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NEW YORK STATE SUPERFUND CONTRACT

IMMEDIATE INVESTIGATION WORK ASSIGNMENT

DATA REPORT

Mohonk Road Industrial Plant
Immediate Investigation Work Assignment No 2

Site No. 356023

Work Assignment No. D002676-22

September 1997

Prepared for:

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
John Cahill, Commissioner

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

LMSE-97/0361&650/221

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science and Engineering Consultants
One Blue Hill Plaza
Pearl River, NY 10965

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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 a second Immediate Investigation Work Assignment (IIWA) at the former Mohonk Road Industrial Plant (MRIP) (NYSDEC Site I.D. No. 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. A previous IIWA conducted between October and December 1996 identified two potential source areas that may be contributing to the groundwater contamination plume affecting numerous residential wells in the vicinity of the site. The objectives of this IIWA project are to:

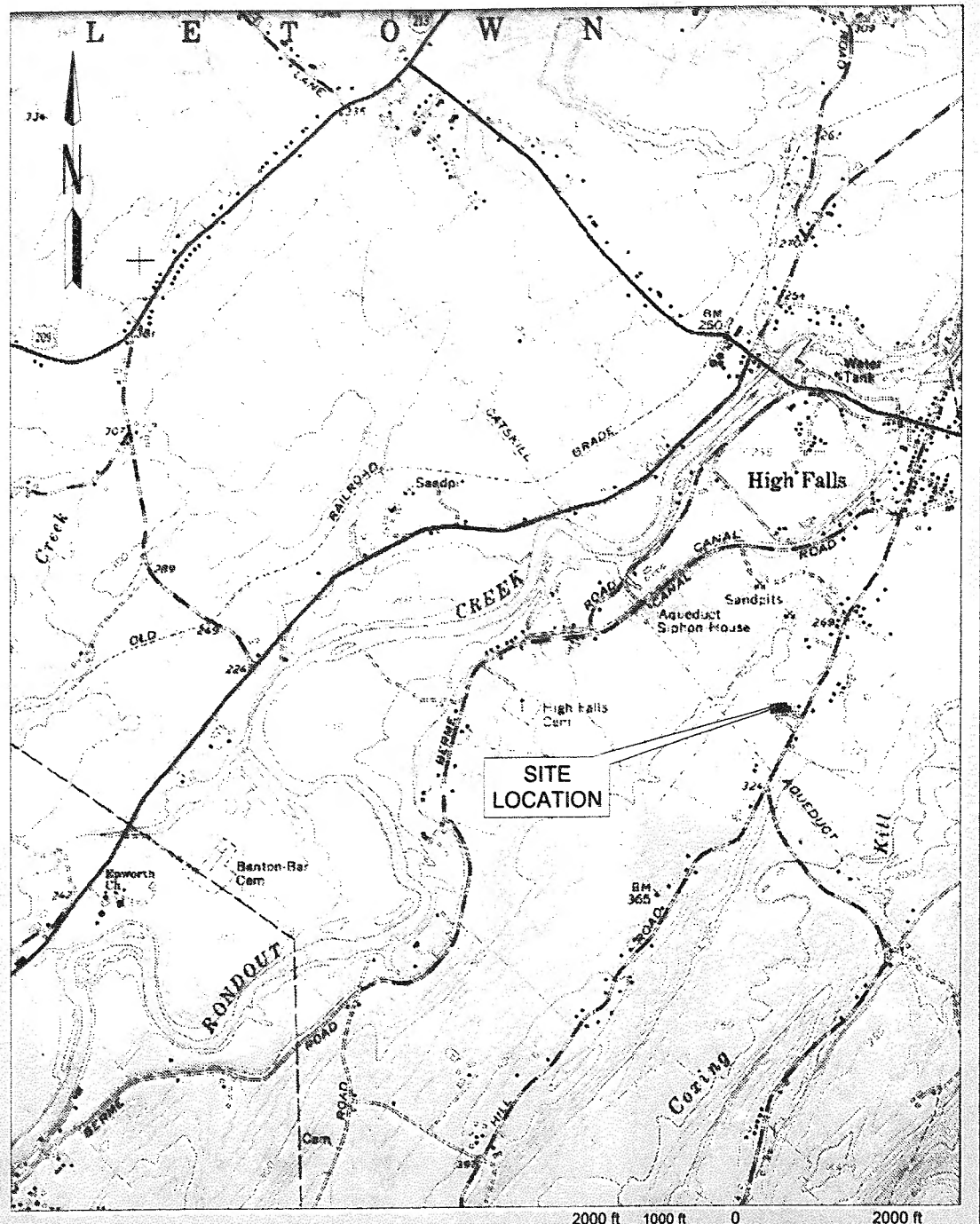
- Install and develop up to five bedrock monitoring wells at locations on and off site as part of the Expanded Site Investigation (ESI).
- Purge and sample the five existing interface wells and the new bedrock wells as part of the ESI field work.

1.2 SITE LOCATION AND DESCRIPTION

The MRIP site is located at 186 Mohonk Road outside the Hamlet of High Falls, New York (Figure 1). The site is approximately 14.5 acres, most of which is undeveloped property (Figure 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 used 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 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 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.

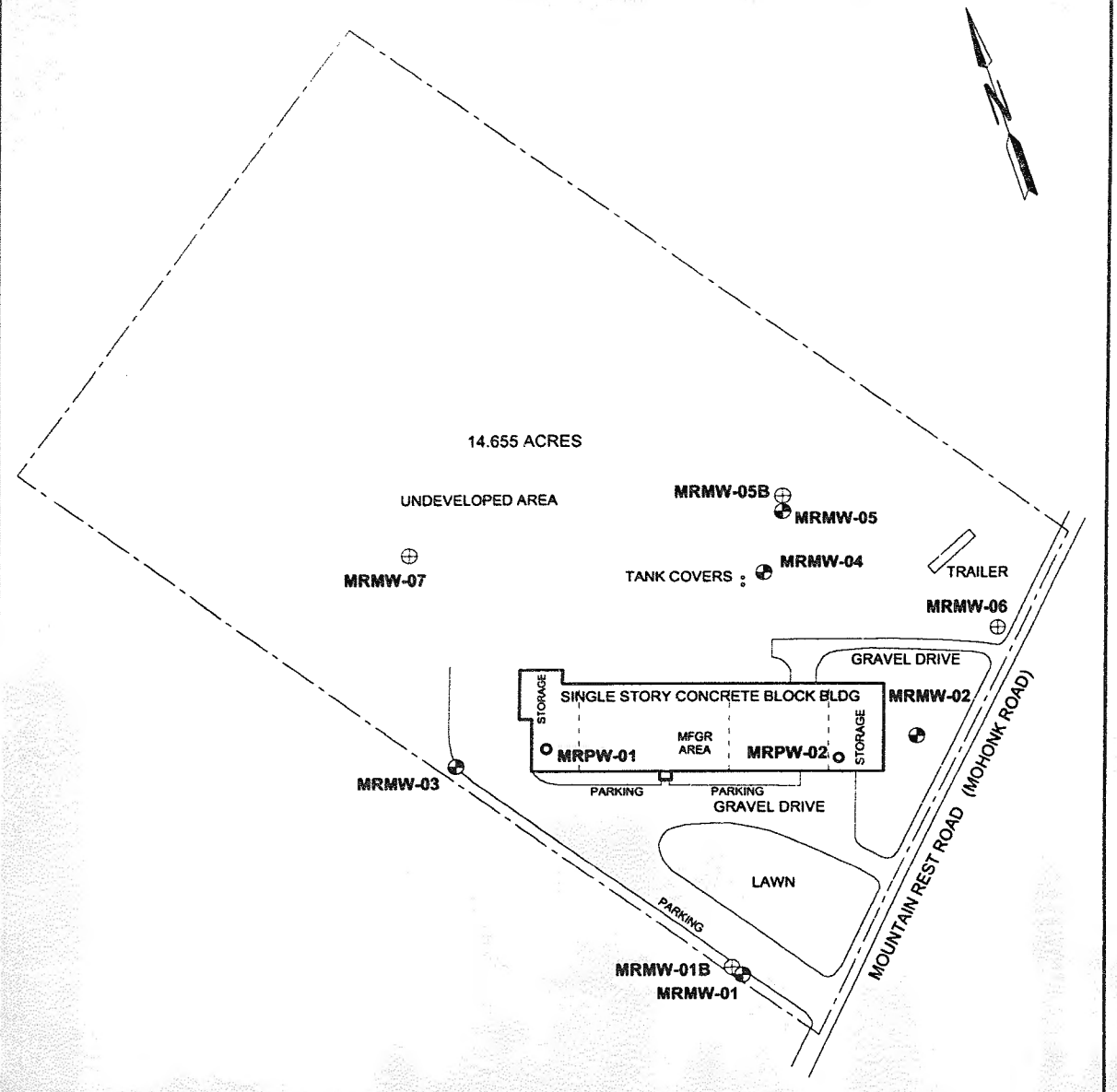
The small open area immediately west of the building is level to the edge of the driveway. At the edge of the driveway, the fill that was placed to bring the driveway to grade drops down



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	**Site Location** **Mohonk Road Industrial Plant** NYSDEC I.D. No. 356023	**Figure 1**



Legend

- ESI bedrock wells (IIWA#2 wells)
- ESI interface wells (IIWA#1wells)
- Existing production wells (01 in use, 02 abandoned)

200 ft 0 200 ft

APPROXIMATE SCALE IN FEET

Map source: Richard T. Sherman, P.C., 1931.

\650171site.ds4

Figure 2

Monitoring Well Locations

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

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

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 its 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 tanks with concrete access covers believed to be associated with an abandoned industrial wastewater 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 moved into the building from the Rosendale area. A full description of the former occupants and uses of the building are found in the previous IIWA Report.

