5	11.7			

Comments: 7.27 @ 1410 Bailed 5 gallons
T= 11.1, C= 2370, ph = 7.7, NTU=200+

Air Temp: 35°
Weather Conditions: Cloudy, drizzle

Crew Chief Signature: [signature] Date: 11-26-96

WELL SAMPLING LOG

Date: 11-25-96
Crew: JT/ML
Job No: 650-171
Project: Mohawk Road Industrial Plant
Project Site: 186 Mohawk Rd

Well ID No: MW-05
Well Condition: New
Well Depth/Diameter: 17.7 /2"
Well Casing Type: PVC
Screened Interval: Bottom 10'
Casing Ht/Lock No: 2.95 /3252
Reference Pt: TOC
Depth to Water (DTW): 12.33
Water Column; Ht/Vol: 5.37
Purge Est:

Purge Date/Time(s): 11-25-96 1250
Purge Method: Bailer
Depth(s): top - down
Rates (gpm): .25 gpm
Purged Volume: 1.5 gal to dry
DTW After Purging: 16.4 12.55

Yield Rate: (L)-M-H
Purge Observations:

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
.25	10.7	7.3	508	4
1.5	10.8	7.4	520	200+

METERS USED

Temp: NYSDEC TCL
pH: CP-13
Cond: NYSDEC TCL
Turb: NYSDEC DRT-15C

DTW Before Sampling: 12.18
Sample Date/Time(s): 11-26-96 10:30
Sampling Method: Teflon disp. Bailer
Sampling Depth(s): Total Column
DTW After Sampling: 15.23
Sampling Observations: No Odor
Chain-of-Custody No(s): Samples retained by NYSE
Analytical Lab(s): Weston

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	10.6	7.7	325	32
End	11.0	7.7	401	200+

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOC			
SVOC			
Pest/PCB			
Metals		HNO_3	N
CN^-		NaOH	

Comments:
13.78 @ 1503 1.5 gallons to dry
T=11.2, C=575, ph=7.6, ntu=161

Air Temp: 40°
Weather Conditions: Cloudy, drizzle

Crew Chief Signature: [signature] Date: 11-26-96

APPENDIX D

WELL DEVELOPMENT

Date: 11-13-96	LMS Lawler, Matusky & Skelly Engineers LLP	pH Meter: CP-113
Crew: J. Thornburg	WELL DEVELOPMENT LOG	Cond. Meter: NYSDEC TCL
Job No: 650-171	WELL No. MAMW-01	Therm: NYSDEC TCL
Site: Mohawk		Turb. Meter: ORT-15C

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0955	6.41	2.5	7.1	12.2	427	200+	
1005	—	2.5	7.3	10.7	507	200+	
1301	—	1.0	7.3	9.3	569	200+	

Depth of Well: Start: 18.75 End: 18.75

Date: 11-13-96	LMS Lawler, Matusky & Skelly Engineers LLP	pH Meter: CP-113
Crew: J. Thornburg	WELL DEVELOPMENT LOG	Cond. Meter: DEC TCL
Job No: 650-171	WELL No. MRMW-02	Therm: DEC TCL
Site: Mohonk		Turb. Meter: DRT-15C

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1027	12.85	3-5	7.5	11.8	493	200+	
1031	–	1.5	7.7	12.0	481	200+	
1200	–	2-5	7.5	12.8	521	200+	
1350	–	1.5	6.6	12:6	663	200+	
1421	–	1.0	6.9	11.3	674	200+	

Depth of Well: Start: 25.35 End: 25.35

Date: 11-13-96	LMS Lawler, Matusky & Skelly Engineers LLP	pH Meter: CP-113
Crew: J. Thornburg	WELL DEVELOPMENT LOG	Cond. Meter: OEC TCL
Job No: 650-171	WELL No MRMW-03	Therm: OEC TCL
Site: Mahwah		Turb. Meter: ORT-15C

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1322	6.17	2.5	7.6	11.1	439	200+	
1325	—	2.5	7.2	15.1	514	↓	
1331	—	2.5	7.4	11.7	382		
1344	—	2.5	7.9	10.9	244		
1410	—	2.5	11.6	11.0	331		
1432	—	2.5	9.7	11.3	3.16		
1451	—	2.5	9.5	11.7	295		
1504	—	2.5	9.9	11.1	2.88		

Depth of Well: Start: 27.75 End: 27.75