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 contained 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 the 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 full description of a previous Phase I and Phase II investigations at the site in the early 1990s is found in the previous IIWA report.

In the fall of 1996 NYSDEC contracted with LMS to conduct an IIWA. The IIWA included soil gas and soil sampling, sludge and water sampling from the abandoned industrial wastewater tanks, sampling of the on-site well, the installation and sampling of five overburden/bedrock wells, and a fracture trace and lineament study. The results indicated a finding of 1,1,1-TCA at 26% (260,000 mg/kg and 1,1-DCE at 18,000 mg/kg) in the sludge sample collected from the northern tank. Tetrachloroethylene (or perchloroethylene [PCE]) was detected at 4.3 mg/kg, and 1,2-dichloroethylene (1,2-DCE) was found at 1.3 mg/kg in a soil sample collected in the driveway area to the west of the building. Analysis of a groundwater sample collected from monitoring well MW-4, located near the abandoned industrial wastewater tanks, revealed the presence of 1,1-DCE at 10,000 μg/l; 1,1-DCA at 6700 μg/l; TCE at 3300 μg/l; and 1,1,1-TCA at 82,000 μg/l.

CHAPTER 2

FIELD INVESTIGATION PROCEDURES

One of the objectives of this IIWA is to show the connection of the potential on-site sources to the recognized chlorinated solvent plume affecting numerous residential drinking water wells in the High Falls area. Five bedrock monitoring wells were proposed for installation to determine whether the potential on-site source areas were indeed contributing to the groundwater contamination plume. These wells and the five interface wells installed during the first IIWA were also purged and sampled to obtain data required for the ESI. All field investigation and screening procedures were conducted following NYSDEC protocols and guidelines. Detailed descriptions of the procedures used are found below.

2.1 MONITORING WELL INSTALLATION

From 25 March through 8 April 1997 LMS and its subcontractor, American Auger, completed the installation of four monitoring wells at the MRIP off-site (Figure 2). Drill rig access at the fifth proposed well location, which was to serve as an upgradient well, was extremely limited due to the presence of overhead utilities, trees, and topography. Upon observing the proposed site location, NYSDEC elected not to install the upgradient bedrock well.

Four open-hole bedrock wells were completed on the site. Three extended to depths of 100 ft below grade, and one was constructed at 34 ft below grade. The well placed at 34 ft below grade was terminated at that depth because the driller felt that the borehole was producing water based on the reaction of the drilling fluid. The drill rig's pump was reversed and water was pumped out of the borehole. The well was pumped for approximately 20 min at a flow of about 2.5 gpm. Based on the yield and after conferring with the NYSDEC project officer, the decision was made to terminate the well at 34 ft below grade.

Wells accessible by a truck-mounted drill rig were installed with a Foremost truck-mounted drilling rig. Locations not truck accessible were installed using a Mobile B-57 drill rig mounted on an all-terrain skid rig. The scope of work originally called for drilling down to bedrock using 6.25-in. hollow-stem augers. This method was changed to advancing 4-in.-diameter spin casing when a boulder was encountered at the first well location. Shallow boulders had also been encountered in several of interface well borings. Upon reaching bedrock, HQ coring was used to advance 10 ft into bedrock. A 3-in. PVC casing was then grouted into place. NX coring was used to advance the boring to the desired termination depth. A locking protective casing was placed over the well and secured by concrete.

Lithology, flame ionization detector (FID) readings, well construction, and other observations were recorded on the boring logs, which are presented as Appendix A. The boring logs also include a description of the bedrock and the rock quality index (RQD). Soil cuttings were distributed around the well. Drilling fluid, well development water, and purge water were discharged to the ground surface downgradient of the well.

Monitoring well development was initiated by American Auger on 4 April 1997 at MRMW-1B using small submersible Whale pumps connected in series. The Whale pumps did not produce enough flow to overpump the well to develop the well. A standard 1.5-in. by 3-ft bailer was used to partially develop the well. The well development was later completed using a submersible Grunfos pump. MW-06 was developed using a 20-ft section of 2-in. PVC pipe modified with a check valve attached to one end to function as a large bailer. MRMW-7 was developed using a submersible Grunfos pump. MRMW-5B was developed by pumping from the surface using the drill rig mono pump and tremie rods. Water chemistries, including temperature, pH, conductivity, and turbidity, were recorded during development and the measurements were recorded on well development logs, which are presented in Appendix B.

2.2 GROUNDWATER SAMPLES

On 5 May 1997 the interface wells were purged by bailing them dry with a dedicated, disposable PVC bailer. The wells were allowed to recover and then purged dry a second time. The bedrock wells were purged between 5 and 7 May 1997. MRMW-1B, -6, and -7 were purged using a submersible Grunfos pump. The shallower bedrock well (MRMW-5B) was purged by bailing using a dedicated PVC bailer. Groundwater chemistries (temperature, pH, conductivity, and turbidity) were recorded before and after bailing. Static water level measurements were also taken prior to purging each well. Groundwater purging information is recorded on the well sampling forms presented in Appendix C.

Groundwater samples were collected from each of the bedrock and interface wells using dedicated, disposable Teflon bailers. The interface wells and MRMW-1b were sampled after recovering overnight. The remaining bedrock wells were sampled immediately after purging. Each well was sampled for target compound list (TCL) VOCs and target analyte list (TAL) metals. 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 C.

Quality assurance/quality control (QA/QC) samples consisting of a duplicate (MRMW-5C) and an MS/MSD were collected from MRMW-5B. MRMW-5B was selected as it is immediately downgradient of the tank. The sample containers were provided by the NYSDEC contract laboratory and were prepreserved when necessary. The samples were shipped to the NYSDEC contract laboratory following the proper chain-of-custody protocols.

CHAPTER 3

RESULTS

The groundwater sampling results for the VOC analysis from the IIWA monitoring wells are presented in Table 1. VOCs above the quantitation limit were detected in all the wells sampled with the exception of the upgradient well cluster (MRMW-1 cluster). The primary contaminant in the groundwater is 1,1,1-TCA. 1,1-DCE, 1,1-DCA, 1,2-DCA, carbon tetrachloride, TCE, 1,1,2-TCA, and toluene were also detected above the NYSDEC Class GA groundwater standards.

The groundwater sampling results for the TAL metals analysis from the IIWA monitoring wells are also presented in Table 1. Iron, magnesium, manganese, and sodium were detected above the NYSDEC Class GA groundwater standard (Table 1). However, the concentrations found were in some cases only slightly elevated over natural ambient groundwater ranges (Table 1). It is believed that the concentrations found can be attributed to the highly mineralized nature of the groundwater in this area.

DRAFT

TABLE 1 (Page 1 of 3)

8/14/97

MONITORING WELL GROUNDWATER DATA SUMMARY

Mohonk Road Industrial Plant Site No. 356023
11 WA #2 Sampling Event

MONITORING WELL NO.:	MRMW-1	MRMW-1B	MRMW-2	MRMW-3	MRMW-3DL	MRMW-4	MRMW-4DL	MRMW-5	MRMW-5B	NYSDEC CLASS GA STANDARDS
SAMPLE NO.:	83601	83601	83602	83603	83603	83604	83604	83605	83605	
WELL DEPTH (ft):	16.5	100	23	24.5	24.5	19.5	19.5	14.5	34	
VOLATILE ORGANICS (µg/l)					[DL: 2:1]	[DL: 5:1]	[DL: 200:1]			
Methylene chloride	7 j b	5.0 j b	6 j b	7.0 j b	11 j b	49 j b	990 b j	5.0 j b	6.0 b j	5.0
Acetone	ND	ND	ND	ND	ND	ND	3,330 b	ND	ND	NS
1,1-Dichloroethylene	ND	ND	ND	10 j	ND	5,100 e	3,700	ND	500 e	5.0
1,1-Dichloroethane	ND	ND	ND	ND	10 j	690	580 j	ND	50	5.0
1,1,1-Trichloroethane	ND	ND	18	220 e	210	4,100 e	28,000	22	700 e	5.0
1,2-Dichloroethane	ND	ND	ND	ND	ND	31 j	ND	ND	6.0 j	5.0
Carbon tetrachloride	ND	ND	ND	ND	ND	27 j	ND	ND	17	0.7
Benzene	ND	ND	1.0 j	7.0 j	10 j	ND	ND	ND	5.0 j	5.0
1,2-Dichloroethylene (total)	ND	ND	ND	13	13 j	18 j	ND	ND	3.0 j	5.0
Chloroform	ND	ND	ND	ND	ND	11 j	ND	ND	4.0 j	7.0
Trichloroethylene	ND	ND	ND	45	43	2,300 e	2,400	4.0 j	180	5.0
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	18 j	ND	ND	5.0 j	5.0
Toluene	ND	ND	ND	ND	ND	25 j	ND	ND	ND	5.0
1,1,2-Trichloro-1,2,2 trifluoroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0
Total Volatile Organics[a]	ND	ND	19	295	691	12,331	34,680	26	1,470	NS

Numbers in bold exceed standard.

a - Total = Summation of volatiles other than those found in blank.
b - Found in associated blanks.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.

DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
NS - No standard.

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TABLE 1(Page 2 of 3)

6/14/97

MONITORING WELL
GROUNDWATER DATA SUMMARY
Mohonk Road Industrial Plant Site No. 356023
11 WA #2 Sampling Event

MONITORING WELL NO.:	MRMW-5B DL	MRMW-5B DUP	MRMW-5B DUP/DL	MRMW-6	MRMW-7	MRPW-1	TRIP BLANK	NYSDEC CLASS GA STANDARDS
SAMPLE NO.:	83605	83605	83605	83606	83607	836G1		
WELL DEPTH (ft):	34	34	34	100	100	-		
VOLATILE ORGANICS (µg/l)	[DL: 25:1]		[DL: 25:1]					
Methylene chloride	**330 b**	**6.0 b j**	**260 b j**	5.0 j b	5.0 j b	5b j	7 b j	5.0
Acetone	ND	ND	ND	ND	ND	10 b	ND	NS
1,1-Dichloroethylene	**380**	**520 e**	**360**	**7.0 j**	1.0 j	21	ND	5.0
1,1-Dichloroethane	**43 j**	**52**	**42 j**	2.0 j	ND	23	ND	5.0
1,1,1-Trichloroethane	**3,900**	**720 e**	**3,800**	**40**	**28**	**180**	ND	5.0
1,2-Dichloroethane	ND	**6.0 j**	ND	ND	ND	ND	ND	5.0
Carbon tetrachloride	ND	**18**	ND	ND	ND	ND	ND	0.7
Benzene	ND	ND	ND	1.0 j	1.0 j	ND	ND	5.0
1,2-Dichloroethylene (total)	ND	3.0 j	ND	ND	ND	3.0 j	ND	5.0
Chloroform	ND	4.0 j	ND	ND	ND	ND	ND	7.0
Trichloroethylene	**140 j**	**180**	**140 j**	ND	ND	**9 j**	ND	5.0
1,1,2-Trichloroethane	ND	5.0 j	ND	ND	ND	ND	ND	5.0
Toluene	ND	ND	ND	ND	ND	ND	ND	5.0
1,1,2-Trichloro-1,2,2 trifluoroethane	ND	ND	ND	ND	ND	ND	ND	5.0
Total Volatile Organics[a]	4,463	1,508	4,342	50	30	236	ND	NS

Numbers in bold exceed standard.

a - Total = Summation of volatiles other than those found in blank.
b - Found in associated blanks.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.

DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
NS - No standard.

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TABLE 1(Page 3 of 3)

8/14/97

MONITORING WELL
GROUNDWATER DATA SUMMARY
Mohonk Road Industrial Plant Site No. 356023
11 WA #2 Sampling Event

MONITORING WELL NO.:	MRMW-1	MRMW-1B	MRMW-2	MRMW-3	MRMW-4	MRMW-5	MRMW-5B	MRMW-5B DUP	MRMW-6	MRMW-7	MRPW-1	NATURAL AMBIENT	NYSDEC
SAMPLE NO.:	3601	361B	3602	3603	3604	3605	8365B	8365C	3606	3607	83P6G1	GROUNDWATER	CLASS GA
WELL DEPTH (ft):	16.5	100	23	24.5	19.5	14.5	34	34	100	100	-	RANGES (n)	STANDARDS
METALS (µg/l)													
Aluminum	5,050	ND	87.6 B	35.5 B	ND	1,080	ND	60.3 B	292	348	ND	<5.0 - 1,000	NS
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36.6 B	N/A	3.0 GV
Arsenic	3.3 B	ND	ND	ND W	1.8 B	ND	ND	ND	2.3 B	2.1 B	ND	<1.0 - 30	25
Barium	145 B	79.6 B	26.1	130 B	41.6 B	16.8 B	147 B	130 B	151 B	173 B	294	10 - 500	1,000
Beryllium	0.78 B	ND	ND	0.79 B	1.2 B	0.81 B	1.2 B	1.2 B	ND	ND	1.2 B	<10	3.0 GV
Cadmium	ND	3.5 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.0	10
Calcium	215,000	179,000	104,000	261,000	149,000	47,100	117,000	113,000	109,000	65,700	99,200	1,000 - 150,000	NS
Chromium	8.0 B	ND	ND	ND	ND	ND	ND	ND	ND	5.5 B	ND	<1.0 - 5.0	50
Cobalt	15.4 B	ND	ND	ND	11.9 B	ND	ND	ND	6.9 B	ND	ND	<10	NS
Copper	28.8	3.3 B	ND	ND	3.3 B	6.5 B	23 B	22.9 B	22.5 B	55.0	ND	<1.0 - 30	200
Iron	**10,200**	138	269	**419**	54.3 B	**1,660**	**346**	**353**	**810**	**1,710**	**16,700**	10 - 10,000	300 (m)
Lead	9.7	1.8 B	0.40 B	**0.50 B**	3.6	1.8 B	ND	1.5 B	6.1	2.8 B	0.70 B	<15	25
Magnesium	**44,300**	20,700	7,860	**51,900**	13,000	3,940 B	6,850	6,550	16,000	17,000	15,400	1,000 - 50,000	35,000 GV
Manganese	**2,090**	13.7 B	9.2 B	**2,800**	**1,940**	55.2	9.2 B	13.8 B	21.5	38.4	168	<1.0 - 1,000	300 (m)
Mercury	ND	ND	ND	ND	ND	ND	ND N	ND N	ND	ND	ND N	<1.0	2.0
Nickel	58.5	13.6 B	ND	12.0 B	32.1 B	16.8 B	ND	ND	ND	27.3 B	17.6 B	<10 - 50	NS
Potassium	1,890 B	ND	ND	1,190 B	ND	ND	ND	ND	4,320 B	3,420 B	ND	1,000 - 10,000	NS
Selenium	1.6 B	1.9 B	1.8 B	3.2 B	ND	1.8 B	ND	ND W	3.7 B	2.8 B	1.5 B	<1.0 - 10	10
Silver	ND	ND	ND	ND	ND	ND	13.9	10.9	5.4 B	9.3 B	ND	<5.0	50
Sodium	17,000	14,700	7,370	**203,000**	**28,400**	7,670	6,570	6,260	16,900	4,460 B	10,700	500 - 120,000	20,000
Thallium	ND	ND	ND W	ND W	1.4 B W	ND W	ND W	ND W	ND W	ND W	ND	N/A	4.0 GV
Vanadium	23.1 B	12.0 B	8.0 B	20.2 B	11.3 B	6.7 B	8.8 B	9.5 B	8.2 B	ND	6.2 B	<1.0 - 10	NS
Zinc	55.8	14.2 B	6.1 B	9.5 B	22.3	29.0	6.1 B	6.1 B	52.7	21.6	13.7 B	<10 - 2,000	300

Numbers in bold exceed standard.

(m) - Iron and manganese not to exceed 500 µg/l.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
N - Spiked sample recovery is not within control limits.
W - Post-digestion spike out of control limits; sample absorbance is less than 50% of spike absorbance.
GV - Guidance value.
N/A - Not available.
ND - Not detected at analytical detection limit.
NS - No standard.
DUP - Duplicate sample analysis.

CHAPTER 4

CONCLUSIONS

Analytical results from the groundwater sampling and analysis indicate the presence of site-related contamination in the groundwater at the bedrock interface and in the bedrock aquifer. The concentrations in the monitoring well clusters downgradient of the source areas (MRMW-3, MRMW-4, MRMW-5 cluster, MRMW-6, and MRMW-7) are significantly elevated over the concentrations found in the upgradient well cluster (MRMW-1 cluster). The primary contaminant found in both the on-site industrial wastewater tank and in the groundwater is 1,1,1-TCA. Based on the available data it appears that past disposal practices at the MRIP (NYSDEC Site No. 356023) have resulted in significant groundwater contamination of the bedrock aquifer in the High Falls area.

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

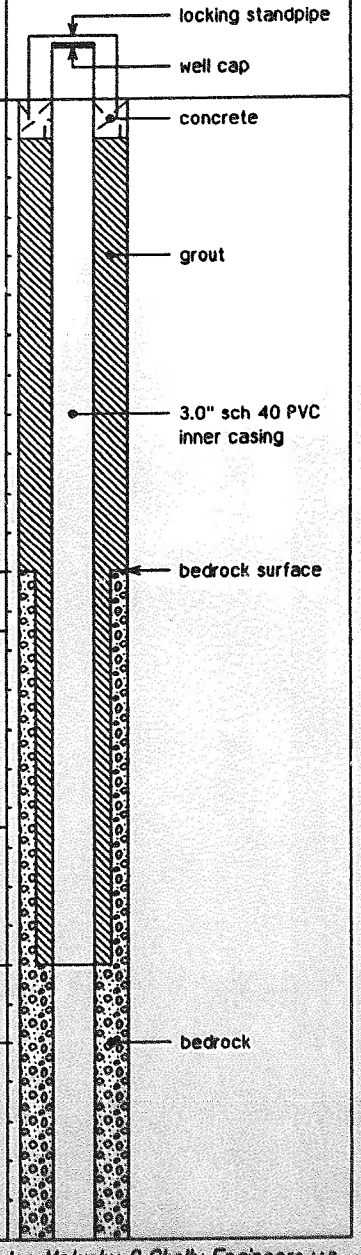
Boring I.D.: MRMW-1B

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/25/97 - 3/28/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
2						OVERBURDEN CONSISTS OF GLACIAL TILL
4						DRILLED TO 12' WITH 4" SPIN CASING
6						BEDROCK AT 12'
8						DRILLED TO 22' WITH HQ CORE (3.8" dia)
10						3" Sch 40 PVC OUTER CASING SET AT 22' AND PRESSURE GROUTED TO SURFACE
12						NX CORE BARREL WAS USED TO COLLECT ROCK CORES
	1.5	1.25	83	50		12' - 13.5' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate)
14						13.5' - 18.5' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate)
16	5	4.7	94	65		
18						
	3.5	3.5	100	95		18.5' - 22' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 18.5' - 22' run:* Greater than ten (10) horizontal fractures.
22						
	2	2	100	100		22' - 24' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 22' - 24' run:* Four (4) horizontal fractures.
24						
	3.5	5	100	100		24' - 29' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 24' - 29' run:* Solid - no fractures.
26						
28						

WELL DIAGRAM



Lawler, Matusky & Skelly Engineers LLP

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IINA#2

Boring I.D.: MRMW-1B

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/25/97 - 3/28/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (%)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
31-33	5	5	100	99		29' - 34' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 29' - 34' run:* Six (6) iron stained, clay lined horizontal fractures.	
35-37	4	5	100	100		34' - 39' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 34' - 39' run:* Two (2) horizontal fractures; one filled with fines. 2" of small solution cavities at 36.5'.	
39-41-43	1	5	100	100		39' - 44' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 39' - 44' run:* Four (4) fractures. 0.25" slate layer at 39.3'.	bedrock
45-47	5	5	100	94		44' - 49' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 44' - 49' run:* Four (4) horizontal fractures.	
49-51-53	5	5	100	95		49' - 54' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 49' - 54' run:* Five (5) horizontal fractures. One (1) vertical fracture 51' - 52'.	
55-57	5	4.5	90	78		54' - 59' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 54' - 59' run:* Six (6) horizontal fractures. 2.5" slate layer at 56.6'.	

TEST BORING/MONITORING WELL CONSTRUCTION LOG	Page 3 of 4
Project Name: Mohonk Road IIWA#2	**Boring I.D.: MRMW-1B**

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 358023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/25/97 - 3/28/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (FT)	RECOVERY (FT)	% RECOVERY (%)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION	WELL DIAGRAM
	5	4.5	90	78		and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
60	5	5	100	100		59' - 64' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 59' - 64' run:* Six (6) horizontal fractures.	
64	5	5	100	100		64' - 69' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 64' - 69' run:* 4' of competent rock. Two (2) fractures. Solution cavity zone from 66.7' - 66.9'.	
68							
70	5	5	100	100		69' - 74' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 69' - 74' run:* Two (2) horizontal fractures.	bedrock
74	5	5	100	90		74' - 79' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 74' - 79' run:* Four (4) horizontal fractures; 2 iron stained.	
78							
80	5	5	100	90		79' - 84' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 79' - 84' run:* Five (5) fractures. 4" of rock column iron stained.	
82							
84	5	5	100	90		84' - 89' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 84' - 89' run:*	
86							

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

Boring I.D.: MRMW-1B

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

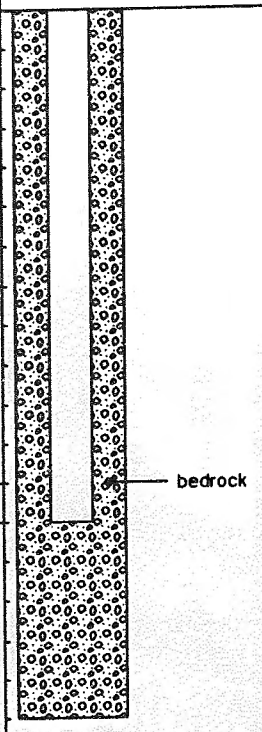
Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/25/97 - 3/28/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
89	5	5	100	90		Seven (7) horizontal fractures. One (1) vertical fracture 87' - 87.5'. Iron stained fracture zone 84' - 84.4'.
91	5	5	100	98		89' - 94' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 89' - 94' run:* Four (4) horizontal fractures. 0.5" slate layer at 93.4'.
95	5	5	100	100		94' - 99' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 94' - 99' run:* One (1) horizontal fracture.
99	1	1	100	100		99' - 100' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate)
101						END OF BORING 100 FT

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

f = fine
m = medium
c = coarse

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

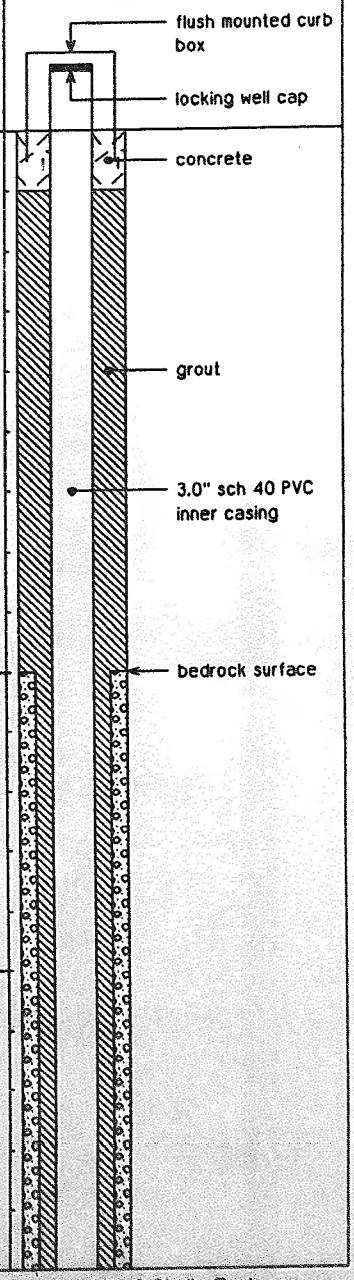
Boring I.D.: MRMW-5B

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/3/97 - 4/7/97
Surface Elevation:
Depth to Water:
Total Depth: 34

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
0-8						OVERBURDEN CONSISTS OF GLACIAL TILL DRILLED TO 9' WITH 4" SPIN CASING BEDROCK AT 9' DRILLED TO 19' WITH HQ CORE (3.8" dia) 3" Sch 40 PVC OUTER CASING SET AT 19' AND PRESSURE GROUTED TO SURFACE NX CORE BARREL WAS USED TO COLLECT ROCK CORES
10-12	5	5	100	90		9' - 14' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 9' - 14' run:* Nine (9) horizontal fractures. One (1) vertical fracture at 12'.
14-18	5	5	100	100		14' - 19' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 14' - 19' run:* Five (5) horizontal fractures.

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

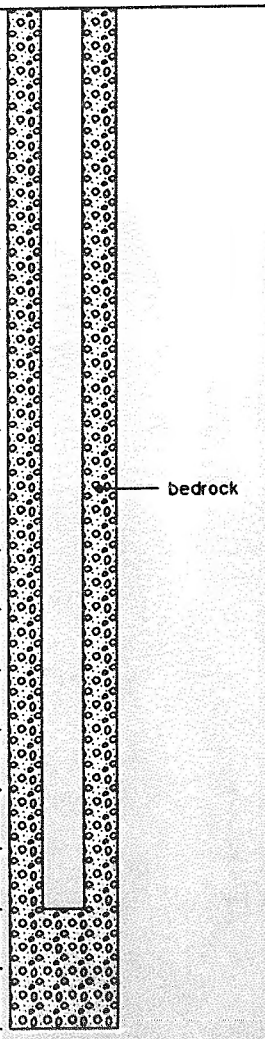
Boring I.D.: MRMW-5B

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/3/97 - 4/7/97
Surface Elevation:
Depth to Water:
Total Depth: 34

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
21	5	4.3	86	72		19' - 24' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 19' - 24' run:* Eight (8) horizontal fractures; several iron stained.
23						
25	5	5	100	80		24' - 29' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 24' - 29' run:* Greater than ten (10) fractures (breakage).
27						
29	5	5	100	100		29' - 34' Bedrock - Shawangunk formation White *orthoquartzite* (metaconglomerate) *Features of 29' - 34' run:* Six (6) fractures; several stained and filled with fines.
31						
33						
35						
37						

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IINA#2

Boring I.D.: MRMW-08

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/26/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY

GEOLOGIC DESCRIPTION

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

f = fine
m = medium
c = coarse

OVERBURDEN CONSISTS OF GLACIAL TILL

DRILLED TO 28' WITH 4" SPIN CASING

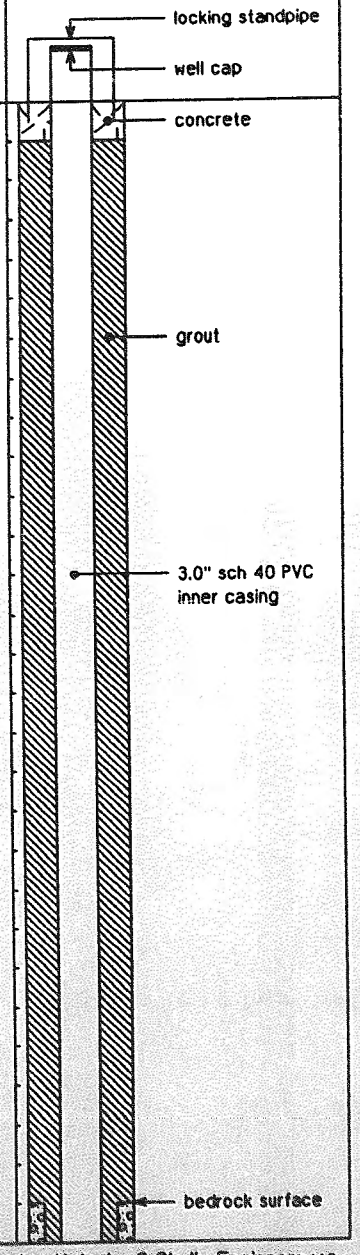
BEDROCK AT 28'

DRILLED TO 39' WITH HQ CORE (3.8" dia)

3" Sch 40 PVC OUTER CASING SET AT 39' AND PRESSURE GROUTED TO SURFACE

NX CORE BARREL WAS USED TO COLLECT ROCK CORES

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

Boring I.D.: MRMW-08

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/26/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

GEOLOGIC DESCRIPTION

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

f = fine
m = medium
c = coarse

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
31-33	5	5	100	74		29' - 34' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 29' - 34' run:* Ten (10) horizontal fractures.
35-37	5	5	100	94		34' - 39' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 18.5' - 23.5' run:* Ten (10) horizontal fractures. One (1) vertical fracture from 36.1' - 38'.
39-41	3	3	100	87		39' - 42' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate)
43-45	5	5	100	87		42' - 47' Bedrock - Shawangunk formation White and fray *orthoquartzite* (metaconglomerate) *Features of 42' - 47' run:* Seven (7) horizontal fractures; several filled with fines
47	1.5	1.5	100	90		47' - 48.5' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate)
49-51	4.5	4.5	100	100		48.5' - 53' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 48.5' - 53' run:* Two (2) horizontal fractures (breakage).
53-55	1	5	100	98		53' - 58' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 53' - 58' run:* Three (3) horizontal fractures (breakage).
57						

WELL DIAGRAM

bedrock

TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IINA#2

Boring I.D.: MWIN-08

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location. See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/26/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION	WELL DIAGRAM
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%	
60-62	5	5	100	100		58' - 63' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 58' - 63' run:* Four (4) horizontal fractures.	
64-66	5	3.5	70			63' - 68' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) Rock core fell out of barrel down hole.	
68-70-72	5	5	100	74		68' - 73' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 68' - 73' run:* Five (5) fractures (breakage).	bedrock
74-76-78	5	5	100	100		73' - 78' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 73' - 78' run:* Four (4) fractures (breakage).	
80-82	5	5	100	100		78' - 83' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 78' - 83' run:* Three (3) fractures (breakage).	
84-86	5	5	100	100		83' - 88' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 83' - 88' run:* Two (2) fractures; one iron & managanese stained.	

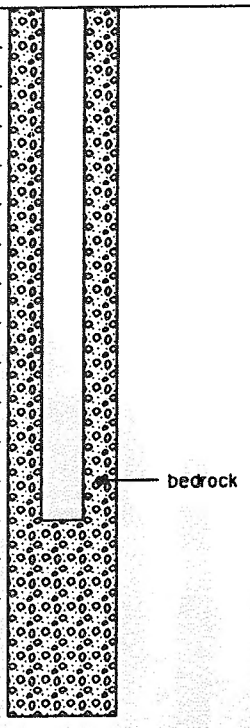
TEST BORING/MONITORING WELL CONSTRUCTION LOG	Page 4 of 4
Project Name: Mohonk Road IIWA#2	**Boring I.D.: MRWW-08**

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 3/26/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
89	5	5	100	100		88' - 93' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 88' - 93' run:* 0.5" Shale / slate layer at 89.8 Three (3) fractures (breakage)
91	5	5	100	100		
93	5	4.8	96	78		93' - 98' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 93' - 98' run:* Iron staining 93.5' - 95'. Eight (8) fractures; several iron stained.
95						
97						
99	2	2.3	100	73		98' - 100' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 98' - 100' run:* Three (3) iron stained fractures.
101						END OF BORING 100 FT
103						
105						
107						
109						
111						
113						
115						

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IINA#2

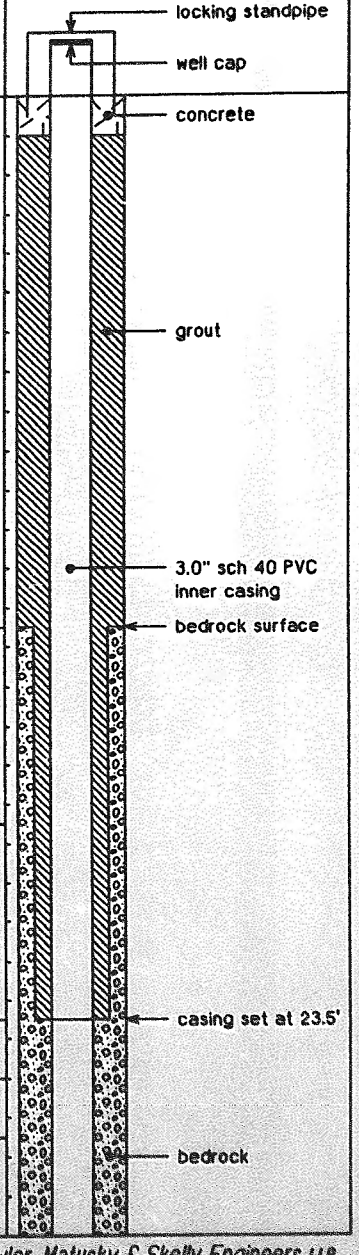
Boring I.D.: MRMW-07

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/1/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (%)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
2						OVERBURDEN CONSISTS OF GLACIAL TILL
4						DRILLED TO 13.5' WITH 4" SPIN CASING
6						BEDROCK AT 13.5'
8						DRILLED TO 23.5' WITH HQ CORE (3.8" dia)
10						3" Sch 40 PVC OUTER CASING SET AT 23.5' AND PRESSURE GROUTED TO SURFACE
12						NX CORE BARREL WAS USED TO COLLECT ROCK CORES
14	5	5	100	72		13.5' - 18.5' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 13.5' - 18.5' run:* Ten (10) slightly weathered horizontal fractures.
16						
18						
20	5	5	100	66		18.5' - 23.5' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 18.5' - 23.5' run:* Seven (7) horizontal fractures.
22						
24	1.5	1.6	80	70		23.5' - 25' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 23.5' - 25' run:* Three (3) horizontal fractures.
26	1.5	1.5	100	33		25' - 26.5' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 25' - 26.5' run:* Highly fractured.
28	3.5	2.7	77	51		

WELL DIAGRAM



Lawler, Matusky & Skelly Engineers LLP

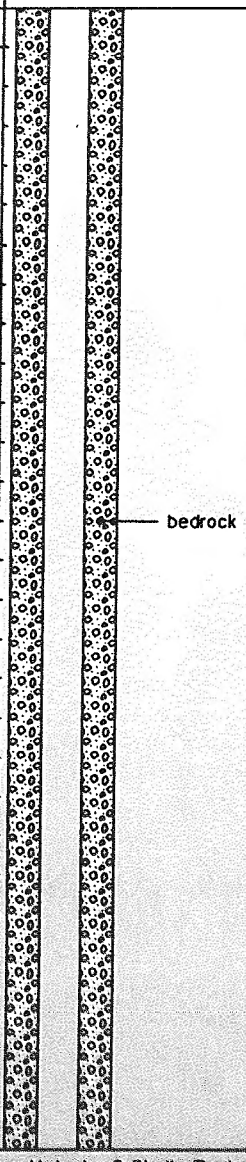
TEST BORING/MONITORING WELL CONSTRUCTION LOG	Page 2 of 4
Project Name: Mohonk Road IIWA#2	**Boring I.D.: MRMW-07**

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/1/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
						and = 35-50% f = fine some = 20-35% m = medium little = 10-20% c = coarse trace = 0-10%
	3.5	2.7	77	51		26.5' - 30' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 26.5' - 30' run:* Eight (8) horizontal fractures.
31						
	5	5	100	64		30' - 35' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 30' - 35' run:* Greater than ten (10) horizontal fractures, mainly at top and bottom of run.
33						
35						
	4	4.2	100	88		35' - 39' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 35' - 39' run:* Six (6) fractures.
37						
39						
	1	1	100	100		39' - 40' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate)
41						40' - 45' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 40' - 45' run:* Three (3) fractures.
	5	5	100	90		
43						
45						
	5	5	100	90		45' - 50' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 45' - 50' run:* Six (6) horizontal fractures.
47						
49						
51						
	5	5	100	62		50' - 55' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 50' - 55' run:* Greater than ten (10) fractures.
53						
55						
	5	5	98	60		55' - 60' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 55' - 60' run:* Greater than ten (10) fractures. 1.5" of clay (filled fracture?) at 59.4'.
57						

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG

Project Name: Mohonk Road IIWA#2

Boring I.D.: MRMW-07

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

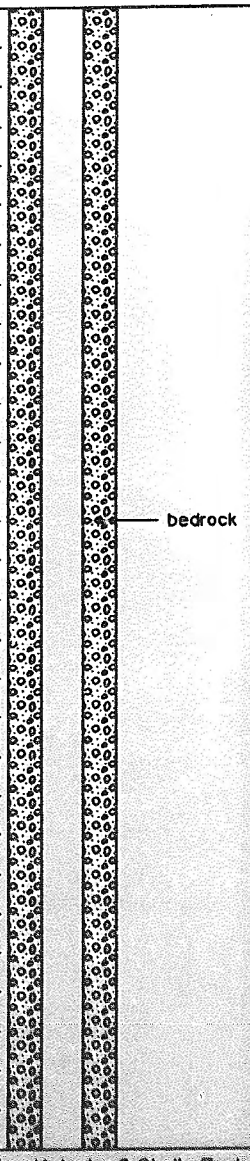
Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/1/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
	5	5	98	60		
60						60' – 65' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 60' – 65' run:* Six (6) horizontal fractures.
62	5	4.9	100	94		
64						
66						65' – 70' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 65' – 70' run:* Last 0.6' and top 1' fractured. One fracture at top and one at bottom filled with fines.
68	5	5	100	76		
70						70' – 75' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 70' – 75' run:* Six (6) fractures in bottom 1.5'; several stained.
72	5	5	100	90		
74						
76						75' – 80' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 75' – 80' run:* Greater than ten (10) fractures; several stained.
78	5	5	100	72		
80						80' – 85' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 80' – 85' run:* Five (5) horizontal fractures; 2 stained and filled with fines.
82	5	5	100	96		
84						
86	5	5	100	72		85' – 90' Bedrock – Shawangunk formation White and gray *orthoquartzite* (metaconglomerate)

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

f = fine
m = medium
c = coarse

WELL DIAGRAM



TEST BORING/MONITORING WELL CONSTRUCTION LOG	Page 4 of 4
Project Name: Mohonk Road IINA#2	**Boring I.D.: MRMW-07**

Site Location: High Falls, NY
Job Number: 650-221
Client: NYSDEC
NYSDEC Site I.D. 356023
Boring Location: See plan
Geologist: John Thornburg

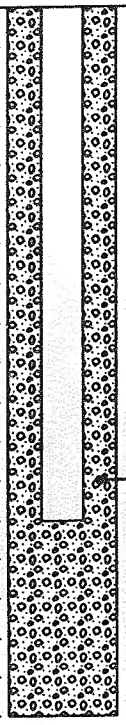
Drilling Co.: American Auger
Drilling Method: 4" Spin casing/NX Core
Date Begin/End: 4/1/97 - 4/3/97
Surface Elevation:
Depth to Water:
Total Depth: 100

DEPTH (FT)	RUN LENGTH (ft)	RECOVERY (ft)	% RECOVERY (ft)	RQD	LITHOLOGY	GEOLOGIC DESCRIPTION
89	5	5	100	72		*Features of 85' - 90' run:* Greater than ten (10) fractures; at least three filled with fines.
91	5	5	100	94		90' - 95' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 90' - 95' run:* Two (2) fractures filled with fines and stained.
95	5	5	100	100		95' - 100' Bedrock - Shawangunk formation White and gray *orthoquartzite* (metaconglomerate) *Features of 95' - 100' run:* No fractures.
99						END OF BORING 100 FT
101						
103						
105						
107						
109						
111						
113						
115						

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

f = fine
m = medium
c = coarse

WELL DIAGRAM



APPENDIX B

WELL DEVELOPMENT LOGS

Date: 4-4-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter:
Crew: JET	WELL DEVELOPMENT LOG	Cond. Meter:
Job No: 650-221	WELL No. MW-16	Therm:
Site: Mahonk Rd		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0738	31.78	0	7.0	12.7	994	200	
0812	50.75	10	7.0	12.0	976	>200	
0907	30.36	20	6.9	14.0	868	>200	
1444	35.04	30	6.8	13.4	982	125	4-8-97
1454	73.6	40	6.7	12.6	953	200+	2 gpm est
1504	37.8	45	6.7	12.2	943	200+	cut pump to ~ ½ gpm
							1514 shut off pump H2O 93.5
1551	64.6	45	6.7	12.1	825	200+	Discard pumping.
1601	78.2	50	6.6	13.0	793	200+	
1621	78.6	55.0	6.6	14.5	800	200+	Pumping at ~ 0.25 gpm

Depth of Well: Start:_____ End:_____

0.367 x 65 ft = 23.85 gal

Date: 4-4-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter:
Crew: JET	WELL DEVELOPMENT LOG	Cond. Meter:
Job No: 50-221	WELL No. MW-7	Therm:
Site: Mahopac Rd.		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1044	26.05	0	7.3	10.8	480	200+	2.0 gpm
1054	27.45	20	7.2	10.7	471	200+	
1104	30.2	40	7.2	10.8	478	200+	2.5 gpm increased
1114	30.6	60	7.2	10.9	480	200+	
1124	31.0	80	7.2	11.2	478	200+	
1134	31.3	100	7.2	10.6	481	180+	
1144	31.5	120	7.2	10.9	481	70	
1154	31.6	140	7.2	11.0	480	60	
1204	31.7	160	7.2	10.6	490	45	
1214	31.8	180	7.1	10.6	484	40	

Depth of Well: Start:_____ End:_____

Date: 4-4-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: AS
Crew: JET	WELL DEVELOPMENT LOG	Cond. Meter: OEC-560
Job No: 650-221	WELL No. MW-6	Therm: OEC-560
Site: Mohonk Rd.		Turb. Meter: DRT-15C

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1100	31.41	0	7.4	12.8	631	>200	
1125	38.45	10	7.4	12.2	613	>200	
1134	39.45	20	9.3	12.4	426	>200	
1150	39.1	30	7.5	12.5	596	>200	
1200	39.6	40	7.5	12.2	589	>200	
1206	44.1	50	7.4	12.1	578	>200	Water rising
0230	40.2	55	7.2	11.9	681	80	4-2-97 2 GPM
0235	47.1	65	7.1	12.1	675	>200	
0240	49.3	75	7.1	11.7	672	200+	Very Cloudy
0245	51.0	85	7.1	11.7	623	200+	
0254	—	105	7.1	11.7	622	200+	can't get SWL past hose
0904	—	125	7.1	11.9	676	200+	
0914	54.0	145	7.1	11.4	624	140	
0924	54.1	165	7.1	11.5	620	110	
0934	54.4	185	7.1	11.6	680	80	
0944	54.5	205	7.1	12.0	679	75	
0954	54.7	225	7.1	11.8	682	60	
1004	55.1	245	7.1	11.4	620	60	

Depth of Well: Start:_____ End:_____

0.367 x 69 ft = 25.32 gal.

IMAGEMAX

CORRECTION

THE FOLLOWING DOCUMENTS

HAVE BEEN REPHOTOGRAPHED

TO ASSURE LEGIBILITY

·7010 Fly Road · E. Syracuse, NY 13057 · (315) 432-0591 · Fax (315) 432-0593
140A Metro Park · Rochester, NY 14623 · (716) 427-2460
Albany, NY · (518) 456-0504 Buffalo, NY · (716) 633-1913 Binghamton, NY · (607) 724-8368

Date: 4-4-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: AS
Crew: JET	WELL DEVELOPMENT LOG	Cond. Meter: DEC-560
Job No: 650-221	WELL No. MW-6	Therm: DEC-560
Site: Mohonk Rd.		Turb. Meter: DRT-15C

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1100	31.41	0	7.4	12.8	631	>200	
1125	38.45	10	7.4	12.2	613	>200	
1134	39.45	20	9.3	12.4	426	>200	
1150	39.1	30	7.5	12.5	596	>200	
1200	39.6	40	7.5	12.2	589	>200	
1206	44.1	50	7.4	12.1	578	>200	water rising
0230	40.2	55	7.2	11.9	681	80	4-7-97 2 GPM [illegible]
0235	47.1	65	7.1	12.1	675	>200	
0240	49.3	75	7.1	11.7	672	200+	Very Cloudy
0245	51.0	85	7.1	11.7	623	200+	
0854	—	105	7.1	11.7	622	200+	can't get SWL past hose.
0904	—	125	7.1	11.9	676	200+	
0914	54.0	145	7.1	11.4	624	140	
0924	54.1	165	7.1	11.5	680	110	
0934	54.4	185	7.1	11.6	680	80	
0944	54.5	205	7.1	12.0	679	75	
0954	54.7	225	7.1	11.8	682	60	
1004	55.1	245	7.1	11.4	680	60	

Depth of Well: Start:______ End:______

0.367 × 69 ft = 25.32 gal.

Date: 4-7-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: AS
Crew: JET	WELL DEVELOPMENT LOG	Cond. Meter: OEC-500
Job No: 650-221	WELL No. MW-5b	Therm: OEC-500
Site: Mahopac Rd		Turb. Meter: ORT-150

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
1636	19.5	0	7.2	16.5	464	>200	
1639		10	7.1	13.5	467	>200	
1642	25.7	20	7.2	12.5	427	>200	
1646	26.0	30	7.1	12.2	509	>200	
1650	26.3	40	7.1	12.1	526	>200	
1654	26.6	50	7.1	11.9	538	>200	
1658	26.6	60	7.1	12.0	546	>200	
1702	26.8	70	7.1	11.9	554	110	
1706	26.9	80	7.0	11.7	555	100	
1710	27.2	90	7.0	11.6	562	80	
1714	27.1	100	7.0	11.6	570	60	
1718	26.4	110	7.0	11.7	575	50	
1722	26.9	120	7.0	11.5	576	45	
1726	26.9	130	7.0	11.8	580	45	

Depth of Well: Start:_____ End:_____

* H_2O level BTOC. casing has yet to be trimmed
Do. cap.

Date: 4-28-97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: NYSDEC 01
Crew: JEM, JET	WELL DEVELOPMENT LOG	Cond. Meter: DEC560
Job No:	WELL No. MW-1	Therm: DEC560
Site: Mohonk Rd		Turb. Meter: DEC

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0822	6.64	0	7.2	10°C	1.175	7100	water orange brown v. turbid
0827		2	7.0	10	1.255	7100	
0830		4	7.1	8.6	1.300	7100	
0832	17.80	6	7.2	8.7	1.310	7100	beginning to go dry
		6.5 gal					WELL IS DRY
1125	12.48	0	7.2	9.4	1.341	7100	water v. turbid
1130		1.0	7.3	8.8	1.261	7100	" "
	17.72	1.0					WELL IS DRY
1556	13.07	0	7.2	10.2	1.307	7100	water v. turbid
1601		1.0	7.2	9.5	1.244	7100	well going dry
1602	18.2						WELL IS DRY

Depth of Well: Start:_____ End: 19.05

Date: 4-28 97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: DEC 01
Crew: JEM, JET	WELL DEVELOPMENT LOG	Cond. Meter: DEC 560
Job No:	WELL No. MW-2	Therm: DEC-560
Site: Monont Rd		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (μmhos/cm)	TURB. (NTUs)	COMMENTS
0840	16.14	0	7.6	9.7	0.585	~25	~~225~~ water clear
0848		2	7.6	9.3	0.575	225	water still clear
0850		4	7.6	9.6	0.586	7100	well going dry
	24.15	4 gal	DRY				
1139	18.61	0	7.6	9.7	0.594	~25	water clear
1143		2	7.4	9.5	0.569	250	" "
1145	23.43	3					
16:06	17.70	0	7.6	10.5	0.586	~50	water is clear, slightly
1610		2	7.6	10.1	0.573	250	" "
1611		3.5	7.6	10.1	0.572	~50	well going dry
1612	24.08						

Depth of Well: Start:_____ End: 25.32

Date: 4-28-97	**LAWLER, MATUSKY & SKELLY ENGINEERS**	pH Meter: DEC 01
Crew: JEM, JET	WELL DEVELOPMENT LOG	Cond. Meter: DEC 560
Job No:	WELL No. MW-3	Therm: DEC560
Site: Monont Rd		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0934	15.43	0	7.4	5.0	0.52-5	~25	H2O is clear
0934	17.25	0.5					well is DRY
1157	16.20						well dry < 1 quart
1621	15.1	0	7.2	8.2	0.539	1.25	water is clear
1624	17.09	0.5 gal					WELL DRY

Depth of Well: Start: 17.72 End: _____

Date: 4 28 97	LAWLER, MATUSKY & SKELLY ENGINEERS	pH Meter: DEC 01
Crew: JEM JET	WELL DEVELOPMENT LOG	Cond. Meter: DEC 560
Job No:	WELL No. MW-4	Therm: DEC 560
Site: Mohonk Rd		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0910	5.38	0	7.3	8.4	0.992	285	water clear no odor
0914		2	7.3	8.2	0.972	7100	strong odor. water silting up
0917		4	7.2	8.3	1.063	7100	V. strong odor
0920		5	7.4	8.2	0.954	7100	V. strong odor
0924	20.5	6					well DRY
1148	13.92	0	7.5	8.8	0.926	7100	strong odor
1152		1.0	7.5	8.5	0.973	7100	V strong odor
1153	20.95	1.5					WELL IS DRY
1615	13.24	0	7.4	9.2	1.033	7100	V. strong odor
1619		2	7.4	9.5	1.111	7100	well going dry. v. strong odor
1619	20.84						WELL IS DRY

Depth of Well: Start:_____ End: 21.55

Date: 4-28-97	**LAWLER, MATUSKY & SKELLY ENGINEERS**	pH Meter: DEC01
Crew: JET, JEM	WELL DEVELOPMENT LOG	Cond. Meter: DEC560
Job No:	WELL No. MW-5	Therm: DEC560
Site: Mononk Rd		Turb. Meter:

TIME	SWL	GAL. PURGED	pH	TEMP. (°C)	SP. COND. (µmhos/cm)	TURB. (NTUs)	COMMENTS
0942	6.35	0	7.0	9.7	3.64	~100	water silty slight odor
0950		2	7.3	8.2	1.734	~25	water clearing
0954		4	7.1	9.0	3.46	7100	fuel odor
0958		6	7.2	9.3	3.64	7100	no odor
100	TEST	7					WELL DRY
	25.15	SWL meter	stuck				
WAS	WAS	WAS	WAS				
1202	6.50	0	7.2	8.6	3.67	225	slight odor. water fairly clear
1206		2	7.1	8.3	3.29	~50	slight odor
1208		4	7.1	9.1	4.16	7100	" "
1210		5	7.2	9.2	4.12	7100	" "
1211	WAS						WELL IS DRY
	25.14						
1629	5.82	0	7.1	9.7	3.97	225	fuel odor
1632		2	7.2	8.4	2.91	225	" "
1635		4	7.1	9.2	3.86	7100	" "
1637		5	7.2	9.5	4.00	7100	" "
1638	25.14						WELL IS DRY

Depth of Well: Start:_____ End: 27.76

APPENDIX C

WELL SAMPLING FORMS

WELL SAMPLING LOG

Date: 5-7-97
Crew: PG JT
Job No: 650
Project: MOHAWK RD
Project Site:

METERS USED
Temp: DEC #560
pH: CP 2
Cond: DEC #560
Turb: DRT-15C

Well ID No: G1 (INSIDE TAP) (BB3662)
Well Condition: —
Well Depth/Diameter: — INSIDE TAP.
Well Casing Type: —
Screened Interval: — RAN FOR 10 CAL PRIOR TO SAMPLING
Casing Ht/Lock No: —
Reference Pt: —
Depth to Water (DTW): —
Water Column; Ht/Vol: —
Purge Est: —
Purge Date/Time(s): —
Purge Method: —
Depth(s): —
Rates (gpm): —
Purged Volume: —
DTW After Purging: —

Yield Rate: L-M-H
Purge Observations:

DTW Before Sampling: —
Sample Date/Time(s): 5-7-97 0945
Sampling Method: —
Sampling Depth(s): —
DTW After Sampling: —
Sampling Observations: —
Chain-of-Custody No(s): —
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	12.8	7.2	661	12
End	12.8	7.4	658	6

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
—	9.4	7.1	558	8

5-12??

Comments:

Air Temp: 45°
Weather Conditions: CLEAR

Crew Chief Signature: _____ Date: _____

WELL SAMPLING LOG

Date: 5.5.97
Crew: PM JT
Job No: 650
Project: MOHAWK RD
Project Site:

METERS USED
Temp: DEC #560
pH: CP 2
Cond: DEC #560
Turb: DRT-15C

Well ID No: MRMW-01 (383601)
Well Condition: GOOD
Well Depth/Diameter: 19.08/2"
Well Casing Type: PVC
Screened Interval: BOTTOM 10'
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 5.90 (1110) 11.84/dry
Water Column; Ht/Vol: 13.18/7.5
Purge Est: 22.5 GAL
Purge Date/Time(s): 5.5.97 1110
Purge Method: BAILER
Depth(s):
Rates (gpm):
Purged Volume: 6/DRY
DTW After Purging:

Yield Rate: L-M-H
Purge Observations: purge dry @ purged dry @ 1554

DTW Before Sampling: 9.75
Sample Date/Time(s): 5-6-97 0800
Sampling Method: BAILER
Sampling Depth(s): TOP column
DTW After Sampling: 10.55
Sampling Observations: BECAME CLOUDY
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	p.:	Sp. Cond.	Turb.
Start	9.2	7.3	1273	30
End	9.1	7.0	1250	>200

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
0	9.3	7.2	1286	150
2	9.7	7.1	1229	>200
4	9.3	7.1	1246	>200
6		9.3	1269	
		7.2	1537	>200

Comments:
1550 0 10.8
1554 Dry 20 gal.

Air Temp: 55
Weather Conditions: RAIN

Crew Chief Signature: _____ Date: _____

WELL SAMPLING LOG

Date: 5.5.97
Crew: PY JT
Job No: 650-[illegible]
Project: MOHONK RD
Project Site:

Well ID No: MMW-02 (B83602)
Well Condition: GOOD
Well Depth/Diameter: 25.35 1/2"
Well Casing Type: PVC
Screened Interval: BOTTOM
Casing Ht/Lock No:
Reference Pt: TOC
(15.46) Depth to Water (DTW): 14.36/DRY 14.67
Water Column; Ht/Vol: 11.0'/6 GAL
1.[illegible]BOTS"
Purge Est: /8 GAL
Purge Date/Time(s): 5.5.97 1000
Purge Method: BAILER
Depth(s):
Rates (gpm):
Purged Volume: 10.5
DTW After Purging: DRY/5GAL DRY/10.5GAL

Yield Rate: L-M-H
Purge Observations:

METERS USED

Temp: DEC #560
pH: CP2
Cond: DEC #560
Turb: DRT-15C

DTW Before Sampling: 13.91
Sample Date/Time(s): 5-6-97 0910
Sampling Method: BAILER (PTFE & LSP)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 16.55
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	9.7	7.5	590	2
End	10.1	7.3	563	8

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

	VOL	TEMP. (°C)	pH	SP. COND.	TURB.
1030	0	11.0	7.6	566	25
	2	10.4	7.6	577	49
	4	10.3	7.5	606	50
	5	DRY			
1520	5	11.3	7.3	588	41
	9	11.9	7.3	565	49
	10.5	10.5	7.2	528	52

Comments:

Air Temp: 60
Weather Conditions: SUNNY

Crew Chief Signature:

Date:

WELL SAMPLING LOG

Date: 5-5-97
Crew: PY JT
Job No: 650 -
Project: MOHONK RD
Project Site:

Well ID No: MW-03 (883603)
Well Condition: GOOD
Well Depth/Diameter: 27.80 / 2"
Well Casing Type:
Screened Interval: BOTTOM 10'
Casing Ht/Lock No:
Reference Pt: TOC
(7.81) Depth to Water (DTW): 5.59, dry 6.64/dry
Water Column; Ht/Vol: 22.2/8.7
Purge Est: 27 GAL
Purge Date/Time(s): 5-5-97 1025
Purge Method: BAILER (PE DISP)
Depth(s):
Rates (gpm):
Purged Volume: 5GAL/DRY
DTW After Purging:

Yield Rate: (L) M-H
Purge Observations: Purge dry @ 1100
Purged dry @ 1545

METERS USED

Temp: DEC #560
pH: CP-2
Cond: DEC #560
Turb: DRT-15C

DTW Before Sampling: 5.66
Sample Date/Time(s): 5-6-97 0845
Sampling Method: BAILER (PTFE DISP)
Sampling Depth(s): BP COLUMN
DTW After Sampling: 8.65
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	9.4	7.0	2760	~~6~~ 6
End	8.6	7.1	2800	8

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

	VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
1025	0	11.5	7.1	5210	48
	2	9.3	7.4	4090	169
	4	10.1	7.2	5140	>200
1100	5	DRY			
1535	0	12.2	7.1	5060	100
	Comment	10.2	7.2	4000	>200
	5	10.5	7.2	4940	>200

1545 Dry 5.5 gal.

Air Temp:
Weather Conditions:

Crew Chief Signature: Date:

WELL SAMPLING LOG

Date: 5-5-97
Crew: JET / PY
Job No: 650 - 251
Project: Mohawk Rd.
Project Site:

Well ID No: MR MW - 04 (B83604)
Well Condition: Good.
Well Depth/Diameter: 21.62 1/2"
Well Casing Type: PVC
Screened Interval: BOTTOM 10'
Casing Ht/Lock No:
Reference Pt: TOC
(6.33) Depth to Water (DTW): 4.63/DRY 11.00
Water Column; Ht/Vol: 16.99/8GAL
Purge Est: 24 GAL

Purge Date/Time(s): 5.5.97
Purge Method: BAILER
Depth(s):
Rates (gpm):
Purged Volume:
DTW After Purging: DRY / 5GAL

Yield Rate: L-M-H
Purge Observations: PURGED DRY IN AM (8900)
PURGED DRY AGAIN (1500)

METERS USED

Temp: YSI
pH: OEC-01
Cond: YSI
Turb: DRT - 15C

DTW Before Sampling: 6.10
Sample Date/Time(s): 5-6-97
Sampling Method: BAILER (PTFE DISP)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 9.17
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	9.1	7.1	854	7.0
End	9.2	7.1	879	67

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4° C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL	TEMP. (°C)	pH	SP. COND.	TURB.
0	9.8	6.8	1.202	7
2	9.0	7.0	986	>200
4	8.8	7.0	1102	>200
5	10.1	7.1	1057	>200
8	9.1	7.2	1147	

Comments:

Air Temp:
Weather Conditions.

Crew Chief Signature: Date:

WELL SAMPLING LOG

Date: 5-5-97
Crew: PY JT
Job No: 650-
Project: MOHONK ROAD
Project Site:

Well ID No: MR MW-15 (883605)
Well Condition: GOOD
Well Depth/Diameter: 15' / 2"
Well Casing Type: PVC
Screened Interval: BOTTOM 10'
Casing Ht/Lock No:
Reference Pt: TOC
(10.28) Depth to Water (DTW): 9.76 / DRY - 9.98
Water Column: Ht/Vol: 5.24 / ~~GAL~~ 1.4
Purge Est: 4.5 GAL
Purge Date/Time(s): 5-5-97 AM
Purge Method: BAILER
Depth(s): ALL
Rates (gpm):
Purged Volume: 8 GAL
DTW After Purging: DRY/4GAL

Yield Rate: (L)-M-H
Purge Observations: PURGED DRY 0900
AGAIN 1515

METERS USED

Temp: DEC #560
pH: CP2
Cond: DEC #560
Turb: DRT-15C

DTW Before Sampling: 9.31
Sample Date/Time(s): 5-6-96
Sampling Method: BAILER (PTFE DISP)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 10.62
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	9.7	7.0	289	2
End	9.1	7.0	313	30

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

	VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
0900	0.5	8.8	7.1	386	>200
	3.0	8.7	7.2	477	>200
	4.0	DRY			
1500	5.0	11.3	7.0	455	47
	8.0	9.5	7.0	431	>200

Comments:

Air Temp:
Weather Conditions:

Crew Chief Signature: _____ Date: _____

WELL SAMPLING LOG

Date: 5-6-97
Crew: PY JT
Job No: 650
Project: MOHONK ROAD
Project Site:

METERS USED:
Temp: DEC #560
pH: CP 2
Cond: DEC #560
Turb: DRT-15C

Well ID No: MRMW-07 (883607)
Well Condition: GOOD
Well Depth/Diameter: 101.9 / 2"
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 21.39 1145
Water Column; Ht/Vol: 80' / 30 GAL
Purge Est: 90 GAL
Purge Date/Time(s): 5-6-97 1200 - 1400
Purge Method: GRUNDFOS
Depth(s): ALL
Rates (gpm): 2.5
Purged Volume:
DTW After Purging:

Yield Rate: L-M-H
Purge Observations:

DTW Before Sampling: 21.82
Sample Date/Time(s): 5-6-97 1415
Sampling Method: BAILER (PTFE DISP.)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 21.83
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp (°C)	pH	Sp Cond.	Turb.
Start	9.6	7.5	453	[redacted] 106
End	9.5	7.2	451	112

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON	113	4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB	
200 0	12.5	7.4	472	25	Pump @ 95'
15	11.6	7.4	491	36	
30	11.9	7.4	491	25	Pump @ 85'
45	13.0	7.4	483	18	
60	11.9	7.5	492	17	Pump @ 65'
75	11.8	7.5	492	18	
400 90	10.3	7.2	446	53	

Comments:

Air Temp: 55
Weather Conditions: RAIN / T-STORM

Crew Chief Signature: Date:

WELL SAMPLING LOG

Date: 5-6-97
Crew: PY/JT
Job No: 650 -
Project: MOHONK RD
Project Site:

Well ID No: MW-06 (B83606)
Well Condition: GOOD
Well Depth/Diameter: 101.80 / 2"
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No: 3252
Reference Pt: TOC
Depth to Water (DTW): 33.05
Water Column: Ht/Vol: 68.75 / 25.5
Purge Est: 80 GAL
Purge Date/Time(s): 5.6.97 1500
Purge Method: GRUNDFOS
Depth(s): ALL
Rates (gpm):
Purged Volume:
DTW After Purging: 36.73

Yield Rate: L-M-H
Purge Observations:

METERS USED

Temp: DEC #580
pH: CP2
Cond.: DEC #580
Turb: DRT-15C

DTW Before Sampling: 36.73
Sample Date/Time(s): 5.6.97 1620
Sampling Method: BAILER (PTFE DISP.)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 35.12
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	11.8	7.4	700	35
End	11.1	7.3	695	40

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Med.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
1500 0	18.9	7.3	699	18
15	12.0	7.5	690	20
30	11.9	7.4	690	32
45	11.8	7.3	692	28
60	11.7	7.3	686	28
80	11.8	7.4	700	35

Comments:

Air Temp: 50°
Weather Conditions: RAIN

Crew Chief Signature: Date:

WELL SAMPLING LOG

Date: 5-7-97

Crew: PY JT

Job No: 650-

Project: MOHAWK RD

Project Site:

METERS USED

Temp: DEC #560

pH: CP 2

Cond: DEC #560

Turb: DRT-15C

Well ID No: MRMW-5C (B8365C)

Well Condition:

Well Depth/Diameter:

Well Casing Type:

Screened Interval:

Casing Ht/Lock No:

Reference Pt:

Depth to Water (DTW):

Water Column; Ht/Vol:

Purge Est:

Purge Date/Time(s):

Purge Method:

Depth(s):

Rates (gpm):

Purged Volume:

DTW After Purging:

Yield Rate: L-M-H

Purge Observations:

BLIND DUPLICATE OF MRMW-5B (B8365B)

DTW Before Sampling:

Sample Date/Time(s): 5-7-97 1120

Sampling Method:

Sampling Depth(s):

DTW After Sampling:

Sampling Observations:

Chain-of-Custody No(s):

Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start				
End				

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.

Comments:

Air Temp:

Weather Conditions:

Crew Chief Signature: _____ Date: _____

WELL SAMPLING LOG

Date: 5.8.97
Crew: PY JT
Job No: 650 -
Project: MOHAWK ROAD
Project Site:

Well ID No: MW-5B (B836SB)
Well Condition: GOOD
Well Depth/Diameter: 36.30 / 2"
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
Depth to Water (DTW): 20.43
Water Column; Ht/Vol: 16 / 6 GAL
Purge Est: 18 GAL
Purge Date/Time(s): 5.7.97 1000 - 1100
Purge Method: BAILER
Depth(s): ALL
Rates (gpm): ~ 1/3
Purged Volume:
DTW After Purging: 21.10

Yield Rate: L-M-H
Purge Observations:

METERS USED

Temp: DEC #560
pH:
Cond: DEC #560
Turb:

DTW Before Sampling: 21.10
Sample Date/Time(s): 5.7.97 1100
Sampling Method: BAILER (PTFE DISP.)
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 20.97
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F. WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	8.8	7.4	588	13
End	8.8	7.2	598	25

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
1000 —	9.4	7.1	558	8
5.0	8.8	7.2	549	35
10.0	8.8	7.3	585	50
15.0	8.6	7.2	589	30
1100 18.0	8.8	7.4	588	15

Comments: MS/MSD TAKEN

Air Temp: 45°
Weather Conditions: CLEAR

Crew Chief Signature: Date:

WELL SAMPLING LOG

Date: 5.5.97
Crew: PY TT
Job No: 650
Project: MONARK RD
Project Site:

METERS USED
Temp:
pH:
Cond:
Turb:

Well ID No: MW-013 (B8361B)
Well Condition: GOOD
Well Depth/Diameter: 101.4' /3"
Well Casing Type: PVC
Screened Interval:
Casing Ht/Lock No:
Reference Pt: TOC
(43.43) Depth to Water (DTW): 37.14
Water Column; Ht/Vol: 62.86/23 GAL
Purge Est: 75 GAL

Purge Date/Time(s): 5.5.97 1100
Purge Method: GRUNDFOS
Depth(s):
Rates (gpm):
Purged Volume:
DTW After Purging:

Yield Rate: L-M-H
Purge Observations:

DTW Before Sampling: 36.90
Sample Date/Time(s): 5.6.97 0815
Sampling Method: BAILER
Sampling Depth(s): TOP COLUMN
DTW After Sampling: 38.33
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s): ROY F WESTON

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	10.5	7.0	1015	26
End	10.6	7.1	1016	9

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
VOA + FREON 113		4°C	
METALS (UNFILTERED)		4°C HNO_3	

PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND	TURB.
0	11.8	7.2	1040	30
15	13.4	7.1	922	20
30	14.6	6.9	897	22
45	15.3	7.1	812	20
60	16.9	6.9	806	25
75	15.3	7.1	828	8

Pulled pump up to 60'
H2O @ ~ 65'
PULLED PUMP TO 85'

Comments:
Air Temp: 65°
Weather Conditions: Sunny, lt. breeze

Crew Chief Signature: Date: