MALCOLM PIRNIE

PHASE I
REMEDIAL INVESTIGATION REPORT
MR. C CLEANERS SUPERFUND SITE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

JULY 1994

MALCOLM PIRNIE, INC.

S-3515 Abbott Road
P. O. Box 1938
Buffalo, New York 14219

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1.0 INTRODUCTION

1.1 INTRODUCTION

The Mr. C Cleaners Site (Site No. 9-15-157) in East Aurora, New York has been listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites. Under the authority of the Environmental Conservation Law Section 27, the NYSDEC assigned Malcolm Pirnie, Inc. to perform a Remedial Investigation (Work Assignment D-002852-7) to collect and evaluate site data in support of the development and analysis of remedial alternatives for the site. This document presents the findings of the first phase of the remedial investigation and recommendations for additional investigation.

1.2 BACKGROUND

The NYSDEC was called to investigate chemical-like odors detected in the First Presbyterian Church in East Aurora, New York. Odors were first noticed in December 1991 in the supply closet and basement classrooms of the most recent addition on the southwest corner of the church. The NYSDEC and New York State Department of Health (NYSDOH) collected air samples on several occasions and detected the presence of tetrachloroethene (PCE), a common dry cleaning solvent.

Based on information from the air sampling events, the NYSDEC directed their Contractor, Huntingdon Analytical Services (HAS), to complete an investigation to determine the source and potential path of migration of the chemical-type odors detected in the church basement. The investigation found PCE contamination in the sanitary sewers, groundwater, and soil vapor. The NYSDEC identified the sanitary sewers as a likely contaminant migration pathway and Mr. C Cleaners, located approximately 400 feet from the Church, as a suspected source. The site was designated as a Class "2" site, meaning that the site is believed to pose a significant threat to the public health and the environment.

1.3 PURPOSE AND OBJECTIVES

The purpose of the Remedial Investigation (RI) was to fill data gaps from previous investigations, summarize existing data (see Section 3.0), determine the extent and nature

of contamination, and develop a conceptual model of the distribution and migration of contaminants to aid in completion of the Feasibility Study.

The approach of the required RI investigative and reporting activities was identified in the January 1994 Work Plan. The NYSDEC-approved Work Plan included an RI plan which identified all the field investigative activities and methodologies, including sample collection procedures and analytical protocols as well as the quality assurance/quality control procedures that were employed to perform the investigation.

Information discovered and/or mitigating circumstances encountered during field investigative activities resulted in a number of modifications to the scope of work and (or investigative procedures). These modifications are identified in Appendix A. All modifications were implemented after mutual agreement by Malcolm Pirnie, Inc. and the NYSDEC.

The specific methods that were employed to generate the data presented in this document will only be referenced and/or summarized in the text of this document as appropriate for interpretation of results and findings. The reader is referred to the Work Plan (Malcolm Pirnie, Inc., January 1994) and Appendix A for a detailed presentation of the specific investigative procedures and methods employed.

The major work activities of the RI are summarized below:

- Preliminary Investigations
  - Literature Search
  - Site Reconnaissance

- Subsurface Investigations
  - Site Mapping and Survey
  - RI Soil Gas Survey
  - Parking Lot Soil Gas Survey/Test Pits
  - Exploratory Soil Borings
  - Drilling and Well Installation

- Environmental Sampling and Analysis
  - Indoor Air Monitoring
  - Groundwater Sampling
  - Sanitary Sewer Sampling

- Exposure Pathway Analysis
  - Public Health Assessment
  - Habitat Based Assessment

The results of the preliminary investigations are discussed in Sections 2.0 (Site Description) and 3.0 (Previous Investigations). Section 4.0 presents the results of the subsurface investigations. Environmental sampling and analyses, excluding the soil gas survey, are discussed in Section 5.0. Site mapping and the survey of all monitoring well locations and elevations were performed by Deborah Naybor P.L.S., P.C. This map is presented in the pockets at the back of this report as Plate 1. The Habitat Based Assessment is presented in Appendix C. Section 7.0 presents conclusions from the first phase of remedial investigations and recommendations for additional site activities.

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2.0 SITE DESCRIPTION

2.1 SITE LOCATION

The Mr. C Cleaners site is located in an area occupied, in part, by Mr. C Cleaners, Inc., an operating dry cleaning business, at 586 Main Street in the Village of East Aurora, New York (see Figures 2-1 and 2-2). Mr. C Cleaners, Inc. has been in business since 1974. The 1/2-acre property includes a one floor building on a concrete slab foundation and an adjacent paved parking lot. The rear-half of the building is rented to three separate businesses including: Auto Plate Glass, PO Box Plus, and a barber shop. The front half of the building is dedicated to the dry cleaning business.

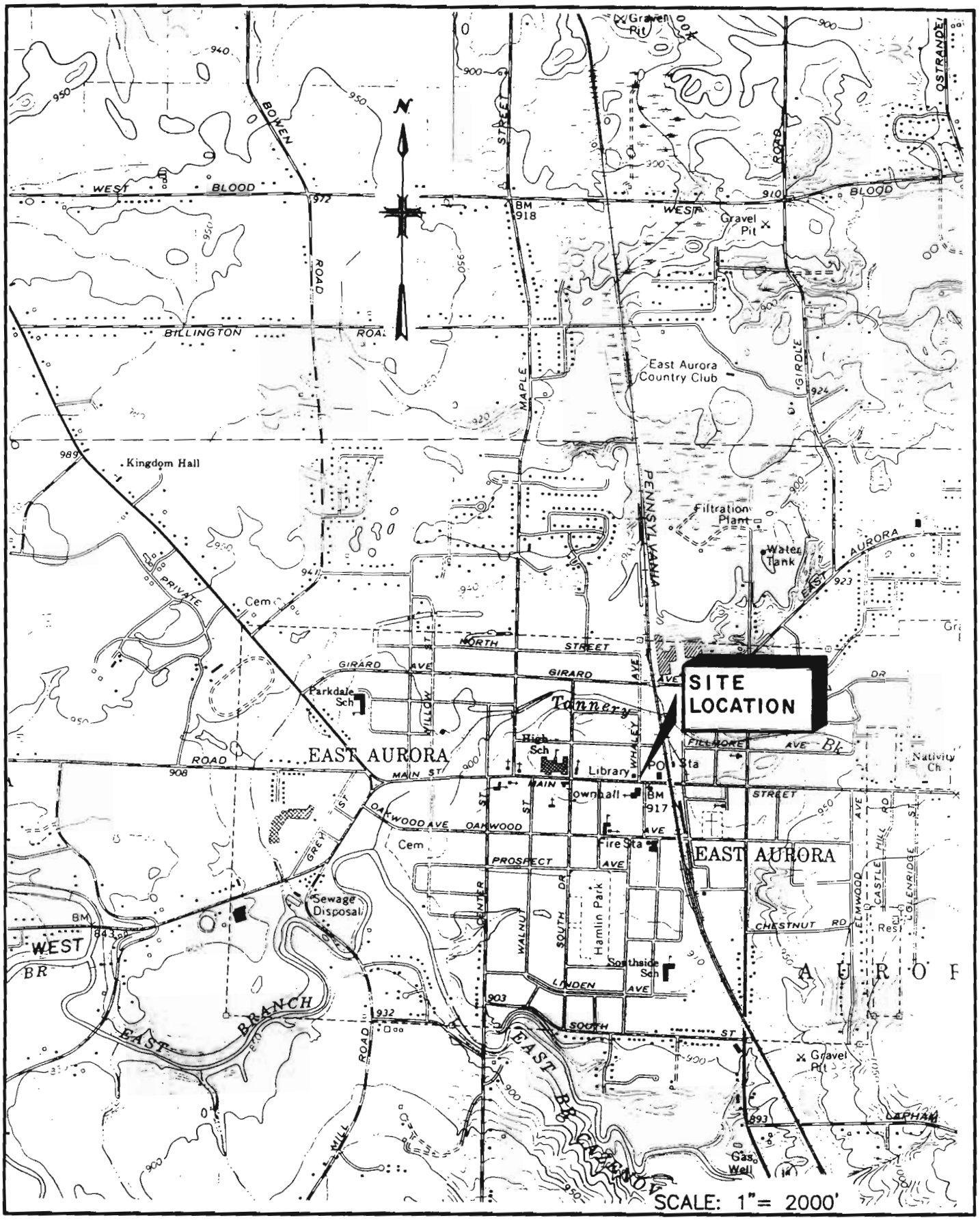
2.2 SITE HISTORY

Historic land use in the vicinity of Mr. C Cleaners was identified from Sanborn fire insurance maps dating from 1912 to 1958. The Sanborn maps, illustrating historic land use are presented in Appendix B. Information on recent site history was obtained from records of a NYSDEC interview with the Site owner (NYSDEC File No. 915157, March 27, 1992). In general, the corner of Main Street between Mr. C Cleaners and Whaley Avenue has been occupied by hotels, auto sales and service, and gas stations since 1912. Railroad service has been available east of Mr. C Cleaners since at least 1920.

The existing building used by Mr. C Cleaners is believed to have been built around 1927. The former uses of the property as identified on the available Sanborn maps and in NYSDEC file information are listed below:

- 1912 - hotel
- 1920 - auto and tractor service station
- 1927 - auto repair, garage
- 1951 - auto sales and service, spray painting
- 1958 - laundry
- ?-1970 - Dates Drycleaning, Inc. (out of business in 1970)
- 1970-1974 - Sweet Kleen, Inc. (drycleaners)
- 1974-present - Mr. C Cleaners, Inc.

FIGURE 2-1



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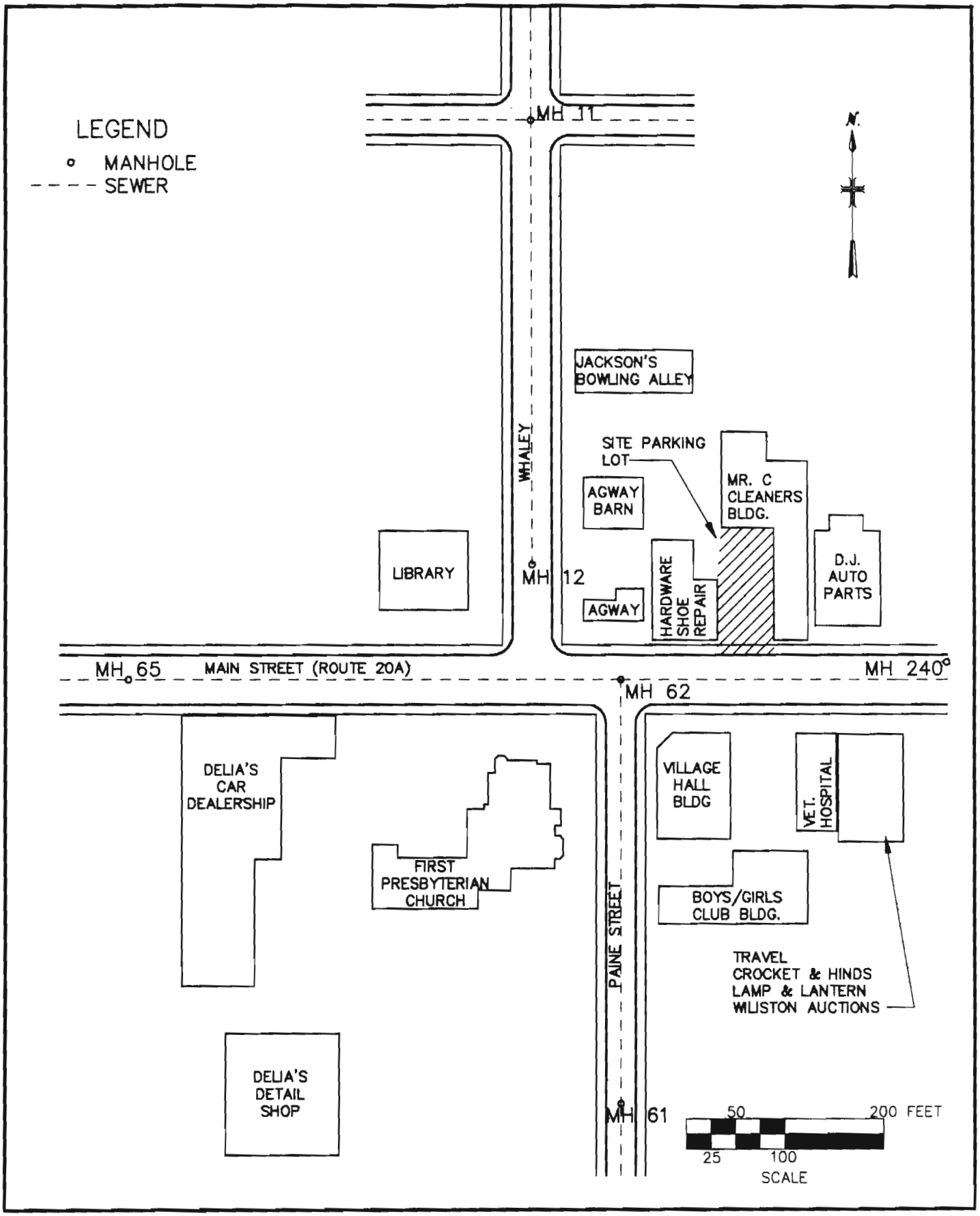
MR. C DRY CLEANER
NYSDEC STANDBY CONTRACT

SITE LOCATION MAP

DEC-31-MAP NYSDEC JUNE 1994

FIGURE 2-2



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MR C CLEANERS
REMEDIAL INVESTIGATION REPORT
SITE VICINITY MAP

FIG_3-2

NYSDEC

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The parking lot area was formerly occupied by businesses as described below:

- 1912 - Hotel
- 1920 - Auto sales, tin shop, shed
- 1927 - Store, dwelling, garage
- 1951 & 1958 - Bake Shop
- ?-1974 - Paved asphalt parking lot

A petroleum spill was identified west of Mr. C Cleaners at the Agway Energy Products in 1987 (NYSDEC Spill No. 8703755). Agway facilities include a former office and gasoline pumps located on Main Street, a storage barn facing Whaley Avenue, and a store behind the Mr. C Cleaners building. The gasoline pumps and underground storage tanks were removed and a groundwater recovery well with an air stripper was installed. The groundwater extraction and treatment systems are not currently in operation. Dry cleaning solvent constituents have been detected in groundwater removed by the collection system during previous monitoring at the Agway property.

The 1951 Sanborn map identifies the Agway storage barn as a laundry. Thus, the Mr. C Cleaners property and/or the Agway property have been occupied by laundry-type businesses since 1951.

A 1987 petroleum spill (NYSDEC Spill No. 8705612) was also identified at the Cumberland Farms gas station on Main Street approximately 900 feet west of Mr. C Cleaners.

2.3 LAND USE

Property in the vicinity of Mr. C Cleaners is zoned commercial and residential. The area along Main Street is primarily in commercial use, and the adjacent side streets are residential. The nearest residential area is 300 feet to the northwest. Nearly all of the residences in the area are single family dwellings with basements.

Plate 1 shows the location of Mr. C Cleaners and nearby land use. To the north of the Site is Agway Energy Products, a bowling alley and residences along Whaley Avenue.To the east is the D.J.'s Auto Parts building and a railroad spur and viaduct. To the south is the East Aurora Village Hall, a veterinary hospital, and a commercial retail building. The First Presbyterian Church of East Aurora is located southwest of Mr. C Cleaners. West of the Church is Delia's Automobile Dealership. Directly west of Mr. C Cleaners are two

commercial storefront-type buildings; storage buildings belonging to Agway Energy Products, and the East Aurora Public Library.

Because the area is a commercial storefront setting and includes a sidewalk, the area is frequented by pedestrians and business users. The two buildings directly west of Mr. C Cleaners are occupied by a shoe repair business and Dubois Hardware. Additionally, the Shoe Repair building is rented to a styling salon and the Hardware building to Catalog Shopping Network. The second floor of both buildings is commercial office space. The Public Library is used extensively by residents in the area.

The Site and surrounding area are serviced by municipal and public utilities including: the Village sanitary sewer system, the Erie County Water Authority (ECWA), electricity, natural gas, and telephones. Stormwater from roads and parking lots is drained to storm sewers. The Village has been using the ECWA since June 1980 when the Village discontinued the use of a municipal groundwater supply system. Conversations with Village residents indicate that some residents in the Village have their own wells for general use, such as, irrigation and other nonpotable uses. There are no other known sources of water use in this area.

2.4 TOPOGRAPHY, SOILS, AND DRAINAGE

The topography of the immediate area surrounding Mr. C Cleaners is relatively flat in a landscaped residential and business district. The ground surface area along Main Street has been built up with two to four feet of fill creating lower areas in the rear of the properties. A railroad viaduct approximately 15 feet above grade traverses to the east of the site. Kame and kettle terrain can be found 0.25 to 0.5 miles to the northeast of the site. Scattered ponds and swamps are common in this hummocky landscape.

The soils in the study area are Palmyra gravelly loam and Varysburg gravelly loam (USDA, 1978). These nearly level soil types are derived from glacial outwash deposits, and contain a high sand and limestone gravel content. The substratum is characterized as a very gravelly loamy sand and very gravelly sand. The top 2-4 feet of soil in the area can be characterized as a clayey silt fill or till with varying amounts of gravel and sand.

East Aurora lies within the Erie-Niagara basin which borders Lake Erie and the Niagara River. The basin extends from the Cattaraugus Creek basin on the south to the

Tonawanda Creek basin on the north. Surface water in the Village is drained by Tannery Brook approximately 0.25 miles north of the site and the East Branch of Cazenovia Creek approximately one mile south of the site. Both creeks flow in a west direction into Cazenovia Creek, the Buffalo River, and into Lake Erie (located approximately 12.5 miles east of the site).

2.5 HABITAT-BASED ASSESSMENT

Malcolm Pirnie conducted a habitat-based assessment of Mr. C Cleaners and its vicinity to evaluate potential ecological exposure pathways. The intent of this assessment was to identify sensitive species or habitat potentially affected by the off-site migration of contaminants. Elements of the assessment include:

- A summary of the environmental setting of East Aurora
- A characterization of naturally-occurring flora and fauna found in the study area
- The presence of threatened and endangered flora and fauna or species of special concern
- Identification of significant habitat recognized by the NYSDEC
- Proximity to NYSDEC and/or federal wetland areas
- Values of resources to humans

Based on the results of the Phase I RI (see Sections 4.0 and 5.0), contaminated groundwater appears to be the only potential ecological exposure pathway associated with the site. Local drainage patterns, groundwater flow directions (inferred from topography) and the nature of the contaminants originating from Mr. C Cleaners suggest that a groundwater contaminant plume as defined in the Phase I RI would not likely affect any significant or sensitive flora or fauna. The full assessment report is presented in Appendix C.

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3.0 PREVIOUS INVESTIGATIONS

This section describes the history of environmental investigations undertaken in the vicinity of the Mr. C Cleaners site prior to the Remedial Investigation, including petroleum spill investigations at the Agway site, indoor air monitoring at the First Presbyterian Church, sanitary sewer sampling, a review of dry cleaning operations at Mr. C Cleaners, and a preliminary subsurface environmental assessment. The sequence of historic sampling events are summarized on Table 3-1. These investigations characterized shallow subsurface conditions and established the nature of the contamination.

3.1 FIRST PRESBYTERIAN CHURCH

Odors were detected in the basement of the First Presbyterian Church in late October 1991 (Griffis, 1991). After preliminary investigations by members of the Church, the NYSDEC was notified and the incident was assigned Spill No. 9109437. Indoor air sampling using Porapak sorbent tubes and analysis by EPA Method 8240 identified tetrachloroethene as the most likely cause of the odors. Table 3-2 summarizes the results of indoor air analyses conducted by NYSDEC. Ventilation of the church basement subsequently reduced contaminant air concentrations below odor thresholds.

3.2 SEWER SAMPLING

The NYSDEC collected water samples from selected sanitary sewers located along Main Street, Paine Street, Whaley Avenue, and Oakwood Avenue. (see Plate 1 for sewer locations). The samples were collected during three different events in January, February, and March 1992. Concentrations of 12 chlorinated organic compounds and three aromatic hydrocarbon compounds were detected. Table 3-3 summarizes the 1992 sewer sampling results. During the initial (January 1992) sampling event, manholes MH-61, MH-62, and MH-65 were sampled before and after flushing the sewer mains. Tetrachloroethene concentrations increased to a maximum concentration of 1900 ug/l in MH-61 after flushing. The highest tetrachloroethene concentrations were detected in manholes downstream from the sewer lateral servicing the Mr. C Cleaners building. Subsequent sampling events

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TABLE 3-1

MR. C CLEANERS SUPERFUND SITE
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HISTORIC SAMPLING EVENTS

Matrix	Sampling Date	Sampling Location	Source of Data
Indoor Air	12/02/91	Church Basement	EA-FPC
	12/06/91	Church Basement	EA-FPC
	12/19/91	Church Basement	NYSDEC/AES
	01/14/92	Church Basement	NYSDEC/AES
	02/28/92	Church Basement	NYSDEC/AES
Sewer Flow	01/14/92	MH61, MH62, MH65	NYSDEC/AES
	02/21/92	MH56, MH61, MH62, MH64, MH65	NYSDEC/AES
	03/27/92	MH11, 61, 62, 64, 65	NYSDEC/AES
Groundwater	01/28/92	Agway Wells	NYSDEC/AES
	05/21/92	ESI Wells/Agway Wells/Cumberland Farms	Huntingdon
	11/09/92	Agway Wells & Airstripper	Marcor
	12/29/92	Agway Wells	Marcor
	01/19/93	ESI Wells	NYSDEC/Recra
	10/01/93	Agway Wells	Matrix

Notes:

EA-FPC = East Aurora - First Presbyterian Church
NYSDEC/AES = NYSDEC/Advanced Environmental Services
Marcor = Marcor of New York, Inc.
Huntingdon = Huntingdon Analytical Services
Matrix = Matrix Environmental Technologies

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TABLE 3-2

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

PREVIOUS INDOOR AIR SAMPLE RESULTS[1]

Sampling Date	Sampling Location	EPA 8240 Parameter	Concentration ($\mu g/m^3$)
01/14/92	Closet Area A	Methylene Chloride	38
		Tetrachloroethene	130
	Closet Area B	Tetrachloroethene	1900
		Trans 1,2 Dichloroethene	140
		Trichloroethene	99
		1,2 Dichloropropane	28
		Toluene	21
02/28/92	Room 114	Tetrachloroethene	110
		Benzene	280
		Toluene	280
		Ethylbenzene	7.5
	Hallway (adj. to Rms 112, 113, 114)	Tetrachloroethene	67
		Benzene	120
		Toluene	130
	Old Section	Tetrachloroethene	26
		Benzene	13
		Toluene	16
12/19/91	Closet	Tetrachloroethene	400
	Room 113	Tetrachloroethene	57

Note (1): All samples collected from basement of the East Aurora First Presbyterian Church.

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TABLE 3-3

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
SUMMARY OF HISTORIC SEWER SAMPLING RESULTS

Compound (ug/l)[2] Date of Sampling	MH 11	MH 56	MH[1] 61A	MH[1] 61B	MH 61	MH[1] 62A	MH[1]- 62B	MH 62E	MH 62W	MH 64	MH[1] 65A	MH[1] 65B	MH 65
Methylene Chloride													
1/14/92	–	–	539	110	–	ND	522	–	–	–	ND	11.9	–
2/21/92	–	23.2	–	–	18.7	–	–	ND	111	208	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	5.46	75	–	–	ND
Trans 1,2 dichloroethene													
1/14/92	–	–	12.7	499	–	ND	12.6	–	–	–	ND	ND	–
2/21/92	–	ND	–	–	ND	–	–	ND	ND	ND	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	ND	ND	–	–	ND
Chloroform													
1/14/92	–	–	ND	ND	–	ND	ND	–	–	–	16.8	11.9	–
2/21/92	–	4.74	–	–	5.58	–	–	6.15	5.37	4.91	–	–	6.96
3/27/92	4.53	–	–	–	5.00	–	–	3.07	8.52	4.18	–	–	15.5
1,1,1 trichloroethane													
1/14/92	–	–	ND	ND	–	5.5	ND	–	–	–	ND	ND	–
2/21/92	–	7.78	–	–	5.18	–	–	4.04	8.01	6.82	–	–	3.53
3/27/92	ND	–	–	–	ND	–	–	ND	6.53	ND	–	–	ND
Trichloroethene													
1/14/92	–	–	5.37	142	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	1.34	–	–	1.19	–	–	3.43	ND	ND	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	ND	ND	–	–	ND
Vinyl Chloride													
1/14/92	–	–	ND	38.6	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	ND	–	–	ND	–	–	ND	ND	ND	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	ND	ND	–	–	ND
1,1,2,2 tetrachloroethane													
1/14/92	–	–	ND	61.8	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	ND	–	–	ND	–	–	ND	ND	ND	–	–	ND
3/27/92	ND	ND	–	–	ND	–	–	ND	ND	ND	–	–	ND
Tetrachloroethene													
1/14/92	–	–	287	1,910	–	ND	106	–	–	–	ND	ND	–
2/21/92	–	18.9	–	–	16.8	–	–	203	16.2	7.61	–	–	3.11
3/27/92	ND	–	–	–	22.4	–	–	21.6	16.0	ND	–	–	ND

TABLE 3-3

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
SUMMARY OF HISTORIC SEWER SAMPLING RESULTS

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Compound (ug/l)[2] / Date of Sampling	MH 11	MH 56	MH[1] 61A	MH[1] 61B	MH 61	MH[1] 62A	MH[1]-62B	MH 62E	MH 62W	MH 64	MH[1] 65A	MH[1] 65B	MH 65
1,1 dichloroethene													
1/14/92	–	–	ND	ND	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	ND	–	–	1.59	–	–	1.48	ND	ND	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	ND	ND	–	–	ND
Bromodichloromethane													
1/14/92	–	–	ND	ND	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	3.43	–	–	3.49	–	–	ND	5.95	8.16	–	–	3.07
3/27/92	1.66	–	–	–	1.11	–	–	ND	1.03	1.10	–	–	7.63
Dibromochloromethane													
1/14/92	–	–	–	–	–	–	–	–	–	–	–	–	–
2/21/92	–	1.20	–	–	1.30	–	–	ND	ND	ND	–	–	1.59
3/27/92	ND	–	–	–	1.48	–	–	1.16	1.38	ND	–	–	2.74
1,2 dichloropropane													
1/14/92	–	–	ND	ND	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	119	–	–	106	–	–	27.8	381	97.2	–	–	ND
3/27/92	ND	–	–	–	ND	–	–	ND	ND	ND	–	–	ND
M/P Xylene													
1/14/92	–	–	ND	ND	–	ND	9.02	–	–	–	ND	ND	–
2/21/92	–	–	–	–	–	–	–	–	–	–	–	–	–
3/27/92	–	–	–	–	–	–	–	–	–	–	–	–	–
Toluene													
1/14/92	–	–	9.24	ND	–	66.1	ND	–	–	–	ND	ND	–
2/21/92	–	–	–	–	–	–	–	–	–	–	–	–	–
3/27/92	–	–	–	–	–	–	–	–	–	–	–	–	–
Ethylbenzene													
1/14/92	–	–	ND	ND	–	ND	ND	–	–	–	ND	ND	–
2/21/92	–	–	–	–	–	–	–	–	–	–	–	–	–
3/27/92	–	–	–	–	–	–	–	–	–	–	–	–	–

Notes:

(1) Sample designated "A" collected prior to flushing the sewer line.
Sample designated "B" collected after flushing the sewer line.

(2) 1/14/92 samples analyzed by EPA SW-846 Method 8240.
2/21/92 and 3/27/92 samples analyzed by EPA Method 601.

– Not sampled, or flushing procedure not used.
ND Analyzed for but Not Detected.

detected substantially lower concentrations of chlorinated organics. The NYSDEC concluded that pools of organics were disturbed during the cleaning event.

No volatile organics were detected in laboratory samples collected from the storm sewers (sampled on January 14, 1992). Laboratory results from a sample collected on January 28, 1992 from a grease trap at the Delia auto dealership that drains to the sanitary sewer indicated the presence of 300 ug/l tetrachloroethene. Sampling on March 27, 1992 from a condensate line discharging to the sewer lateral at Mr. C Cleaners, which discharges to the sanitary sewer, indicated the presence of 47 ug/l tetrachloroethene.

3.3 NYSDEC INTERVIEW WITH SITE OWNER

This section presents a summary of NYSDEC file information on the dry cleaning operation at Mr. C Cleaners. The information is based on notes from interviews conducted on March 27, 1992 and August 7, 1992, and correspondence provided by the site owner at the NYSDEC's request.

The dry cleaning operations at Mr. C Cleaners use a cleaning solvent comprised of approximately 99.1 to 100% tetrachloroethene, with traces of 1,2 dichloroethene (20 ppm), tetrachloromethane (50 ppm), and trichloroethene (100 ppm). Cleaning solvent usage was 1200 gallons in 1989, 800 gallons in 1990, and 430 gallons in 1991. The reduction in cleaning solvent usage occurred due to a changeover from a transfer type to closed-loop type dry cleaning machines. One closed-loop machine went on-line in February 1992, and a second closed-loop machine went on-line approximately 1½ years earlier (Fall 1990).

Wastes generated during dry cleaning that contain residual solvent are as follows:

- Cartridge filters used to remove solids from spent cleaning solvent.
- Sludge residue from the distillation of used cleaning solvent.
- Wastewater generated during the distillation of used solvent.

All dry cleaning wastes have been disposed of through a commercial waste disposal firm since 1985. Prior to 1985 sludge and filters were placed into a dumpster located behind the hardware store building and collected by the Village of East Aurora.

The NYSDEC identified the following potential mechanisms of release of tetrachloroethene:

- Possible past practices of disposing of wastes in sewers or on grounds.
- Leaks in transfer type cleaning machines that collected in floor drains.
- Steam stripping of carbon in solvent reclamation process and release of steam condensate to the floor drains.
- Release of steam condensate to the floor drains from vacuum tank in clothes steam/press operation.

Laboratory analyses of water from the steam condensate line indicated the presence of 47 ug/l of tetrachloroethene. No single event that may have released a slug of tetrachloroethene into the sanitary sewer system was identified by the owner of Mr. C Cleaners or the NYSDEC.

3.4 AGWAY ENERGY PRODUCTS

A petroleum product release was detected at Agway Energy Products in 1987. Five monitoring wells (MW-1 through MW-5) and recovery well RW-1 were installed in 1989. The groundwater recovery system consisted of a submersible pump which discharged into the storm sewer catch basin located on the corner of Main and Whaley Avenue (Marcor, 1992). In June, 1991 a new groundwater recovery and treatment system was installed. This system pumped water from a new recovery well RW-2 (near MW-5), through an air stripper prior to discharge into the storm sewer. Marcor of New York monitored five wells on a quarterly basis for purgeable aromatic hydrocarbons.

In January 1992, the NYSDEC sampled three Agway wells and detected chlorinated organics in the groundwater. Subsequent sampling by Huntingdon, Marcor and Matrix Environmental at the Agway site confirmed the presence of chlorinated organics. The results of these sampling events are summarized in Table 3-4. The groundwater recovery and treatment system was subsequently shut down due to the detection of vinyl chloride in the air discharge. In November 1993, Matrix Environmental installed five additional monitoring wells (MW-6 through MW-10) on the Agway site.

The Agway wells have been renamed several times. During preparation of the RI Report, the NYSDEC requested that a consistent set of well names be used that are as close as possible to the original nomenclature. Table 3-5 lists original well names and revised well names.

3.5 ENVIRONMENTAL SITE ASSESSMENT

The NYSDEC retained Huntingdon Analytical Services (HAS) to conduct an environmental site assessment. Huntingdon performed a soil gas survey and installed monitoring wells ESI-1 through ESI-6. The soil gas survey was performed in April 1992 using a portable gas chromatograph. The soil gas sample locations are shown on Plate 2 and the results are summarized on Table 3-6. Tetrachloroethene was detected at 15 of 38 sampling locations. The highest concentrations were detected near the sewer lateral at Mr. C Cleaners.

Groundwater sampling was conducted in May 1992 for the Environmental Site Assessment at the new wells installed by HAS, monitoring wells at the Agway site, and at the Cumberland Farms site. Chlorinated organics were detected at locations north and south of Main Street, and on the Agway site. Maximum concentrations of tetrachloroethene were detected at ESI-3, located near the Mr. C Cleaners sewer lateral; ESI-6, located near the Church; and on the Agway site (see Table 3-4). No chlorinated organics were detected in groundwater samples from the Cumberland Farms site. The NYSDEC resampled the ESI wells in January 1993 and obtained results that were consistent with the May 1992 results. Table 3-7 summarizes the laboratory results from two rounds of sampling at the ESI wells.

3.6 CONCLUSIONS FROM PREVIOUS INVESTIGATIONS

The investigation results summarized above indicated to the NYSDEC that the dry cleaning operations at Mr. C Cleaners is the source of the tetrachloroethene and other chlorinated organics detected in the groundwater, soil gas, and sewers. Analytical testing indicated that the maximum tetrachloroethene concentrations in soil gas and groundwater were present near the Mr. C Cleaners sanitary sewer lateral. Also, the distribution of tetrachloroethene concentrations detected in the sanitary sewers was consistent with a

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TABLE 3-4

MR. C CLEANERS SUPERFUND SITE
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RESULTS OF HISTORIC GROUNDWATER SAMPLING AT AGWAY

Compound (ug/l) Date of Sampling	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 8	MW 9	MW 10	Infl. (1)
Vinyl Chloride											
01/28/92	–				–	–	–	–	–	–	–
05/21/92					810	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	244
12/29/92					3,300	–	–	–	–	–	310
10/01/93	ND	–	–	ND	1,350	ND	ND	ND	ND		–
1,1, Dichloroethane											
01/28/92	–				–	–	–	–	–	–	–
05/21/92						–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	
12/29/92						–	–	–	–	–	
10/01/93	ND	–	–	ND	ND	ND	ND	ND	ND	ND	–
1,1,1 Trichloroethane											
01/28/92	–				–	–	–	–	–	–	–
05/21/92						–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	5
12/29/92	8	6		5		–	–	–	–	–	28
10/01/93	6	–	–	ND	ND	ND	6	ND	ND	ND	–
1,1, Dichloroethene											
01/28/92	–				–	–	–	–	–	–	–
05/21/92		2	3	16	45	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	
12/29/92	5	1				–	–	–	–	–	
10/01/93	ND	–	–	ND	ND	ND	ND	ND	ND	ND	–
1,2 Dichloroethene (T)											
01/28/92	–				–	–	–	–	–	–	–
05/21/92					6,700	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	1,870
12/29/92					12,800	–	–	–	–	–	2,010
10/01/93	4.5	–	–	6	191	ND	1	15	14	14	–
Trichloroethene											
01/28/92					–	–	–	–	–	–	
05/21/92	150	5		34	1,100	–	–	–	–	–	
11/09/92			–	–	–	–	–	–	–	–	153
12/29/92	68	5		32	182	–	–	–	–	–	284
10/01/93	54	–	–	ND	ND	0.6	5	23	ND	ND	–

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TABLE 3-4

MR. C CLEANERS SUPERFUND SITE
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RESULTS OF HISTORIC GROUNDWATER SAMPLING AT AGWAY

Compound (ug/l) Date of Sampling	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 8	MW 9	MW 10	Infl. (1)
Tetrachloroethene											
01/28/92	–	348	–		–	–	–	–	–	–	
05/21/92	3200	270	2	4400	450	–	–	–	–	–	
11/09/92	–	–	–	–	–	–	–	–	–	–	303
12/29/92	5500	245	–	86		–	–	–	–	–	285
10/01/93	1360	–	–	ND	ND	23	711	980	13	193	
Acetone											
01/28/92	–				–	–	–	–	–	–	–
05/21/92					76	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	
12/29/92						–	–	–	–	–	
10/01/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	–
Benzene											
01/28/92	–		278		–	–	–	–	–	–	–
05/21/92		4	290	34	700	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	340
12/29/92			380			–	–	–	–	–	442
10/01/93	0.5	–	–	48	752	55	0.8	0.9	369	27	
Toluene											
01/28/92	–		194		–	–	–	–	–	–	
05/21/92			160		81	–	–	–	–	–	
11/09/92	–	–	–	–	–	–	–	–	–	–	31
12/29/92			110			–	–	–	–	–	33
10/01/93	1	–	–	6	88	9	ND	3	21	53	–
Ethylbenzene											
01/28/92	–		101		–	–	–	–	–	–	–
05/21/92		0.9	12		870	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	230
12/29/92			59			–	–	–	–	–	217
10/01/93	ND	–	–	ND	ND	ND	ND	ND	51	321	–
Xylenes (T)											
01/28/92	–		601		–	–	–	–	–	–	–
05/21/92		0.7	360	21	1,300	–	–	–	–	–	–
11/09/92	–	–	–	–	–	–	–	–	–	–	392
12/29/92		–				–	–	–	–	–	NR
10/01/93	0.5		–	62	1,213	424			78	1,070	

Notes: – = Not sampled ND = Parameter analyzed for, but not detected. (1) Air stripper influent

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TABLE 3-6

MR. C CLEANERS SUPERFUND SITE
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SUMMARY OF SOIL GAS SURVEY RESULTS (APRIL 1992)

Sample Location	Concentration (ppb)		Notes
	Toluene	PCE	
1	ND	ND	Church
2	ND	ND	Church
3	ND	ND	Church
4	ND	ND	Church
5	1.9	104.3	Church
6	2.25	130.8	Church
7	ND	12.56	Church
8	ND	ND	Church
9	ND	ND	Church
10	ND	ND	Church
11	ND	ND	Church
12	ND	ND	Church
13	ND	ND	Church
14	ND	ND	Village Hall
15	ND	ND	Village Hall
16	ND	ND	Village Hall
17	ND	14.6	Shoe Repair
18	ND	ND	Church
19	ND	ND	Church
20	ND	ND	Church
21	ND	ND	Church
22	ND	ND	Church
23	ND	ND	Church
24	ND	ND	Church
25	ND	10.17	Church
26	ND	11.03	Library
27	9.15	1585	Mr. C Cleaner
28	ND	160.3	Mr. C Cleaner
29	ND	6.42	Mr. C Cleaner
30	ND	ND	Mr. C Cleaner
31	ND	ND	D.J.Auto Parts
32	ND	746.2	Mr. C Cleaner
33	ND	18.39	Mr. C Cleaner
34	ND	94.59	Village Hall
35	ND	3.91	Village Hall
36	10.25	565.4	Agway
37	ND	10.5	Church
38	ND	ND	Travel Agency

ND = Not Detected PCE = Tetrachloroethylene

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TABLE 3-7

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

PREVIOUS SAMPLING RESULTS FROM ESI WELLS

Parameter (ug/l)	Date	Upgradient		Mr. C	Paine Street		Church
		ESI-1	ESI-2	ESI-3	ESI-4	ESI-5	ESI-6
1,2 dichloroethene (T)	5/21/92 1/19/93	2J 2J		2J	16 5J	14	44J 53
Trichloroethene	5/21/92 1/19/93	2J 3J		6J 42J	6J 3J	28 2J	14J 17J
Tetrachloroethene	5/21/92 1/19/93	2J 0.9J	1J	5600E 9800	91 44	15 13	570 580
1,1 dichloroethene	5/21/92 1/19/93			2J			
Vinyl Chloride	5/21/92 1/19/93						6J
1,1 dichloroethane	5/21/92 1/19/93			2J			
Toluene	5/21/92 1/19/93			0.8J 63J	0.5J	0.3J	
Ethylbenzene	5/21/92 1/19/93			4J			
Total Xylenes	5/21/92 1/19/93			20			
Benzene	5/21/92 1/19/93			55J			
1,1,1 Trichloroethane	5/21/92 1/19/93				5J		

J = Estimated.
E = Exceeded calibration range of instrument
Blanks = Parameter not detected.

source located at Mr. C Cleaners. The migration of tetrachloroethene may have occurred along the sanitary sewers; however, HAS concluded that the distribution of chlorinated organics southwest of Mr. C Cleaners near the Church (at ESI-6), and northwest of Mr. C Cleaners near Agway indicates that groundwater is an important migration pathway.

No unique release of tetrachloroethene has been identified at Mr. C Cleaners. The detection of chemical odors in the Church basement during a limited period in Fall 1991; however, suggests that a slug of tetrachloroethene may have been released to the sewers and the groundwater within a short time interval.

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4.0 SUBSURFACE INVESTIGATION

4.1 INVESTIGATIVE METHODOLOGY

The geologic and hydrogeologic investigations for the first phase of the Mr. C Cleaners Remedial Investigation (RI) were conducted from February through May 1994. The scope of these investigations and specific work tasks were performed in accordance with the RI Work Plan (Malcolm Pirnie, January 1994) as modified based on information collected during the field work.

Phase I field work performed to characterize the geologic and hydrogeologic conditions at the site involved the following tasks:

- Selection of monitoring well locations based on the results of a quantitative soil gas survey
- Qualitative soil gas survey in the site parking lot to determine the need for excavation or additional on-site soil borings
- Drilling and soil sampling at four deep exploratory soil borings
- Drilling, installation, and development of 12 monitoring wells
- In situ hydraulic conductivity testing of 25 monitoring wells
- Monitoring of groundwater levels and survey of well locations and elevations

4.1.1 RI Soil Gas Surveys

Tetra K Testing, Inc. performed a soil gas survey on February 8 through 10, 1994 to assist in the selection of monitoring well locations. Soil gas sample points were located in the northern and eastern perimeter of the First Presbyterian Church, and at the fringes of the suspected plume as defined in the Environmental Site Assessment conducted by HAS. A supplemental soil gas survey was performed on March 7 and 8, 1994, again by Tetra K Testing, to define a suspected soil gas plume northward along Whaley Avenue. The supplemental soil gas survey was prompted by the detection of comparatively high concentrations of tetrachloroethene in soil gas and groundwater northwest of the site near Agway well MW-8.

Analyses were performed using a mobile laboratory equipped with a gas chromatograph. The Tetra K Testing sampling report in Appendix D should be consulted for a description of sampling and analytical methodologies. It should be noted that soil gas analyses are only an indication of potential groundwater contamination. The presence or absence of VOCs in groundwater has to be verified by direct sampling and analysis.

A total of 54 soil gas samples and 3 manhole samples were collected and analyzed for the volatile organic compounds (VOCs) listed in Table 4-1. Analytical results and the general location of the samples are presented on Table 4-2. Specific sample locations are illustrated on Plate 2. Tetrachloroethene was the most common analyte detected. Trichloroethene was also detected in some samples that exhibited high concentrations of tetrachloroethene. Concentrations of 1,1,1-trichloroethane were also detected at 2 of 54 locations. Tetrachloroethene was detected in the following general locations:

- In the vicinity of the Mr. C Cleaners building and parking lot
- North and east of the Agway storage barn (northwest of the site)
- Northward along Whaley Avenue (northwest of the site)
- In the Village Town Hall parking lot (south of the site)

No VOCs were detected in soil gas samples collected in the vicinity of the First Presbyterian Church or the Public Library.

The highest concentrations of tetrachloroethene (ranging from 12,000 to 13,000 ppm) were detected in soil gas samples collected at the Mr. C Cleaners parking lot near the foundation of the shoe repair building (sample nos. 63 and 64), northwest of the Agway storage barn (No. 57), and across the Agway driveway near Jackson Bowling Alley foundation (No. 70).

Soil gas survey results indicated that tetrachloroethene is present to the northwest of the Mr. C Cleaners site. Samples collected along the sidewalk and residences on the west and east side of Whaley Avenue exhibited trace to nondetectable concentrations of volatile organics. Concentrations of tetrachloroethene detected along the sanitary sewer in the center of Whaley indicated that the sanitary sewer may carry groundwater contaminated with volatile organic compounds, and that more permeable materials such as building foundations and sewer bedding materials provide a pathway for contaminants volatilized from VOC-contaminated groundwater.

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TABLE 4-1

MR. C CLEANERS SUPERFUND SITE
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SOIL GAS ANALYTES

Methylene Chloride
Vinyl Chloride

1,2-Dichloroethene
1,1-Dichloroethene

1,1,1-Trichloroethane
1,1,2-Trichloroethane

Trichloroethene
Tetrachloroethene

1,2 Dichloropropane
Chloroform

Benzene
Toluene
Xylenes (Total)
Ethylbenzene

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TABLE 4-2

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

SOIL GAS SURVEY RESULTS

Location	Sample No.	Analyte Detected	mg/m^3	PPB
INITIAL SURVEY February 8-10, 1994				
East of Village Hall	39	PCE	9.8	1300
	40	PCE	5.2	700
		1,1,1 TCA	1.5	280
Church	41		ND	–
	42		ND	–
	43		ND	–
	44		ND	–
	45		ND	–
	46		ND	–
	47		ND	–
	48		ND	–
	49		ND	–
	50		ND	–
	41		ND	–
	52		ND	–
Library	53		ND	–
	54		ND	–
	55		ND	–
	56		ND	–
North and East of Agway Storage Barn	57	PCE	86	12,000
		TCE	3.1	520
	58	PCE	7.3	990
	59	PCE	0.90	110
	60	Toluene	3.1	750
		Ethylbenzene	3.0	630
		Total Xylenes	37	7,600
	61	PCE	11	1,500
	62	PCE	23	3,100
Mr. C Cleaners	63	PCE	91	12,000
	64	PCE	94	13,000
	65	PCE	27	3,600
	66	PCE	0.33	44
	67		ND	–
	68	PCE	0.44	59
	69	PCE	11	1,500

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TABLE 4-2

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

SOIL GAS SURVEY RESULTS

Location	Sample No.	Analyte Detected	mg/m^3	PPB
Sewers	MH-12		ND	–
	MH-61	Total Xylenes	0.12	25
	MH-62	PCE	0.20	28
		Ethylbenzene	0.30	63
		Total Xylenes	8.2	1,700
SUPPLEMENTAL SURVEY - March 7-8, 1994				
Center of Whaley Ave.	71	PCE	11	1,500
	72	PCE	13	1,800
	86	PCE	0.16	22
	87	PCE	3.4	460
	90	PCE	0.14	19
		Toluene	0.09	22
	91	PCE	0.18	24
	78		ND	–
	MH-11		ND	–
East of Whaley Ave.	70	PCE	92	12,000
		TCE	0.6	100
		1,1,1 TCA	1.8	300
	79		ND	–
	80		ND	–
	81		ND	–
	82		ND	–
	83		ND	–
West of Whaley Ave.	73		ND	–
	74	PCE	0.19	26
	75	PCE	1.0	130
	76		ND	–
	77		ND	–
	78		ND	–
	84		ND	–
	85		ND	–

Legend: PCE = Tetrachloroethene
1,1,1 TCA = 1,1,1 Trichloroethane
TCE = Trichloroethene

The results of the soil gas surveys were used to modify the number and location of monitoring wells that were proposed in the RI Work Plan. The following modifications to the RI Work Plan based on soil gas survey results were approved by the NYSDEC:

- MPI-1S was moved to the southwest corner of Main Street and Paine
- MPI-5S was moved closer to Whaley Avenue
- MPI-6S was moved northwest of the Library
- MPI-8S and MPI-9S were added along the west side of Whaley Avenue

The additional monitoring wells were installed to determine whether the sanitary sewer on Whaley Avenue was intercepting VOC contamination in the shallow groundwater.

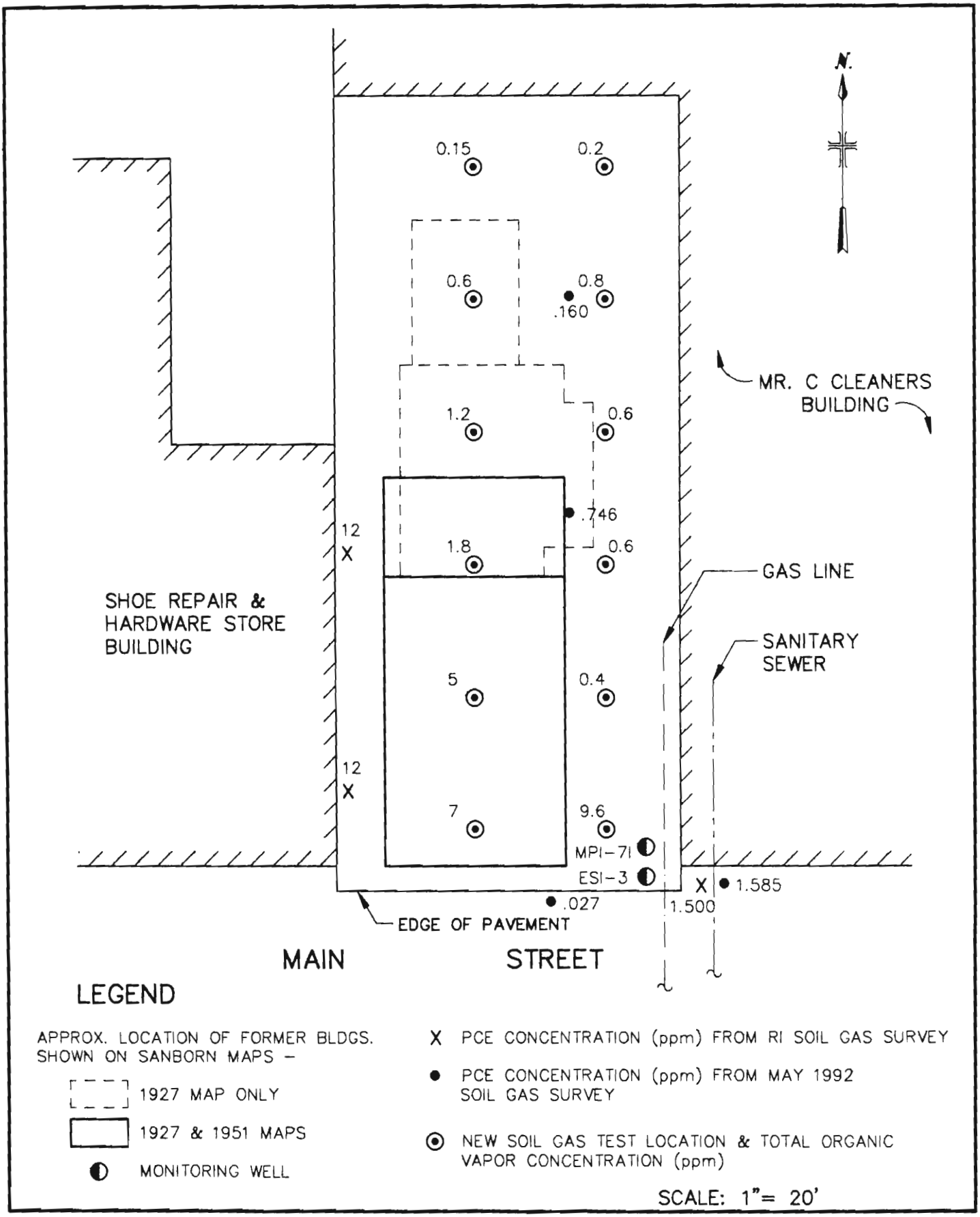
4.1.2 Parking Lot Soil Gas Survey/Test Pits

The RI Work Plan proposed that two test pits would be excavated in the Mr. C Cleaners parking lot to locate the sanitary sewer lateral, visually inspect the integrity of the pipe, and obtain samples for analytical testing. Conversations with the Village of East Aurora Department of Public Works and inspection of building plans indicated that the sewer lateral is located beneath the building floor slab and is not accessible to excavation. Also, the gas service line is located beneath the parking lot within five feet of the building.

Because the sewer lateral is not easily accessible, Malcolm Pirnie performed a soil gas survey to investigate the remainder of the parking lot area as a suspected source of contamination. A total of 12 locations in the parking lot (illustrated in Figure 4-1) were monitored for total volatile organics (TVO) using an HNu photoionization detector with a 10.2 ev lamp.

The HNu was calibrated before the initial test hole using isobutylene gas according to manufacturers specifications. The accuracy of the TVO concentrations detected by an HNu photoionization detector (PID) is dependent upon the relative sensitivity of the detector to the calibration gas and the environmental analyte. Volatile compounds identified as parameters of interest at the Mr. C Cleaners site have a lower sensitivity to a PID than isobutylene. Therefore, the survey results only show relative TVO concentrations between sampling locations. A detailed discussion of monitoring procedures is presented in Appendix A.

As illustrated on Figure 4-1, the highest soil gas concentrations (9.6 ppm TVO) were detected adjacent to the Mr. C Cleaners sanitary sewer lateral. The TVO concentrations



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decreased in a northwest direction to a value of 0.15 ppm near the barber shop. The source of TVO concentrations detected in soil gas beneath the parking lot appears to be located in the southeast corner, and do not support the theory of a separate source of VOCs under the parking lot.

4.1.3 Exploratory Soil Borings

The RI Work Plan proposed the installation of four bedrock monitoring wells based on an anticipated depth to bedrock of approximately 30 feet. Rock depths are approximately 150 to 200 feet beneath the site; therefore, the Work Plan was modified with NYSDEC approval to complete four deep soil borings in place of the bedrock wells. These borings were designated MPI-1D (near the Church), MPI-4D (near the Library), MPI-5D (north of Agway), and MPI-7D (near Mr. C Cleaners). Boring locations are illustrated on Plate 1. Boring MPI-4D, the initial deep boring, was drilled and sampled to a depth of 78 feet, where it was apparent that a substantial thickness of low permeability soil was present. One Shelby tube sample was collected from the interval of fine-grained soil in each deep boring for physical soil testing. The three subsequent borings were completed to various depths in order to demonstrate a general continuity of geologic conditions between boring locations. Soil boring logs are presented in Appendix E and the results of the exploratory borings are discussed in Section 4.3. Each deep boring was abandoned by backfilling to the surface with cement-bentonite grout. Based on the results of the exploratory borings, the NYSDEC approved the installation of four intermediate depth overburden monitoring wells (MPI-1I, MPI-4I, MPI-5I, and MPI-7I).

4.1.4 Drilling and Monitoring Well Installation

Boring Location and Soil Sampling

Twelve boreholes/monitoring wells were completed in accordance with the January 1994 Work Plan, the results of the soil gas surveys, and the results of the exploratory soil borings.

Stratigraphic information and physical soil samples were obtained during drilling at the deepest boring at each location. Spilt spoon samples were logged, placed in glass jars with aluminum foil seals, and monitored for total organic vapors later in the day. Sample descriptions/boring logs are presented in Appendix E.

A total of four well pairs were constructed to determine whether VOCs were migrating downward. Each cluster included a shallow overburden well with the screened portion of the well straddling the water table, and an intermediate zone well screened approximately 20 to 22 feet deeper than the shallow well. Shallow and intermediate wells are designated "S" and "I", respectively. Wells MPI-4I and MPI-5I were installed adjacent to MPI-4S and MPI-5S, respectively. Well MPI-1I and MPI-7I were installed next to existing shallow wells ESI-4 and ESI-3, respectively. Single shallow wells were installed (MPI-1S, MPI-2S, MPI-3S, MPI-6S, MPI-8S, and MPI-9S) to identify the lateral extent of VOC contamination and to assess the influence of sanitary sewers on VOC migration in groundwater.

Well Construction and Development

The monitoring well construction details are documented in Appendix E and are summarized in Table 4-3. Intermediate wells were constructed similar to the shallow wells, except that a smaller screen slot size was used due to the occurrence of finer sands in the intermediate zone and the riser annulus was backfilled with a bentonite slurry.

All new monitoring wells, and selected existing wells were developed by suction lift pumping until turbidity values were less than 50 NTU or until the pH, specific conductivity, and turbidity had stabilized. A summary of well development data is presented in Table 4-4. Well development data sheets are presented in Appendix E.

Physical Soils Testing

The following samples were collected for physical soils testing:

- Shelby tube samples from each exploratory boring. All Shelby Tube samples were collected from a confining layer that underlies the shallow aquifer.
- Three composite split spoon samples from the screened interval or the adjacent exploratory boring of MPI-3S, MPI-1I, MPI-5S, and MPI-5I were submitted to determine grain size distribution (ASTM D422-92) in the shallow aquifer.

Samples collected from the confining layer were analyzed for the following parameters:

- Moisture Content (ASTM D2216-92)
- Grain Size Analysis (ASTM D422-92)
- Atterberg Limits (ASTM D4318-84)
- Falling Head Permeability (ASTM D5084-90)
- Organic Content (ASTM D2974-82)

TABLE 4-3

MR. C CLEANERS SUPERFUND SITE
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WELL CONSTRUCTION SUMMARY

Well No.	Ground Elev.	PVC Riser Elev.	Borehole Diam./ Well Diam. (in.)	DEPTHS (ft below grade)					Type of Sand Pack	Screen Slot Size	Installation Date
				Top of Seal	Top of Sand Pack	Top of Screen	Screen Bottom	Bottom of Sand Pack			
ESI-1	917.24	916.80	8.25/2	4.5	7.0	8.0	18.0	20.0	#0 Morie	0.010	5/92
ESI-2	918.05	917.79	8.25/2	6.0	8.0	9.0	19.0	20.0	#0 Morie	0.010	5/92
ESI-3	916.41	915.85	8.25/2	4.1	6.0	7.0	17.0	18.0	#0 Morie	0.010	5/92
ESI-4	913.56	913.25	8.25/2	2.0	4.0	5.0	15.0	16.0	#0 Morie	0.010	5/92
ESI-5	912.90	912.64	8.25/2	2.0	4.0	5.0	15.0	16.0	#0 Morie	0.010	5/92
ESI-6	914.92	914.48	8.25/2	3.8	6.0	7.0	17.0	18.0	#0 Morie	0.010	5/92
MW-1	915.48	915.12	10.5/2	9.0	10.6	12.0	22.0	22.0	#2	.010	6/88
MW-4	914.47	914.02	12.5/4	4.7	6.6	7.3	17.3	18.0	#2	–	1/89
MW-5	914.84	914.50	10.5/2	–	–	10.0	15.0	–	–	–	5/84
MW-6	915.05	914.68	8.0/2	3.0	–	5.0	14.5	15.0	–	0.020	9/93
MW-7	916.34	915.96	8.0/2	3.0	–	5.0	14.5	15.0	–	0.020	9/93
MW-8	915.97	915.62	8.0/2	3.0	–	5.0	14.5	15.0	–	0.020	9/93
MW-9	916.99	916.64	8.0/2	3.0	–	5.0	14.5	15.0	–	0.020	9/93
MW-10	914.85	914.54	8.0/2	2.0	–	4.0	13.5	14.0	–	0.020	9/93
MPI-1S	915.38	915.08	12.0/2	5.3	7.2	9.0	19.0	19.5	#0 Morie	0.010	3/94
MPI-1I	913.53	913.23	12.0/2	2.0	29.2	31.0	41.0	41.5	#00 Morie	0.006	3/94
MPI-2S	917.34	917.10	12.0/2	3.8	6.0	8.0	18.0	18.5	#0 Morie	0.010	3/94
MPI-3S	914.79	914.40	12.0/2	3.7	5.7	8.0	18.0	18.5	#0 Morie	0.010	3/94
MPI-4S	915.12	914.82	12.0/2	6.8	8.8	11.0	21.0	21.5	#0 Morie	0.010	3/94
MPI-4I	916.12	915.66	12.0/2	4.0	29.8	32.0	42.0	42.5	#00 Morie	0.006	3/94
MPI-5S	916.78	916.45	12.0/2	3.9	5.9	8.0	18.0	18.4	#0 Morie	0.010	3/94
MPI-5I	916.78	916.43	12.0/2	8.0	30.0	32.0	42.0	42.5	#00 Morie	0.006	3/94
MPI-6S	915.35	915.03	12.0/2	7.9	10.0	12.3	22.3	23.0	#0 Morie	0.010	3/94
MPI-7I	916.42	916.14	12.0/2	5.3	27.1	29.5	39.5	40.0	#00 Morie	0.006	3/94
MPI-8S	915.01	914.64	12.0/2	4.0	6.0	8.0	18.0	18.5	#0 Morie	0.010	3/94
MPI-9S	915.24	914.88	12.0/2	4.5	6.5	8.0	18.0	18.5	#0 Morie	0.010	3/94

– = unknown

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TABLE 4-4
MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

SUMMARY OF FIELD MEASUREMENTS FOR RI WELL DEVELOPMENT[1]

Location	Date Developed	Volume of Water In Casing (gal.)	Total Volume of Water Purged (gal.)	Temp. (°C)	pH (units)	Specific Conductance umhos/cm[2]	Turbidity (NTU)	Recharge Rate	Appearance/ Odor
MPI-1S	3/21/94	1.6	105	9.6	7.32	2520	48	slow/moderate	slt sheen/clear/no odor
MPI-1I	3/25/94	5.7	110	11.8	7.29	1645	20	moderate	clear/no odor
MPI-2S	3/28/94	1.1	85	11.7	7.32	1491	11	fast	clear/solvent
MPI-3S	3/21/94	1.4	60	11.3	7.26	1720	29	slow/moderate	clear/no odor
MPI-4S	3/22/94	1.9	65	12.6	7.65	1572	31	slow	clear/no odor
MPI-4I	3/22/94	5.5	110	10.8	7.52	1576	30	moderate	clear/no odor
MPI-5S	3/15/94	1.2	95	8.3	7.34	1620	15	fast	clear/no odor
MPI-5I	3/21494	5.0	70	10.3	7.26	1684	10	fast	clear/no odor
MPI-6S	3/15/94	2.0	85	9.6	7.07	1684	14	moderate	clear/no odor
MPI-7I	3/22/94	5.0	130	11.6	7.35	1813	16	moderate	clear/no odor
MPI-8S	3/25/94	1.5	65	4.7	7.42	1737	32	slow	clear/no odor
MPI-9S	3/25/94	1.5	80	5.4	7.43	1851	40	moderate	slt sheen/clear/no odor
ESI-1	3/15/94	1.1	90	9.6	7.32	1145	41	fast	clear/no odor
ESI-3	3/17/94	1.1	145	9.9	7.33	1912	49	fast	clear/no odor
ESI-4	3/16/94	1.1	55	8.7	7.21	7290	8	fast	clear/no odor
ESI-5	3/17/94	1.2	25	6.9	7.42	1182	8	slow	clear/no odor
ESI-6	3/18/94	1.1	185	10.7	7.14	1920	9	fast	clear/slt solvent
MW-4	3/16/94	6.1	48	7.0	6.95	2840	30	slow	sheen/clear/slt solvent
MW-5	3/16/94	0.8	7.0	6.0	6.82	2014	>100	moderate	sheen/cloudy/solvent

Notes:
(1) All measurements are readings obtained from last volume of water.
(2) Conductance corrected to 25°C.

To minimize the risk of handling contaminated materials, only soil samples collected from wells exhibiting trace or nondetectable concentrations of VOCs in groundwater were submitted for testing. Physical soil testing results are presented in Appendix F and are summarized in Table 4-5. These results will be discussed in Section 4.3 and 4.4.

4.1.5 In Situ Hydraulic Conductivity Testing

In situ hydraulic conductivity tests were performed on all new and existing monitoring wells, except ESI-2. The field tests consisted of rising head slug tests using an electronic data logger to monitor water level recovery. Time and head were analyzed by the method of Bouwer and Rice (1976). Field data and slug test analyses are presented in Appendix G. Construction details for some of the existing wells are not fully documented; therefore, assumptions were made in order to analyze the slug test data. These assumptions are documented in Appendix G. Table 4-6 summarizes the results of the in situ hydraulic conductivity analyses. These results will be discussed in Section 4-4.

4.1.6 Water Level Monitoring and Site Survey

The locations and elevations of all new and existing monitoring wells were surveyed by Deborah Naybor P.L.S., P.C. in June 1994.

Malcolm Pirnie collected five rounds of groundwater elevations in 26 wells. Water levels were measured in April 1994 for a period of four consecutive weeks after well development and during the well survey on June 15, 1994. Groundwater elevations determined during the RI are summarized on Table 4-7.

4.2 REGIONAL GEOLOGY

4.2.1 Physiography

The site is located at the boundary of the Allegheny Plateau and the Lake Erie/ Ontario Lowland physiographic provinces of New York State. The Allegheny Plateau in this area is deeply dissected by north-south trending valleys that are up to 300 feet below the upland elevations. The Village of East Aurora is located at the northern end of one such north trending valley, the valley of the East Branch of Cazenovia Creek. Upland topography is abruptly truncated to the south and east of the Village where Cazenovia Creek exits the

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TABLE 4-5

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

PHYSICAL SOIL TESTING SUMMARY

Boring No.	Depth (ft.)	Moisture Content %	Gravel %	Sand %	Silt %	Clay %	Classif. USCS	Liquid Limit %	Plasticity Index	Hydraulic Conductivity (cm/s)	Organic Content
MPI-1D	66-68	26.1	0.0	1.1	59.2	39.7	CL	30	11	4.7×10^{-8}	0.7
MPI-4D	46-48	20.8	0.0	3.8	72.9	23.3	CL-ML	22	6	5.8×10^{-8}	0.6
MPI-5D	54-56	21.3	0.0	2.4	61.6	36.0	CL	29	10	4.4×10^{-8}	0.8
MPI-7D	58-60	27.6	0.0	1.2	58.9	39.9	CL	32	13	4.3×10^{-8}	1.0
MPI-3S	8-14	–	43.7	41.1	15.2*		–				
MPI-3S	14-18	–	3.0	35.6	60.5	0.9	–				
MPI-5D	8-14	–	29.3	54.0	16.7*		–				
MPI-5D	14-18	–	0.0	68.4	31.6	0.0	–				
MPI-1D	30-40	–	0.0	47.5	52.5	0.0	–				
MPI-5D	32-42	–	0.0	41.1	58.2	0.7	–				

* Presented as percent silt and clay combined.

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TABLE 4-5

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

PHYSICAL SOIL TESTING SUMMARY

Boring No.	Depth (ft.)	Moisture Content %	Gravel %	Sand %	Silt %	Clay %	Classif. USCS	Liquid Limit %	Plasticity Index	Hydraulic Conductivity (cm/s)	Organic Content %
MPI-1D	66-68	26.1	0.0	1.1	59.2	39.7	CL	30	11	4.7×10^{-8}	0.7
MPI-4D	46-48	20.8	0.0	3.8	72.9	23.3	CL-ML	22	6	5.8×10^{-8}	0.6
MPI-5D	54-56	21.3	0.0	2.4	61.6	36.0	CL	29	10	4.4×10^{-8}	0.8
MPI-7D	58-60	27.6	0.0	1.2	58.9	39.9	CL	32	13	4.3×10^{-8}	1.0
MPI-3S	8-14	–	43.7	41.1	15.2*		–				
MPI-3S	14-18	–	3.0	35.6	60.5	0.9	–				
MPI-5D	8-14	–	29.3	54.0	16.7*		–				
MPI-5D	14-18	–	0.0	68.4	31.6	0.0	–				
MPI-1D	30-40	–	0.0	47.5	52.5	0.0	–				
MPI-5D	32-42	–	0.0	41.1	58.2	0.7	–				

* Presented as percent silt and clay combined.

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TABLE 4-6

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

IN SITU HYDRAULIC CONDUCTIVITY TEST RESULTS[1]

SHALLOW WELLS[2]						INTERMEDIATE WELLS[2]	
Location	K (cm/s)	Location	K (cm/s)	Location	K (cm/s)	Location	K (cm/s)
MPI-1S	4.1 E-3	ESI-1	2.0 E-2	MW-1	1.8 E-3	MPI-1I	4.9 E-4
MPI-2S	1.1 E-2	ESI-3	9.0 E-2	MW-4	8.2 E-4	MPI-4I	1.5 E-4
MPI-3S	6.0 E-3	ESI-4	4.8 E-2	MW-5	3.0 E-2	MPI-5I	3.9 E-4
MPI-4S	1.1 E-3	ESI-5	4.9 E-3	MW-6	E-2*	MPI-7I	2.0 E-4
MPI-5S	2.6 E-2	ESI-6	2.2 E-2	MW-7	4.4 E-2		
MPI-6S	8.5 E-3			MW-8	2.5 E-2		
MPI-8S	9.9 E-4			MW-9	1.8 E-3		
MPI-9S	8.5 E-3			MW-10	1.8 E-3		

Notes:

(1) All tests analyzed by Method of Bouwer and Rice (1976).
(2) Geometric mean of 21 shallow wells = 7.9 E-3 cm/s.
(3) Geometric mean of 4 intermediate wells = 2.8 E-4 cm/s.
* Estimated minimum value. Well recovery too rapid to collect analyzable data.

TABLE 4-7

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
SUMMARY OF WATER LEVELS FROM TOP OF RISER

Well No.	4/5/94		4/13/94		4/20/94		4/27/94		6/15/94	
	Depth (ft.)	Elev. (ft.)	Depth (ft.)	Elev. (ft.)	Depth (ft.)	Elev. (ft.)	Depth (ft.)	Elev. (ft.)	Depth (ft.)	Elev. (ft.)
MPI-1S	9.48	905.60	9.21	905.87	9.44	905.64	9.69	905.39	10.25	904.83
MPI-1I	7.63	905.60	7.34	905.89	7.56	905.67	7.82	905.41	8.37	904.86
MPI-2S	10.92	906.18	10.71	906.39	10.91	906.19	11.20	905.90	11.83	905.27
MPI-3S	9.63	904.77	9.31	905.09	9.58	904.82	9.79	904.61	10.19	904.21
MPI-4S	9.16	905.66	8.97	905.85	9.13	905.69	9.42	905.40	10.00	904.82
MPI-4I	10.15	905.51	9.96	905.70	10.10	905.56	10.38	905.28	10.93	904.73
MPI-5S	10.58	905.87	10.25	906.20	10.51	905.94	10.81	905.64	11.45	905.00
MPI-5I	10.62	905.81	10.34	906.09	10.52	905.91	10.86	905.57	11.48	904.95
MPI-6S	10.10	904.93	9.79	905.24	10.02	905.01	10.28	904.75	10.80	904.23
MPI-7I	9.95	906.19	9.71	906.43	9.91	906.23	10.21	905.93	10.88	905.26
MPI-8S	9.33	905.31	9.19	905.45	9.03	905.61	9.29	905.35	9.88	904.76
MPI-9S	9.31	905.57	9.01	905.87	9.25	905.63	9.54	905.34	*	
MW-1	9.30	905.82	9.04	906.08	9.26	905.86	9.57	905.55	10.15	904.97
MW-4	8.26	905.76	7.99	906.03	8.16	905.86	8.50	905.52	9.09	904.93
MW-5	8.70	905.80	8.40	906.10	8.66	905.84	8.96	905.54	9.57	904.93
MW-6	8.66	906.02	8.44	906.24	8.66	906.02	8.99	905.69	9.62	905.06
MW-7	8.66	906.02	8.44	906.24	8.66	906.02	8.99	905.69	9.62	905.06
MW-8	9.95	906.01	9.64	906.32	*	–	10.22	905.74	10.85	905.11
MW-9	9.97	905.65	9.64	905.98	9.91	905.71	10.20	905.42	10.73	904.89
MW-10	8.57	905.97	8.29	906.25	8.54	906.00	8.84	905.70	9.47	905.07
ESI-1	10.53	906.27	10.31	906.49	10.45	906.35	10.79	906.01	11.51	905.29
ESI-2	11.62	906.17	11.36	906.43	11.58	906.21	11.90	905.89	12.60	905.19
ESI-3	9.68	906.20	9.43	906.45	9.64	906.24	9.95	905.93	10.62	905.26
ESI-4	7.49	905.76	7.23	906.02	7.50	905.75	7.75	905.50	8.36	904.89
ESI-5	7.47	905.17	7.23	905.41	7.51	905.13	7.63	905.01	8.01 **	904.69
ESI-6	9.79	904.69	9.47	905.01	9.75	904.73	9.95	904.53	10.33	904.15

* Not able to obtain water level measurements.
** New Riser Elevation

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Allegheny Plateau and enters the Erie/Ontario Lowland. The Erie/Ontario Lowland slopes gently north and west toward Lake Erie with a series of low ridges comprised of glacial debris.

4.2.2 Bedrock Geology

The major rock formation underlying the site, as mapped by Buehler and Tesmer (1963), is the Rhinestreet Shale member of the West Falls Formation. The Rhinestreet Shale is composed largely of fissile to massive black shale, which may be slightly petroliferous. Medium and dark gray shales occur interbedded with black shale in the upper third of the Rhinestreet member.

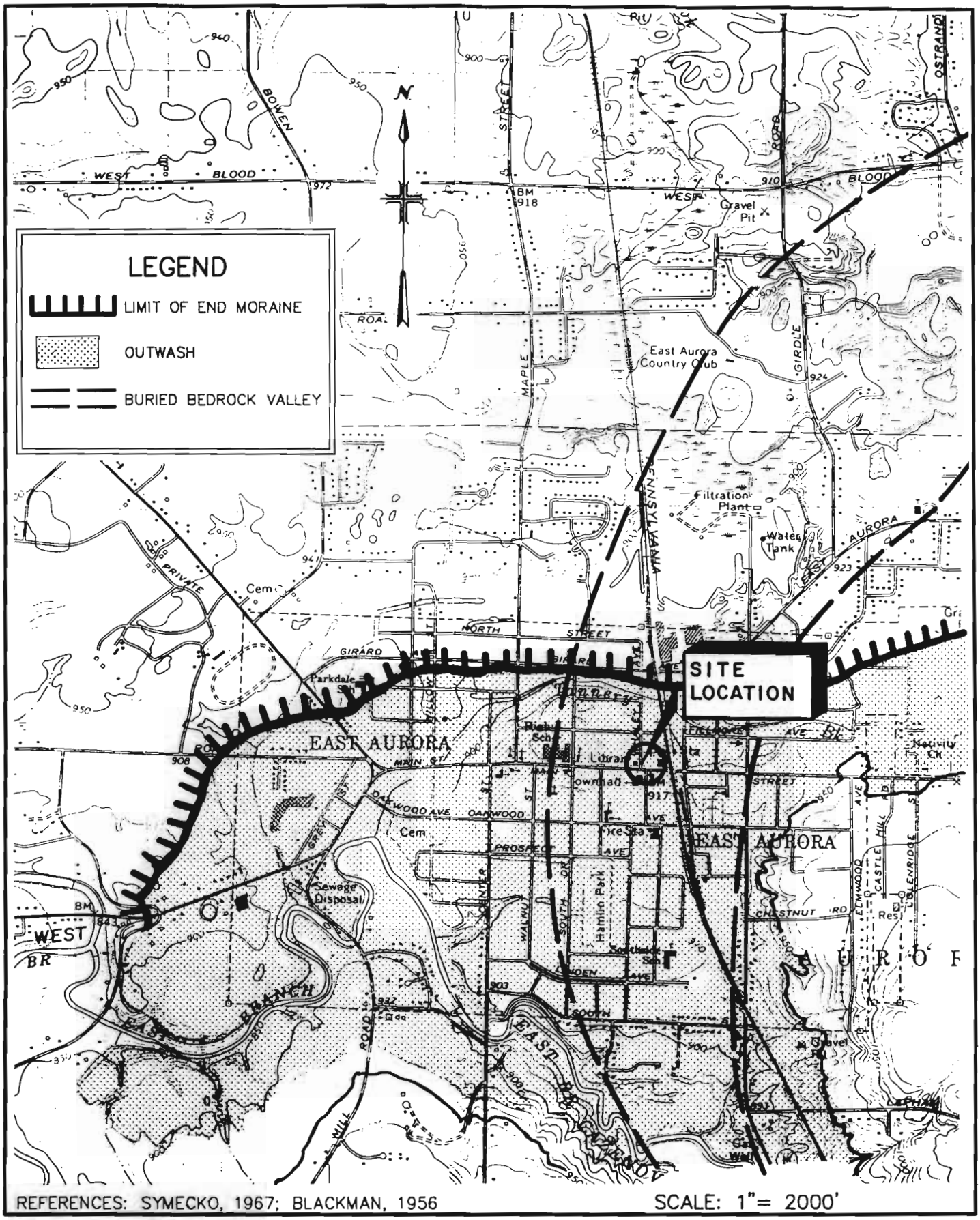
Blackmon (1956) describes a buried bedrock valley that was the course of the pre-glacial Cazenovia Creek. The pre-glacial Cazenovia Creek valley was deepened by ice erosion as ice was funneled into the valley during numerous glacial advances. Figure 4-2 illustrates the trend of the bedrock valley as inferred by Blackmon, who also indicates that the depth to bedrock may be 150 to 200 feet below grade. These depth figures are most likely good estimates of the depth to bedrock beneath the Mr. C Cleaners site. Immediately east and west of the buried bedrock valley, bedrock is found at 20 to 30 feet below grade. In the uplands east and south of the Village, the bedrock surface rises approximately 300 feet above the Village. The total change in bedrock topography between the base of the pre-glacial valley and the uplands is approximately 400 to 500 feet.

4.2.3 Glacial Geology

Surficial geologic deposits in the vicinity of the site were deposited during the most recent advance and recession of glacial ice. A knowledge of these deposits assists in the interpretation of site specific geologic conditions, which were observed during the RI drilling program and are discussed in Section 4.3.

Directly north of the Village is an area marked by an elevated hummocky terrain separated by closed depressions with poor drainage. The hummocky material is a glacial deposit termed the Hamburg-Marilla Moraine by Leverett (1902) and represents a standstill of the ice during northward recession. The southern limits of the Moraine are illustrated on Figure 4-2. This position of the ice blocked northward drainage and created a body of standing water between the ice and uplands to the south.

FIGURE 4-2



REFERENCES: SYMECKO, 1967; BLACKMAN, 1956

SCALE: 1"= 2000'

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REGIONAL GEOLOGY

DEC-31-MAP

NYSDEC

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South of the moraine, the Village of East Aurora is underlain by a gravelly outwash deposit that has the approximate extent shown in Figure 4-2. According to Blackmon (1956) water dammed at the 950-foot elevation by the Hamburg-Marilla Moraine received sediment (sand and gravel) from higher altitude lakes, from drainage out of the East Branch of Cazenovia Creek, and drainage off of the glacier. As the ice retreated to the north, leaving the Hamburg-Marilla Moraine in its path, drainage channels opened allowing the ice dammed waters of Cazenovia Creek to drain to a lower elevation.

Coarse sand and gravel deposits, such as that underlying East Aurora, are typically deposited by rapidly aggrading streams. An aggrading stream is one which is carrying more sediment than its capacity load and, therefore, deposits its sediment as bars or over its banks on flood plains. The character of the surficial outwash deposit is likely laterally variable.

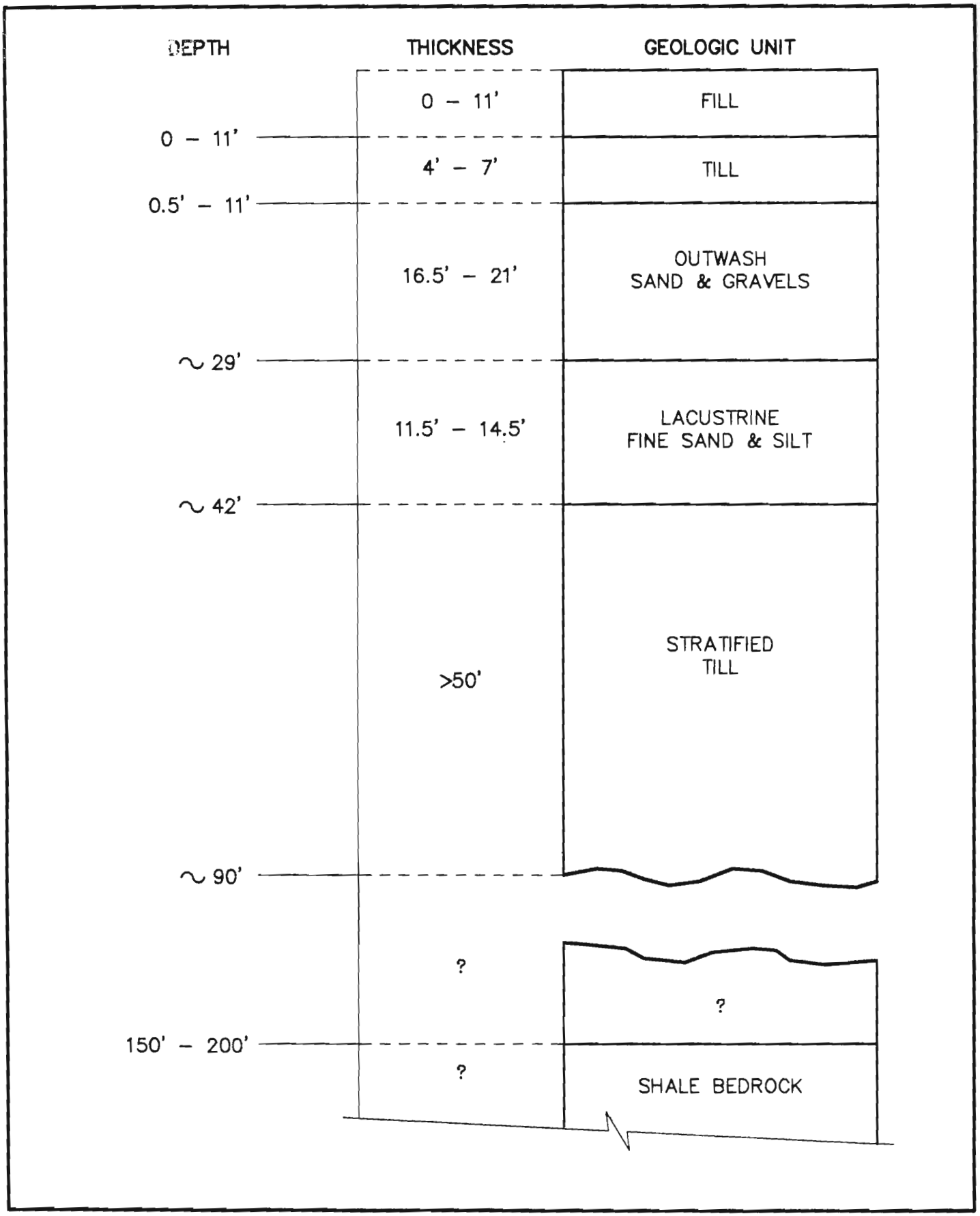
Approximately 150 to 200 feet of glacial deposits may occur beneath the surficial gravels under the Village and the morainal deposit north of the Village. From the 1930s to the 1970s, the Village of East Aurora maintained municipal water supply wells at the Filtration Plant approximately 4,000 feet north of the Mr. C Cleaners site (see Figure 4-2). A boring log of Water Well # 4 described by Blackmon (1956) indicates that coarse granular deposits occurred at the intervals of 60 to 70 feet, and 107 to 123 feet below grade. The remaining intervals are described as various combinations of gravel, sand, and clay. The well field yielded approximately 500 million gallons per day in the 1960s and presented sufficient aquifer yield. In the 1970s, the Village abandoned its groundwater supply and switched to the Erie County Water Authority due to the economics of maintaining the well field.

4.3 SITE GEOLOGY

This section presents a discussion of site geologic conditions based upon the RI drilling program, the results of previous investigations at the Mr. C Cleaners and Agway sites, and information provided in the literature concerning regional geologic conditions.

Stratigraphic units identified during the RI from youngest to oldest and illustrated on Figure 4-3 include:

- fill material
- clayey silt till



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GEOLOGIC COLUMN

- gravel and sand outwash
- lacustrine sandy silt
- stratified till

As stated in Section 4.1.3, bedrock was not encountered.

Table 4-8 presents survey data and a summary of the stratigraphic unit thicknesses determined from wells/boreholes completed during the RI. Stratigraphic cross-sections are presented in Plate 4. Cross-section locations are shown on Plate 5.

4.3.1 Fill Material

Fill was encountered at drilling locations near the Library, Agway, Mr. C Cleaners, and the Town Hall. The composition of the fill material varies across the site.

Fill encountered at Mr. C Cleaners was clayey silt with gravel underlain by gravel with clayey silt and a trace of brick fragments. Fill at MPI-7D occurs from grade to 11.0 feet below ground surface. The occurrence of a substantial thickness of fill material is consistent with the existence of former structures in the Mr. C Cleaners parking lot (see Section 2). Fill material at MPI-5D on the Agway site occurs in the uppermost two feet and was characterized as a moist gravel with sand. The fill encountered near the Library at MPI-4D and MPI-6S is a clayey silt with traces of brick fragments. The proportion of gravel and sand content is highly variable. The thickness of fill in this area ranges from 3.5 (MPI-6S) to 4.0 feet (MPI-4D).

Boring MPI-2S is located in the Town Hall parking lot. Therefore, asphalt was encountered overlying light gray fine gravel size crystalline material with a low specific gravity to 1.0 foot. MPI-8S in Whaley Avenue also encountered pavement overlying gravel, sand, silt, and clay to four feet below ground surface. Fill was not encountered in borings completed near the First Presbyterian Church.

4.3.2 Clayey Silt Till

Till composed mostly of brown clayey silt was encountered in all locations except MPI-7D at Mr. C Cleaners. The absence of till at Mr. C Cleaners is likely due to previous construction in this area. Till ranged in thickness from 4.0 feet in boring MPI-9S to 7.0 feet in boring MPI-1S. At most locations the till is comprised of clayey silt with varying amounts of sand and gravel-size shale fragments. In borings MPI-5D, and MPI-8S, the till has a

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TABLE 4-8

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

SUMMARY OF GEOLOGIC UNITS

Well Bore #	Ground Surface Elev.	Fill Mat'l Ft. Below Grade/ Top Elev.	Till Ft. Below Grade/ Top Elev.	Gravel Outwash Ft. Below Grade/ Top Elev.	Medium, Coarse Sand Outwash Ft. Below Grade/ Top Elev.	Fine, Very Fine Sand Outwash Ft. Below Grade/ Top Elev.	Lacustrine Deposit Ft. Below Grade/ Top Elev.	Stratified Till Deposits Ft. Below Grade/ Top Elev.
1D	913.95	–	0.5 - 6.0 913.45	6.0 - 11.0 907.95	–	11.0 - 27.0 902.95	27.0 - 40.5 886.95	40.5 - 90.0 873.45
1S	915.38	–	1.0 - 8.0 914.38	–	–	8.0 - 20.0 907.38		
2S	917.34	0 - 1.0 917.34	1.0 - 5.5 916.34	–	5.5 - 10.0 911.84	10.0 - 20.0 907.34		
3S	914.79	–	0.4 - 6.0 914.39	6.0 - 14.5 908.79	–	14.5 - 18 900.29		
4D	916.14	1.0 - 5.0 915.14	5.0 - 11.0 911.14	11.0 - 14.0 905.14	–	14.0 - 27.5 902.14	27.5 - 42.0 888.64	42.0 - 78.0 874.14
5D	916.49	0.0 - 2.0 916.49	2.0 - 8.0 914.49	8.0 - 12.5 908.49	12.5 - 14.0 903.99	14.0 - 28.0 902.49	28.0 - 42.5 888.49	42.5 - 64.0 873.99
6S	915.35	0.0 - 3.5 915.35	3.5 - 8.5 911.85	* 8.5 - 12.5 906.85	12.5 - 17.5 902.85	17.5 - 24.0 897.85		
7D	916.67	0.0 - 11.0 916.67	–	11.0 - 26.5 905.67	26.5 - 29.0 890.17	–	29.0 - 40.5 887.67	40.5 - 60.0 876.17
8S	915.01	0.0 - 4.0 915.01	4.0 - 9.6 911.01	* 9.6 - 14.0 905.41	14.0 - 18.0 901.01	18.0 - 20.0 897.01		
9S	915.24	0.0 - 4.0 915.24	4.0 - 8.0 911.24	8.0 - 12.4 907.24	12.4 - 20.0 902.84	–		

Note: * Lacustrine Unit

higher a proportion of gravel and sand. Till at MPI-1S graded from a clayey silt toward a silty sand with gravel. Weak stratifications were observed at most locations.

4.3.3 Outwash Sand and Gravel

Glacial outwash material is present in each borehole ranging in thickness from 15.5 to 20 feet. As described by Blackmon (1956), the outwash unit is comprised of sediment transported out of the ice-mass by meltwater, and sediment washed in to a floodplain from higher level pro-glacial lakes. The outwash grades from sandy gravel near the top of the unit to very fine sand at the base, which is approximately 27 feet below ground surface. The upward coarsening of the material is most likely due to a readvance of the ice, which passed over the outwash and deposited the clayey silt till.

As indicated in Table 4-8, gravel outwash is present at Mr. C Cleaners (MPI-7D), Agway (MPI-5D), Whaley Avenue (MPI-9S), Library (MPI-4D), and the Church (MPI-3S and MPI-1D) and where present ranges in thickness from 3.0 to 15.5 feet. The greatest thickness of gravel occurs at MPI-7D where gravel comprises most of the outwash unit.

Medium to coarse sand with varying amounts of fine sand underlies gravel at MPI-5D, MPI-9S, and MPI-7D, and is present without gravel at MPI-2S, MPI-6S, and MPI-8S. The sand ranges in thickness from 1.5 to 7.6 feet. Fine and very fine sand units occurred at the base of the outwash unit in all borings except for MPI-7D and MPI-9S. Fine and very fine sand has a tendency to liquify when disturbed and defines the bottom of the outwash sequence.

Grain size analyses were performed on soil samples from the gravel zone and the sand zone in borings MPI-3S and MPI-5D (see Table 4-5). Samples were collected from the screened intervals from 8-18 feet below ground surface at each well. As indicated on Table 4-8, sand and gravel extended from 8 to 14 feet. The remaining 4 feet in MPI-3S was sandy silt and in MPI-5D, silty sand. Although the outwash generally coarsens upward, the unit is laterally heterogeneous and contacts between different subunits within the outwash do not correlate between widely-spaced borings.

4.3.4 Lacustrine Deposits

Lacustrine sandy silt underlies the outwash sequence. The occurrence of very fine granular material is consistent with the pro-glacial lake described by Blackmon (see Regional Geology Section 4.2.3).

The lacustrine deposit ranges in thickness from 11.5 to 14.5 feet. The top of this unit is present in all four exploratory borings at elevation of approximately 888 feet. As indicated in Table 4-5, grain size analyses were performed in lacustrine material collected from borings MPI-1D and MPI-5D. The material is mostly silt and fine to very fine sand; has a tendency to liquify when disturbed; and exhibits uniform textural characteristics where encountered.

4.3.5 Stratified Till and Sand

Underlying the lacustrine unit is a sequence of interbedded fine grained till and sand at least 49.5 feet thick. Stratified till and sand was encountered to a depth of 90 feet at MPI-1D, the deepest exploratory boring. Regional geologic (see Section 4.2) information indicates that bedrock may be approximately 150 feet deep.

This unit contains lenses of stratified medium and fine sand interbedded with layers of clayey silt and silty clay till. The till contains trace to little amounts of sand, and commonly breaks along a faintly visible internal fabric. A sharp contact separates the two lithologies. As shown in Table 4-9, the proportion of sand layers is substantially less than the proportion of layers comprised of fine-grained till. Silty clay till layers range from thin laminae to layers 5 to 11 feet thick. The sand layers also occur as thin laminae, but the thickest layers are only 3 feet thick. The two lithologies are typical of ablation and/or flow till deposited at an ice front and waterlaid sands washed out of the ice mass by glacial meltwater. According to Evenson, et al (1976), the "interfingering of stratified meltwater sands and (ice contact) tills documents simultaneous deposition of the two sediment types from adjacent but separate sources". The stratified till unit may grade laterally into permeable outwash or lacustrine sand. However, the sand layers observed in the four deep borings are not encountered at the same elevations in each boring and, therefore, may not be physically continuous between boring locations.

In each boring, a thicker silty clay or clayey silt unit is present ranging from 5 feet in MPI-7D to 11 feet in MPI-4D. A Shelby tube was collected in this thicker (flow) till layer

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TABLE 4-9

MR. C CLEANERS SUPERFUND SITE
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THICKNESS OF STRATIFIED TILL AND SAND LAYERS

Boring No.	Thickness of Till Layers		% of Total Unit Thickness Drilled	Thickness of Sand Layers		% of Total Unit Thickness Drilled
	Range	Average		Range	Average	
MPI-1D	0.08-6′	1.34′	81	0.02-3′	0.31′	19
MPI-4D	0.01-11′	0.59′	78	0.006-1.4′	0.20′	22
MPI-5D	0.25-6′	2.43′	79	0.25-1.5′	0.75′	21
MPI-7D	0.02-5′	0.19′	61	0.02-3′	0.14′	39

to determine the hydraulic conductivity, grain size distribution, Atterberg limits, moisture content, and organic content. These results are presented on Table 4-5. In general, this material contains 23.3 to 39.9 percent clay.

4.4 SITE HYDROGEOLOGY

4.4.1 Hydrostratigraphic Units

Hydrostratigraphic units are sequences of geologic materials that are hydraulically connected and possess similar hydrogeologic properties including hydraulic conductivity, head, and porosity. The hydrostratigraphy of the site, as derived from an assessment of hydraulic properties of the geologic units previously described, is illustrated in Table 4-10. The major hydrostratigraphic units include an unconfined (water table) aquifer consisting of saturated outwash deposits (the outwash aquifer); the underlying saturated lacustrine deposits (the lacustrine aquifer); and a confining layer comprised of the stratified till deposits. Regional information indicates that a confined aquifer may occur at depth; however, not site-specific confirmation is available.

The outwash and lacustrine units are hydraulically connected aquifers that possess distinctly different hydraulic properties. Hydraulic heads (i.e. groundwater flow direction) in the two units are nearly the same and the two units are physically continuous. However, the outwash and lacustrine aquifers have different hydraulic conductivities and porosities. From a contaminant migration perspective, the two units should be monitored separately. As discussed in Section 4.1, 22 wells are screened in the outwash aquifer, and four wells, designated "I", are screened in the lacustrine aquifer.

The water table aquifer overlies clayey silt that occurs in the stratified till unit. Drilling completed during the RI indicates that the stratified till unit has a minimum thickness of 49 feet. Blackmon (1956) indicates that bedrock is 150 to 200 feet below ground surface.

4.4.2 Outwash Aquifer

Groundwater in this unit occurs under unconfined (water table) conditions. The saturated thickness of the outwash aquifer is approximately 18 feet and shows little variation across the study area. April 13, 1994 and June 15, 1994 ground water elevations are shown

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TABLE 4-10

MR. C CLEANERS SUPERFUND SITE
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HYDROSTRATIGRAPHIC UNIT TABLE

Hydrostratigraphic Unit	Geologic Units
Outwash Aquifer	Outwash Sand and Gravel
Lacustrine Aquifer	Lacustrine Sandy Silt
Confining Layer	Stratified Till

on Table 4-7. The April 13, 1994 ground water levels were approximately 9.5 feet below ground surface. The water table fell approximately 0.9 feet by June 15, 1994. Hydraulic head distributions within this unit are depicted in isopotential maps presented as Plate 5 and 6.

North of Main Street, ground water flows toward decreasing head in a northwest direction. The ground water flow divides at Main Street and generally flows southwest toward the First Presbyterian Church. The location of the groundwater divide shown on Plates 5 and 6 may vary seasonally.

Recharge of the aquifer occurs principally through infiltration of precipitation. Because the sanitary sewers are old and are constructed of clay tile pipe which is subject to leakage, it is possible that exfiltration from sewers situated above the water table also contributes to recharge of the outwash aquifer. Based on the weekly water level fluctuations observed in April 1994 (see Table 4-7), recharge to the water table appears to occur relatively quickly, and then dissipates rapidly. Therefore, sewer exfiltration may cause a localized mound in the vicinity of a leaking sewer.

Horizontal hydraulic gradients for the water table unit range from 0.004 to 0.002 ft/ft depending on the date; and they were slightly higher south of Main Street. These are very low hydraulic gradients, reflective of the low topographic relief and the comparatively high hydraulic conductivity. Hydraulic gradients were slightly lower during the June water level measuring event.

Vertical hydraulic gradients calculated from water elevations at monitoring well couplets are presented in Table 4-11. Gradients are very slightly vertically downward in April and June. A comparison of the horizontal and vertical hydraulic gradients indicate that ground water flow in the water table aquifer is essentially horizontal.

In situ hydraulic conductivity values were determined for the water table unit using data described in Section 4.1.5. The hydraulic conductivity testing results are summarized in Table 4-6. The geometric mean of hydraulic conductivity results for upper zone wells is 8.6 E-3 cm/s.

Horizontal groundwater seepage velocities for the outwash aquifer for the northwest and southwest flow directions were calculated using measured horizontal gradients (from the April 13, 1994 measuring round) and average hydraulic conductivity values. Effective porosity values used in the velocity calculations were selected from the low end of a range

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TABLE 4-11

MR. C CLEANERS SUPERFUND SITE
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SUMMARY OF VERTICAL HYDRAULIC GRADIENTS

	Screen Midpoint Elevation	Elev. Water 4/13/94	Vertical Gradient ft./ft.	Elev. Water 6/15/94	Vertical Gradient ft./ft.
MPI-4I	879.12	905.70		904.73	
MPI-4S	899.12	905.85	−.008	904.82	−.005
MPI-1I	877.53	905.89		904.86	
ESI-4	903.56	906.02	−.005	904.89	−.001
MPI-7I	881.72	906.43		905.26	
ESI-3	904.41	906.45	−.001	905.26	0
MPI-5I	879.78	906.09	−.005	904.95	
MPI-5S	903.78	906.20		905.00	−.002

Note:
− indicates downward vertical gradient.

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TABLE 4-12

MR. C CLEANERS SUPERFUND SITE
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SUMMARY OF HYDROGEOLOGIC PROPERTIES

Hydrostratigraphic Unit	Geologic Unit	Physical Properties			Groundwater Flow Properties		
		Saturated Thickness (ft.)[1][4]	Hydraulic Conductivity (cm/s)[3]	Effective Porosity[2]	Principal Flow Direction	Horizontal Gradient[1] (ft./ft.)	Flow Velocity[1] (ft./day)
Overburden Water-Bearing Zone:							
Outwash Aquifer	Outwash (north of Main St.)	17.8	8.6×10^{-3}	.25	NW	.003	.29
	Outwash (south of Main St.)	18.3	8.6×10^{-3}	.25	SW	.004	.39
Lacustrine Aquiver	Lacustrine Sandy Silt	13.0	2.8×10^{-4}	.35	SW/NW	.003	.007

Notes:
(1) Groundwater level data from 4/13/94.
(2) Effective porosity values are estimated from the low end of a range of total porosity values provided in the literature (Freeze and Cherry, 1979 and Fetter, 1980).
(3) Geometric Mean.
(4) Average Value.

of total porosity values in the hydrogeologic literature for sand and gravel (Freeze and Cherry, 1979). The calculated seepage velocities and hydrogeologic properties of the outwash aquifer are summarized in Table 4-12.

Slug test results are representative of the average hydraulic characteristics of the saturated screened interval. Most wells installed in the outwash aquifer are screened across a thin overlying zone of sandy gravel or medium to coarse sand and an underlying zone of fine to very fine sand (see Table 4-8). The slug test results may be representative of the hydraulic characteristics of the thin gravel zone. Therefore, if water levels fall below the gravel layer due to natural fluctuations or pumping, the hydraulic conductivity of the upper zone wells may decrease.

4.4.3 Lacustrine Aquifer

Hydrogeologic properties of the lacustrine aquifer are summarized in Table 4-12. The saturated thickness is approximately1 3 feet. Hydraulic conductivity tests performed in the four lacustrine aquifer wells ranged from 1.5E-4 cm/s to 4.9E-4 cm/s, and averaged 2.8E-4 cm/s. Boring descriptions, grain size distributions, and hydraulic conductivity values exhibit little variation between the four lacustrine well locations. Therefore, the hydrogeologic properties of the lacustrine unit are more uniform than in the outwash unit.

Based on groundwater levels measured in four lacustrine aquifer wells (see Table 4-7), the horizontal hydraulic gradient ranges from .002 to .003, which is very similar to gradients in the outwash aquifer. Groundwater flow directions in the lacustrine and outwash aquifers appear to be very similar; however, the number and spacing of lacustrine aquifer wells and the low hydraulic gradient make a comparison of flow directions in the two units uncertain. Horizontal seepage velocities calculated between MPI-7I and MPI-4I are 40 to 60 times slower than in the outwash unit.

4.4.4 Stratified Till Unit

The stratified till confining layer at Mr. C Cleaners is comprised of layers of clayey silt and sand. Laboratory permeability analyses of undisturbed (Shelby tube) samples from the thicker unit of clayey silt in each of the deep borings yielded an average hydraulic conductivity value of 4.8 E-8 cm/s. Particle size analyses indicated clay content ranging from 23.3 to 39.9 percent. The texture of the sand occurring in the stratified till would likely

be described as a poorly graded medium and fine sand and, if tested, would likely result in hydraulic conductivity values in the range of E-2 to E-3 cm/s. The degree of hydraulic connection between sand layers in the stratified till deposit and the principal aquifer that was formerly pumped for the Village municipal water supply is unknown. Since wells were not installed in the stratified till unit, gradients and hydraulic heads are not available.

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5.0 SITE CONTAMINANT CHARACTERIZATION

The nature and extent of contamination within the Mr. C Cleaner's site study area was characterized through groundwater, air and wastewater sample collection and analyses. All samples were collected by Malcolm Pirnie, Inc. personnel. Groundwater and wastewater samples were analyzed by NYTEST Environmental Laboratories for the parameters listed in Table 5-1. Air samples were analyzed by General Testing Corporation for tetrachloroethene. These parameters were identified by the NYSDEC as the parameters of concern based on the results of previous investigations conducted in the study area (see Section 3.0). The historical data summarized in Section 3.0 were also used to characterize site contaminants. The analytical data package prepared by NYTEST was evaluated for compliance with the 1991 NYSDEC ASP for Superfund CLP (Protocol A) reporting and deliverable requirements. A data validation report for the April 1994 sampling event is presented in Appendix H.

Specific procedures and rationale for groundwater, air and sanitary sewer sample collection and analysis have been presented in the RI Work Plan dated January 1994. A summary of the sample collection and analysis program is presented below; detailed discussion of sample collection procedures are provided in the RI Work Plan.

5.1 RI SAMPLING PROGRAM

5.1.1 Groundwater Sampling Methodology

Groundwater samples were collected between April 4 and 7, 1994 from a total of 25 monitoring wells located in the Mr. C Cleaners study area (see Table 5-2). Twelve of the monitoring wells sampled were installed and developed as part of the current RI; the remaining 13 monitoring wells are existing wells installed during previous site investigations. As described in Section 4.5, 21 of the monitoring wells are screened across the water table. Four of the sampled wells (designated "I") monitor lacustrine aquifer. Both aquifers were monitored to assess the vertical extent of contamination. A confining layer, comprised of stratified till and sand, underlies the lacustrine aquifer. Monitoring well locations are presented on Plate 1.

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TABLE 5-1

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

ANALYTICAL PARAMETERS

Matrix	Parameter	Method
Groundwater(1)	Volatile Organics	ASP 91-1
	Semi-Volatile Organics	ASP 91-2
	Pesticides/PCBs	ASP 91-3
	Target Analyte List Metals	ASP 12/91 D-V-1 through D-V-149
	Cyanide	335.2
	Remediation Assessment Parameters:	
	Soluble Iron	200.7
	Soluble Manganese	243.1
	Hardness	130.2
	Alkalinity	310.1
	Total Suspended Solids	160.2
	Total Dissolved Solids	160.1
	pH	Field
	Turbidity	Field
	Specific Conductivity	Field
	eH	Field
Wastewater	Volatile Organics	ASP 91-1
Air	Tetrachloroethene	NYSDOH 311-7

Note:
(1) 3 groundwater samples were analyzed for the full parameter list.
22 additional groundwater samples were analyzed for volatile organics only.

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TABLE 5-2

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

SAMPLING LOCATIONS

GROUNDWATER SAMPLING LOCATIONS:

Outwash Aquifer			Lacustrine Aquifer
MPI-1S	MW-1	ESI-1	MPI-1I
MPI-2S	MW-4	ESI-3	MPI-4I
MPI-3S	MW-5	ESI-4	MPI-5I
MPI-4S	MW-6	ESI-5	MPI-7I
MPI-5S	MW-7	ESI-6	
MPI-6S	MW-8		
MPI-8S	MW-9		
MPI-9S	MW-10		

SEWER SAMPLING LOCATIONS:

Sample No.	Manhole Location
MH-11	Intersection of Whaley & Fillmore Ave.
MH-61	Paine St.
MH-62E	Intersection of Main & Paine Sts.
MH-62W	Intersection of Main & Paine Sts.
MH-64	Near corner of Main & Elm St. on the sidewalk
MH-65	Main St. in front of Delia's car dealership

INDOOR AIR SAMPLING LOCATIONS:

Sample No.(1)	Sample Location(2)
BG-1/BG-2	Boys/Girls Club, 16 Paine St. - NE corner of basement
BA-1/BA-2	Jackson's Bowling Alley, 30 Whaley Ave. - SE corner of basement
C-1/C-2	First Presbyterian Church, 9 Paine St. - Classroom #114 (center of room) in NW corner of former day-care center.
VH-1/VH-2	Village Hall, 571 Main St. - NE corner of basement (records room)
OB	Outdoor Background - SE corner of First Presbyterian Church
TB	Trip Blank

Notes:
(1) Samples collected in duplicate except for OB and TB.
(2) All samples collected at floor or ground level.

Each monitoring well was thoroughly purged prior to sample collection. Groundwater samples were collected using a Teflon bailer which was cleaned between well sampling using the procedure provided in the RI Work Plan. Field sampling logs for the April 1994 sampling event are provided in Appendix H.

Field filtration was performed on samples collected for soluble iron and soluble manganese analyses. Filtration was accomplished by pressurizing the sampling bailer and allowing the sample to pass through tubing with an in-line 0.45 um filter and then directly into a pre-cleaned, laboratory-supplied sample container.

5.1.2 Air Monitoring Methodology

Indoor air samples were collected from the basements of four public buildings near the Mr. C Cleaners site on March 13, 1994 to determine the potential presence of organic vapor containing PCE. Air monitoring was accomplished by pumping 30 liters of air through pre-conditioned sample cartridges containing Porapak-N medium, followed by laboratory analysis of the cartridges in accordance with NYSDOH Method 311-7. A total of 10 air samples were collected in this manner from the locations identified in Table 5-2. Sampling locations included the basements of the East Aurora First Presbyterian Church, the East Aurora Boys/Girls Club, Jackson's Bowling Alley, and the Town Hall. At the joint request of NYSDEC and NYSDOH personnel, outside ambient air in the vicinity of the First Presbyterian Church was monitored in addition to indoor air to determine background PCE concentration. Air sample collection procedures are described in Appendix H and in the RI Work Plan.

5.1.3 Wastewater/Sanitary Sewer Sampling Methodology

On April 11 and 13, 1994 a total of seven (7) wastewater samples were collected from manholes located in the Mr. C Cleaners study area to determine whether volatile organic compounds were present in the sanitary sewer system. Wastewater samples were collected from the manholes listed on Table 5-2 and analyzed for volatile organic compounds. A description of the sampling event is presented in Appendix H.

Location MH12 also was originally designated as a sampling location; however, MH12 is a flush-out manhole and cannot be sampled. A soil gas sample was collected from MH-12 during the RI soil gas survey, but no VOCs were detected.

Wastewater samples were obtained by lowering a stainless steel cup attached to a pole into the sewer flow. The cup was decontaminated after each sample was collected by rinsing with distilled water (DI), washing with Alconox soap, triple rinsing with DI and air drying. In addition to wastewater sample collection, visual inspection of the sanitary sewer system was conducted to determine the current structural condition of the sanitary sewers.

5.2 ANALYTICAL RESULTS

5.2.1 Groundwater Analytical Results

The 25 groundwater samples collected in support of the RI were analyzed for volatile organic compounds. Because available information indicated that only dry cleaning wastes were suspected, only three (3) wells were monitored for the complete Target Compound List (TCL) of parameters: MPI-5S, MPI-7I, and ESI-3 (see Table 5-1). Field measurements are summarized in Table 5.3. The laboratory analytical results are summarized on Tables 5-4 and 5-5, which present only those parameters for which a concentration greater than the laboratory detection limit was found at a minimum of one monitoring well or manhole. The complete analytical data package prepared by NYTEST is available for review.

5.2.1.1 Organics

The groundwater data obtained during the April monitoring event indicate substantial volatile organic contamination in the outwash aquifer. Plate 3 illustrates the distribution of volatile organic compounds detected in ground-water. The principal volatile organic contaminants detected in groundwater are presented in Table 5-6.

Tetrachloroethene (PCE) or the potential degradation products of PCE were detected at 23 of 25 sampling locations. The potential degradation products of PCE listed above form as a result of reductive dehalogenation reactions that are biologically mediated under anaerobic conditions. Dehalogenation reactions in chlorinated ethenes proceed from PCE to trichloroethene (TCE) to dichloroethene isomers (DCEs) or dichloroethanes (DCA) to vinyl chloride (VC) (Vogel et al., 1987). Small quantities of TCE and DCE may also have been present in the dry cleaning solvent.

The greatest concentration of PCE was detected in the sample collected from monitoring well ESI-3 (8,200 ug/l) which is located immediately adjacent to the suspected

TABLE 5-3
MR. C CLEANERS SUPERFUND SITE
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SUMMARY OF FIELD MEASUREMENTS FOR RI SAMPLING

Location	Sampling Date	Sampling Time	Temp. (°C)	pH (units)	Eh (mV)	Conductance (umhos/cm)[2]	Turbidity[3] (NTU)	Sample Appearance/Odor
MPI-1S	4/4/94	14:14	9.2	7.45	+82	2220	>100	clear/no odor
MPI-1I	4/6/94	10:36	8.8	7.35	+151	1531	9	clear/no odor
MPI-2S	4/4/94	15:33	10.2	7.38	+101	1522	>100	clear/no odor
MPI-3S	4/4/94	14:48	8.4	7.29	+55	1657	>100	clear/no odor
MPI-4S	4/4/94	12:28	8.2	7.46	+82	1933	>100	clear/no odor
MPI-4I	4/4/94	12:15	11.0	7.45	+81	1619	16	clear/no odor
MPI-5S[4]	4/6/94	12:18	6.2	7.48	+5	1650	35	clear/no odor
MPI-5I	4/6/94	12:08	9.6	7.44	+49	1598	6	clear/no odor
MPI-6S	4/4/94	14:40	8.5	7.21	+53	1691	98	clear/no odor
MPI-7I[4]	4/7/94	10:10	8.7	8.01	+68	1820	6	clear/no odor
MPI-8S	4/4/94	10:58	7.9	7.27	+148	1915	12	clear/no odor
MPI-9S	4/4/94	11:08	10.2	7.07	+141	2140	>100	turbid/no odor
ESI-1	4/5/94	15:27	9.8	7.52	+78	1080	>100	turbid/no odor
ESI-3[4]	4/7/94	10:50	9.6	7.77	+55	1934	>100	turbid/no odor
ESI-4	4/6/94	10:43	5.9	7.44	+139	3360	64	clear/no odor
ESI-5	4/6/94	10:50	6.3	7.68	+145	481	>100	clear/no odor
ESI-6	4/4/94	14:56	10.7	7.60	+70	2920	>100	milky/no odor
MW-1	4/5/94	10:36	8.3	7.41	+23	2130	21	clear/no odor
MW-4	4/5/94	13:28	9.9	7.15	-47	3260	6	clear/petroleum
MW-5	4/5/94	12:45	8.2	7.06	-90	1744	45	clear/petroleum
MW-6	4/5/94	10:54	6.3	12.61	-122	2120	>100	clear/slt solvent
MW-7	4/5/94	11:05	7.9	7.66	+20	1126	>100	clear/no odor
MW-8	4/5/94	11:15	7.7	7.44	+60	1280	>100	clear/no odor
MW-9	4/5/94	13:05	11.0	7.26	-70	1414	>100	clear/petroleum
MW-10	4/5/94	14:36	8.2	7.17	-36	1293	73	clear/petroleum

Notes:
(1) Except where noted, all measurements are readings obtained from first bailer of water.
(2) Conductance corrected to 25C.
(3) Turbidity and Sample Appearance based on first bailer measurements only (i.e., undisturbed groundwater).
(4) Measurements are averages of readings obtained from first and last bailers of water.

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TABLE 5-4
MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
APRIL 1994 GROUNDWATER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	MPI 1S	MPI 1I	MPI 2S	MPI 3S	MPI 4S	MPI 4I	MPI 5S	MPI 5I	MPI 6S	MPI 7I	MPI 8S	MPI 8S[3]	MPI 9S	GWQ Stds[4]
vinyl chloride							9J							2
methylene chloride	10UJ		10UJ	10UJ	10UJ	10UJ			20UJ	10UJ	10UJ	10UJ	10UJ	5
acetone		11				91		41		39				50**
1,1-dichloroethene									19J					5
1,2-dichloroethene (T)	20				2J		39		24J		16J	15J	24	5
chloroform					3J					2J				7
2-butanone														
1,1,1 trichloroethane			14											5
bromodichloromethane														
trichloroethene	10J					10J	12		110		22J	23J	22	5
benzene					12									0.7
tetrachloroethene	290	3J			59	350	56	1J	1600	140	500	530	350	5
toluene														5
ethylbenzene														5
xylene (T)														5

Notes:
(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate Sample.
(4) NYSDEC Class GA Groundwater Quality Standards.
** Guidance Value

J = estimated value due to limitations identified during quality control review.
UJ = Estimated Detection Limit

TABLE 5-4 (Continued)
MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
APRIL 1994 GROUNDWATER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	ESI-1	ESI-3	ESI-4	ESI-5	ESI-6	MW-1	MW-1[3]	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	GWQ Stds[4]
vinyl chloride									240				8J		2
methylene chloride	10UJ				10UJ	61J	120J	10UJ	54J	10UJ	10UJ	11J	10UJ	27UJ	5
acetone										46					50**
1,1-dichloroethene															5
1,2-dichloroethene (T)			2J		62			24	45J			6J	27	1J	5
chloroform															7
2-butanone															
1,1,1 trichloro-ethane			4J												5
bromodichloro-methane															50**
trichloroethene	3J		1J		16J	37J	64J	46				26J	2J		5
benzene								55	3200	3J			110	28J	0.7
tetrachloroethene		8,200	32	2J	390	3100	4400	220			120	390		36J	5
toluene								3J	740	2J			6J	10J	5
ethylbenzene								30	430	3J			47	230	5
xylene (T)								41	1900	6J			37	410	5

Notes:
(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate sample
(4) NYSDEC Class GA Groundwater Quality Standards
** Guidance Value

J = Estimated value due to limitations identified during quality control review.
UJ = Estimated Detection Limit.

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TABLE 5-5
MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

MAY 1994 GROUNDWATER SAMPLING RESULTS – ADDITIONAL PARAMETERS

Parameter (ug/l)	ESI-3	MPI-7I	MPI-5S	MPI-7I[1]	GWQ Stds[3]
Target Compound List - Semi-Volatile Organics:					
bis(2-ethylhexyl)phthalate	10J	3J		12	50
Butylbenzylphthalate	8J			6J	50**
Diethylphthalate	75			2J	50**
Di-n-butylphthalate	2J				
Target Compound List - Inorganics:					
Aluminum	6200	200UJ	792	200UJ	
Barium	220	117J	214	114J	1000
Calcium	189,000	175,000	126,000	169,000	
Cobalt	16.1J				
Copper	44.1		25UJ		200
Iron	21,200		4,480		300
Lead	11.9		7.4J		25
Magnesium	35,800	37,800	20,700	35,200	35,000**
Manganese	792	814	944	784	300
Mercury	0.21				2
Nickel	40UJ				
Potassium	7,230	5,530	7,380	5,220	
Silver			10UJ		50
Sodium	205,000	157,000	192,000	152,000	250
Vanadium	50UJ		50UJ		
Zinc	104	20UJ	20UJ		300
Soluble Iron			1,090		
Soluble Managanese	130	782J	734J	130J	
Remediation Assessment Parameters: (mg/l)					
Alkalinity, Total	276	299	356		
Hardness	503	578	377		
Total Cyanide			0.02		0.10
Total Dissolved Solids	1,180	1,100	930		
Total Suspended Solids	1,090	1	70		

Notes:
(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Duplicate Sample
(3) NYSDEC Class GA Groundwater Quality Standards
J = Estimated value due to limitations identified during quality control review.
UJ = Estimated Detection Limit.

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TABLE 5-6

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

GROUNDWATER CONTAMINANTS

Parameter	Concentration Range Detected (ug/l)
Tetrachloroethene	1J - 8200
Potential Degradation Products/Contaminants of Tetrachloroethene:	
• Trichloroethene	1J - 110
• 1,2 Dichloroethene	1J - 62
• 1,1 Dichloroethene	19J
• Vinyl Chloride	8J - 240
Petroleum Hydrocarbons:	
• Benzene	3J - 3200
• Toluene	3J - 740
• Ethylbenzene	3J - 430
• Xylene	6J - 1900
Other Parameters:	
• 1,1,1 Trichloroethane	4J - 14
• Acetone	11 - 91
• Chloroform	2J - 3J
• Methylene Chloride	1J - 120J

source area at Mr. C Cleaners. Somewhat lower PCE concentrations were detected at MW-1 (3,100 ug/l) and MPI-6S (1,600 ug/l), which are directly downgradient from Mr. C Cleaners in a northwesterly direction. Concentrations of PCE or PCE breakdown products were also detected at 10 additional wells located west and northwest of Mr. C Cleaners at Agway, north on Whaley Avenue, and at the Library. However, samples collected from MPI-1S (290 ug/l PCE) and ESI-6 (390 ug/l PCE) indicate the presence of PCE in a southwesterly direction, also.

Tetrachloroethene and its breakdown products were either not detected, or were detected at trace concentrations (< 10 ug/l) at ESI-1, MPI-2S, ESI-5, MPI-3S, and MW-6. Locations ESI-1, MPI-2S, and ESI-5 are upgradient or cross-gradient of the suspected source area. The absence of detectable PCE at MPI-3S appears to indicate the western limit of PCE migration along Main Street. However, chlorinated organics are present at substantial concentrations north and south of MPI-3S (at MPI-6S and ESI-6). Either the plume is migrating more slowly in the vicinity of Main Street, or the average groundwater flow directs the PCE plume to the northwest and southwest.

Because of the very low groundwater gradients present at the vicinity of Mr. C Cleaners, and the possibility of seasonal variations in groundwater flow direction, it is difficult to determine whether groundwater flows southwest or northwest from Mr. C Cleaners. However, the data are consistent with the occurrence of one very broad PCE plume that originates at Mr. C Cleaners and bifurcates into southwest and northwest branches, as indicated by the absence of detectable PCE at MPI-3S.

The cause of the branching is not indicated by the available groundwater elevation data, but can be inferred from the regional topography. As illustrated on the USGS topographic map (see Figure 1-1), the area along Main Street west of the Library is a hill mapped with an elevation above 920 feet. Because the water table tends to be a subdued replica of the ground surface, it is reasonable to predict that the water table elevation increases west of MPI-3S. The general configuration of the water table is most likely that of a saddle, with an elevated surface east and west of MPI-3S and depressed surface northwest and southwest of MPI-3S. Therefore, the potential migration pathway of the PCE plume is toward discharge areas located north and south of Main Street.

PCE was also detected in the lower portion of the hydrostratographic unit, but was detected at much lower concentrations: 1J ug/l(MPI-5I) - 350 ug/l(MPI-4I). A substantial

difference in PCE concentration was observed between samples collected from MPI-7I (140 ug/l) and ESI-3 (8,200 ug/l). Because these two wells are adjacent, but are screened in different intervals, the sampling results indicate a slight vertical migration of PCE into the lacustrine aquifer. Downgradient of the suspected source, PCE concentrations are higher in the lacustrine aquifer (350 ug/l PCE at MPI-4I) and lower in the outwash aquifer (59 ug/l PCE at MPI-4S).

The density of undissolved or liquid PCE is greater than the density of water. Therefore, liquid PCE can potentially migrate downward through the outwash sand and gravels observed in the area of the suspected release (at MPI-7D) and into the lacustrine fine sand and silt. Based on the substantially lower PCE concentration in MPI-7I and the low total organic vapors detected in split spoon soil samples during drilling, the occurrence of substantial free phase PCE in the lacustrine aquifer is not likely. However, residual concentrations of PCE may occur near the base of the outwash sand and gravel observed at MPI-7D.

Although wells MW-6, MW-7, and MW-10 are located in the center of the PCE plume, the concentrations of PCE or PCE degradation products detected in these wells are comparatively low (120 ug/l PCE to nondetectable). Concentrations of PCE at the suspected source and at the perimeter of the monitoring well network are substantially higher than at the center. The observed PCE distribution can be explained in terms of two conceptual models:

- PCE concentrations in groundwater increase with depth in the outwash aquifer and the greatest mass of PCE passes underneath MW-6, MW-7, and MW-10. These three wells are comparatively shallow and groundwater samples collected from these wells are only representative of the uppermost 3 to 5 feet of the outwash aquifer. Locations exhibiting higher concentrations of PCE (viz. MW-1 and MPI-6S) are screened over the uppermost 12 to 13 feet of the outwash aquifer.

- A second release of PCE occurred downgradient from MW-7. Historical information indicates that the Agway storage barn was occupied by a laundry in the 1950's, although the use of PCE cannot be documented.

Time of travel for PCE in the outwash aquifer from the area of the suspected release at Mr. C Cleaners to the known limits of the chlorinated organics groundwater

plume at MPI-6S and ESI-6 can be estimated from the groundwater seepage velocities calculated in Section 4.4. Assuming a seepage velocity of 0.29 ft/day and no retardation, PCE could migrate from Mr. C Cleaners to MPI-6S (a distance of 465 feet) in approximately 4.4 years. South of Main Street a slightly higher hydraulic gradient produces a seepage velocity of 0.39 ft/day, and a travel time between Mr. C Cleaners and ESI-6 (a distance of 365 feet) of approximately 2.6 years. However, the leading edge of the PCE plume may be beyond MPI-6S and ESI-6; therefore, these estimated travel times cannot be used to estimate the time of release.

Time of travel for PCE in the lacustrine fine sand and silt from MPI-7I to MPI-4I is substantially longer than in the outwash sand and gravels. Assuming a seepage velocity of 0.007 ft/day (see Section 4.4) and no retardation, a release of PCE would require approximately 100 years to travel laterally through the lacustrine fine sand and silt from Mr. C Cleaners to MPI-4I (a distance of 263 feet). The PCE detected at MPI-4I probably has migrated along a different pathway.

Benzene, toluene, ethylbenzene and total xylenes (BTEX) were detected only in samples collected from: MW-4, MW-5, MW-6, MW-9, MW-10, and MPI-4S, which are located west of Mr. C Cleaners on or near the Agway property. These groundwater contaminants are known constituents of gasoline and have been previously detected on the Agway property during remediation of a former gasoline spill. Samples collected from MW-5 exhibited the greatest concentration of each of these compounds; 3,200 ug/l, 740 ug/l, 430 ug/l and 1,900 ug/l, respectively. Monitoring well MW-5 is adjacent to the inoperative product recovery well and is presumably near the center of the release. The existing Agway wells appear to adequately define the limits of the BTEX contamination.

As shown in Tables 3-4 and 5-4, substantial concentrations of vinyl chloride ranging from 3,300 to 240 ug/l have been detected at MW-5 between May 1992 and the RI sampling event in April 1994. As discussed below, the chlorinated organics may be undergoing sequential reduction (serving as an electron acceptor) from the highly chlorinated tetrachloroethene to trichloroethene, dichloroethene isomers, and finally to vinyl chloride (chloroethene).

The microbial oxidation of aromatic hydrocarbons under aerobic conditions consumes dissolved oxygen and produces carbon dioxide and organic acids. Dissolved oxygen is utilized as an electron acceptor during the oxidation process. As dissolved oxygen

is depleted, anaerobic conditions may develop in which microbial oxidation is coupled to the reduction of other electron acceptors, such as nitrate, ferric iron, and organic carbon. Field measurements of redox potential (eH) obtained during the April RI sampling event indicate that the redox potentials at MW-4, MW-5, MW-6, MW-9, and MW-10 are negative (-36 mv to -122 mv; see Table 5-3). Groundwater samples from all other monitoring wells sampled during the RI exhibited a positive redox potential. The eH values are evidence that dissolved oxygen is comparatively depleted near these wells and that biologic conditions are more anaerobic. The reduction of chlorinated ethenes has been shown to occur comparatively rapidly under biologically mediated anaerobic conditions (Vogel et al, 1987). Therefore, the presence of high concentrations of vinyl chloride may reflect the interaction of the PCE groundwater plume and the BTEX groundwater plume. Outside of the zone of low redox potential, vinyl chloride only occurs at MPI-5S, which also exhibits a low positive eH value (+5 mv).

Methylene chloride was detected in samples collected from each monitoring well location with the exception of ESI-3, ESI-4, ESI-5, MPI-1I, and MPI-5S at concentrations ranging from 1J ug/l - 120J ug/l. This compound is a common laboratory contaminant and most of the methylene chloride data was qualified as estimated due to blank contamination. Acetone, another common laboratory contaminant, was detected in only samples collected from the lower portion of the hydrostratigraphic unit. However, acetone was detected at one location (MPI-4I) at a concentration which exceeded the NYSDEC Class "GA" groundwater quality standard of 50 ug/l (91 ug/l).

Low concentrations of 1,1,1 trichloroethane (TCA) were detected east of the Village Hall at MPI-2S (14 ug/l TCA) and farther downgradient at ESI-4 (4J ug/l TCA). Soil gas analyses also detected TCA east of the Village Hall and east of Whaley Avenue near Jackson's Bowling Alley (see Table 4-2). No other occurrence of TCA was detected during the RI. However, low concentrations of TCA (5 to 28 ug/l) have previous been detected in groundwater on the Agway property (see Table 3-4).

Trace concentrations of phthalate esters were detected in the three wells monitored for the complete TCL. However, phthalates are common laboratory contaminants and warrant no further discussion. No pesticides/PCBs were detected in the wells monitored for the complete TCL.

5.2.1.2 Metals

Three well locations in the study area were monitored for inorganics: MPI-7I and ESI-3, near the suspected source; and the downgradient well, MPI-5S. Total iron, manganese, and magnesium concentrations exceeded the NYSDEC Class GA Groundwater Quality Standards or guidance values. Total iron and manganese concentrations at ESI-3 are most likely influenced by the presence of filterable solids in the groundwater sample, because sample turbidity values were greater than 100 NTU. The soluble iron concentrations at MW-5S (1,090 ug/l), which is downgradient of the petroleum hydrocarbon plume near MW-9, may indicate that there is a general increase in iron concentrations due to chemically reducing conditions in the Agway petroleum hydrocarbon plume. Sodium concentrations (152,000 to 205,000 ug/l) are slightly above levels commonly observed in groundwater from glacial aquifers and may be attributed to the use of deicing salt on Village roads and exfiltration from sanitary sewers. In general, substantial concentrations of inorganic parameters do not appear to be associated with the distribution of PCE in groundwater.

5.2.2 Wastewater/Sanitary Sewer Sampling Results

The analytical results of sanitary sewer wastewater samples are summarized in Table 5-7. The only detections of PCE were at trace concentrations (<5 ug/l) in samples collected from MH-62E (1J ug/l) and MH-61 (4J). Based on groundwater elevations discussed in Section 4.5, the sewer run between MH-62 and MH-61 may receive infiltration from groundwater. A comparison of PCE concentrations in wastewater to PCE concentrations at ESI-4 (32 ug/l), which is a water table well located next to the Paine Street sewer in the area of potential infiltration, indicates that the northern end of the Paine Street sewer may be intercepting a small volume of contaminated groundwater. However, trace concentrations of volatile organic compounds could also potentially be discharged to the sewer system from Village residents or businesses. Sampling results from MPI-8S and MPI-9S, located west of the Whaley Avenue sewer and upstream from Manhole MH-11, indicate that the Whaley Avenue sewer is not intercepting contaminated groundwater. It is unlikely that the sewer system is presently having a substantial influence on the migration of PCE or PCE degradation products in the RI study area.

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TABLE 5-7
MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT
APRIL 1994 SEWER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	MH-11	MH-61	MH-62E	MH-62E[3]	MH-62W	MH-64	MH-65	GWQ Stds[1]
vinyl chloride								2
methylene chloride	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	5
acetone	10	21J	19J	17J	84J	20J	38J	50**
1,1-dichloroethene								5
1,2-dichloroethene (T)		3J						5
chloroform	6J	5J	6J	6J	9J	5J	16	7
2-butanone					15J			
1,1,1 trichloroethane								5
bromodichloromethane		2J	2J	2J	1J	2J	3J	50**
trichloroethene								5
benzene								0.7
tetrachloroethene		4J	1J					5
toluene					10			5
ethylbenzene					2J			5
xylene (T)					21			5

Notes:
(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate Sample.
(4) NYSDEC Class GA Groundwater Quality Standards
** Guidance Value
J Estimated value due to limitations identified during quality control review. UJ = Estimated Detection Limit

The sample collected from MH-62 West exhibited the greatest concentrations of contaminants including acetone (84 ug/l), 2-butanone (15J ug/l), chloroform (9J ug/l), toluene (10 ug/l) and total xylenes (21 ug/l) which exceeded NYSDEC Class GA groundwater quality standards. Also, location MH-65 exhibited concentrations of chloroform (16 ug/l) above NYSDEC Class GA standards.

5.2.3 Air Monitoring Results

The analytical results of the air monitoring are presented in Table 5-8. Extremely low concentrations of PCE were detected in air samples collected from the Jackson's Bowling Alley basement (0.032 ppm), located northwest of Mr. C Cleaners, and the ground floor of the First Presbyterian Church (0.019 ppm), located southwest of Mr. C Cleaners. Air samples collected from the Boys/Girls Club and the Village Hall, located south of Mr. C Cleaners, each exhibited PCE at the detection limit concentration of 0.00025 ppm. The trace concentrations detected are well below the ACGIH time weighted average (TWA) value of 25 ppm for PCE. PCE was not detected in the outside air background sample or in the trip blank.

The analytical laboratory indicated that in addition to the trace levels of PCE, trichloroethene (TCE) was detected in replicate samples collected from the Bowling Alley at 0.00025 and 0.0005 ppm, and 1,1,1-trichloroethane (1,1,1-TCA) was detected in each of the samples at concentrations ranging from 0.0003 ppm to 0.0030 ppm. These values are well below the TWA value of 50 ppm for TCE and the TWA value of 350 ppm for 1,1,1-TCA.

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TABLE 5-8

MR. C CLEANERS SUPERFUND SITE
PHASE I REMEDIAL INVESTIGATION REPORT

INDOOR AIR MONITORING RESULTS

Location	Sample No.	Tetrachloroethene Concentration	
		ug/m^3	ppm
Boys/Girls Club	BG-1 BF-2	1.7U 1.8	0.00025U 0.00026
Jackson's Bowling Alley	BA-1 BA-2	220 130	0.032 0.019
First Presbyterian Church	C-1 C-2	16 9.4	0.002 0.001
Village Hall	VH-1 VH-2	1.7 1.7U	0.00025 0.00025U
Outside of First Presbyterian Church	Outside background (OB)	1.7U	0.00025U
–	Trip Blank (TB)	1.7U	0.00025U

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6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The principal conclusions developed from the first phase of remedial investigation activities at the Mr. C Cleaners site are summarized below.

6.1.1 Hydrogeologic Setting

1. The site is underlain by a bedrock valley that is filled with approximately 140 to 200 feet of unconsolidated glacial deposits.

2. Geologic strata underlying the RI study area to a depth of 90 feet include:

   - surficial fill
   - till
   - outwash sand and gravel
   - lacustrine fine sand and silt
   - stratified tills and sand

3. The water table aquifer occurs in saturated outwash and is directly underlain by saturated lacustrine deposits. Hydraulic conductivity values and groundwater flow rates are substantially greater in the outwash sand and gravel. Therefore, the outwash and lacustrine units are classified as two separate aquifers (viz., the outwash aquifer and the lacustrine aquifer) although the two units are hydraulically connected and exhibit similar hydraulic heads.

   - Saturated outwash exhibits a mean hydraulic conductivity of 8.6E-3 cm/s; hydraulic gradients ranging from 0.002 to 0.004 ft/ft; and groundwater seepage velocities of 0.3 to 0.5 ft/day.

   - Saturated lacustrine deposits exhibit a mean hydraulic conductivity of 2.8E-4 cm/s; a hydraulic gradient of 0.003 ft/ft; and an estimated groundwater seepage velocity of 0.007 ft/day.

4. The stratified till is comprised of clayey silt and silty clay till interlayered with thin layers of medium to fine sand. Fine grained till comprises approximately 60% to 80% of the total thickness of the stratified till unit at four exploratory boring locations. The mean laboratory permeability of the fine grained till is 4.8 x 10^{-8} cm/s. Hydraulically, the stratified till is a confining layer that defines the base of the water table aquifer.

5. An NYSDEC Principal Aquifer is known to occur approximately 4000 feet northeast of Mr. C Cleaners. Principal aquifers are defined by the NYSDEC as formations known to be highly productive, but which are not intensively used for water supply at the present time. Such aquifers are viewed as important potential future sources of water supply. Aquifer depth is approximately 127 to 140 feet below grade in the buried valley. The lateral extent of the aquifer, and the hydraulic connection(s) to potential contaminant migration pathways have not been defined.

6. Groundwater flow in the outwash aquifer moves west from a groundwater high located east of Mr. C Cleaners. A groundwater divide approximately underlies Main Street and separates groundwater flow west of Mr. C Cleaners into southwest and northwest flow directions. Groundwater flow directions in the lacustrine and outwash aquifers appear to be similar.

7. Sanitary sewer inverts were above the water table during the Phase I RI in the site vicinity except for a short distance along Paine Street. Groundwater infiltration to the sanitary sewer system has a minimal influence on shallow groundwater flow.

6.1.2 Contaminant Characterization

1. Sampling was performed on one occasion at 25 groundwater monitoring locations. The following parameters were detected in groundwater samples collected from the RI study area.

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Parameter		Concentration Range
▪ Tetrachloroethene (PCE)		1 - 8200 ug/l
▪ PCE Degradation Products/Contaminants		
	- Trichloroethene	1 - 110
	- 1,2 Dichloroethene	1 - 62
	- 1,1 Dichloroethene	19
	- Vinyl Chloride	8 - 240
▪ Petroleum Hydrocarbons		
	- Benzene	3 - 3200
	- Toluene	3 - 740
	- Ethylbenzene	3 - 430
	- Xylenes	6 - 1900
▪ Other Parameters		
	- 1,1,1 Trichloroethene	4 - 14
	- Acetone	11 - 91
	- Chloroform	2 - 3
	- Methylene Chloride	1 - 120

2. Tetrachloroethene or potential degradation products/contaminants of tetrachloroethene (PCE) were detected in 23 of 25 locations, indicating substantial volatile organic contamination of the outwash aquifer (saturated outwash sand and gravel).

3. The distribution of PCE in the lacustrine aquifer (saturated lacustrine sand and silt) is more localized and occurs at lower concentrations.

4. Petroleum hydrocarbons were detected in the vicinity of the known petroleum product spill on the Agway property. The existing Agway groundwater monitoring well network adequately defines the limits of the petroleum hydrocarbon groundwater plume.

5. Volatile organics were detected in wastewater samples collected from sanitary sewers at low to trace concentrations.

6. Four indoor air samples were collected from the basements of the First Presbyterian Church, the Boys/Girls Club, the Village Hall, and Jackson's Bowling Alley. Tetrachloroethene was detected at the analytical detection limit in the Village Hall and Boys/Girls Club basements. Slightly higher concentrations of PCE were detected in air samples from the Church and Jackson's Bowling Alley.

7. Concentrations of semivolatile organics, pesticides, PCBs, and inorganic parameters on the Target Compound List were not detected at concentrations of concern.

6.1.3 Contaminant Migration

1. The chlorinated organics plume in the outwash aquifer extends from Mr. C Cleaners in a southwest direction toward the First Presbyterian Church, and in a northwest direction toward the rear of residential homes west of Whaley Avenue. The leading edges of the chlorinated organics plumes have not been identified.

2. The suspected original mechanism of PCE release to groundwater is leakage from the sanitary sewer lateral serving the Mr. C Cleaners building. This conclusion is supported by the distribution of PCE concentration in groundwater downgradient of Mr. C Cleaners, and the distribution of total volatile organics in soil gas beneath the Mr. C Cleaners parking lot. Continuing PCE releases are likely occurring by the dissolution of PCE in the unsaturated and saturated soil beneath the sewer lateral.

3. Sampling for volatile organics performed in the sanitary sewers along Paine Street and Whaley Avenue indicates that potential groundwater infiltration to the sanitary sewers intercepts only minimal contaminated groundwater, if any. Infiltration to the sewers has minimal impact on the distribution of chlorinated organics in groundwater.

4. Sampling data from selected wells suggest that the concentrations of chlorinated organics increase with depth in the outwash aquifer. Therefore, because most existing wells are screened at shallow depths, the lateral distribution of chlorinated organics may be more extensive than indicated by the present data.

5. The suspected release site at Mr. C Cleaners sewer lateral is underlain by sandy gravels to a contact with sandy silt at a depth of 29 feet. Because the density of liquid PCE exceeds the density of water, PCE may potentially have migrated downward to the top of the lacustrine sandy silt. The dissolution of this PCE would create a continuous source of PCE at depth and increase PCE concentrations in the lower portion of the outwash aquifer.

6. The extent and concentration of PCE in the lacustrine aquifer is much less than concentrations observed in the outwash aquifer. However, concentrations of PCE in the lacustrine aquifer appear to increase with increasing distance from Mr. C Cleaners.

7. Soil gas monitoring results indicate that PCE is volatilizing from the water table and entering unsaturated soils. Indoor air monitoring results indicate that PCE volatilization from groundwater may be a source of indoor air contamination in basements.

6.1.4 Exposure Pathway Analysis

1. A habitat-based assessment was performed in accordance with NYSDEC Guidance for preparing Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites dated June 18, 1991.

2. Local drainage patterns and the nature of contaminants originating at Mr. C Cleaners suggest that a groundwater contaminant plume, as defined in the Phase I RI, would not likely affect any significant or sensitive flora or fauna.

6.2 RECOMMENDATIONS

A Phase II remedial investigation field program is recommended for the Mr. C Cleaners RI. The primary objectives of the Phase II investigation are:

- Define the horizontal extent of the PCE groundwater plume at the water table and in the basal zone of the outwash sand and gravel.
- Define the horizontal extent of the PCE plume in the lacustrine sandy silt.
- Verify the predicted absence of PCE in the stratified till unit and assess the potential for migration to the principle aquifer.
- Assess the potential exposure to volatilized PCE in basements overlying the PCE groundwater plume.
- Define the hydraulic response of the water table aquifer to remedial groundwater extraction.

Investigative methodologies and sample locations will be described in a Phase II RI Work Plan. The preliminary investigative approach to the Phase II RI is described below:

- Phase II Monitoring Well Locations - Well locations will be established based on the results of groundwater volatile organic analyses determined in a field laboratory. As analytical results become available, the distribution of PCE concentrations will be evaluated in the field and used to locate additional test borings and final monitoring well locations.

  Samples will be collected using a Hydropunch™ sampler by advancing hollow stem augers to the top of the sampling interval, driving the Hydropunch™ sampler five feet ahead of the augers, and allowing the sampler to fill with groundwater from the target interval. Although some degree of downhole VOC migration may occur during drilling, downhole VOC migration is not expected to mask substantial increases or decreases in VOC concentrations with depth.

  A minimum of two groundwater samples will be collected from each boring: one sample at the water table (estimated sampling depth 10 to 15 feet below

grade); and one sample at the base of the outwash sand and gravel (estimated sampling depth (24-29) feet below grade).

Preliminary test boring locations will be identified in the Phase II RI Work Plan. In general, borings will be located southwest of the First Presbyterian Church and north/northwest of MPI-6S along Fillmore Avenue. In addition, groundwater samples from the base of the outwash sand and gravel will be collected near ESI-3, MW-7, and MPI-3S.

Test borings will be advanced into the lacustrine sandy silt at MPI-6S and MPI-3S to determine the extent of PCE migration in the less permeable lacustrine aquifer.

Final monitoring well locations will be selected after reviewing all preliminary groundwater analyses with the NYSDEC.

- Monitoring Well Installation It is estimated that between 6 and 10 new monitoring wells will be installed. These will be used to verify the results of preliminary field groundwater analyses, and to monitor the progress of future groundwater remedial measures. Well installation procedures will be consistent with Phase I activities.

  A single monitoring well will be installed adjacent to MPI-4I to verify the predicted absence of PCE concentrations in the stratified till. This will be a double cased well, constructed similar to the bedrock wells proposed in the January, 1994 RI Work Plan.

- Groundwater Sampling All Phase I and Phase II monitoring wells, and selected existing wells will be sampled for volatile organics in accordance with the quality control/quality assurance procedures identified in the January 1994 RI Work Plan.

  In addition, the deep well screened in the stratified till will be sampled for isotope analyses (tritium and/or tritium/helium ratio) to determine the presence of recently recharged groundwater in the stratified till. The absence of recently recharged water would indicate a low potential for hydraulic connections to the contaminated water table aquifer.

- Indoor Air Analyses Indoor air from basements overlying the PCE groundwater plume will be sampled for PCE using the sampling and analysis procedures identified in the January 1994 RI Work Plan. Sampling locations will be selected after the PCE groundwater plume has been delineated.

- Aquifer Testing Aquifer pumping tests will be performed to determine the hydraulic characteristics of the outwash aquifer. Because this unit is laterally heterogeneous 2 to 4 pumping locations may need to be tested.

- Exposure Pathway Analysis Perform an Exposure Pathway Analysis, as described in the January 1994 RI Work Plan, including assessments of exposure to volatilized PCE in basements overlying the PCE groundwater plume and exposure from potential groundwater use.

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APPENDIX A

- Documentation of Modifications to Work Plan

ATTACHMENT A

MR. C CLEANERS REMEDIAL INVESTIGATION
PROPOSED INVESTIGATION TO LOCATE A PCE SOURCE
IN THE PARKING LOT

Based on our current understanding of site conditions, we are proposing that the sewer bedding test pit task described in the RI Work Plan for the above referenced site be modified as outlined herein. The estimated cost of the additional work is also presented below.

Site Conditions

The RI Work Plan proposed that two test pits would be excavated in the Mr. C's parking lot to locate the sanitary sewer lateral, visually inspect the integrity of the pipe, and obtain samples for analytical testing. Conversations with the Village of East Aurora Department of Public Works and inspection of building plans indicate that the sewer lateral is located beneath the building floor slab and is not accessible to excavation. Also, the gas service line is located beneath the parking lot within five feet of the building.

During the February 1994 soil gas survey performed by Tetra-K, Inc., the parking lot was found to be underlain by a dense material that Tetra-K personel could not penetrate with monitoring equipment. Inspection of Sanborn maps for the site show that the area of the parking lot had been occupied by buildings from at least 1912 through 1958. The Sanborn maps also show that a laundry occupied the Mr. C's building as early as 1958.

NYSDEC file information indicates that the current owner of the dry cleaning business may have discharged TCE residuals to a floor drain, and prior to 1985 PCE residuals were disposed of in a dumpster located in the parking lot. Disposal practices of previous owners of the dry cleaning business (prior to 1974) are not known. It is possible that the floor drain is connected to the sanitary sewer or to a former dry well.

Proposed Revisions

Because the sewer lateral is inaccessible, Malcolm Pirnie proposes to revise the objectives of the test pit program to investigate the potential impact of the the former dry well as a source of contamination. Because the existance of the dry well, and the connection to the floor drain are conjectural, test pits are proposed only if the location of the dry well or another potential source area can be identified in the parking lot. Therefore, a soil gas survey will be performed in the parking lot to locate the potential source of PCE.

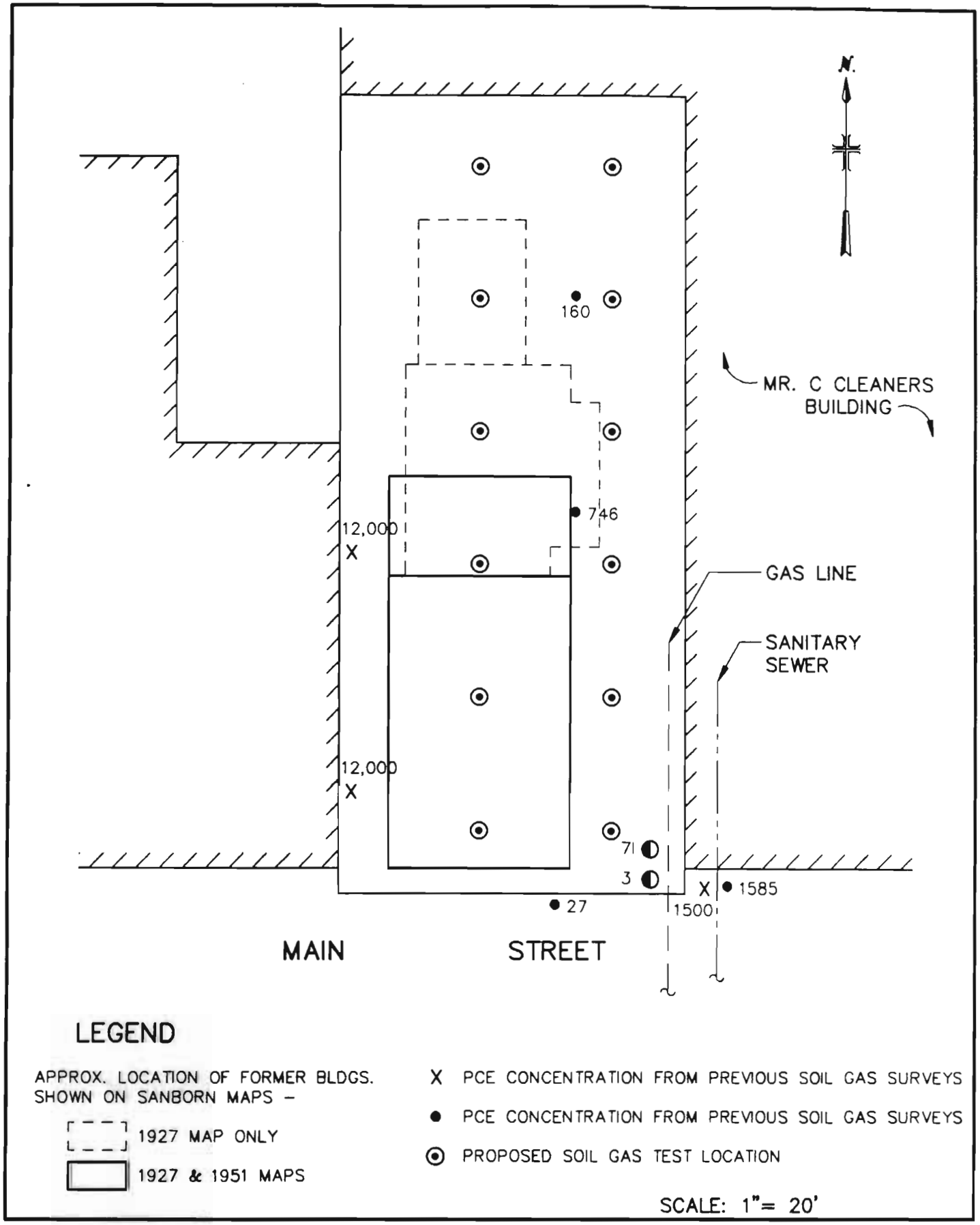
For the soil gas survey to be successful the backfill or any unsaturated soil that may underlie the dry well must contain residual total volatile organics (TVO) that are detectable in soil gas; and the TVO concentrations must be substantially greater than other locations beneath the parking lot. The soil gas survey will be limited to a minimum of 12 soil gas monitoring points in the parking lot, as illustrated on Figure 1. If the results from these 12 points indicate a likely source area, intermediate points between locations with the highest values will be tested to narrow in on a possible source area.

Monitoring Procedures

A drilling rig (SJB Services, Inc.) will be utilized to advance holes through the hard material that underlies the parking lot pavement. After breaking through the hard material, the drilling crew will drive a steel rod approximately four to five feet below grade. The rod will be withdrawn, and the top of the hole will be sealed until the soil gas can be extracted. Prior to gas monitoring each hole will be evacuated through a tygon tube for two minutes using a 12-volt portable vacuum pump to induce gas flow into the hole. After two minutes of purging, the airstream will be monitored for TVO using an HNu photoionization detector equipped with a 10.2 electron volt lamp. The Hnu will be calibrated before the initial test hole using isobutylene gas according to manufacturers specifications.

If the distribution of soil gas measurements indicates a likely source area, additional points will be tested to better define the source location. A soil boring will be completed in the area of the highest concentrations of TVO in soil gas. Continuous soil samples will be collected from the unsaturated zone, screened by headspace analysis using an Hnu photoionization detector, and a maximum of two soil samples will be submitted to Nytest, Inc. for the analysis of volatile organics by Method 91-1. A decision to excavate a test pit will be made based on whether a source of TVO can be identified during the soil gas survey.

FIGURE 1



LEGEND

APPROX. LOCATION OF FORMER BLDGS. SHOWN ON SANBORN MAPS –

- 1927 MAP ONLY
- 1927 & 1951 MAPS

X PCE CONCENTRATION FROM PREVIOUS SOIL GAS SURVEYS

● PCE CONCENTRATION FROM PREVIOUS SOIL GAS SURVEYS

⊙ PROPOSED SOIL GAS TEST LOCATION

SCALE: 1"= 20'

MALCOLM PIRNIE

DEC–31–PAR

MR. C CLEANERS
NYSDEC STANDBY CONTRACT

PARKING LOT SOIL GAS SURVEY

NYSDEC APRIL 1994

RHO

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

May 20, 1994

New York State Department of
Environmental Conservation
Division of Hazardous Waste Remediation
Bureau of Western Remedial Action
50 Wolf Road
Albany, New York 1233

Attention: Mr. Brad Brown

Re: Revised Scope of Remedial Investigation
Mr. C Dry Cleaners Site, East Aurora, New York

Gentlemen:

As discussed during our telephone conversation between Brad Brown (NYSDEC), Anne Marie McManus (Malcolm Pirnie), and Rob O'Laskey (Malcolm Pirnie) on May 9, 1994, the preliminary results of the groundwater quality sampling performed on April 4 through 5, 1994 indicate that additional groundwater investigation may be required to establish the limits of the PCE groundwater plume at the Mr. C Dry Cleaners Site. Malcolm Pirnie will formally submit a revised budget on Schedule 2.11 forms after the scope of additional groundwater investigation has been defined. However until that time, to keep you current on the status of the project budget to-date, we have summarized the revisions to the scope of the remedial investigation made to-date. These revisions were established based on the original soil gas survey results; the geology identified during the deep boring at the Library; our meeting at Malcolm Pirnie's office on February 17, 1994 between Brad Brown and Greg Sutton (NYSDEC), and Dave Harty, Robert O'Laskey, and Jeanne Asquith (Malcolm Pirnie); and subsequent discussions identified below. The total cost of the revised scope of work that has been performed to-date is approximately $33,615. This includes the additional subcontractor expenses identified on Table 1 and the labor costs on Table 2. All of the scope revisions have been performed within Task 002 of the project budget. The individual scope revisions are discussed below.

Soil Gas Survey

Due to the presence of relatively high concentrations of tetrachloroethylene (PCE) in the soil gas at the northern and western edges of the Agway property, it was agreed in our discussion on February 17, 1994 that a supplemental soil gas survey should be performed in the area northwest of the site. Tetra-K, Inc., the soil gas contractor, conducted the supplemental survey on March 7 and 8, 1994. A total of 23 soil gas points were installed, sampled and analyzed as well as samples from one manhole location and a sample of the drilling water from the drilling contractor's water tank. Based on these results, the limit of the soil gas plume in the area northwest of the site was defined. Costs were based on unit prices quoted for the initial survey conducted in February 8 through 10, 1994.

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MALCOLM PIRNIE

Exploratory Borings

Because the site appears to be underlain by a buried bedrock valley rather than by shallow bedrock, it was agreed during the February 17, 1994 meeting that the location, depths, and types of groundwater monitoring wells should be revised to monitor overburden groundwater. Furthermore, it was agreed that in order to properly redefine the well network it would be necessary to advance four exploratory borings at the locations of the three originally proposed deep wells and at the location of MPI-5. The purpose of the exploratory borings was to characterize the geology, determine the continuity of relatively low permeability strata, and to sample low permeability soils for soils testing. After the initial boring, it was agreed to drill the remaining exploratory holes with 4 1/4-inch augers, and abandon the borings after completion.

As shown on Table 1, a total of 284 linear feet of exploratory boring beyond that originally estimated was drilled, sampled, and abandoned. A total of 12 drums were used to containerize drill cuttings.

Bedrock Wells

Due to the substantial depth to bedrock, and the predominance of low permeability soil observed at depth in the exploratory borings, it was agreed during the February 17, 1994 meeting that the three proposed bedrock wells should be replaced by four deep overburden wells screened above the zone of low permeability soils.

Monitoring Network

As agreed in the February 17, 1994 meeting, and in the field during the March soil gas survey, the revised groundwater monitoring network is comprised of eight shallow overburden wells and four intermediate depth overburden wells. The revisions include the addition of three overburden wells. Intermediate depth overburden wells were installed with 10 feet of six slot screen at a depth of approximately 42 feet. Shallow wells were installed as described in the project work plan.

The locations of the three additional wells were selected based on the results of the supplemental soil gas survey, our understanding of site geology from the exploratory borings, and historic groundwater level data.

Test Pits/Parking Lot Soil Gas Survey

The sanitary sewer lateral connecting Mr. C's building to the sanitary sewer is located beneath the building floor slab. A buried gas service line is located beneath the parking lot within five feet of the building. The sewer lateral is not accessible by backhoe and visual inspection of the pipe and sampling of the sewer bedding material is not feasible.

As requested during the telephone conversation of April 6, 1994 between Brad Brown (NYSDEC), Anne Marie McManus (Malcolm Pirnie), and Rob O'Laskey (Malcolm Pirnie), a work plan for a soil gas survey to identify other suspected sources in the parking lot was forwarded to the NYSDEC and verbally approved on April 26, 1994. The soil gas survey was conducted on May 10, 1994. No potential contaminant source was detected during the survey, other than in the vicinity of the existing well cluster (ESI-3/MPI-7I). Therefore, no additional investigation is recommended in this area parking lot.

Sample Analysis/Data Validation
Revisions to the groundwater sampling plan were presented in our letter dated March 30, 1994.

Waste Disposal
We are preparing to solicit bids for waste disposal from three hazardous waste brokers. We will send you our proposed bidders list, the requested scope of services, and a copy of the proposed subcontract with the waste broker. Waste disposal costs, including analytical testing, will be estimated based on the requirements defined by the waste broker.

Indoor Air Monitoring
The original scope identified 13 Method 311-7 air analyses to be performed. However, air analyses by Method 311-7 requires samples to be analyzed in duplicate. Also, as jointly requested in the field on March 13, 1994 by Cameron O'Connor (NYSDOH) and Greg Sutton (NYSDEC), an outside background air sample was added to the program. Therefore, a total of 16 Method 311-7 analyses were performed as follows:

- Six upfront QC samples
- Eight samples (4 samples in duplicate)
- One trip blank
- One outside background sample (requested by NYSDEC and NYSDOH in the field)

Sewer Televising
As requested by Brad Brown during our telephone conversation on April 6, 1994, sewer televising has been deleted due to NYSDEC concerns regarding the integrity of the sewers.

Site Mapping and Surveying
Malcolm Pirnie had planned to provide surveying services using in-house staff. However Malcolm Pirnie is now subcontracting all surveying work. We have received five written quotations for surveying services (see attached) as follows:

- Deborah Naybor, PLS, PC - $1,750
- E & M Engineers, PC - $4,144
- Lu Engineers, PC - $5,480
- DeLaPlante-LaJeunesse and Assoc. - $9,400
- S.P.E.C. Technologies - $12,375

We propose to use Deborah Naybor PLS, PC of Elma, New York, a certified Women's Business Enterprise, to provide surveying services at the Mr. C's Cleaners site. This firm produced the existing site map for the Phase II investigation and will update the map with new well locations, building footprints, and a larger area.

We will contact you to discuss potential additional revisions to the RI scope to determine the limits of the PCE contamination when we have received the complete data set from the laboratory. As stated earlier, once we have decided on a course of action we will formally revise the project budget to reflect the cumulative changes including a revised schedule and 2.11 forms.

Please do not hesitate to contact us if you have any further questions.

Very truly yours,

MALCOLM PIRNIE, INC.

Anne Marie C. McManus, P.E.
Associate

c: Rob O'Laskey
Jeanne Asquith

0266-314-002
ACM05174.L3

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

March 30, 1994

Mr. Brad Brown
NYSDEC
Division of Hazardous Waste Remediation
Bureau of Western Remedial Action
50 Wolf Road
Albany, NY 12233

Re: Revised Analytical Program
Mr. C Cleaners Site
East Aurora, New York

Dear Mr. Brown:

Due to the changes made in the number and location of wells at Mr. C Cleaners, and in order to aid in the development of the conceptual model for the site, we are proposing that the analytical testing program be modified as outlined in this letter. The number and cost of tests for waste disposal are also presented in this letter.

Groundwater Monitoring

Table 1 details the proposed well sampling program based on the monitoring network and the need to further develop the conceptual model for the site. Table 1 adds the supplemental wells that we have installed and one of the Agway wells (AG-1). Agway well AG-1 was sampled by Matrix Environmental Technologies, known as MW3 and was found to contain 1,360 ug/l tetrachloroethylene, 54 ug/l trichloroethylene, 4.5 ug/l dichloroethylene and 0.5 ug/l benzene. A the time of preparation of work plan this well was believed destroyed. Since this well is very likely in the plume and sampling it will help define the limits of the contamination, we are recommending that it be added to the sampling program.

Three wells will be sampled for the TCL semi-volatiles, TCL pesticides/PCBs, TAL metals, as well as remediation assessment parameters (iron, manganese, hardness, alkalinity, TSS and TDS. As we have discussed, wells that will be sampled for these additional parameters are wells: MPI-7I, MPI-5, and ESI-3. These wells are located near the probable source of tetrachloroethylene contamination or in the area of the suspected plume; and if these non-volatile compounds are present, analysis at these locations should be able to determine their presence or absence. For purposes of remediation evaluation these wells near or in the plume are appropriate for the evaluation of the groundwater quality for the design of remediation systems.

In total, 25 wells will be monitored for TCL volatile organic compounds. The work plan calls for the monitoring of 21 locations; therefore, the work plan will be amended to include the additional four locations. The number of trip blanks has been increased to four, as it is anticipated that the sampling program may take up to four days to complete. Duplicate samples are changed to reflect 1 per 20 samples and, therefore, will increase to a total of

amend work Plan

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two. MS/MSD are also modified to be 1 per 20. Table 3-2 attached in the Work Plan has been changed to reflex these changes.

Sewer Bedding Test Pits

In addition to the volatile analysis of the soils from the test pits, Malcolm Pirnie would like to add one TOC sample to each of the soil samples analyzed to provide data relative to partitioning of the volatiles in the soil matrix.

Waste Disposal

Prior to disposal it is necessary to determine if the soil cuttings are hazardous or solid waste. Determination of the disposal requirements will be in accordance with the NYSDEC TAGM 4032 - Disposal of Drilling Cuttings, November 21, 1989. Drilling cuttings from the off-site wells have been placed into thirty-two 55-gallon drums. We are proposing to group the drums into four groups of eight drums each for both sampling and disposal determination. Eight drums with soils are present at Mr. C's property. These drums will be composited and analyzed for the same parameters as the drums stored off-site. A composite sample (subsample from each drum) from the soil in each group will be sent to NYTEST for analysis. The soils will be tested for TCLP, corrosivity, ignitability and reactivity to determine if the soil is hazardous; and for total TCL volatiles to determine whether, if hazardous, the soils are subject to the land ban restrictions. The cost for these additional analyses have been added to Table 2.11(f) Subcontract Laboratory Services - NYTEST, attached.

We are preparing to solicit bids for waste disposal from three or more hazardous waste brokers. We will send you our proposed bidders list, the requested scope of services and a copy of proposed subcontract with the waste broker.

Please review these proposed additions and modifications to the scope of work so that these can be incorporated into the rebudgeting process for this job. If you have any questions please call.

Very truly yours,

MALCOLM PIRNIE, INC.

David M. Harty, P.E.
Senior Project Engineer

c: Anne Marie McManus
Rob O'Laskey
Jeanne Asquith

0266-314-002/DMH03284.L

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TABLE 1

GROUNDWATER MONITORING LOCATIONS
MR. C CLEANERS SITE

Well No.	Location
ESI-1	East of former Post Office
ESI-3	Adjacent to Mr. C
ESI-4	Paine St. near Church
ESI-5	Paine St.
ESI-6	Church lawn
AG-1	South of Agway Barn
AG-4	Corner of Whaley & Main St.
AG-5	South of Agway
AG-6	South of Agway office, near southeast corner
AG-7	North of Agway office, near northwest corner
AG-8	North of Agway office, near northeast corner
AG-9	Northwest of northwest corner of Agway Barn
AG-10	Between Agway Barn and P.O. Box Plus, north
MPI-1	Corner of Main & Paine Sts. on church property
MPI-1I	Paine St. near church/ESI-4
MPI-2	Village Hall parking lot
MPI-3	Church lawn near Main St.
MPI-4	Library - east side
MPI-4I	Library - east side
MPI-5	North of Agway Barn
MPI-5I	North of Agway Barn
MPI-6	Library parking lot
MPI-7I	Mr. C Parking lot near Main St.
MPI-8	Whaley St.
MPI-9	Whaley St.

TABLE 3-2

PROPOSED GROUNDWATER MONITORING FOR RI
MR. C CLEANER SITE
EAST AURORA, NEW YORK

Parameter	Analytical Method	Ground-water	Trip Blanks	MS	MSD	Duplicates	Total
Volatiles	91-1	25	4	2	2	2	35
Semi-Volatiles	91-2	3	0	1	1	1	6
Pesticide/PCB	91-3	3	0	1	1	1	6
TAL Metals	(1)	3	0	1	1	1	6
Cyanide	335.2	3	0	0	0	0	3
Iron (T)	200.7	3	0	0	0	0	3
Iron (D)	200.7	3	0	0	0	0	3
Manganese (T)	243.1	3	0	0	0	0	3
Manganese (D)	243.1	3	0	0	0	0	3
Hardness	130.2	3	0	0	0	0	3
Alkalinity	310.1	3	0	0	0	0	3
pH	Field	25	0	0	0	0	25
Turbidity	Field	25	0	0	0	0	25
Spec.Conductance	Field	25	0	0	0	0	25
TSS	160.2	3	0	0	0	0	3
TDS	160.1	3	0	0	0	0	3

T = Total; D = Dissolved
(1) Superfund CLP Inorganics (NYSDEC-ASP 12/91 D-V-1 through D-V-149).

MALCOLM PIRNIE

TABLE 2.11(f)

SUBCONTRACTOR LABORATORY SERVICES - NYTEST

Subtask	Parameter	Method	Matrix	Number Tests	Unit Rate[1] ($)	Total
Sanitary Sewer Investigation	Volatiles	91-1	W	11	206	2266
Sewer Bedding Test Pits	Volatiles	91-1	S	5	206	1030
Groundwater Monitoring	Volatiles	91-1	W	35	202	7070
	Semi-Volatiles	91-2	W	6	556	3336
	Pesticide/PCB	91-3	W	6	196	1176
	TAL Metals	ASP	W	6	150	900
	Iron	200.7	W	6	7	42
	Manganese	200.7	W	6	7	42
	Hardness	130.2	W	3	10	30
	Alkalinity	310.1	W	3	10	30
	TSS	160.2	W	3	10	30
	TDS	160.1	W	3	10	30
	Cyanide	335.2	W	3	27	81
Waste Disposal Testing • Composites of every 8 drums 8 on-site 32 offsite • Sample from upper 6 inches	TCLP	*	S	5	980	4900
	Ignitability	*	S	5	37	185
	Corrosivity	*	S	5	37	185
	Reactivity	*	S	5	37	185
	TCL Volatiles	91-1(A)	S	5	175	875
					Total	$22,393

16,063

* NYSDEC ASP Volume 3, Part XV.

MALCOLM PIRNIE

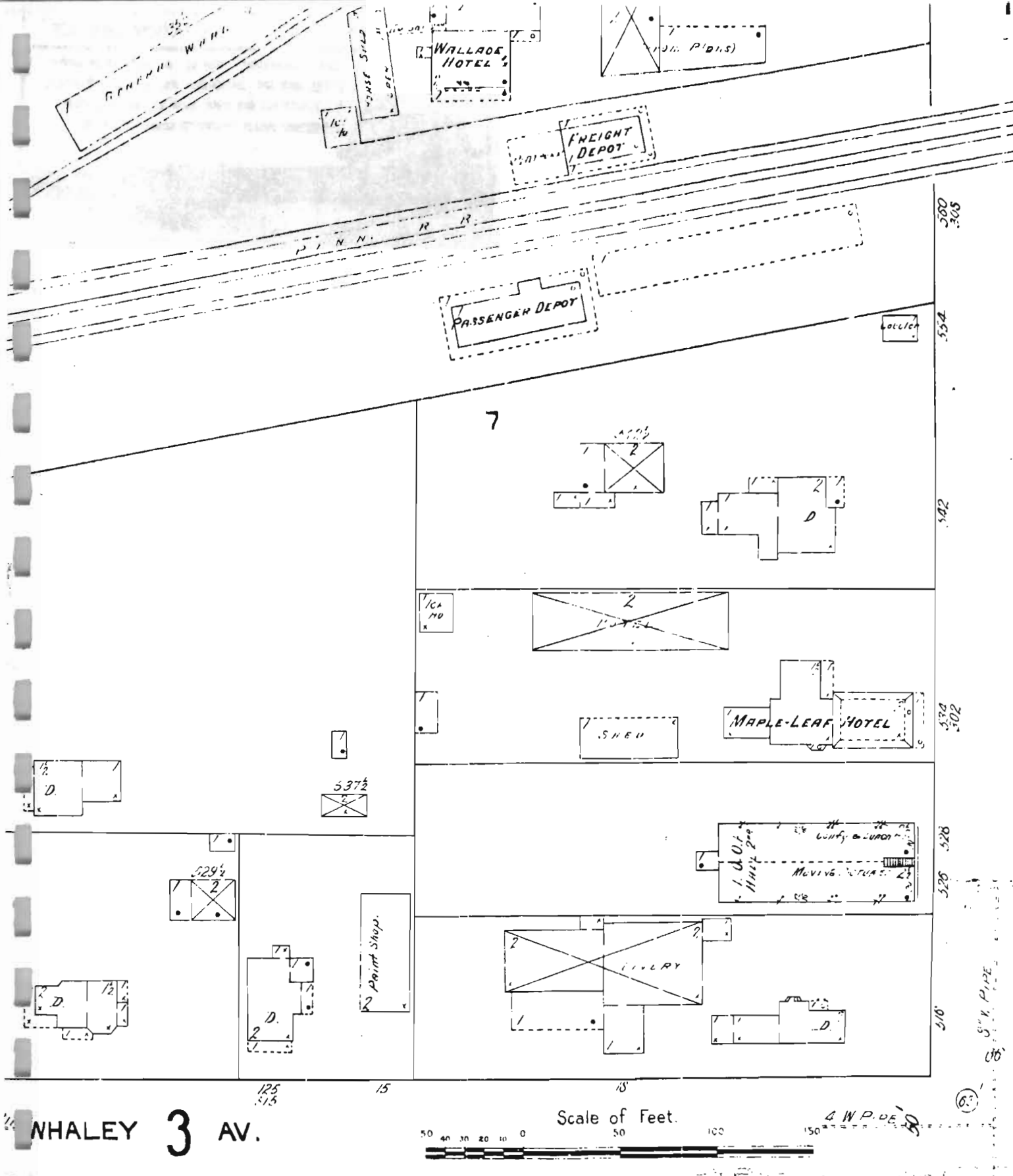
TABLE 2.11(f)

SUBCONTRACT DATA VALIDATION SERVICES - ECHEM, INC.

Subtask	Parameter	Method	Matrix	Number Tests	Unit Rate ($)	Total
Sanitary Sewer Investigation	Volatiles	91-1	W	11	40	440
Sewer Bedding Test Pits	Volatiles	91-1	S	5	40	200
Groundwater Monitoring	Volatiles	91-1	W	35	40	1,400
	Semi-Volatiles	91-2	W	6	50	300
	Pesticide/PCB	91-3	W	6	40	240
	TAL Metals	ASP	W	6	65	390
	Cyanide	335.2	W	3	5	15
						$2,985

APPENDIX B

- Sanborn Maps



8" W. PIPE (WOOD)

FILLMORE AV.

529 537

D D

1 STY HO. 2 AUTO

D

OPEN 1ST

2 Bowling Alleys 1

DAIRYMEN'S LEAGUE MILK STATION NOT IN USE

CRUSHED STONE HOPPER

7

ICE HO

AUTO & TRACTOR SHED.

GAS & TIRE SERVICE STATION CEMENT FLOOR ELEC MOTOR

LIVERY

OFF

AUTO

I.O.O.F. HALL 2ND

Elec Supplies

Confectionery & Lunch

Fruit & Gro

Fish Shop

D

AUTO SALES ROOM & OFF. 1ST D 2ND

PLATFORM 3' HIGH

FENN. R.R. FREIGHT STATION

TILE HO

TILE HO

PENN. R PASSENGER

SHOE SHOP

515 526 528 530 534 542 560

8" W. PIPE (WOOD)

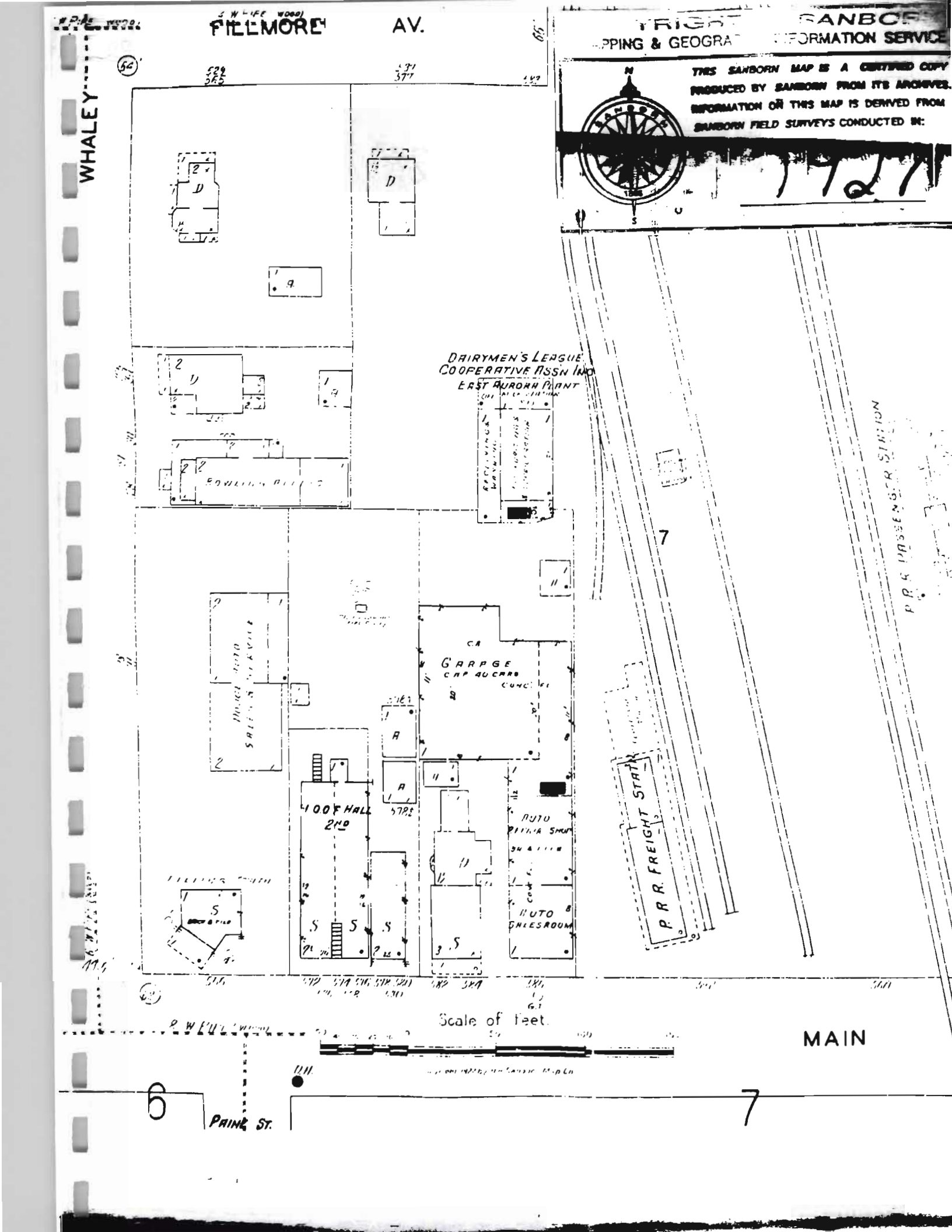
PRINE ST

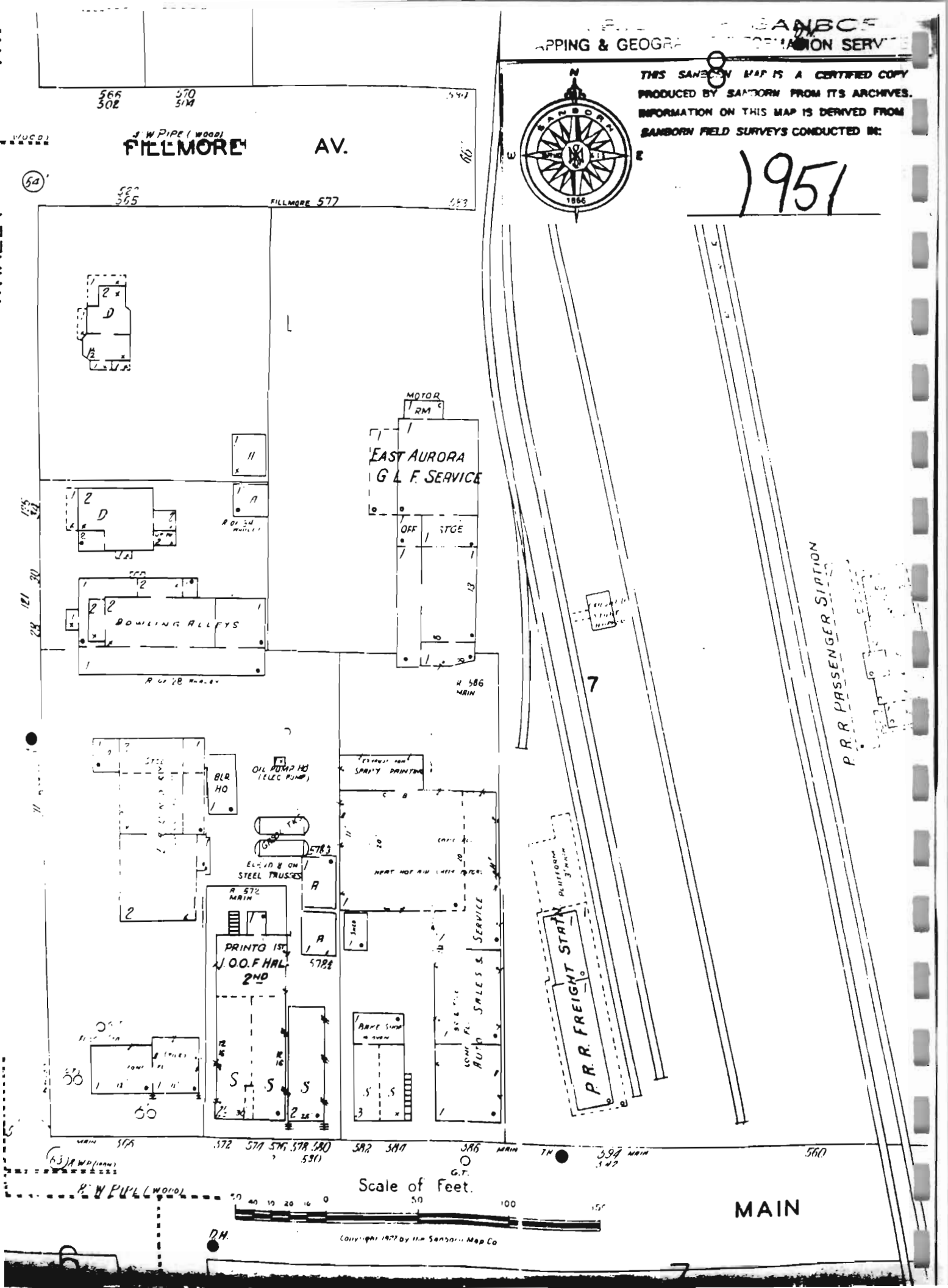
Scale of Feet.

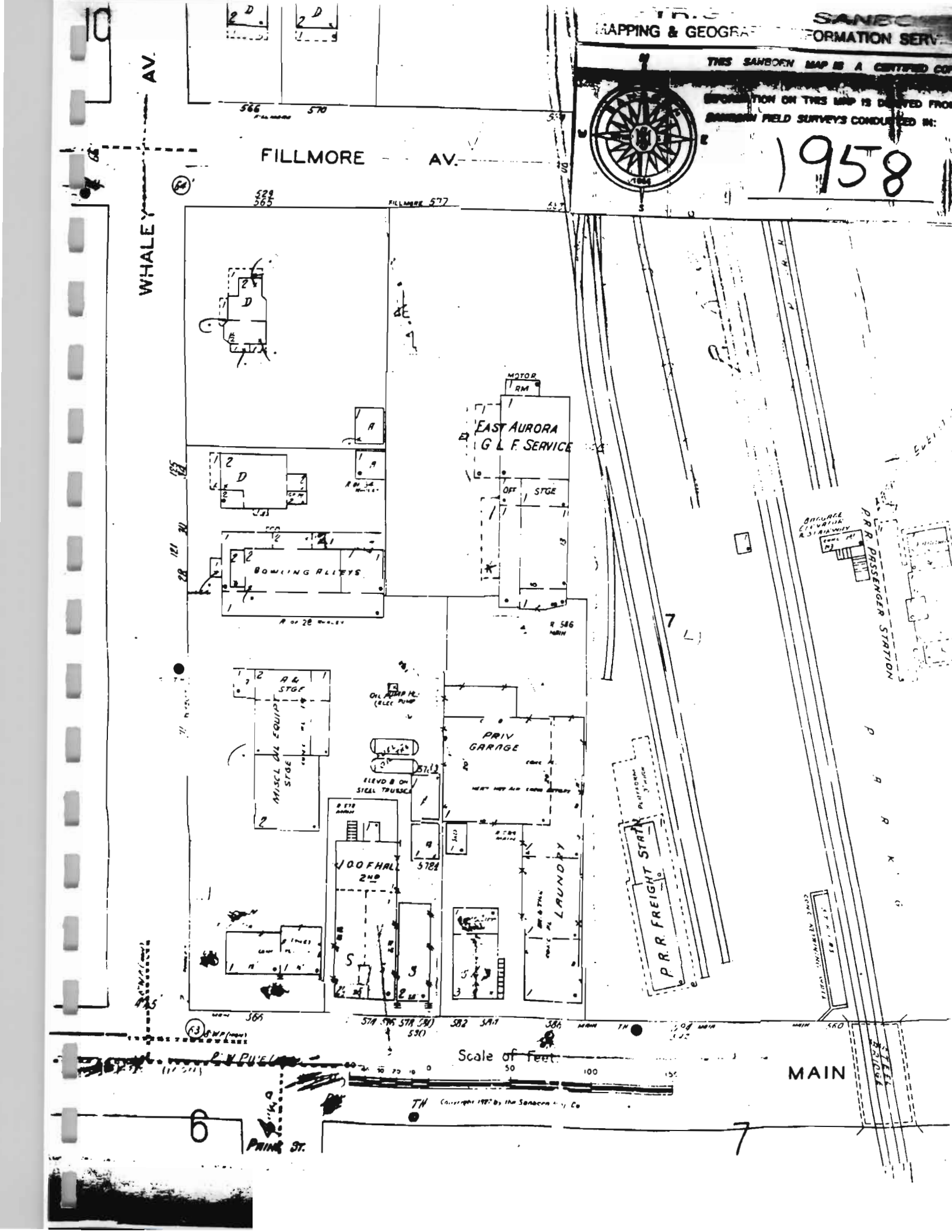
50 40 30 20 10 0 50 100 150

7

M




SANBORN
MAPPING & GEOGRAPHIC INFORMATION SERVICE
THIS SANBORN MAP IS A CERTIFIED COPY PRODUCED BY SANBORN FROM ITS ARCHIVES. INFORMATION ON THIS MAP IS DERIVED FROM SANBORN FIELD SURVEYS CONDUCTED IN:
1951
FILLMORE AV.
FILLMORE 577
EAST AURORA G. L. F. SERVICE
MOTOR RM
OFF
STGE
BOWLING ALLEYS
PRINTG 1ST
I.O.O.F HALL
2ND
SERVICE
SALES
P.R.R. FREIGHT STA.
P.R.R. PASSENGER STATION
MAIN
Scale of Feet.
50 40 30 20 10 0 50 100
Copyright 1951 by the Sanborn Map Co


MAPPING & GEOGRA FORMATION SERV
THIS SANBORN MAP IS A CERTIFIED CO
INFORMATION ON THIS MAP IS DERIVED FRO
SANBORN FIELD SURVEYS CONDUCTED IN:
1958
FILLMORE AV.
WHALEY AV.
EAST AURORA G L F SERVICE
MOTOR RM
OFF
STGE
BOWLING ALLEYS
A & STGE
MISCL GL EQUIPT STGE
PRIV GARAGE
ELEVD B ON STEEL TRUSSES
OOFHALL 2ND
LAUNDRY
P.R.R. PASSENGER STATION
P.R.R. FREIGHT STA.
MAIN
PRIME ST.
Scale of Feet
50
100
7
6

MALCOLM PIRNIE

APPENDIX C

- **Habitat Based Assessment**

MALCOLM PIRNIE

I. INTRODUCTION

Malcolm Pirnie conducted a habitat-based assessment of Mr. C Cleaners and its vicinity to evaluate potential ecological exposure pathways. The intent of this investigation is to identify sensitive species or habitat potentially affected by the off-site migration of chemicals from the project site. Considerations discussed in this report include:

- a summary of the environmental setting of East Aurora, NY
- a characterization of naturally occurring flora and fauna found in the study area
- presence of threatened and endangered flora and fauna or species of special concern
- identification of significant habitats recognized by the NYSDEC
- proximity to NYSDEC and/or federal wetland areas
- values of resources to humans

The report includes information as directed by the New York State Department of Environmental Conservation (NYSDEC) in their guidance for preparing Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (1991). Data were collected from field observations, the NYSDEC, and from other municipal agencies.

II. SITE DESCRIPTION

Topology - Mr. C Cleaners is centrally located in East Aurora, NY near the following geographic coordinates: 42°45'49" north and 78°36'58" west. A 1965 USGS topographic map of East Aurora, NY highlights the extensive development of this area (See Figure 1). The Pennsylvania Railroad runs in a north to south direction immediately east of the site.

The location of Mr. C Cleaners is approximately 915 feet above mean sea level (MSL). The surrounding relief ranges from 900 to 920 feet above MSL. The village lies in a flat expanse between two watercourse that eventually merge. East Aurora lies in the Erie-Ontario Plain province. This area is characterized by slight topographic relief, except in the immediate vicinity of the major drainage-ways (USDA-SCS, 1986).

Approximately 1050 feet north of Mr. C Cleaners, Tanner Brook flows in a southwest direction, is diverted through a culvert underneath Main Street, East Aurora, and eventually feeds the East Branch of Cazenovia Creek west of the village. The East Branch of Cazenovia Creek flows in a northwest direction, past Tannery Brook, and merges with the West Branch to form Cazenovia Creek, a tributary of Buffalo River and eventually Lake Erie. Both Cazenovia Creek and Buffalo River are main drainage-ways of central Erie County. Most streams in Erie County drain in a northwesterly to westerly direction.

Land Use and Covertype - A 1978 aerial photograph shows the extensive residential and commercial development that exists within a half-mile radius of the site (See Figure 2). Few areas of natural habitat occur in this area. In the developed areas, residences are landscaped and vegetation is typified by lawns and foundation plantings of evergreen and deciduous trees and shrubs. Typical vegetation includes sugar maple, spruce, and oak. Field observations within a half-mile radius confirmed the absence of significant habitat and provided no evidence of obviously stressed vegetation.

Fish and Wildlife Resources - Cazenovia Creek and Buffalo Creek are in the Lake Erie (East End) - Niagara River Drainage Basin. The East Branch of Cazenovia Creek is a perennial stream that generally measures more than 40 feet across. The watercourse has cut through the bedrock to form a river valley. Therefore, wetland areas rarely occur along the Creek's banks. Field observations revealed depositional islands sporadically occurring along and within the watercourse, supporting small pockets of wetland vegetation (i.e., cattails). The Creek's substrate consists primarily of sediment. Gauge station data collected near East Aurora during the 1960s measured discharge rates ranging from 6.03 $feet^3$/second to 73.8 $feet^3$/second (USGS 1979). This fluctuation suggests that the Creek's flow is largely dependent upon precipitation and season.

The NYSDEC classifies the potentially impacted section of the East Branch of Cazenovia Creek as a Class B, Standard B watercourse. This implies that the waters are pristine enough for primary contact (i.e., swimming, diving, water skiing, etc.) and secondary contact recreation (i.e., fishing, boating, etc.). Further, the waters are suitable for fish propagation and survival; however, NYSDEC does not indicate that this watercourse is a trout stream. The standards presented in Title 6, Chapter X, Part 701 of the New York

State Code of Rules and Regulations set measurable limits on pollution indicators including turbidity, colloidal solids, oil and floating substances, phosphorus and nitrogen, and taste-, color-, and odor- producing toxic or deleterious substances. In addition, Standard B surface waters should have a pH greater than 6.5 and no more than 8.5. For non-trout waters, the average daily dissolved oxygen should not be less than 5.0 mg/l, and at no time less than 4.0 mg/1.

The USGS map indicates that Tannery Brook is a perennial stream that generally measures less than 40 feet across. Field observations revealed that the actual stream width ranges from 10 to 15 feet across. Its substrate consists primarily of rocks and gravel. Vegetation was not observed in the brook, however, in some areas, vegetation grows immediately along the banks of the brook. Gauging station data are not available for the Brook. Based on field observations conducted during June 1994, the depth of Tannery Brook is generally less than one foot (MPI, 1994).

Tannery Brook is designated as Class C, implying that the waters are best used for fishing. These waters are suitable for primary and secondary contact recreation, although other factors such as extensive development may limit the use for these purposes. Water quality standards designated for this brook are B standards.

Significant Natural Resources - Based upon field ovservations and correspondence from the NYSDEC, no significant habitats and threatened or endangered species exist within two miles of Mr. C Cleaners. The following discussion focuses on wetlands that occur within a two-mile radius of the site and that could be affected by contamination emanating from Mr. C Cleaners.

Wetlands - Six New York State regulated wetlands exist within a two-mile radius north of the site (See Figure 3). Due to its proximity and the relatively flat topography, only one system, known as Sinking Ponds, could conceivably be affected by chemicals of potential concern released from Mr. C Cleaners. This wetland system is located approximately one-half mile north of the site and extends in a northeast direction toward Buffalo Creek. According to the National Wetlands Inventory (USFWS, 1981), Sinking Ponds consists of five distinct ecosystems as presented in Table 1 and Figure 4. The New York State Department of Transportation (NYSDOT) map for Erie County indicates that an area of

the Sinking Ponds ecosystem has been designated as a wildlife sanctuary. In addition, classified archaeological sites exist in the area. Based on the general northwest drainage patterns of the watershed and the surface features of the area (i.e., Tannery Brook and the railroad bed), surface water and groundwater are not expected to affect this wetland area.

TABLE 1

SUMMARY OF WETLAND ECOSYSTEMS IN SINKING PONDS
MR. C CLEANERS SITE

PFO1E	Palustrine, broad-leaved deciduous forest; seasonally saturated
$P^{ss1}/_{EM5}$	Palustrine mixed: scrub/shrub (broad-leaved, deciduous) and emergent, narrow-leaved persistent
PSSE	Palustrine scrub/shrub; seasonally saturated
POWH	Palustrine open water; permanent
PEM5F	Palustrine emergent; narrow-leaved, persistent; semipermanent

However, neither the NYSDEC Freshwater Wetlands maps nor the National Wetlands Inventory maps depict any wetland areas within the village of East Aurora, between the branches of Tannery Brook and the East Branch of Cazenovia Creek. Based on the topography and hydrogeography of the area, the wetland areas identified within a mile radius south of the site on the NWI maps are not expected to be affected by chemical migration from Mr. C Cleaners.

Biota - Mr. C Cleaners is centrally located in the village of East Aurora. Consequently, typical wildlife species known to occur include those that have adapted to suburban and urban environments (i.e., raccoons, skunks, house sparrows, etc.). The New York State Natural Heritage Program reported one species of significance to the area. That is the Bigeye Chub, a fish species last seen near Orchard Park in 1920. Although classified as very vulnerable in New York State, the species is apparently secure globally and unprotected by either federal or statutory law. Past chemical releases from Mr. C Cleaners are not believed to have any potential impact upon sensitive species.

Resource to Humans - According to the NYSDEC Division of Lands and Forest, several historic structures exist within a half-mile radius west of the site. These include the Millard Fillmore House and the Roycraft Campus. Hamlin Park also exists approximately one-half mile south of Mr. C

Cleaners. Because groundwater is the principle migration route of chemical contaminants, minimal impacts to these historical structure and outdoor facilities would be expected.

As mentioned previously, the New York State Office of Parks, Recreation and Historic Preservation confirmed the existence of classified archeological sites near the Sinking Ponds wetlands. However, the general northwest drainage patterns of the watershed and its topography suggest that chemical migration from Mr. C Cleaners would not affect this sensitive area.

III. EXPOSURE ASSESSMENT

Based on the site history, the suburban/urban landscape, and the impervious surfaces that surround Mr. C Cleaners, groundwater contamination appears to be the only potential migration and exposure pathway associated with the site. Sample analysis of stormwater and sewage discharge provide no evidence of contamination, indicating that surface water is an unlikely pathway of chemical migration. Contaminated groundwater may impact the Sinking Ponds wetland system located approximately 1/2 mile northeast of the site. However, the topographic features and watershed characteristics suggest that groundwater flows in a northwest direction, away from this sensitive area.

A preliminary list of chemicals of potential concern and their fate-and-transport characteristics are presented in Table 2. If contaminated groundwater reaches open surface water bodies, sensitive species may incur adverse effects. However, the vapor pressures and Henry Law constants for all the chemicals of concern are high, indicating that these chemicals volatilize into the atmosphere before impacting the environment. The chemicals are moderately to highly water soluble, indicating that chemicals released onto soils are likely to leach down into the groundwater. All of the chemicals have low log Kow and bio-concentrations-factor (BCF) values indicating that little potential exists for long term bioconcentration in any chronically exposed population.

The drainage patterns of the Lake Erie-Niagara River Drainage Basin, the topology of East Aurora, and the nature of the contaminants potentially emanating from Mr. C Cleaners suggest that a plume of contamination as defined during the Phase I Rmeedial Investigation would not likely affect any significant or sensitive flora and fauna.

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Howard, PH. 1990. Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Volume II. Solvents . Chelsea, MI: Lewis Publishers.

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New York State Department of Environmental Conservation. 1994. Personal communication between Gail Spann, NYSDEC, Division of Fish and Wildlife and Gina Oliverio Senia, MPI.

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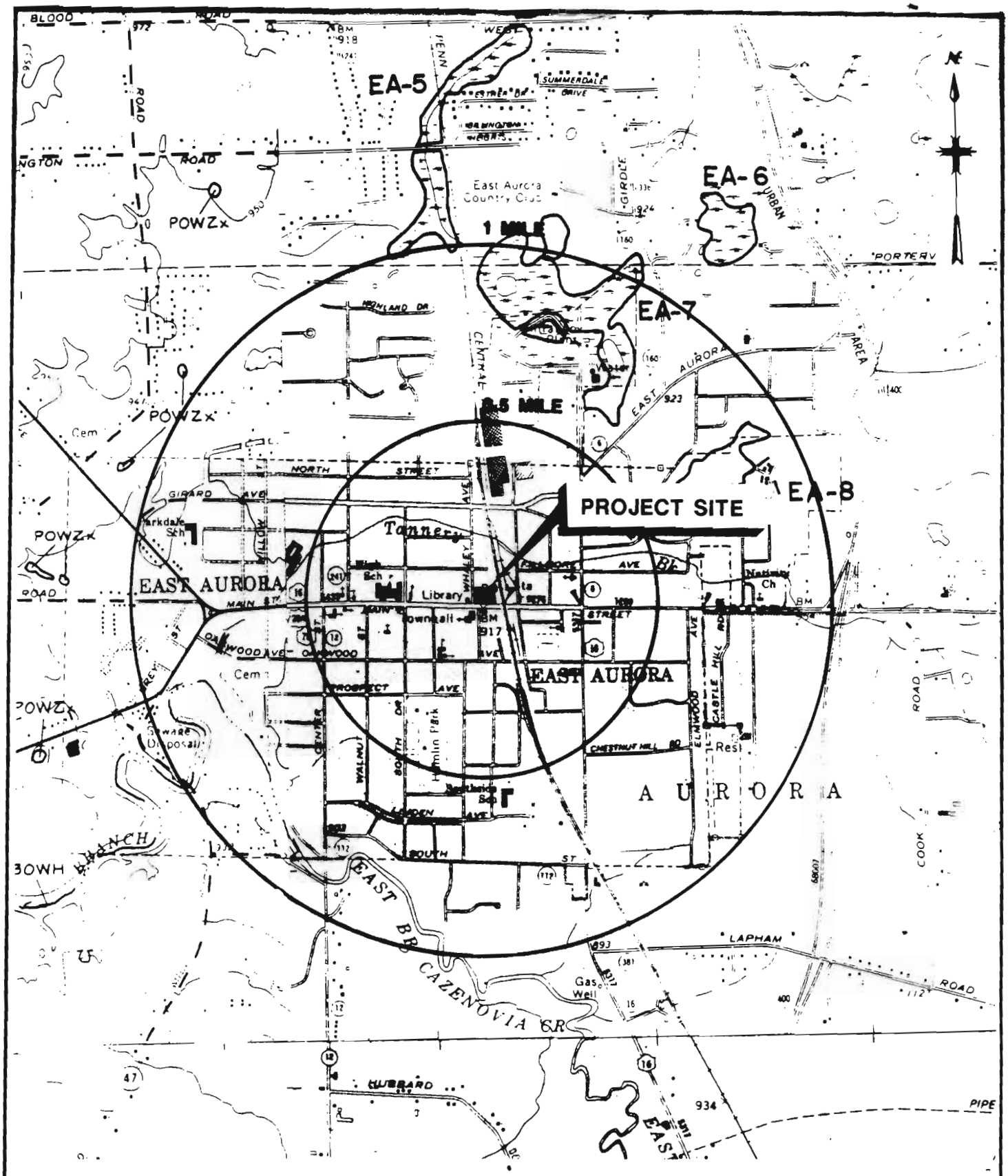
NYSCRR Title 6, Chapter X, Part 701: Official Compilation of Codes, Rules and Regulations of the State of New York, Volume A-6,. 1986.

United States Department of Agriculture - Soil Conservation Service. 1986. Soil Survey of Erie County, New York.



SOURCE: NYSDEC,
EAST AURORA, NY QUAD 1986
HOLLAND, NY QUAD 1986
COLDEN, NY QUAD 1986
ORCHARD PARK, NY QUAD 1986

NOTE: NOMENCLATURE INDICATES SITE IDENTIFICATION NUMBER FOR REFERENCE TO THE NYSDEC

SCALE: 1"= 24,000'

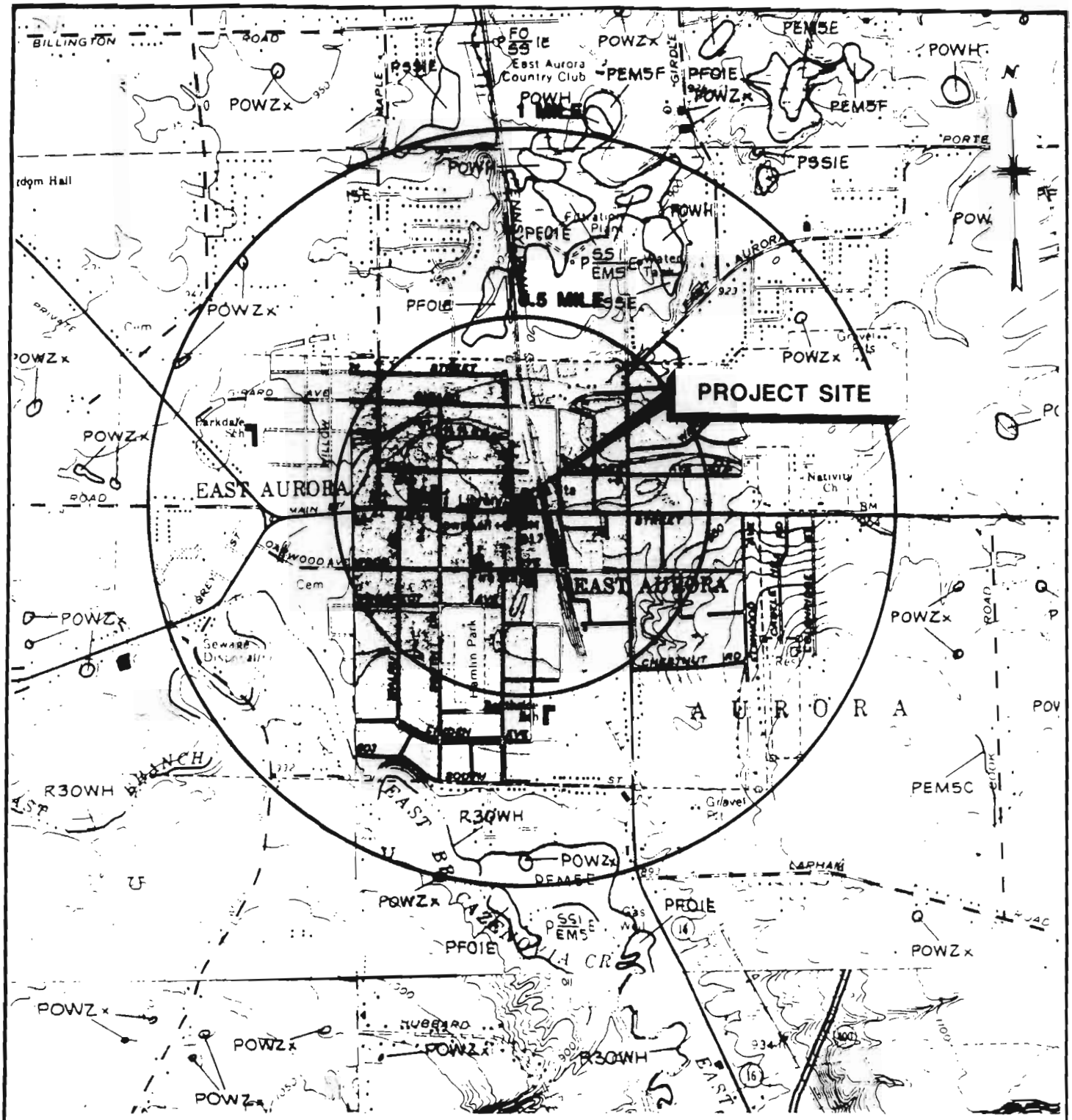
MALCOLM PIRNIE

NYSDEC

MR. C CLEANERS

NEW YORK STATE FRESHWATER WETLANDS MAP

MALCOLM PIRNIE, INC



LEGEND:

PFO1E	- PALUSTRINE, BROAD-LEAVED DECIDUOUS FOREST; SEASONALLY SATURATED
PSS1/EM5	- PALUSTRINE MIXED: SCRUB/SHRUB (BROAD-LEAVED DECIDUOUS) AND EMERGENT NARROW-LEAVED PERSISTENT
PSSE	- PALUSTRINE SCRUB/SHRUB; SEASONALLY SATURATED
POWH	- PALUSTRINE OPEN WATER; PERMANENT
PEM5F	- PALUSTRINE EMERGENT; NARROW-LEAVED, PERSISTENT; SEMI-PERMANENT

SOURCE: NWI
EAST AURORA, NY QUAD 1981
HOLLAND, NY QUAD 1981
COLDEN, NY QUAD 1978
ORCHARD PARK, NY QUAD 1978

SCALE: 1"= 24,000'

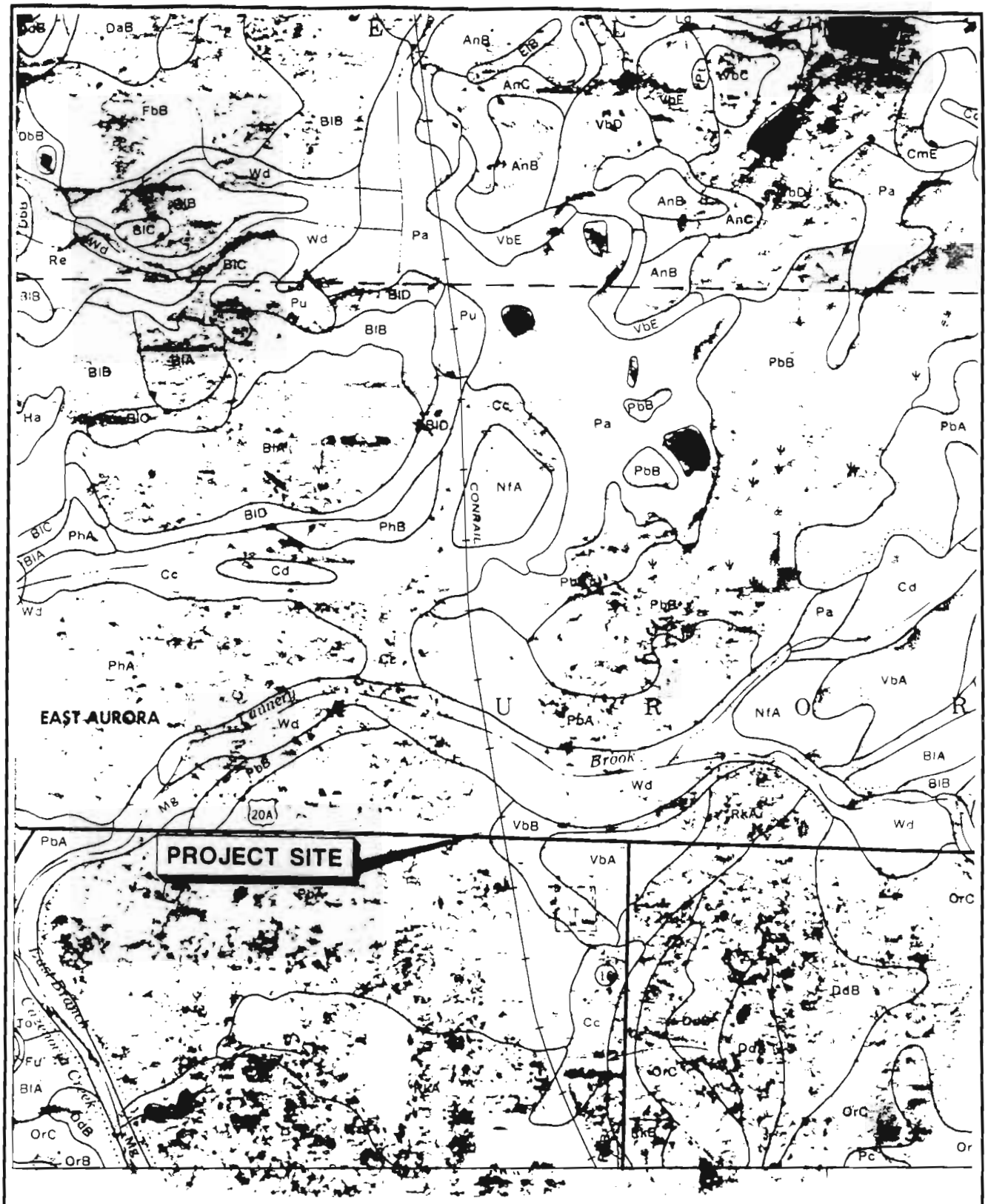
MALCOLM PIRNIE

NYSDEC

MR. C CLEANERS

NATIONAL WETLANDS INVENTORY MAP

MALCOLM PIRNIE, INC



SOURCE: USDA - SCS, 1986. Sheet Number 63.

LEGEND

PbA Palmyra gravelly loam, 0 to 3 percent slopes

RkA Rhinebeck gravelly loam, 0 to 3 percent slopes

VbA Varysburg gravelly loam, 3 to 8 percent slopes

SCALE: 1" = 1333.3'

MALCOLM PIRNIE

NYSDEC

MR. C CLEANERS

GENERAL SOILS MAP

APPENDIX D

- Soil Gas Reports

TETRA · K TESTING

1 March 1994
E354-7-08

Mr. David Harty
Malcolm Pirnie
S. 3515 Abbott Road
P.O. Box 1938
Buffalo, NY 14219

RE: Soil Gas Survey Report
Mr. C Cleaners Site
East Aurora, NY

Dear Mr. Harty,

Please find the final results and report on the soil gas survey conducted at the above-mentioned site.

Thank you for using Tetra K Testing on this project and we look forward to working with Malcolm Pirnie again in the future.

Very truly yours,
TETRA K TESTING

Stephen L. Knollmeyer
Mobile Laboratory Supervisor

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WESTFIELD EXECUTIVE PARK
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WESTFIELD, MA 01085
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FAX. 413-562-5317

SECTION 1.0 NARRATIVE

A soil gas survey was conducted at the Mr. C Cleaners site in East Aurora, New York on February 8 through February 10, 1994. A total of 35 samples were analyzed; 32 soil gas points were installed, sampled and analyzed, and 3 manhole locations were sampled and analyzed in this three day project.

1.1 Soil Gas Sampling

Soil gas points were installed using a slide hammer and ⅞" hollow stem steel rods with threaded connectors and a 6-inch screened section attached to the lead rod. The screen section was driven to a depth of five feet below ground surface (BGS). In some cases refusal was encountered at 4.0'-4.5' BGS and those locations were sampled from that depth. Sample location No. 60, in the rear area on the western side of the Mr. C Cleaners building was sampled from 3.0 ft BGS due to obstruction. At least six borings were made in an approximately 10 ft diameter area around the proposed sample location all with refusal at 2.5-3.0 ft BGS. After installation of the probe a sampling system was attached to the last steel rod. The sampling system consisted of a sample port, flow control value, vacuum pump and flow meter. The vacuum pump was started and the time and flow rate were noted in the field notes. If possible, the flow was set at 2000 mL/min. and allowed to purge for 2 minutes. This allowed for ambient air to be purged from the rods and brought soil gas into the sample port. When no flow or low flow was encountered, the rods were, pulled back to a depth that allowed free flow and sample collection. Samples were collected in a 5.0 mL gas tight syringe fitted with a shut-off valve. Samples were transported to the mobile laboratory for injection into the analytical system.

1.2 Manhole Location Sampling

Manhole locations were sampled using the sampling system described in section 1.1 above. At MH-61 and MH-62 a length of ⅛" ID teflon tubing was attached to the sampling system and lowered through a vent hole in the manhole cover to approximately 1 foot above the floor of the manhole. The system purged for 5 minutes to clean the sampling system of ambient air and bring sample to the sample port. At location MH-12 the lid had to be pried open to sample as there was no vent hole in the cover. The cover was opened only enough to slide the teflon tubing down to within 1 foot of the bottom of the manhole and sample collection was the same as for MH-61 and MH-62 locations.

1.3 Sample Analysis

Soil gas samples were injected into the analytical system upon arrival at the mobile laboratory. The soil gas samples were analyzed on a Hewlett Packard Model 5890II Gas Chromatograph (GC) with electrolytic conductivity (ELCD) and photoionization (PID) detectors in series. The analytical system and parameters are similar to those used in EPA methods 8010/8020. The compound list consisted of the following:

Methylene Chloride
Vinyl Chloride

1,2-Dichloroethene
1,1-Dichloroethene

1,1,1-Trichloroethane
1,1,2-Trichloroethane

Trichloroethene
Tetrachloroethene

1,2-Dichloropropane

Benzene
Toluene
Xylenes (Total)
Ethyl Benzene

1.4 Data Results

Over three days of analysis, from February 8 through February 10, 1994 a total of 35 samples were analyzed; 32 soil gas points were installed, sampled and analyzed and 3 manhole locations were sampled and analyzed for the presence of target compounds. The attached data sheets (Section 2) present the data results, detected compounds, detection limits and other analytical parameters.

In general, significant concentrations of Tetrachloroethene (PCE) were detected along the west side of the Mr. C Cleaners building. PCE was also detected to the south and east of the building. The locations sampled around the library to the west of the site across Whaley Street and the church to the southwest across Main Street showed no detection of target compounds. With the exception of the manhole locations and sample point No. 60 where BTEX compounds were detected, and sample point No. 40 (adjacent to the Police station/Town Hall building) where 1,1,1-Trichloroethane was detected, in addition to PCE, the only target compound reported was PCE or Trichloroethene (TCE) a degradation product of PCE.

TETRA · K TESTING

A DIVISION OF TIGHE & BOND, INC.

MR. C CLEANERS East Aurora, New York

Sample Summary Table

DATE	SAMPLE ID	DEPTH	ANALYTE	mg/cu. m.	PPB
8-Feb-94	No .65	5.0	PCE	27	3600
	No. 66	5.0	PCE	0.33	44
	No. 67	4.0	ND		
	No. 64	5.0	PCE	94	13000
	No. 63	5.0	PCE	91	12000
	No. 59	5.0	PCE	0.90	110
	No. 58	4.5	PCE	7.3	990
	No. 57	4.0	PCE	86	12000
			TCE	3.1	520
	No. 62	5.0	PCE	23	3100
9-Feb-94	No. 40	5.0	PCE	5.2	700
			1,1,1-TCA	1.5	28
	No. 56	4.0	ND		
	No. 39	5.0	PCE	9.8	1300
	No. 55	5.0	ND		
	No. 54	4.5	ND		
	No. 53	5.0	ND		
	No. 60	3.0	Toluene	3.1	750
			Ethylbenzene	3.0	630
			Total Xylenes	37	7600
	No. 61	4.5	PCE	11	1500
	No. 43	4.5	ND		
	No. 42	5.0	ND		
	No. 69	4.0	PCE	11	1500
	No. 68	5.0	PCE	0.44	59
10-Feb-94	No. 44	4.5	ND		
	No. 45	5.0	ND		
	MH-61	~7 ft b.g.	Total Xylenes	0.12	25
	MH-62	~7 ft b.g.	PCE	0.20	28
			Ethylbenzene	0.30	63
			Total Xylenes	8.2	1700
	MH-12	~7 ft b.g.	ND		
	No. 46	4.0	ND		
	No. 47	4.5	ND		
	No. 48	5.0	ND		
	No. 49	4.5	ND		
	No. 48D	7.5	ND		
	No. 51	5.5	ND		
	No. 50	5.0	ND		
	No. 41	5.0	ND		
	No. 52	3.5	ND		

TETRA · K TESTING

14 March 1994
E354-7-08

Mr. David Harty
Malcolm Pirnie
S. 3515 Abbott Road
P.O. Box 1938
Buffalo, NY 14219

RE: Soil Gas Survey Report
Mr. C Cleaners Site
East Aurora, NY
March 7-8, 1994

Dear Mr. Harty,

Enclosed please find the final results and report on the soil gas survey conducted at the above-mentioned site.

Thank you for using Tetra K Testing to complete this project and we look forward to working with Malcolm Pirnie again in the future.

Very truly yours,
TETRA K TESTING

Stephen L. Knollmeyer
Mobile Laboratory Supervisor

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SECTION 1.0 NARRATIVE

A second soil gas survey was conducted at the Mr. C Cleaners site in East Aurora, New York on March 7 and 8, 1994 as a follow up to the initial soil gas survey conducted February 8 through 10, 1994. A total of 25 samples were analyzed; 23 soil gas points were installed, sampled and analyzed, and 1 manhole location, and one sample of decontamination water from the SJB Services drill rig were analyzed in this two day project.

1.1 Soil Gas Sampling

Soil gas points were installed using a slide hammer and ⅞" hollow stem steel rods with threaded connectors and a 6-inch screened section attached to the lead rod. The screen section was driven to a depth of five feet below ground surface (BGS). In some cases refusal was encountered at 3.0'-3.5' BGS and those locations were sampled from that depth. After installation of the probe a sampling system was attached to the last steel rod. The sampling system consisted of a sample port, flow control value, vacuum pump and flow meter. The vacuum pump was started and the time and flow rate were noted in the field notes. If possible, the flow was set at 2000 mL/min. and allowed to purge for 2 minutes. This allowed for ambient air to be purged from the rods and brought soil gas into the sample port. When no flow or low flow was encountered, the rods were, pulled back to a depth that allowed free flow and sample collection. Samples were collected in a 5.0 mL gas tight syringe fitted with a shut-off valve. Samples were transported to the mobile laboratory for injection into the analytical system.

1.2 Manhole Location Sampling

Manhole locations are sampled using the sampling system described in section 1.1 above. At MH-11 a length of ⅛" ID teflon tubing was attached to the sampling system and lowered through a vent hole in the manhole cover to approximately 1 foot above the floor of the manhole. The system purged for 2 minutes to clean the sampling system of ambient air and bring sample to the sample port.

1.3 Sample Analysis

Soil gas samples were injected into the analytical system upon arrival at the mobile laboratory. The soil gas samples were analyzed on a Hewlett Packard Model 5890II Gas Chromatograph (GC) with electrolytic conductivity (ELCD) and photoionization (PID) detectors in series. The analytical system and parameters are similar to those used in EPA methods 8010/8020. The compound list consisted of the following:

Methylene Chloride
Vinyl Chloride

1,2-Dichloroethene
1,1-Dichloroethene

1,1,1-Trichloroethane
1,1,2-Trichloroethane

Trichloroethene
Tetrachloroethene

1,2-Dichloropropane
Chloroform

Benzene
Toluene
Xylenes (Total)
Ethyl Benzene

1.4 Data Results

Over two days of analysis, March 7 and 8, 1994 a total of 25 samples were analyzed; 23 soil gas points were installed, sampled and analyzed, 1 manhole location, and one sample of decontamination water from the SJB Services drill rig sampled and analyzed for the presence of target compounds. The attached data sheets (Section 2) present the data results, detected compounds, detection limits and other analytical parameters.

This follow-up investigation was focused to the north and west of the previous investigation. The primary analyte detected was Tetrachloroethene (PCE). Sample location SG 70-94 located adjacent to the bowling alley had the highest detected level of PCE at 12,000 ppb. Also detected in that sample was Trichloroethene (TCE) and 1,1,1-Trichloroethane (1,1,1-TCA). PCE was detected in the samples collected in Whaley St. directly to the west of the driveway behind the Agway property. Samples collected north and south along Whaley Street showed no reportable levels of VOCs. Across Whaley Street in front of the residences, the highest level of PCE detected was 130 ppb at location SG 75-94. The sewer line down the center of Whaley Street appears to be acting as a barrier or is redirecting the movement of the PCE plume.

TETRA · K TESTING

A DIVISION OF TIGHE & BOND. INC.

MR. C CLEANERS East Aurora, New York

March 7-8, 1994

Sample Summary Table

DATE	SAMPLE ID	DEPTH (ft)	ANALYTE	mg/cu. m.	PPB v/v
7-Mar-94	SG 70-94	3.0	1,1,1-TCA	1.8	300
			TCE	0.6	100
			PCE	92	12,000
	SG 71-94	3.0	PCE	11	1500
	SG 72-94	3.0	PCE	13	1800
	SG 73-94	4.5	ND		
	SG 74-94	5.0	PCE	0.19	26
	SG 75-94	5.0	PCE	1.0	130
	SG 76-94	4.5	ND		
	SG 77-94	4.0	ND		
	SG 78-94	4.5	ND		
	SG 79-94	5.0	ND		
	SG 80-94	3.5	ND		
	SG 81-94	3.5	ND		
8-Mar-94	SG 82-94	4.5	ND		
	SG 83-94	5.0	ND		
	SG 84-94	4.0	ND		
	SG 85-94	4.5	ND		
	SG 86-94	4.5	PCE	0.16	22
	SG 87-94	4.5	PCE	3.4	460
	SG 88-94	5.0	TCE	0.21	36
			PCE	20	2700
	SG 89-94	5.0	TCE	0.08	14
			PCE	13	1800
	SG 90-94	5.0	PCE	0.14	19
			Toluene	0.09	22
	SG 91-94	2.5	PCE	0.18	24
	MH-11	~8.0 b.g.s.*	ND		
	SG 92-94	4.5	PCE	2.2	300

DATE	SAMPLE ID		ANALYTE	ug/L	PPB
8-Mar-94	DECON 7		Chloroform	6.2	6.2
			PCE	1.2	1.2
			Total Xylenes	4.7	4.7

* b.g.s. = below ground surface

APPENDIX E

- Boring Logs
- Well Construction Details
- Well Development Data

BOREHOLE LOG MPI-1S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0288-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/17/94 - 03/18/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JPH/RHO
SURFACE ELEVATION: 915.38ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("W" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	914.38	TOPSOIL Dark brown CLAYEY SILT, trace fine sand, grass rootlets		1 SS	1 2 3 3	0.8	5						JHS=0.1 ppm
2	913.38	TILL Light-moderate brown CLAYEY SILT, little clay, little subangular fine gravel, firm, CL											
3	912.38	Light brown-olive moist CLAYEY SILT, some fine-coarse sand, little fine shale subangular gravel, blocky texture, stiff, CL		2 SS	2 4 9 8	0.6	13						JHS=0.2 ppm
4	911.38												
5	910.38	Grayish brown moist CLAYEY SILT, w/iron staining & mottling, trace-little clay, some plastisity, little subrounded gravel to 3/4" dia., little fine-course sand, stiff, CL		3 SS	3 7 4 11	1.8	11						JHS=0.1 ppm
6	909.38												
7	908.38	Moderate olive-brown moist SANDY SILT, little-some fine gravel, numerous black shale clasts to 1/4" thick x 1" dia., trace-little clay, some coarse-very fine sand, loose, SM		4 SS	4 5 5 5	1.2	10						JHS=0.3 ppm
8	907.38												
9	906.38	Moderate brown wet v.fine-fine SAND, trace silt, loose, SP-SM		5 SS	2 2 2 3	0.3	4						JHS=0.1 ppm
10	905.38	Moderate brown wet mostly fine, trace v.fine SAND w/faint bedding fabric as lighter, finer sand partings<1/4" thickness, liquifies when disturbed, loose, SP-SM w/SAND layer w/trace fine round gravel to 1/4" from 13.7-13.8' and brown wet SILTY SAND layer w/mostly v.fine sand, trace fine, liquifies when disturbed, compact, SP-SM, from 13.8-14.0'		6 SS	2 2 3 4	1.3	5						JHS=0.2 ppm
11	904.38												
12	903.38			7 SS	5 6 8 12	2.0	12						JHS=0.5 ppm
13	902.38												
14	901.38			8 SS	1 5 5 5	1.8	10						JHS=0.8 ppm
15	900.38	Moderate gray wet v.fine SAND, trace-occ.fine gravel, trace-little silt, liquifies when disturbed, compact, SM											
16	898.38	SILT & v.fine SAND, light brown-tan		9 SS	WR WR 3 6	2.0	3						JHS=0.8 ppm
17	898.38	Brown wet v.fine-fine SAND, trace medium, w/very fine sand partings as bedding fabric, liquifies when disturbed, loose, SP-SM											
18	897.38			10 SS	3 4 4 5	1.4	8						
19	896.38	Brownish gray wet v.fine-fine SAND, trace silt&v.fine sand as bedding fabric, loose, SM											
20	895.38	Boring complete at 20'. Set well.											

BOREHOLE LOG MPI-1D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: New York State Survey Grid

CLIENT: NYSDEC
DRILLING DATES: 02/18/94 - 2/22/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.95ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.5in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ('N' Blows/1.0 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
0		TOPSOIL moist dark brown SILT LOAM, soft, fine size roots, ML			1 2 3 5								JHS=0.2 ppm
1	912.95	TILL Brown moist CLAYEY SILT, with 15-40% subrounded to subangular gravel, trace-little sand, blocky, Firm, CL		1 SS		1.2	5						
2	911.95	becoming stiff at 2.0'											JHS=0.3 ppm
3	910.95			2 SS	5 5 6 6	1.1	11						
4	909.95												JHS=0.1 ppm
5	908.95			3 SS	3 4 5 6	1.1	9						
6	907.95	no recovery, stiff											JHS=-- ppm
7	906.95			SS	5 4 4 3	0	8						
8	905.95	no recovery, very loose											JHS=-- ppm
9	904.95			SS	2 2 2 2	0	4						
10	903.95												JHS=0.1 ppm
11	902.95	STRATIFIED Brown moist SILTY SANDY GRAVEL w/60-80% gravel, little sand and silt, loose when disturbed, GM		4 SS	6 5 4 5	1.5	9						
12	901.95	Brown wet SILTY SAND, mostly fine, little very fine sand, trace iron staining in layers, occasional silt lenses ~1/4" thick, loose, liquifies when disturbed, SM											JHS=0.3 ppm
13	900.95			5 SS	3 5 5 6	1.0	10						
14	899.95												JHS=0.2 ppm
15	898.95			6 SS	4 4 6 4	0.8	10						
16	897.95	Brown wet SILTY SAND, mostly fine-little medium and very fine sand, loose, liquifies when disturbed, SM											JHS=0.1 ppm
17	896.95	Brown wet SILTY SAND, mostly fine, little very fine sand, compact, liquifies when disturbed, SM		7 SS	2 4 8 13	1.4	12						
18	895.95	occasional coarse Gravel (~1" in diameter)											JHS=0.1 ppm
19	894.95			8 SS	7 5 6 9	1.4	11						
20	893.95												

BOREHOLE LOG MPI-1D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: New York State Survey Grid

CLIENT: NYSDEC
DRILLING DATES: 02/18/84 - 2/22/84
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.95ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ('N' Blows/1.0 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
21	892.95	STRATIFIED Brown wet SAND, trace-little Silt, medium-fine sand, compact, liquifies when disturbed, SP-SM		9 SS	3 5 8 7	1.3	13						JHS=0.1 ppm
22	891.95	Becoming loose at 22'											JHS=0.1 ppm
23	890.95			10 SS	2 3 6 8	0.4	9						
24	889.95	Becoming very loose at 24'											JHS=0.1 ppm
25	888.95			11 SS	WH 1 2 3	0.9	3						
26	887.95												JHS=0.5 ppm
27	886.95	Brownish gray wet SILTY SAND, mostly very fine sand, little fine, trace-no medium size, loose, readily liquifies when disturbed, SM		12 SS	1 2 4 5	1.0	6						
28	885.95												JHS=0.5 ppm
29	884.95	Alternating grayish brown to brownish gray wet SILTY SAND, with Silt partings ~8-10 layers per 1/2" thick, mostly fine and very fine sand, some silt, compact, liquifies when disturbed, SM		13 SS	4 8 8 9	1.2	16						
30	883.95												JHS=0.5 ppm
31	882.95	Grayish brown wet SAND, mostly fine and medium sand, trace silt, compact, loose when disturbed, SP-SM		14 SS	5 7 8 8	1.8	15						
32	881.95												JHS=0.5 ppm
33	880.95	Brownish gray wet SAND, mostly fine-medium sand, trace-no silt, occasional silt lenses, compact, loose when disturbed, SP		15 SS	WH WH 2 3	1.3	2						
34	879.95												JHS=0.4 ppm
35	878.95	Brownish gray wet SANDY SILT, mostly silt, some very fine sand and little fine sand, occasional clayey silt lenses, very soft, liquifies when disturbed, ML		16 SS	6 4 5 6	1.5	9						
36	877.95	becoming stiff at 34'											JHS=0.5 ppm
37	876.95	becoming loose at 36'		17 SS	2 2 3 3	0.9	5						
38	875.95												JHS=0.4 ppm
39	874.95			18 SS	3 3 3 3	1.3	6						
40	873.95												

BOREHOLE LOG MPI-1D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: New York State Survey Grid

CLIENT: NYSDEC
DRILLING DATES: 02/18/94 - 2/22/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.95ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ('N' Blows/1.0 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
41	872.95	LAMINATED Gray wet CLAYEY SILT, with little fine sand, silt lenses ~1/8" thick, an occasional SAND lenses ~1/4-1" thick, soft, CL		19 SS	3 2 2 3	1.4	4						JHS=0.5 ppm
42	871.95	becoming firm at 42'											
43	870.95			20 SS	3 3 3 3	1.2	6						JHS=0.5 ppm
44	869.95												JHS=0.4 ppm
45	868.95			21 SS	3 3 2 3	1.3	5						
46	867.95												JHS=0.5 ppm
47	866.95	Gray extremely moist SILTY CLAY with little-some silt, trace sand, stiff, CL		22 SS	2 3 6 8	1.3	9						
48	865.95												JHS=0.5 ppm
49	864.95	Gray wet SAND, mostly medium sand, little fine, trace coarse, compact, loose when disturbed, SP		23 SS	2 6 11 11	1.2	17						
50	863.95												JHS=0.4 ppm
51	862.95			24 SS	6 5 7 8	1.8	12						
52	861.95	Gray extremely moist SILTY CLAY, with little-some silt, trace sand, stiff, CL											JHS=0.5 ppm
53	860.95			25 SS	2 4 5 6	1.8	9						
54	859.95	occasional medium SAND lenses ~2" thick, becoming firm at 54'											JHS=0.5 ppm
55	858.95			26 SS	1 2 4 5	1.8	6						
56	857.95	Occasional gray extremely moist medium SAND lenses ~1-3" thick at 56.5', 57', 57.5', 59', and 59.5'											JHS=0.5 ppm
57	856.95			27 SS	2 2 3 3	1.8	5						
58	855.95	becoming stiff at 58'											JHS=0.8 ppm
59	854.95			28 SS	WH 2 5 5	1.7	7						
60	853.95												

BOREHOLE LOG MPI-1D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: New York State Survey Grid

CLIENT: NYSDEC
DRILLING DATES: 02/18/94 - 2/22/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.95ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.5in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("M" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
61	852.95	Gray extremely moist SILTY CLAY with little-some silt, trace sand, stiff, CL, with gray medium SAND partings approx 1-3" thick at 60', 60.5', 61', 62', and 62.5'		29 SS	3 4 6 8	1.8	10						JHS=0.5 ppm
62	851.95	becoming firm at 62', medium SAND from 62-62.5'		30 SS	WH WH 5 5	1.5	5						JHS=0.5 ppm
63	850.95	thinner SAND lenses at 63'											
64	849.95	thin medium sand partings at 64.9', 65', 65.1'.		31 SS	1 2 4 5	1.8	6						JHS=0.5 ppm
65	848.95												
66	847.95	3" medium SAND lenses		ST		2.0							JHS=-- ppm
67	846.95												
68	845.95	3" medium SAND lenses. Gray moist-extremely moist SILTY CLAY, little-some silt, occasional silt partings,		32 SS	WH WH 2 6	1.8	2						JHS=0.5 ppm
69	844.95	soft, CL											
70	843.95	Gray moist SAND from 70-70.5', mostly medium sand, loose, SP		33 SS	1 2 5 8	1.8	7						JHS=0.7 ppm
71	842.95	Gray wet SAND at 71.5, SP											
72	841.95	Interlayered gray moist SILTY CLAY ~4-6" thick, w/little-some silt, soft, CL &		34 SS	WH 1 2 3	2.0	3						JHS=0.8 ppm
73	840.95	SILTY SAND w/ little silt, mostly fine sand, very loose, liquifies when disturbed, SM											
74	839.95	Gray moist SILTY CLAY, little silt, soft, CL		35 SS	WH 1 3 9	2.0	4						JHS=0.7 ppm
75	838.95												
76	837.95	Gray moist SILTY SAND, very fine sand, compact, liquifies when disturbed, SM		36 SS	9 9 8 9	2.0	17						JHS=0.8 ppm
77	836.95	Gray moist CLAYEY SILT,some clay, occ v. thin fine sand partings,v.stiff,CL											
78	835.95	Gray moist SILTY SAND,some silt,mostly fine & very fine sand, compact,liquifies when disturbed,SM-ML		37 SS		1.7							JHS=0.5 ppm
79	834.95	Gray wet SILTY CLAY,little silt, v. soft,CL											
80	833.95												

BOREHOLE LOG MPI-1D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: New York State Survey Grid

CLIENT: NYSDEC
DRILLING DATES: 02/18/94 - 2/22/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.95ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
81	832.95			38 SS	WR WH WH 1	2.0	0						JHS=0.7 ppm
82	831.95	Gray wet SANDY SILT, trace clay, some fine sand, occasional clayey silt parting ~1/4-1/2" thick, loose, liquifies when disturbed, SM											JHS=0.5 ppm
83	830.95			39 SS	1 2 2 2	1.7	4						
84	829.95	Gray wet CLAYEY SILT tending toward SILTY CLAY, some clay, very soft, CL											JHS=0.5 ppm
85	828.95			40 SS	WR WR 1 5	2.0	1						
86	827.95	6-10 SILT partings ~0.2' in length.											JHS=0.5 ppm
87	826.95	Laminated SILT parting		41 SS	WR WR WH 3	2.0	0						
88	825.95												JHS=0.5 ppm
89	824.95			42 SS	WR WR WH 1	2.0	0						
90	823.95	Gray wet SILT with little very fine sand, liquifies when disturbed, ML											
91	822.95	Boring complete at 90.0'. Grouted hole with cement bentonite grout. Moved rig feet. Installed MPI-1L											
92	821.95												
93	820.95												
94	819.95												
95	818.95												
96	817.95												
97	816.95												
98	815.95												
99	814.95												
100	813.95												

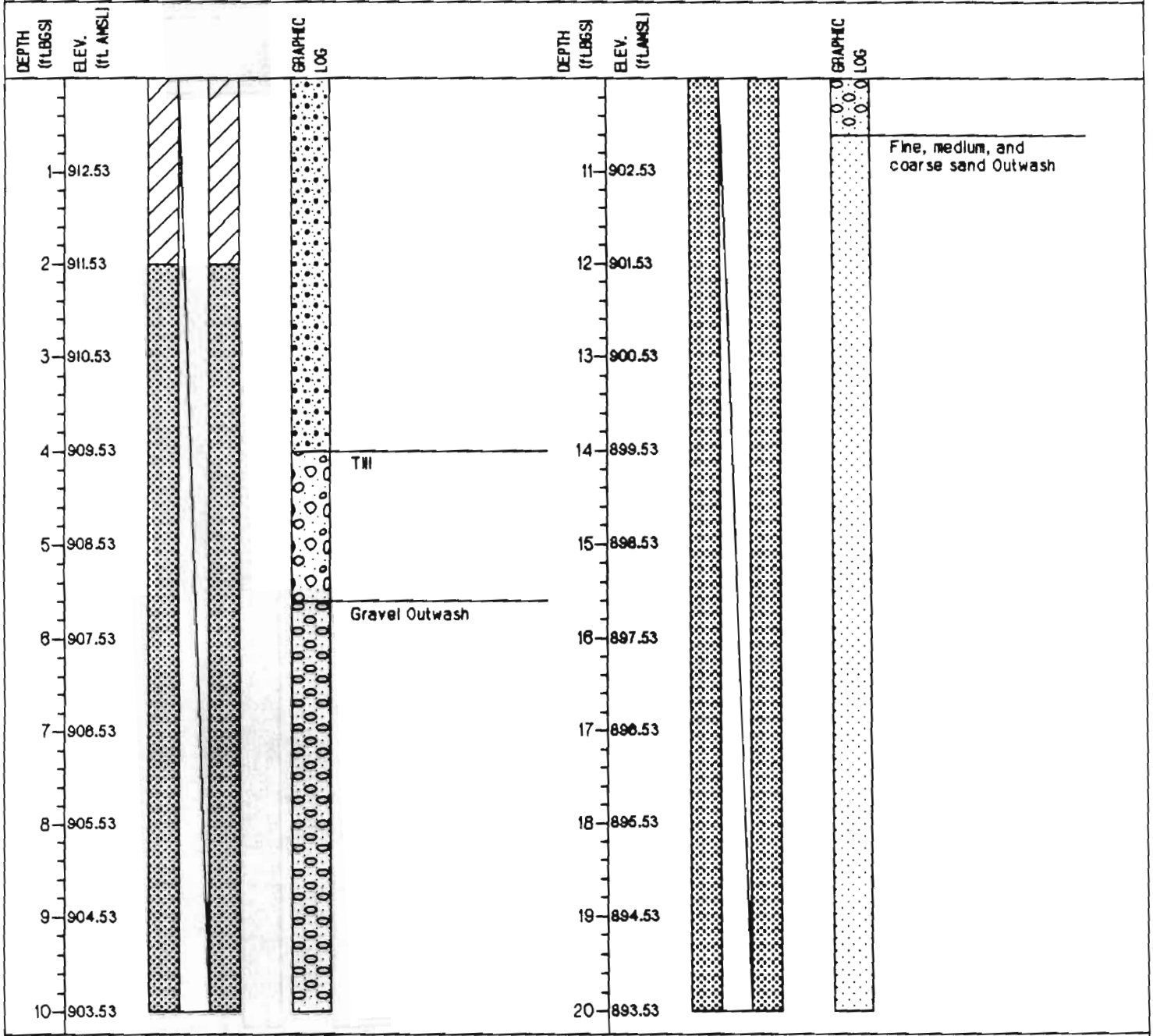
WELL/BOREHOLE MPI-1I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.53ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 2.0 feet
- BENTONITE SLURRY SEAL, 2.0 to 29.2 feet
- MORIE #00 SAND PACK, 29.2 to 41 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN, 31.0 to 41.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 31.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-1D for a complete description



NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

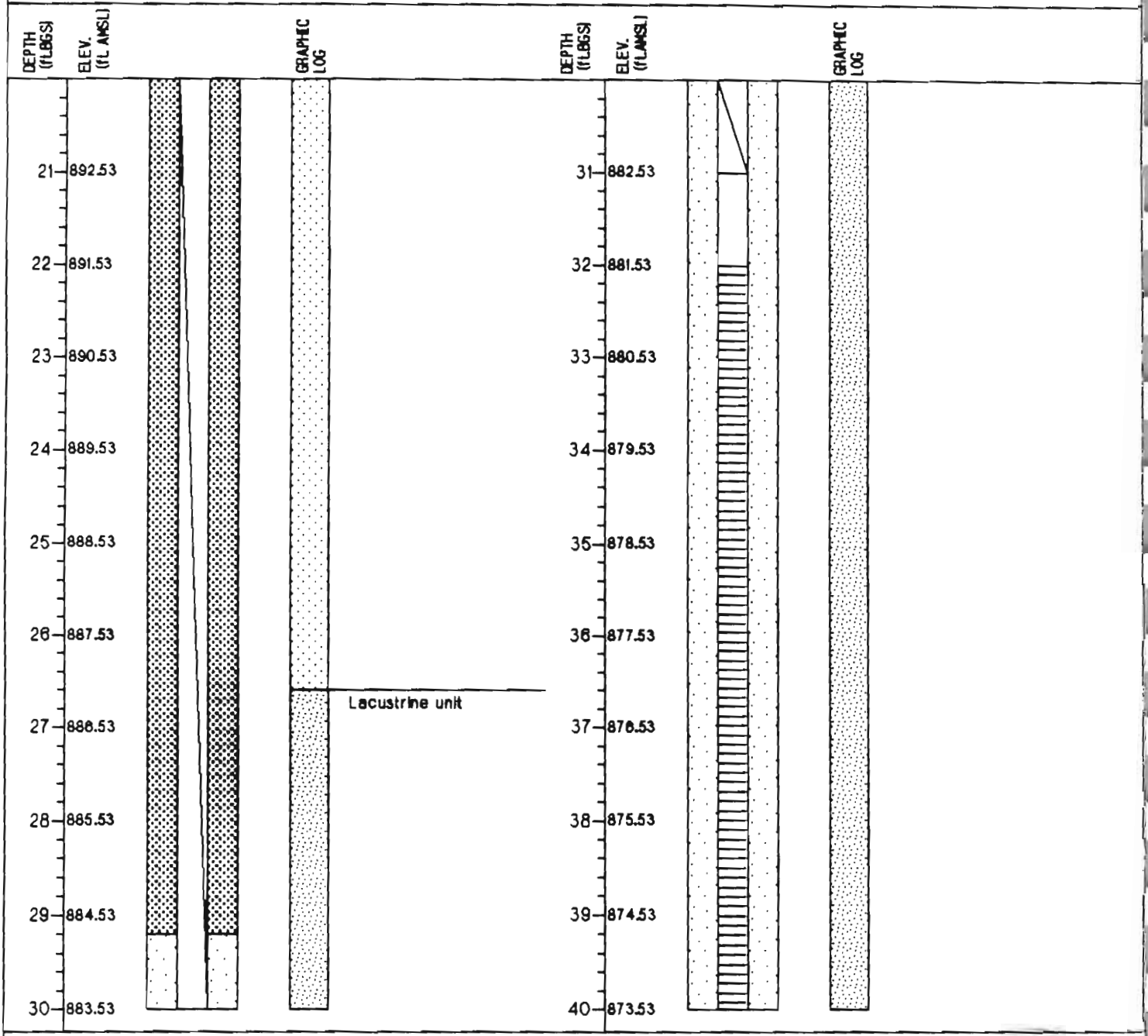
WELL/BOREHOLE MPI-1I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.53ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 2.0 feet
- BENTONITE SLURRY SEAL, 2.0 to 29.2 feet
- MORIE #00 SAND PACK, 29.2 to 41 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN, 31.0 to 41.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 34.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-1D for a complete description



NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

WELL/BOREHOLE MPI-1I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 913.53ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 2.0 feet
- BENTONITE SLURRY SEAL, 2.0 to 29.2 feet
- MORIE #00 SAND PACK, 29.2 to 41 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN, 31.0 to 41.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 31.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-1D for a complete description

DEPTH (ftBGS)	ELEV. (ft AMSL)	GRAPHIC LOG	DEPTH (ftBGS)	ELEV. (ft AMSL)	GRAPHIC LOG
41	872.53	END OF BORING	51	862.53	
42	871.53		52	861.53	
43	870.53		53	860.53	
44	869.53		54	859.53	
45	868.53		55	858.53	
46	867.53		56	857.53	
47	866.53		57	856.53	
48	865.53		58	855.53	
49	864.53		59	854.53	
50	863.53		60	853.53	

NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

BOREHOLE LOG MPI-2S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0288-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/14/84
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 917.34ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ('N' Blows/1.0 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
0	917.34	BLACKTOP											JHS=0.3 ppm
1	916.34	Light gray crystaline material (Salty) with low specific gravity		1 SS	6 7 4	1.0	13						
2	915.34	TOPSOIL dark brown frozen loam w/white specks											JHS=0.3 ppm
3	914.34	TILL, brown moist CLAYEY SILT, little-some sand, little gravel, firm, CL		2 SS	1 2 3 3	0.8	5						
4	913.34	Brown moist CLAYEY SILT, some sand, 25-40% gravel, stiff, CL											JHS=0.3 ppm
5	912.34			3 SS	4 6 4 4	0.8	10						
6	911.34	STRATIFIED brown moist SILTY SAND, mostly coarse sand, trace-little silt, loose when disturbed, loose, SM											JHS=0.3 ppm
7	910.34			4 SS	3 4 6 6	0.4	10						
8	909.34	Brown moist SAND, mostly fine-medium sand, trace coarse, trace-no silt, loose when disturbed, very loose, SP-SM											JHS=0.3 ppm
9	908.34			5 SS	1 1 1 3	1.1	2						
10	907.34	Brown moist becoming wet at 11.0 SAND, mostly fine, little very fine sand, trace silt, liquifies when disturbed, loose, SP											JHS=0.2 ppm
11	906.34			6 SS	1 1 3 3	1.5	4						
12	905.34	Brown wet SAND, mostly fine-medium sand, trace silt & gravel, gravel mostly subrounded and subangular, loose when disturbed, loose,SP											JHS=0.2 ppm
13	904.34			7 SS	3 3 5 6	1.8	8						
14	903.34	Brown wet SILTY SAND, mostly fine & very fine sand, trace medium size, little silt, liquifies when disturbed, loose, SP-SM occasional Cobbles at 14.5'											JHS=0.3 ppm
15	902.34			8 SS	1 12 14 17	1.1	26						
16	901.34												JHS=0.2 ppm
17	900.34			9 SS	1 2 5 5	1.2	7						
18	899.34												JHS=0.3 ppm
19	898.34			10 SS	2 3 5 7	1.4	8						
20	897.34	Boring complete at 20' w/augers at 18.5'. Set well											

BOREHOLE LOG MPI-3S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/18/84
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JPH/RHO
SURFACE ELEVATION: 914.79ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	913.79	TOPSOIL dark brown moist gray CLAYEY SILTY,trace fine gravel, trace-little clay		1 SS	1 1 2 1	1.2	3						JHS=0.1 ppm
2	912.79	TILL brown ext. moist SANDY SILT,little fine-coarse sand trace-little gravel shale clasts,trace clay,blocky,v.loose,SM											
3	911.79	Light brown moist SANDY SILT, trace-little black shale gravel clasts, little very fine-coarse sand & trace clay, soft, ML		2 SS	1 1 1 1	0.8	2						JHS=0.1 ppm
4	910.79												
5	909.79	Light brown-olive moist SILTY SAND,w/iron stained mottling,little-some fine gravel to 1/4" diameter,little very fine-coarse sand,compact,SP-SM		3 SS	1 4 7 6	1.1	11						JHS=0.2 ppm
6	908.79												
7	907.79	No Recovery		4 SS	4 3 2 4	0	5						
8	906.79	Grayish brown wet Sandy Gravel,fine-coarse sand,w/gravel, trace silt,mottled,iron stained, black shale gravel clasts to 1/2" dia.,thin light gray silt parting to 1/2",loose when disturbed,compact,GW-GM											JHS=0.8 ppm
9	905.79			5 SS	2 4 8 12	1.0	13						
10	904.79												JHS=1.8 ppm
11	903.79	Grayish brown wet GRAVEL,w/fine-coarse sand, little silt,black shale gravel clasts to 1/2" dia., lgt gray silt partings to 1/2",compact,GW-GM		6 SS	4 10 9 15	0.5	19						
12	902.79												JHS=1.2 ppm
13	901.79	Grayish brown wet fine-coarse GRAVEL w/1" diameter, some very fine-coarse sand,mottled,iron stains throughout,trace silt,compact,GW-GM		7 SS	10 12 14 18	1.4	26						
14	900.79												JHS=0.1 ppm
15	899.79	Gravel,subrounded to 1/4" diameter,compact,GP		8 SS	6 6 5 4	1.8	11						
16	898.79	Orange-brown wet SAND,iron stained,v.fine-fine sand,trace-little silt,liquifies when disturbed,compact,SM											JHS=0.1 ppm
17	897.79	Gray wet SAND,v.fine-fine sand,trace-little silt, liquifies when disturbed,compact,SM		9 SS	WR 2 2 2	0.8	4						
18	896.79	Gray wet SAND,v.fine sand,trace-little silt,occ. silty clay parting to 1/4" thick as bedding fabric,liquifies when disturbed,compact,SM											
19	895.79												
20	894.79	Boring complete at 18'. Set well											

BOREHOLE LOG MPI-4D

PROJECT: MR. C CLEANERS REMEDIAL INVESTIGATION
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 2/15/94-2/17/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.14ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
WH Weight of Hammer
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace

x---x Penetration Resistance ("N" Blows/1 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	915.14	TOPSOIL dark brown (frozen from 0-.2), moist SILT LOAM, little sand, some roots, stiff, CL-ML		1 SS	3 4 7 7	0.3	11						JHS=.1
2	914.14	no recovery, firm											JHS=1.2
3	913.14			SS	3 3 3 3	0.0	6						
4	912.14												JHS=0
5	911.14	FILL, dark brown moist CLAYEY SILT with trace shale gravel and sand, brick frag, firm, CL		2 SS	2 3 3 8	1.0	6						
6	910.14	TILL, brown moist CLAYEY SILT with little sand and gravel, trace roots, stiff, CL											JHS=0.2
7	909.14	TILL, grayish brown moist CLAYEY SILT with 15-40% mostly angular shale gravel, trace to little sand, stiff, CL		3 SS	5 7 7 8	0.5	14						
8	908.14												JHS=0.1
9	907.14			4 SS	4 5 6 6	0.2	11						
10	906.14												JHS=0.1
11	905.14			5 SS	2 3 4 4	0.9	7						
12	904.14	STRATIFIED, Dark brown moist-extremely moist SILTY SANDY GRAVEL W/40- 60% mostly subrounded gravel, little shale frag, little-some medium to coarse sand, little silt, trace clay, loose, GM											JHS=0.2
13	903.14	becoming wet at 12'		6 SS	2 3 3 4	0.8	6						
14	902.14	Brown wet SAND, mostly fine sand with trace medium, liquifies when disturbed, loose, SP-SM											JHS=0.1
15	901.14			7 SS	2 2 4 4	1.1	6						
16	900.14	becoming compact at 16'											JHS=0.1
17	899.14			8 SS	5 5 7 8	1.3	12						
18	898.14	Grayish brown wet SAND, mostly fine sand with trace very fine, liquifies when disturbed, compact, contains occasional lenses of SAND, mostly medium w/some fine sand, loose, SP											JHS=0.1
19	897.14			9 SS	2 3 5 5	1.4	8						
20	896.14												

BOREHOLE LOG MPI-4D

PROJECT: MR. C CLEANERS REMEDIAL INVESTIGATION
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 2/15/94-2/17/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.14ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
WH Weight of Hammer
NR No Recovery

JHS HNU reading in jar headspace

x---x Penetration Resistance ('N' Blows/1 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
21	895.14	continued from page 1		10 SS	2 3 5 7	2.0	8						JHS=0.1
22	894.14												
23	893.14			11 SS	1 5 5 7	1.0	10						JHS=0.1
24	892.14												
25	891.14	Brownish gray wet SAND, mostly very fine and fine size sand, trace silt, compact, liquifies when disturbed, SP		12 SS	2 4 2 3	0.9	6						JHS=0.8
26	890.14												
27	888.14			13 SS	2 3 5 6	2.0	8						JHS=1.0
28	888.14	Gray wet SAND, mostly very fine size, little silt, liquifies when disturbed, loose, SM											
29	887.14			14 SS	1 2 2 4	2.0	4						JHS=0.5
30	886.14	Brownish gray wet SAND, mostly fine to medium size sand, little silt, trace to no gravel, liquifies when disturbed, very loose, SP-SM											JHS=0.2
31	885.14			15 SS	4 8 15 18	1.3	23						
32	884.14	Gray wet SAND, mostly very fine to fine size sand, little to some silt, trace to little clay, liquifies when disturbed, compact, SM two clayey silt lenses at 31.0', approximately 1/8" thick one clayey silt lenses at 32.5'											JHS=0
33	883.14			16 SS	3 4 6 10	1.4	10						
34	882.14												JHS=0
35	881.14			17 SS	3 4 5 5	1.5	9						
36	880.14												JHS=0
37	879.14			18 SS	6 6 5 5	1.3	11						
38	878.14												JHS=0.1
39	877.14			19 SS	6 8 8 7	1.6	16						
40	876.14												

BOREHOLE LOG MPI-4D

PROJECT: MR. C CLEANERS REMEDIAL INVESTIGATION
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 2/15/94-2/17/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.14ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
WH Weight of Hammer
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace

x---x Penetration Resistance ('N' Blows/1 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: 'N'-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
41	875.14	continued from page 2		20 SS	4 5 6 8	1.7	11						JHS=0
42	874.14	Brownish gray wet SANDY SILT,w/mostly v.fine -fine sand,occ.silty clay lenses approx.1/8" thick, sandy silt liquifies when disturbed,loose,ML		21 SS	2 3 4 4	1.8	7						JHS=0.1
43	873.14												
44	872.14	Brownish gray wet CLAYEY SILT w/little fine sand,firm,CL		22 SS	1 1 2 2	1.4	3						JHS=0
45	871.14	Brownish gray wet SANDY SILT w/mostly v.fine-fine sand, alternating w/CLAYEY SILT,w/little clay,approx 6-8 layers/inch,sandy silt liquifies when disturbed,very loose SM,CL											
46	870.14			ST	-	2.0	-						JHS= -
47	869.14	SILTY SAND 0.1' thick at 46.2' & 0.3' at 46.5',mostly v.fine sand			-								
48	868.14	Grey ext. moist CLAYEY SILT w/occ. v.fine size sand parting, CL		23 SS	5 6 8 9	1.8	14						JHS=0.1
49	867.14	Grey extremely moist CLAYEY SILT tending toward SANDY SILT, v.thin fine sand partings making clayey silt lenses approx 1/2" thick, CL											
50	866.14	Brownish grey wet alternating layers of SANDY SILT & CLAYEY SILT approx 1/16"-1/4" thick,sandy silt liquifies when disturbed,2-1" thick sandy silt layers at 49.0'&49.5',CL,SM		24 SS	3 5 7 6	1.4	12						JHS=0.1
51	865.14												
52	864.14	Gray extremely moist SILTY CLAY w/an occ.v.thin silt parting,stiff,CL		25 ST	-	2.0	-						JHS=0
53	863.14				-								
54	862.14	Grey ext. moist SANDY SILT w/v.fine-fine sand,liquifies when disturbed,SM		26 SS	WH 2 4 4	1.5	6						JHS=0.1
55	861.14	Gray ext. moist SILTY CLAY,CL											
56	860.14	Gray wet medium SAND,loose when disturbed,SP		27 SS	1 4 4 6	2.0	8						JHS=0.2
57	859.14	Gray ext. moist SILTY CLAY, soft, CL											
58	858.14	Gray wet medium SAND,loose when disturbed,SP		28 SS	2 3 4 4	2.0	7						JHS=0.1
59	857.14	Gray ext. moist SILTY CLAY,w/occ.v.thin silt lenses,firm,CL											
60	856.14												

BOREHOLE LOG MPI-4D

PROJECT: MR. C CLEANERS REMEDIAL INVESTIGATION
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 2/15/94-2/17/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.14ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
WH Weight of Hammer
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace

x----x Penetration Resistance ('N' Blows/1 ft.)
o----o Moisture Content ('N' %)

DEPTH (ftBGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
		Becoming stiff at 60.0'											
61	855.14			29 SS	2 4 6 8	2.0	10						JHS=0.1
62	854.14												JHS=0.1
63	853.14			30 SS	1 4 7 7	1.8	11						
64	852.14												JHS=0.1
65	851.14			31 SS	1 6 8 8	2.0	12						
66	850.14												JHS=0
67	849.14	Gray extremely moist CLAYEY SILT with thin medium to fine SAND lenses at 67' and from 67.5-68', 69.7-70.2', sand lenses liquify when disturbed, stiff, CL and SP-SM		32 SS	1 3 6 7	2.0	9						
68	848.14												JHS=0.1
69	847.14			33 SS	WH 3 5 7	2.0	8						
70	846.14												JHS=0.1
71	845.14			34 SS	3 4 5 8	2.0	9						
72	844.14												JHS=0.1
73	843.14	Gray wet SAND, mostly fine size, trace medium sand, liquifies when disturbed, one SILTY CLAY lens at 73' and at 74.5', compact, SP-SM		36 SS	3 5 8 9	2.0	13						
74	842.14												JHS=0.1
75	841.14	Gray extremely moist SILTY CLAY, stiff, CL		38 SS	2 3 4 5	2.0	7						
76	840.14												JHS=0.1
77	839.14			37 SS	4 4 6 9	2.0	10						
78	838.14	Gray extremely moist SAND, mostly medium, some fine size sand, trace to no silt, loose when disturbed, compact, SP											
79	837.14	Boring complete at 78.0'											
80	836.14												

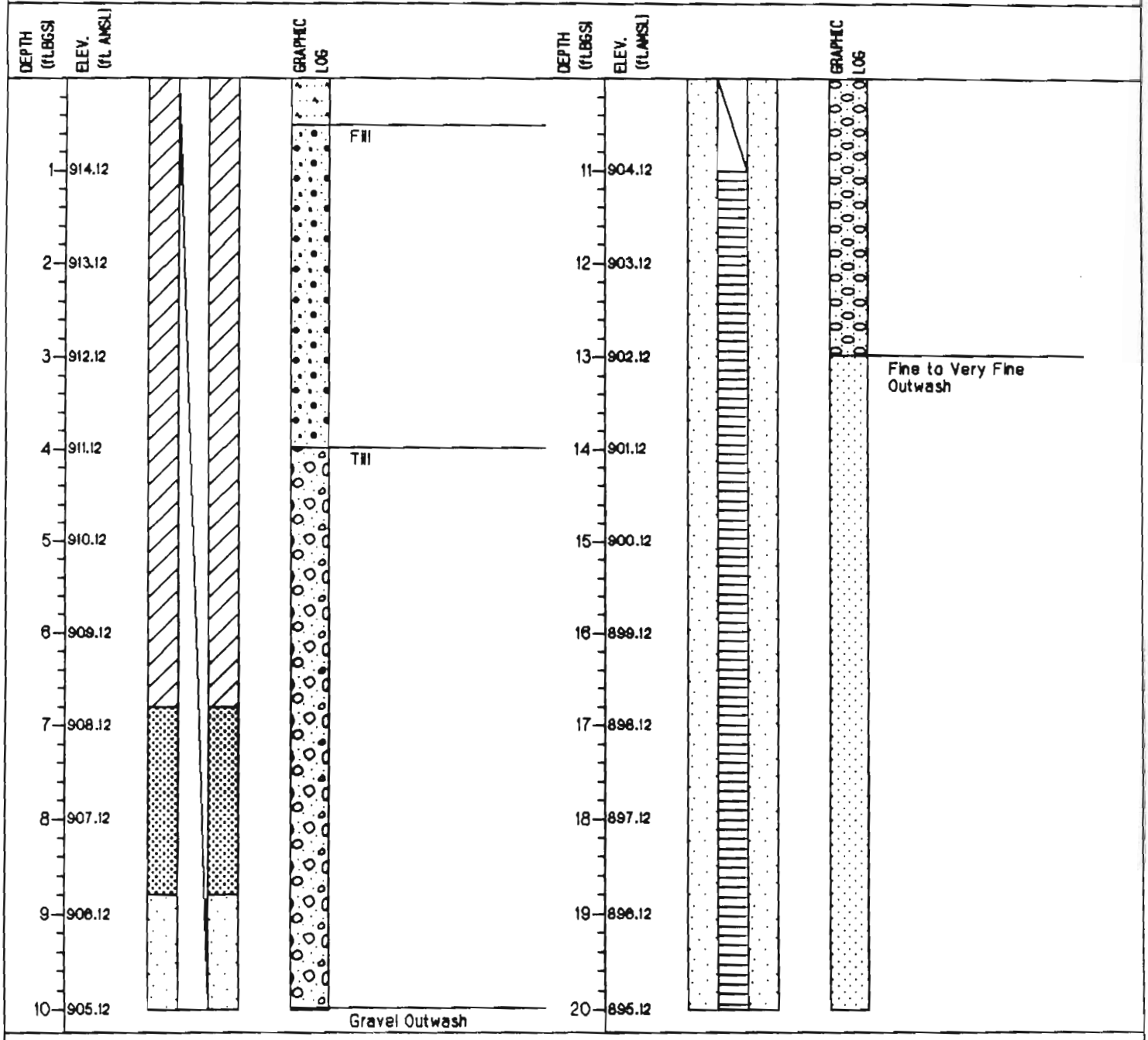
WELL/BOREHOLE MPI-4S CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0288-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/18/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 915.12ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 5.5 feet
- BENTONITE PELLET SEAL, 5.5 to 6.5 feet
- NORIE #0 SAND PACK, 6.5 to 21.5 feet
- 2-INCH DIAMETER SLOTTED (0.01")SCREEN, 11.0 to 21.0 feet
- 2-INCH DIAMETER RISER, 0 to 11.0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-4D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to approx .7 ft BGS.

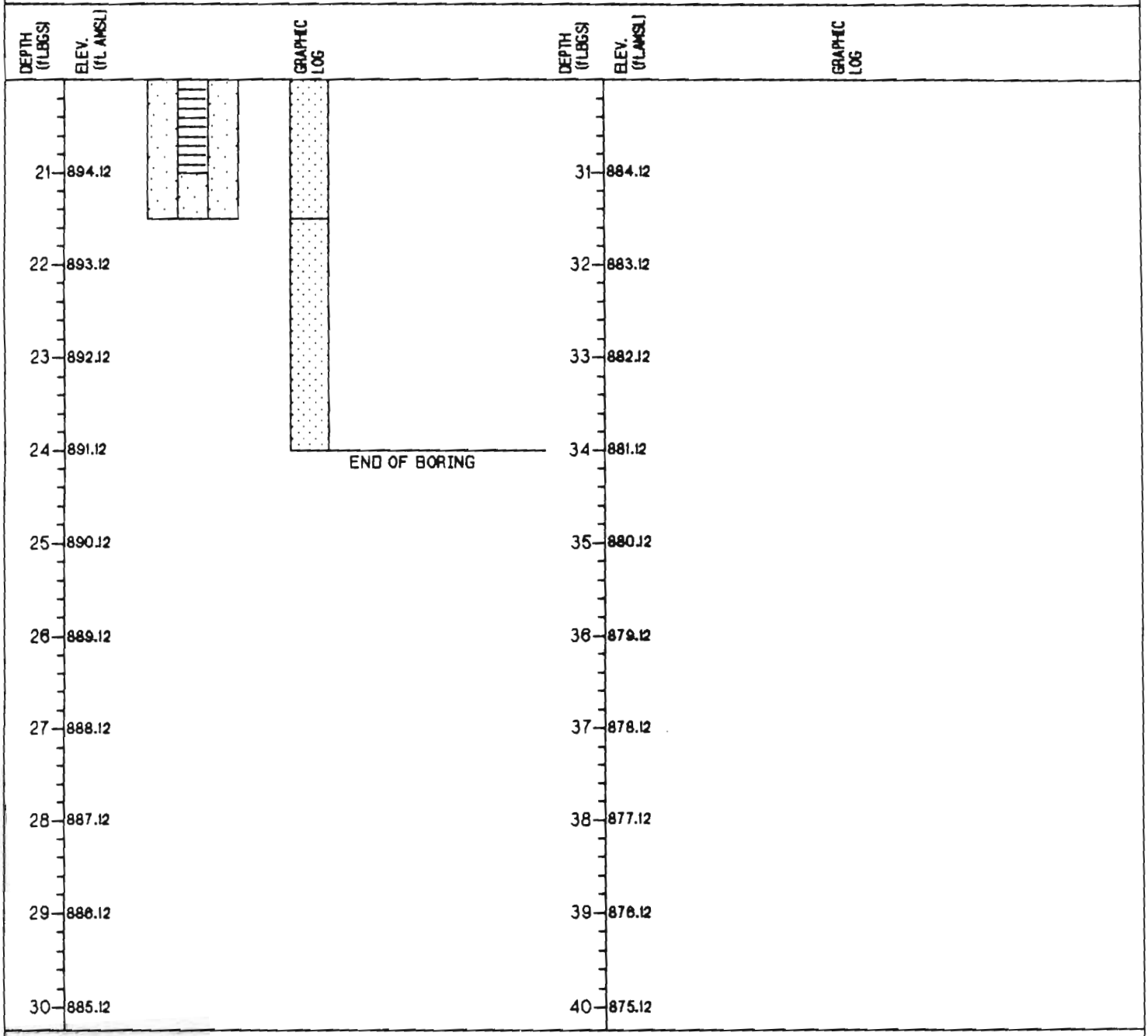
WELL/BOREHOLE MPI-4S CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/16/84
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 915.12ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL 0 to 6.6 feet
- BENTONITE PELLET SEAL 6.6 to 8.6 feet
- MORIE #0 SAND PACK 8.6 to 21.5 feet
- 2-INCH DIAMETER SLOTTED (0.01")SCREEN 11.0 to 21.0 feet
- 2-INCH DIAMETER RISER 0 to 11.0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-4D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to approx .7 ft BGS.

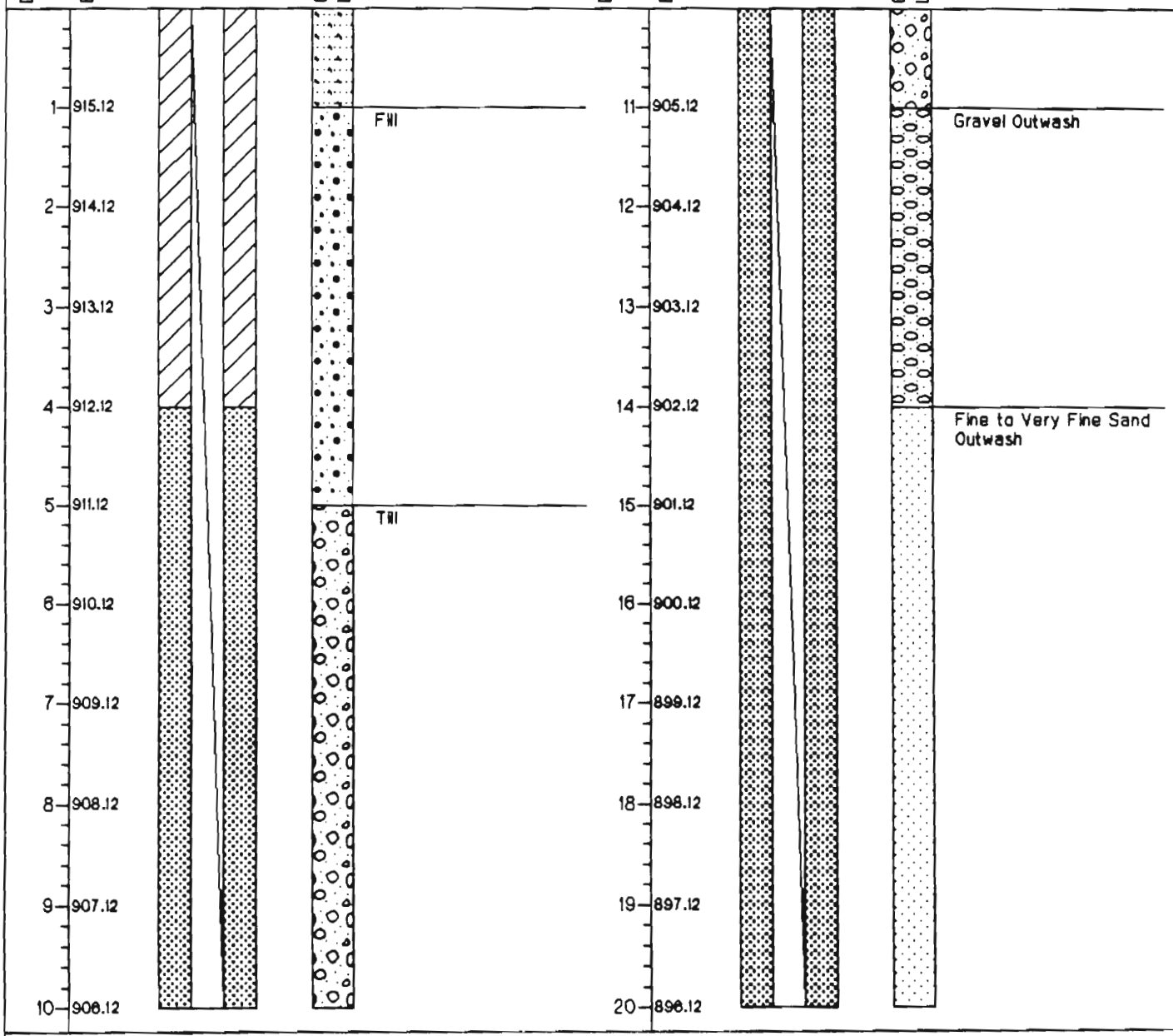
WELL/BOREHOLE MPI-4I CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0286-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.12ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 4.0 feet
- BENTONITE SLURRY SEAL, 4.0 to 29.8 feet
- NORIE #00 SAND PACK, 29.8 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.008")SCREEN, 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING
- 2-INCH DIAMETER RISER, 0 to 32.0 feet
- 8-INCH DIAMETER BOREHOLE
- 4-INCH DIAMETER BOREHOLE
- GRAPHIC LOG refer to BOREHOLE LOG MPI-4D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

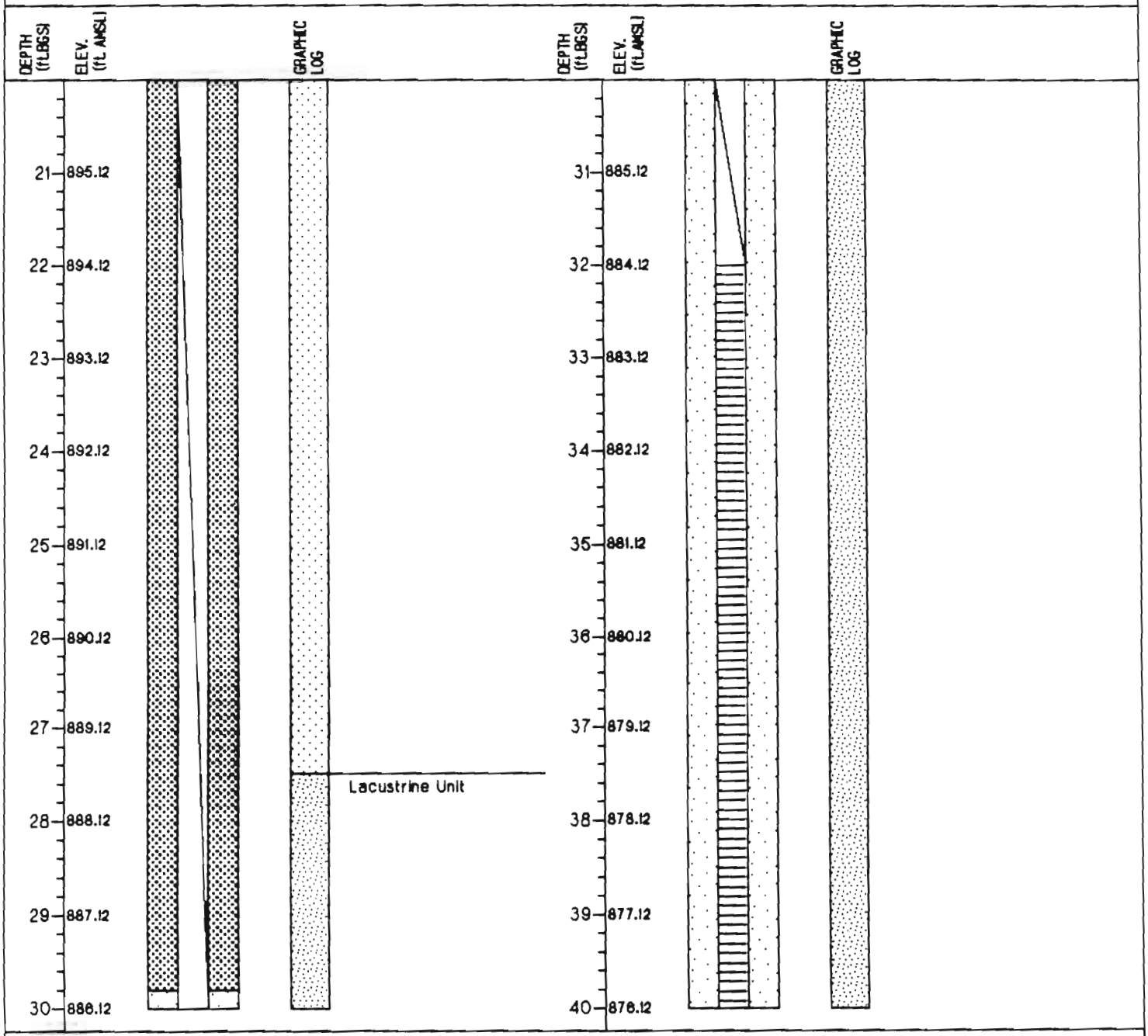
WELL/BOREHOLE MPI-4I CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.12ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL 0 to 4.0 feet
- BENTONITE SLURRY SEAL 4.0 to 29.8 feet
- NORIE #00 SAND PACK 29.8 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING
- 2-INCH DIAMETER RISER 0 to 32.0 feet
- 8-INCH DIAMETER BOREHOLE
- 4-INCH DIAMETER BOREHOLE
- GRAPHIC LOG refer to BOREHOLE LOG MPI-4D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

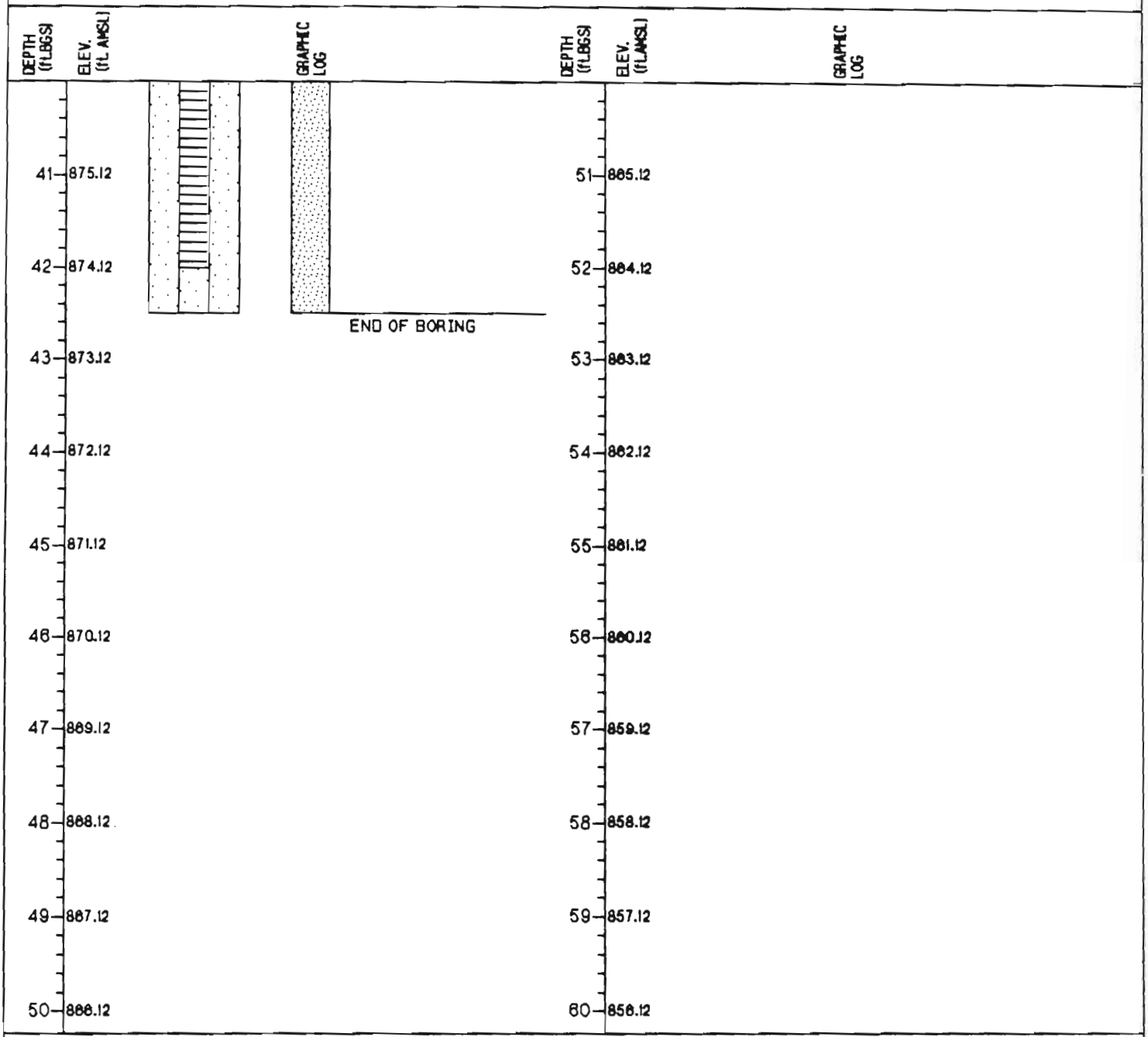
WELL/BOREHOLE MPI-4I CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.12ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL 0 to 4.0 feet
- BENTONITE SLURRY SEAL 4.0 to 29.8 feet
- MORIE #00 SAND PACK 29.8 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING
- 2-INCH DIAMETER RISER 0 to 32.0 feet
- 8-INCH DIAMETER BOREHOLE
- 4-INCH DIAMETER BOREHOLE
- GRAPHIC LOG refer to BOREHOLE LOG MPI-4D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

BOREHOLE LOG MPI-5D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/23/84 - 2/25/84
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 816.49ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x----x Penetration Resistance ('N' Blows/1.0 ft.)
o----o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	'N'-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	815.49	Drilled to 0.5', FILL Grayish Brown slightly moist GRAVEL, some sand, little silt, trace clay, GM		1 SS	18 33 21	1.8	48						JHS=0.3 ppm
2	814.49	Brown slightly moist CLAYEY SILTY GRAVEL, 15-40% gravel, some sand and silt, trace clay, trace foundry sand, hard, GM		2 SS	17 25 20 22	1.7	45						JHS=0.5 ppm
3	813.49												
4	812.49	TILL, Brown slightly moist CLAYEY SILT w/25-40% gravel, little fine-coarse sand, massive w/trace laminations, hard becoming stiff at 4.0', CL		3 SS	6 7 7 7	1.7	14						JHS=0.4 ppm
5	811.49												
6	810.49			4 SS	6 7 3 2	0.6	10						JHS=0.8 ppm
7	809.49												
8	808.49	STRATIFIED grayish brown moist GRAVELLY SAND, 40-60% mostly fine gravel, mostly coarse sand, loose, GP		5 SS	4 3 6 9	0.8	9						JHS=0.8 ppm
9	807.49												
10	806.49	becoming compact at 10.0'		6 SS	6 12 14 12	0.1	26						JHS=0.7 ppm
11	805.49												
12	804.49			7 SS	5 4 5 6	1.3	9						JHS=2.2 ppm
13	803.49	Gray wet SAND, mostly medium-coarse sand, little fine, trace subangular and subround gravel, petroleum odor, loose, SP											
14	802.49	Brown wet SAND, mostly fine, some very fine sand, loose, liquifies when disturbed, SP-SM		8 SS	4 3 4 4	1.0	7						JHS=0.3 ppm
15	801.49												
16	800.49			9 SS	3 4 5 5	1.9	9						JHS=0.1 ppm
17	799.49												
18	798.49	Brown wet mostly v.fine SAND, trace v.fine sand trace-little silt, liquifies when disturbed, loose, SP-SM		10 SS	6 4 5 7	1.2	9						
19	797.49												
20	796.49	Brown wet SAND, trace-no silt, mostly medium sand, little fine, loose, SP											

BOREHOLE LOG MPI-5D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0268-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/23/94 - 2/25/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.49ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD	WELL DIAGRAM	COMMENTS (USCS)
21	895.49			11 SS	3 3 4 5	1.0	7						JHS=0.2 ppm
22	894.49	STRATIFIED brown wet SILTY SAND, some silt, mostly very fine sand, compact, liquifies when disturbed, SM		12 SS	5 8 7 8	1.1	15						JHS=0.1 ppm
23	893.49												
24	892.49	becoming loose at 24.0'		13 SS	5 4 5 7	1.0	9						JHS=0.2 ppm
25	891.49												
26	890.49	Brownish gray wet SAND, trace-little silt, mostly fine sand, trace medium and very fine sand, compact, liquifies when disturbed, SM		14 SS	7 6 6 7	1.5	12						JHS=0.2 ppm
27	889.49												
28	888.49	Brownish gray wet SAND, mostly very fine sand, little fine sand, trace to little silt, very dense, liquifies when disturbed, SM		15 SS	18 35 34	1.1	69						JHS=0.2 ppm
29	887.49												
30	886.49	becoming compact at 30'		16 SS	5 5 6 6	1.1	11						JHS=0.1 ppm
31	885.49												
32	884.49	becoming loose at 32'		17 SS	5 3 3 3	1.2	6						JHS=0.1 ppm
33	883.49												
34	882.49			18 SS	3 4 5 6	1.1	9						JHS=0.1 ppm
35	881.49												
36	880.49			19 SS	5 4 4 3	1.0	8						JHS=0.1 ppm
37	879.49												
38	878.49			20 SS	4 3 4 5	1.1	7						JHS=0 ppm
39	877.49												
40	876.49												

BOREHOLE LOG MPI-5D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0288-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/23/94 - 2/25/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.49ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x----x Penetration Resistance ("N" Blows/1.0 ft.)
o----o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
41	875.49	STRATIFIED brownish gray wet SAND, mostly very fine, little fine sand, trace-little silt, loose, liquifies when disturbed, SM		21 SS	WR 1 3 5	1.3	4						JHS=0.1 ppm
42	874.49												JHS=0 ppm
43	873.49	LAMINATED Gray wet CLAYEY SILT, little clay, mostly silt, little fine sand, firm, CL		22 SS	2 3 3 4	1.5	6						
44	872.49												JHS=0.1 ppm
45	871.49	Gray wet SILTY SAND, mostly fine sand, some silt, trace-little clay, very stiff, liquifies when disturbed, SM		23 SS	6 9 8 9	2.0	17						
46	870.49												JHS=0.1 ppm
47	869.49	Gray wet CLAYEY SILT, with fine sand partings, making Clayey Silt 1/8"-1" thick, mostly silt, little-some clay, firm, CL		24 SS	3 2 3 4	2.0	5						
48	868.49												JHS=0 ppm
49	867.49			25 SS	3 3 4 5	2.0	7						
50	866.49	Brownish gray wet SAND, medium sand, loose, SP											JHS=0 ppm
51	865.49	Gray extremely moist SILTY CLAY, some silt, firm, CL, gray wet SILTY SAND at 54.0' and 55.5'		26 SS	1 3 5 8	2.0	8						
52	864.49												JHS=0.1 ppm
53	863.49			27 SS	1 3 4 4	2.0	7						
54	862.49												
55	861.49			ST		2.0	-						
56	860.49												
57	859.49	Gray wet SAND, mostly medium, trace fine sand, loose, SP		28 SS	6 6 8 9	2.0	14						
58	858.49	Gray wet CLAYEY SILT, some clay, silt and sand partings .3' thick, stiff, CL											JHS=0.1 ppm
59	857.49	Gray wet SAND, mostly medium, trace fine sand, loose, SP		29 SS	2 3 5 8	2.0	8						
60	856.49	Gray extemely moist SILTY CLAY, some silt, stiff, CL											

BOREHOLE LOG MPI-5D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/23/94 - 2/25/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.49ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ('N' Blows/1.0 ft.)
o---o Moisture Content ('N' %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: 'N'-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
61	855.49	Gray extremely moist SILTY CLAY, some silt, stiff, CL		30 SS	2 4 8 11	2.0	12						JHS=0.1 ppm
62	854.49												JHS=0.1 ppm
63	853.49			31 SS	WR 4 6 9	2.0	10						
64	852.49	Boring complete at 64' with augers at 62', sampled to 64'. Grouted hole with cement bentonite grout at completion.											
65	851.49												
66	850.49												
67	849.49												
68	848.49												
69	847.49												
70	846.49												
71	845.49												
72	844.49												
73	843.49												
74	842.49												
75	841.49												
76	840.49												
77	839.49												
78	838.49												
79	837.49												
80	836.49												

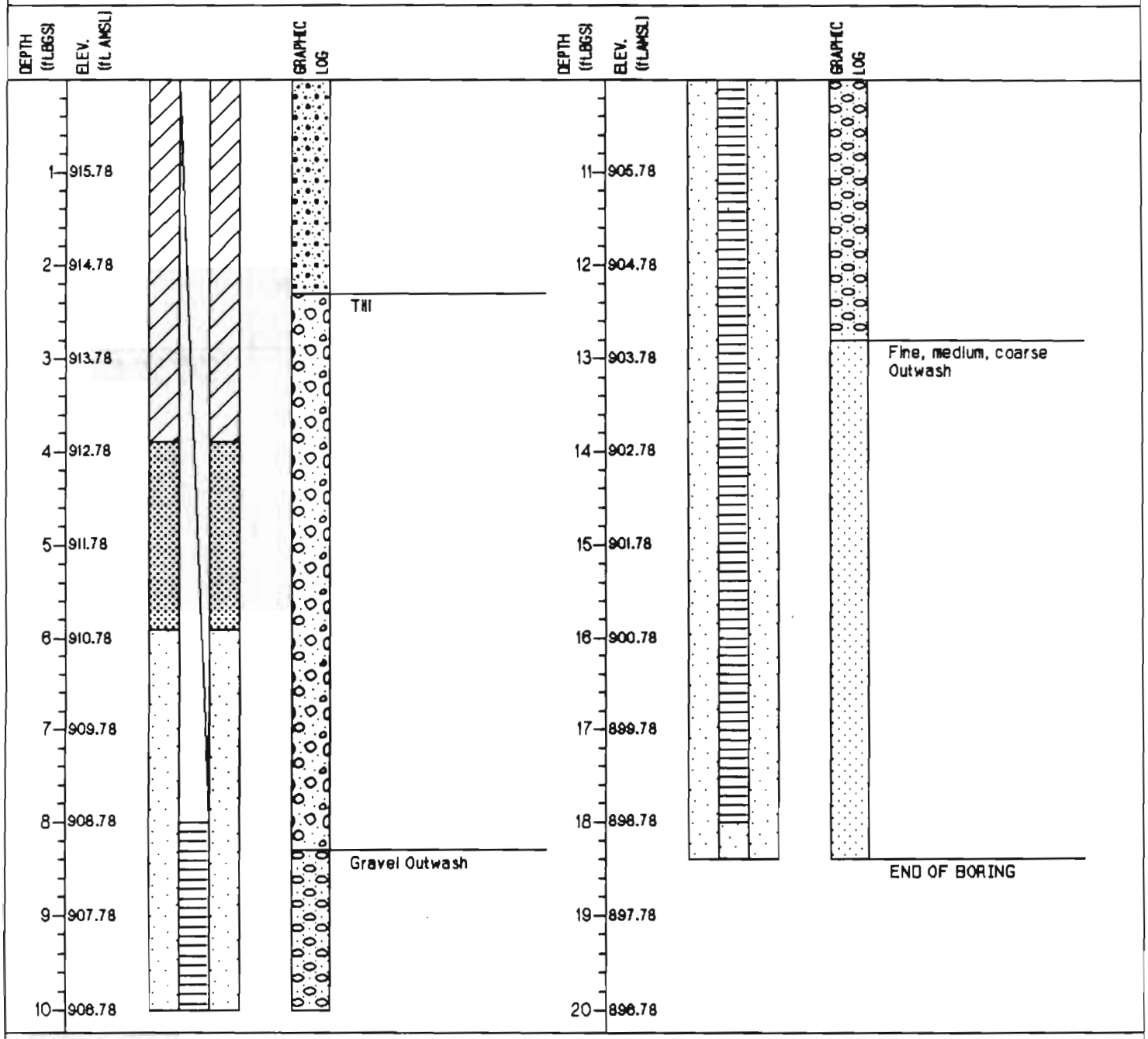
WELL/BOREHOLE MPI-5S CONSTRUCTION DETAILS

PROJECT: MR. C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.78ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL 0 to 3.9 feet
- BENTONITE PELLET SEAL 3.9 to 5.9 feet
- MORIE #0 SAND PACK 5.9 to 18.4 feet
- 2-INCH DIAMETER SLOTTED (0.01")SCREEN 8.0 to 18.0 feet
- 4-INCH DIAMETER CASING
- 2-INCH DIAMETER RISER 0 to 8.0 feet
- 8-INCH DIAMETER BOREHOLE
- 4-INCH DIAMETER BOREHOLE
- GRAPHIC LOG refer to BOREHOLE LOG MPI-5D for a complete description



NOTES: 1. 0.7 ft. long by 8-in. diameter curb box extends to 0.7 ft. BGS.

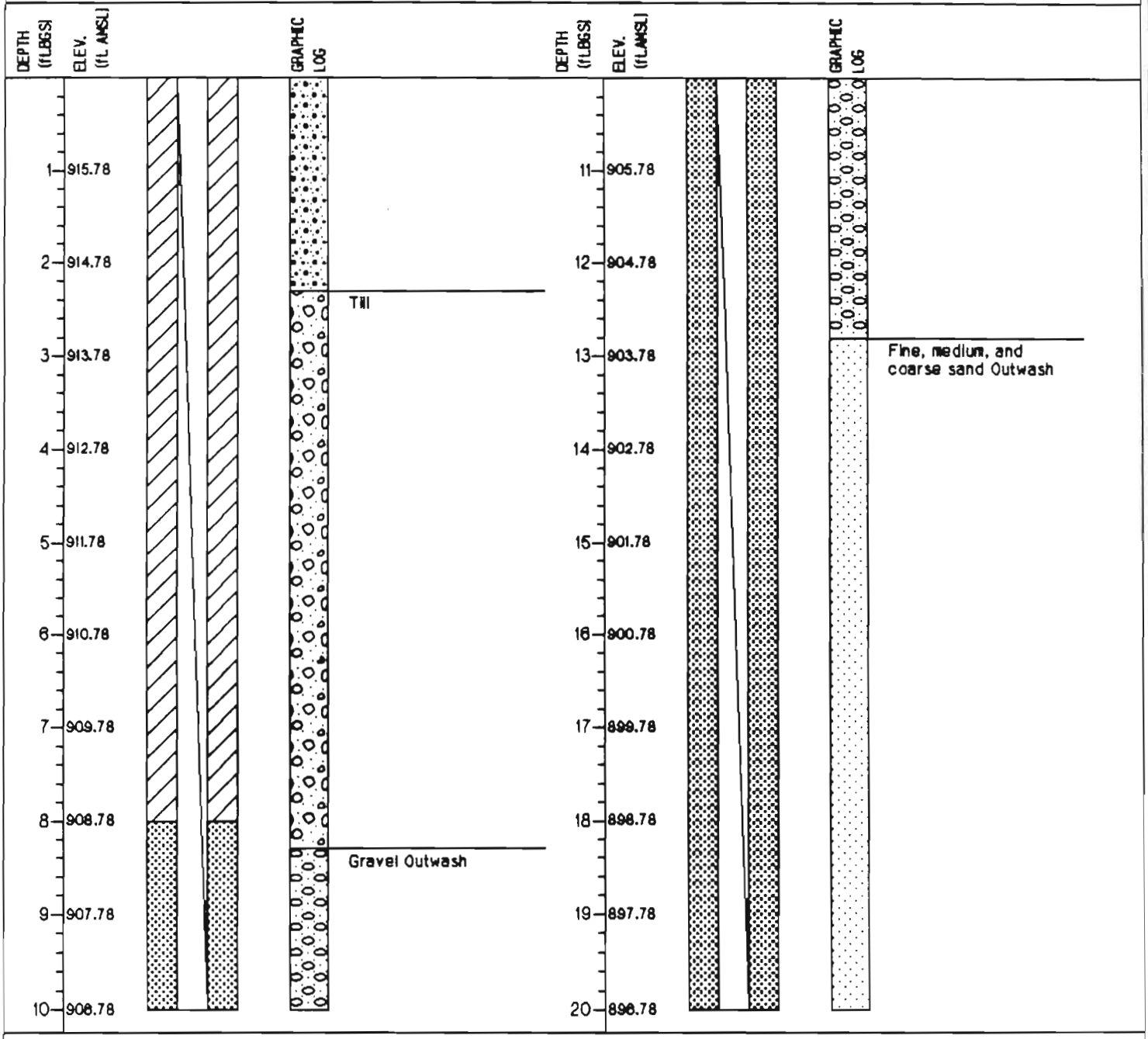
WELL/BOREHOLE MPI-5I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 915.78ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 6.0 feet
- BENTONITE SLURRY SEAL, 6.0 to 30 feet
- NORIE #00 SAND PACK, 30 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN, 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 32.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-5D for a complete description



NOTES: 1. 0.7 FT. long by 6-in. diameter curb box extends to 0.5 ft. BGS.

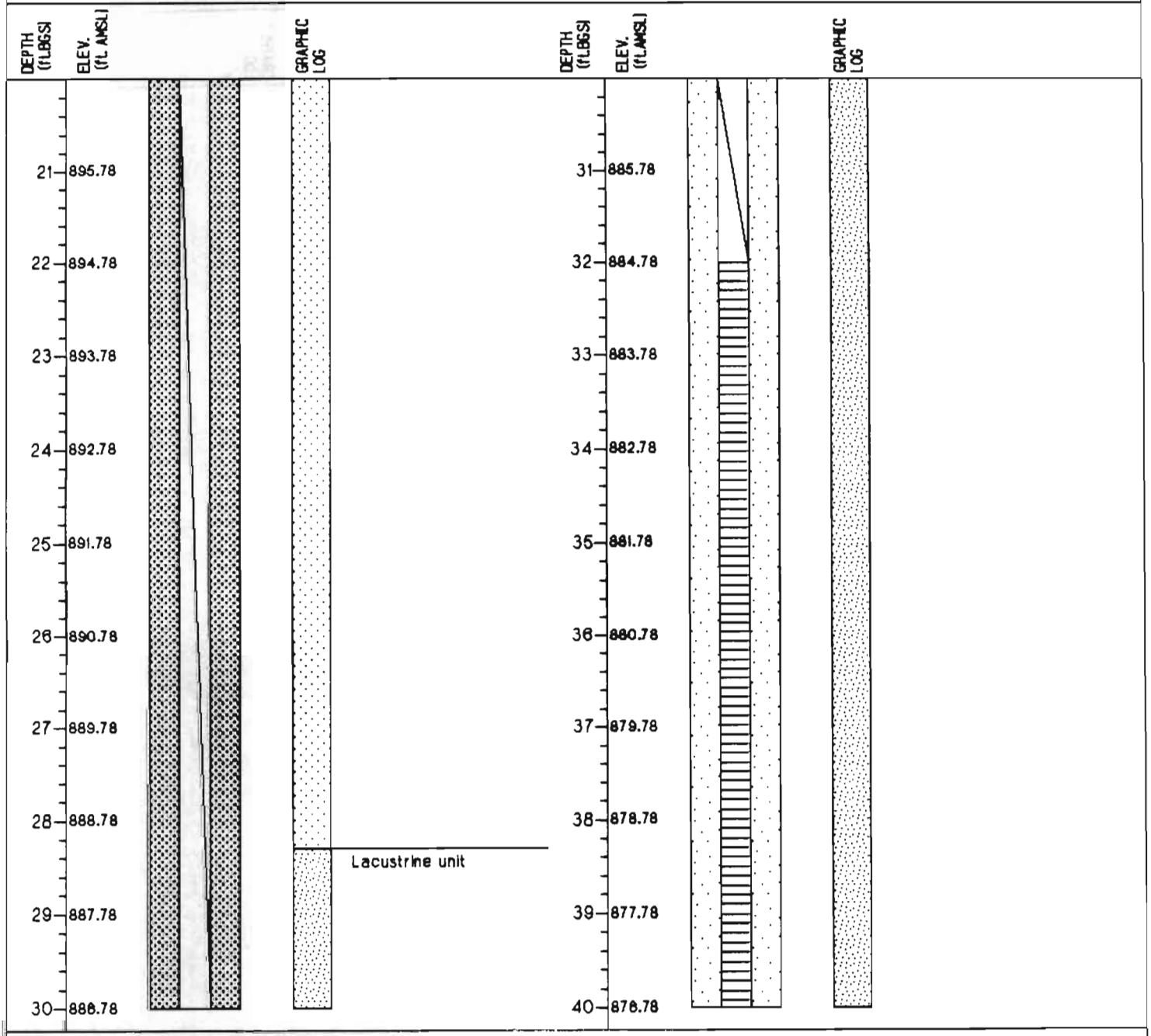
WELL/BOREHOLE MPI-5I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.78ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 8.0 feet
- BENTONITE SLURRY SEAL, 8.0 to 30 feet
- NORIE #00 SAND PACK, 30 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN, 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 32.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-5D for a complete description



NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

WELL/BOREHOLE MPI-5I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.78ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 6.0 feet
- BENTONITE SLURRY SEAL, 6.0 to 30 feet
- NORIE #00 SAND PACK, 30 to 42.5 feet
- 2-INCH DIAMETER SLOTTED (0.006" SCREEN, 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 32.0 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-5D for a complete description

DEPTH (ftBGS)	ELEV. (ftAMSL)	GRAPHIC LOG	DEPTH (ftBGS)	ELEV. (ftAMSL)	GRAPHIC LOG
41	875.78		51	865.78	
42	874.78		52	864.78	
		END OF BORING			
43	873.78		53	863.78	
44	872.78		54	862.78	
45	871.78		55	861.78	
46	870.78		56	860.78	
47	869.78		57	859.78	
48	868.78		58	858.78	
49	867.78		59	857.78	
50	866.78		60	856.78	

NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

BOREHOLE LOG MPI-6S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/10/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 915.35ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.9in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	914.35	FILL olive gray moist SANDY GRAVEL, some sand, 40-60% gravel, mostly angular, little silt,compact,GM		1 SS	12 8 6 4	1.5	14						JHS=0.4 ppm
2	913.35	Black moist SILTY SAND,little silt,trace gravel,little organic matter,compact,SM											JHS=0.3 ppm
3	912.35	Dark brown moist CLAYEY SILT,little clay & gravel, trace roots,stiff,CL		2 SS	4 6 4 4	1.3	10						
4	911.35	Brown moist SILTY SAND,some fine sand,trace v.fine,medium & coarse											JHS=0.2 ppm
5	910.35	sand,trace gravel,loose,SM		3 SS	8 21 11 14	0.8	32						
6	908.35	TILL,brown moist CLAYEY SILT,little clay & sand, trace gravel & roots, root channels filled w/gray clay,hard,CL											JHS=0.2 ppm
7	908.35	STRATIFIED Brown ext moist to wet SILTY GRAVEL, some silt, little		4 SS	3 5 4 6	0.5	9						
8	907.35	sand,mostly angular fine gravel, trace clay,loose,GM											JHS=0.3 ppm
9	906.35	becoming wet at 8.0'		5 SS	4 7 8 7	0.7	15						
10	905.35	LAMINATED,Brown moist SILTY SAND,some sand & silt, mostly fine											JHS=0.2 ppm
11	904.35	sand,compact,SM		6 SS	3 4 3 6	1.0	7						
12	903.35	LAMINATED Brown moist SANDY SILT,w/clayey silt interbeds ~1" thick,sandy silt layers w/little											JHS=0.3 ppm
13	902.35	clay,firm,loose,SM STRATIFIED Brownish gray wet medium		7 SS	6 7 13 10	1.0	20						
14	901.35	SAND,little fine sand,little fine angular shale gravel,compact,SP											JHS=1.8 ppm
15	900.35	Grayish brown wet SAND,mostly coarse,some medium sand,trace silt,little		8 SS	3 5 7 11	1.2	12						
16	899.35	subangular and subrounded gravel,compact,SP											JHS=13.4 ppm
17	898.35			9 SS	3 8 13 18	1.1	21						
18	897.35	Brown ext. moist SANDY SILT, w/fine, medium, & coarse sand, little-some silt,											JHS=0.2 ppm
19	896.35	trace fine gravel,compact,SM		10 SS	1 3 6 7	1.1	9						
20	895.36	Gray wet SILTY SAND, little silt, mostly fine sand, little very fine sand, liquifies when disturbed, loose, SM											

BOREHOLE LOG MPI-6S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/10/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 915.351ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("W" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
21	894.35	Gray wet SILTY SAND, little silt, mostly fine sand, little very fine sand, liquifies when disturbed, loose, SM		11 SS	1 2 5 5	1.0	7						JHS=112 ppm
22	893.35												JHS=0.3 ppm
23	892.35			12 SS	1 2 6 7	1.0	8						
24	891.35	Sampled to 24',with augers at 23'.Set Well											
25	890.35												
26	889.35												
27	888.35												
28	887.35												
29	886.35												
30	885.35												
31	884.35												
32	883.35												
33	882.35												
34	881.35												
35	880.35												
36	879.35												
37	878.35												
38	877.35												
39	876.35												
40	875.35												

BOREHOLE LOG MPI-7D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/28/84
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.67ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
0		Augered to 1.0' through pavement and hard fill											JHS=3.5 ppm
1	915.67	FILL Brown frozen becoming moist to 2.2', CLAYEY SILT, with little sand and silt, w/10-25% subangular, subrounded and angular gravel, hard, CL		1 SS	18 22	1.0	>18						
2	914.67	becoming very stiff at 2.0'		2 SS	9 10 10 10	1.2	20						JHS=7.0 ppm
3	913.67												
4	912.67			3 SS	43 18 12 11	0.2	28						JHS=4.2 ppm
5	911.67												
6	910.67	Brown moist CLAYEY SILTY GRAVEL, some sand, 40-60% gravel, trace brick remnants, loose, GM		4 SS	2 2 2 2	0.2	4						JHS=16.8 ppm
7	909.67												
8	908.67			5 SS	3 5 4 4	0.2	9						JHS=2.9 ppm
9	907.67												
10	906.67			6 SS	8 9 10 12	1.0	19						JHS=18.8 ppm
11	905.67	Brown wet SILTY GRAVEL, mostly subangular and subrounded gravel, mostly 1/8-1/4" (some 1/2") gravel, little silt, some sand, compact, loose when disturbed, GM											
12	904.67			7 SS	5 6 7 5	0.6	13						JHS=9.5 ppm
13	903.67												
14	902.67	becoming loose at 14.0'		8 SS	4 3 2 4	0.7	5						JHS=1.2 ppm
15	901.67												
16	900.67	becoming compact at 16.0'		9 SS	4 6 8 8	0.9	14						JHS=0.8 ppm
17	899.67	STRATIFIED Brown moist SILTY SAND, some silt, 25-40% gravel, mostly subangular gravel, compact, SM											
18	898.67	Brown wet SILTY GRAVEL, with little sand, little silt, compact, loose when disturbed, GM		10 SS	6 8 4 6	0.3	10						JHS=3.4 ppm
19	897.67												
20	896.67												

BOREHOLE LOG MPI-7D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/28/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.87ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
21	895.87	STRATIFIED brown wet SILTY GRAVEL, with some medium and course sand, 40-60% gravel, little silt, compact, loose when disturbed, GM		11 SS	4 8 6 7	0.6	14						JHS=1.8 ppm
22	894.87												JHS=2.0 ppm
23	893.87	occasional sandstone cobble		12 SS	12 12 9 9	0.5	21						
24	892.87												JHS=0.9 ppm
25	891.87			13 SS	13 9 8 8	0.6	17						
26	890.87												JHS=0.2 ppm
27	889.87	Brown wet SAND, mostly fine, little medium sand, trace-no silt, compact, loose when disturbed, SP		14 SS	7 5 5 5	1.1	10						
28	888.87												JHS=0.1 ppm
29	887.87	Gray wet SAND, mostly fine, little medium sand, compact, loose when disturbed, SP		15 SS	6 5 8 8	1.3	13						
30	886.87	Gray wet SILTY SAND, with little silt, mostly fine sand, compact, liquifies when disturbed, SM											JHS=0.2 ppm
31	885.87			16 SS	7 9 7 7	0.3	16						
32	884.87	becoming loose at 32.0'											JHS=0.1 ppm
33	883.87			17 SS	3 3 3 4	2.0	6						
34	882.87												JHS=0.1 ppm
35	881.87			18 SS	4 3 3 3	2.0	6						
36	880.87												JHS=0.3 ppm
37	879.87			19 SS	3 3 4 5	2.0	7						
38	878.87	Gray wet SAND, mostly fine, trace very fine sand, loose, liquifies when disturbed, SP											JHS=0.1 ppm
39	877.87	Gray wet SILTY SAND, some silt, mostly very fine sand, loose, liquifies when disturbed, SM		20 SS	3 2 3 5	2.0	5						
40	876.87												

BOREHOLE LOG MPI-7D

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 02/28/94
DRILLING METHOD: 4.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.67ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft ANSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SOIL DATA: SAMPLE NO. / RUN NO.	SOIL DATA: BLOWS / 6"	SOIL DATA: RECOVERY (in)	SOIL DATA: "N"-VALUE	ROCK DATA: FROM/TO	ROCK DATA: DRILL RATE MIN./FT.	ROCK DATA: % REC.	ROCK DATA: % RQD.	WELL DIAGRAM	COMMENTS (USCS)
41	875.67	LAMINATED Gray wet CLAYEY SILT, with little-some clay, CL, alternating with SILTY SAND, with little- some silt, SM, each layer~1/4" thick, firm		21 SS	3 2 3 4	2.0	5						JHS=0.2 ppm
42	874.67												JHS=0.1 ppm
43	873.67	Gray moist CLAYEY SILT, with little-some clay, firm, CL		22 SS	1 2 3 3	2.0	5						
44	872.67	Gray wet SILTY SAND, some silt, mostly very fine sand, loose, liquifies when disturbed, SM											JHS=0.1 ppm
45	871.67			23 SS	1 2 3 4	2.0	5						
46	870.67	Gray wet CLAYEY SILT, with little-some clay, CL alternating with SILTY SAND, with little- some silt, clay layer~1/3" thick interbedded, SM sand layer 1/8-1/16" thick, firm											JHS=0 ppm
47	869.67			24 SS	2 4 4 7	2.0	8						
48	868.67	thicker Clayey Silt lenses ~1" thick one thicker Sand lense ~1" thick											JHS=0.1 ppm
49	867.67	Gray wet SAND, mostly medium sand, trace fine, loose, liquifies when disturbed, SP-SM		25 SS	3 4 5 5	2.0	9						
50	866.67												JHS=0.1 ppm
51	865.67	Gray extremely moist SANDY SILT, with thin layers of clayey sandy silt ~1/8" thick, loose, SM		26 SS	3 4 5 8	2.0	9						
52	864.67	Gray extremely moist SILTY CLAY, with some silt, occasional very thin sand lenses, stiff, CL											JHS=0.1 ppm
53	863.67			27 SS	3 6 6 8	2.0	12						
54	862.67	Gray wet SAND, mostly fine, trace medium, little very fine sand, compact, SP											JHS=0.1 ppm
55	861.67	Gray alternating layers of extremely moist SILTY SAND and SANDY SILT, with thin clay layers ~1/8" thick, stiff, SM and ML		28 SS	4 5 6 9	2.0	11						
56	860.67												JHS=0.1 ppm
57	859.67	Gray extremely moist SILTY CLAY, with some silt, stiff, CL		29 SS	3 4 6 8	2.0	10						
58	858.67												
59	857.67	Boring complete at 60' with augers at 58'. Grouted hole with cement/bentonite grout at completion.		ST		2.0							
60	856.67												

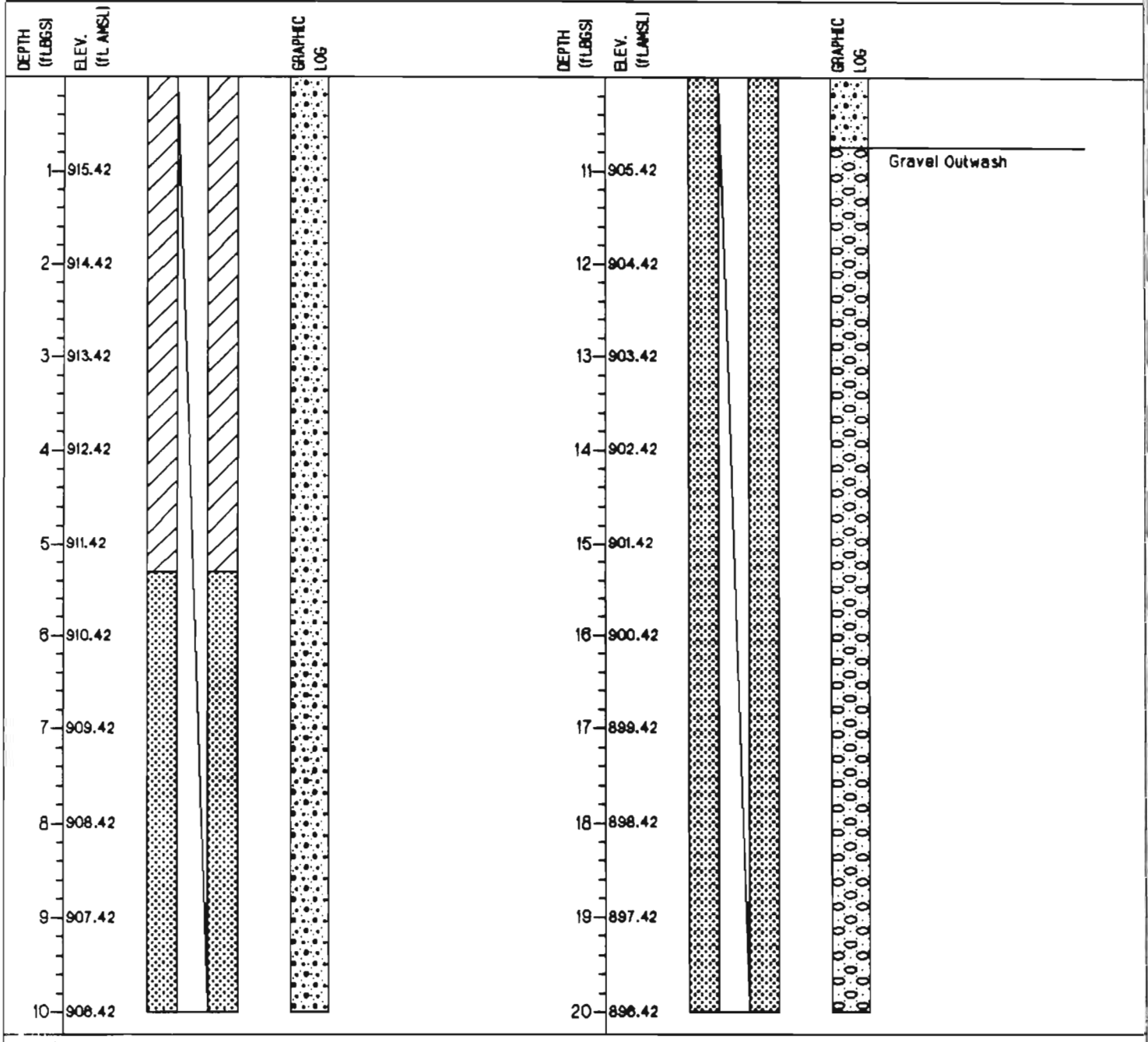
WELL/BOREHOLE MPI-7I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0288-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.42ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL, 0 to 5.3 feet
- BENTONITE SLURRY SEAL, 5.3 to 27.1 feet
- MORIE #00 SAND PACK, 27.1 to 40 feet
- 2-INCH DIAMETER SLOTTED (0.006" SCREEN, 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING, 0 feet
- 2-INCH DIAMETER RISER, 0 to 28.5 Feet
- 8-INCH DIAMETER BOREHOLE, 0 feet
- 4-INCH DIAMETER BOREHOLE, 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-7D for a complete description



NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

WELL/BOREHOLE MPI-7I CONSTRUCTION DETAILS

PROJECT: MR C CLEANERS
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 3/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JMA/RHO
SURFACE ELEVATION: 916.42ft.

SYMBOLS AND DEFINITIONS

- BENTONITE-CEMENT SEAL 0 to 5.3 feet
- BENTONITE SLURRY SEAL 5.3 to 27.1 feet
- NORIE #00 SAND PACK 27.1 to 40 feet
- 2-INCH DIAMETER SLOTTED (0.006")SCREEN 32.0 to 42.0 feet
- 4-INCH DIAMETER CASING 0 feet
- 2-INCH DIAMETER RISER 0 to 29.5 Feet
- 8-INCH DIAMETER BOREHOLE 0 feet
- 4-INCH DIAMETER BOREHOLE 0 feet
- GRAPHIC LOG refer to BOREHOLE LOG MPI-7D for a complete description

DEPTH (ftBGS)	ELEV. (ft AMSL)	GRAPHIC LOG
21	895.42	
22	894.42	
23	893.42	
24	892.42	
25	891.42	
26	890.42	
27	889.42	
28	888.42	
29	887.42	
30	886.42	

Fine Sand Outwash

Lacustrine unit

DEPTH (ftBGS)	ELEV. (ftAMSL)	GRAPHIC LOG
31	885.42	
32	884.42	
33	883.42	
34	882.42	
35	881.42	
36	880.42	
37	879.42	
38	878.42	
39	877.42	
40	876.42	

NOTES: 1. 0.7 FT. long by 8-in. diameter curb box extends to 0.5 ft. BGS.

BOREHOLE LOG MPI-8S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/21/94
DRILLING METHOD: 8.25-inch ID HSA
LOGGED/CHECKED BY: JPH/RHO
SURFACE ELEVATION: 915.01ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x----x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
1	914.01	Augered 1' through asphalt, pavement, and concrete		1 SS	4 4	0.7							JHS=0.8 ppm
2	913.01	FILL dark brown moist CLAY and SILT, little course sand and fine gravel, CL											
3	912.01	Brownish yellow moist SAND, fine-medium sand, trace-little fine gravel,compact,SP		2 SS	3 3 10 5	0.8	13						JHS=1.3 ppm
4	911.01	Moderate-dark brown moist GRAVELLY SILT, little-some subround gravel (shale) to 3/4" diameter, trace-little sand, trace clay, few Brick fragments,compact,GM		3 SS	8 10 12 16	0.5	22						JHS=0.7 ppm
5	910.01												
6	909.01	TILL, SILTY SANDY GRAVEL, to 3/4" diameter, little- some brown-orange silt and fine-medium sand. compact, GM											JHS=1.1 ppm
7	908.01	Dark gray moist SANDY GRAVEL, with trace silt and some medium to course sand, fine gravel to 3/4" dia., loose when disturbed,compact,GW-GM		4 SS	13 9 9 14	0.9	18						
8	907.01												JHS=5.8 ppm
9	906.01			5 SS	3 4 4 4	1.2	8						
10	905.01	SILT light brown, bedded laminae, trace sand, moist, stiff											JHS=2.2 ppm
11	904.01	GRAVEL, to 1/4" diameter, little fine-medium sand, trace-little silt, loose, GM		6 SS	4 4 4 3	1.1	8						
12	903.01	Wet SILTY SAND, w/little silt,heavily stained iron/siderite contact with laminae very fine-medium sand, liquifies when disturbed, loose, SM											JHS=0.4 ppm
13	902.01			7 SS	3 3 5 5	1.4	8						
14	901.01	Dark gray wet SAND, mostly medium, fine-course sand, well drained, loose,w/very fine grained laminae as bedding fabric,loose,SP											JHS=3.4 ppm
15	900.01			8 SS	2 4 5 6	1.1	9						
16	899.01												JHS=3.2 ppm
17	898.01			9 SS	2 3 3 4	1.0	6						
18	897.01	Dark gray wet SAND, very fine-fine sand, trace silt as thin laminated bedding fabric,loose,SM											JHS=8.2 ppm
19	896.01			10 SS	1 2 5 5	1.1	7						
20	895.01	Boring complete at 20'. Set well											

MALCOLM PIRNIE, INC.

BOREHOLE LOG MPI-9S

PROJECT: MR. C CLEANERS RI
PROJECT NO.: 0266-31-4
LOCATION: EAST AURORA, NEW YORK
SURVEY COORDINATES:
SURVEY DATUM: NEW YORK STATE SURVEY GRID

CLIENT: NYSDEC
DRILLING DATES: 03/23/94
DRILLING METHOD: 6.25-inch ID HSA
LOGGED/CHECKED BY: JPH/RHO
SURFACE ELEVATION: 915.24ft.

SYMBOLS AND DEFINITIONS

SS Split Spoon (2in.ID)
SS3 Split Spoon (3in.ID)
ST Shelby Tube (2.8in.ID)
WR Weight of Rods
NR No Recovery
- Sampler Refusal

JHS HNU reading in jar headspace
GAS Combustible Gas reading in augers

x---x Penetration Resistance ("N" Blows/1.0 ft.)
o---o Moisture Content ("N" %)

DEPTH (ft.BGS)	ELEVATION (ft AMSL)	SOIL/ROCK DESCRIPTION	SOIL DATA: GRAPHIC LOG	SAMPLE NO. / RUN NO.	BLOWS / 6"	RECOVERY (in)	"N"-VALUE	ROCK DATA: FROM/TO	DRILL RATE MIN./FT.	% REC.	% RQD.	WELL DIAGRAM	COMMENTS (USCS)
0		Advanced augers through asphalt and concrete to 1' prior to sampling		1 SS	3 6	1.0							JHS=0.2 ppm
1	914.24	Dark brown moist SILTY SAND, w/fine, medium, coarse sand, little silt, little-some shale clasts as gravel, trace clay, SM		2 SS	4 2 3 4	0.5	5						JHS=0.7 ppm
2	913.24	Light gray-brown moist SANDY SILT, fine,medium, and coarse sand, some silt, little-some subangular gravel to 1/2" diameter as Shale clasts, SM		3 SS	3 9 9 8	0.7	18						JHS=0.9 ppm
3	912.24	Brown moist SILTY SAND, little silt, medium-course sand, little subround gravel to 1/2" diameter, loose w/cobbles>3",SP-SM		4 SS	12 9 7 6	0.2	16						JHS=0.4 ppm
4	911.24	GRAVEL and SAND with Cobbles >3"											
5	910.24												
6	909.24												
7	908.24												
8	907.24	Brown wet SANDY GRAVEL, subround fine gravel w/ shale clasts to 3/4", medium-course sand, trace silt, loose when disturbed, compact, GP-GM		5 SS	3 5 6 5	1.1	11						JHS=1.2 ppm
9	906.24												
10	905.24	Wet GRAVEL and SAND, loose when disturbed		6 SS	2 6 7 7	1.2	13						JHS=1.0 ppm
11	904.24												
12	903.24												JHS=0.8 ppm
13	902.24	Light orange to brown wet SANDY SILT, little-some gravel, trace clay, grading to course gray sand at 13.f		7 SS	18 14 9 4	1.3	23						
14	901.24												JHS=1.8 ppm
15	900.24	Grayish brown wet SAND, mostly medium, trace coarse, some bedding fabric as sorted laminae, loose, SP		8 SS	4 3 4 5	1.8	7						
16	899.24	Gray wet SAND, mostly medium, trace coarse, loose, SP											JHS=1.8 ppm
17	898.24	Gray wet SAND, mostly medium, trace coarse, fine subrounded gravel to 1/2" diameter, loose, SP		9 SS	1 3 6 7	1.3	9						
18	897.24	Grayish brown wet SAND,mostly medium,trace coarse, subrounded gravel to 1/2" dia.,unsorted, loose, SP		10 SS	WH 2 2 5	1.1	4						JHS=1.8 ppm
19	896.24												
20	895.24	Boring complete at 20'. Set well											

DATE STARTED: 5-7-92
FINISHED: 5-7-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG
BTA-92-100

BORING NO.: ESI-1
SURF. ELEV.: 917.2 ±
SHEET 1 OF 1

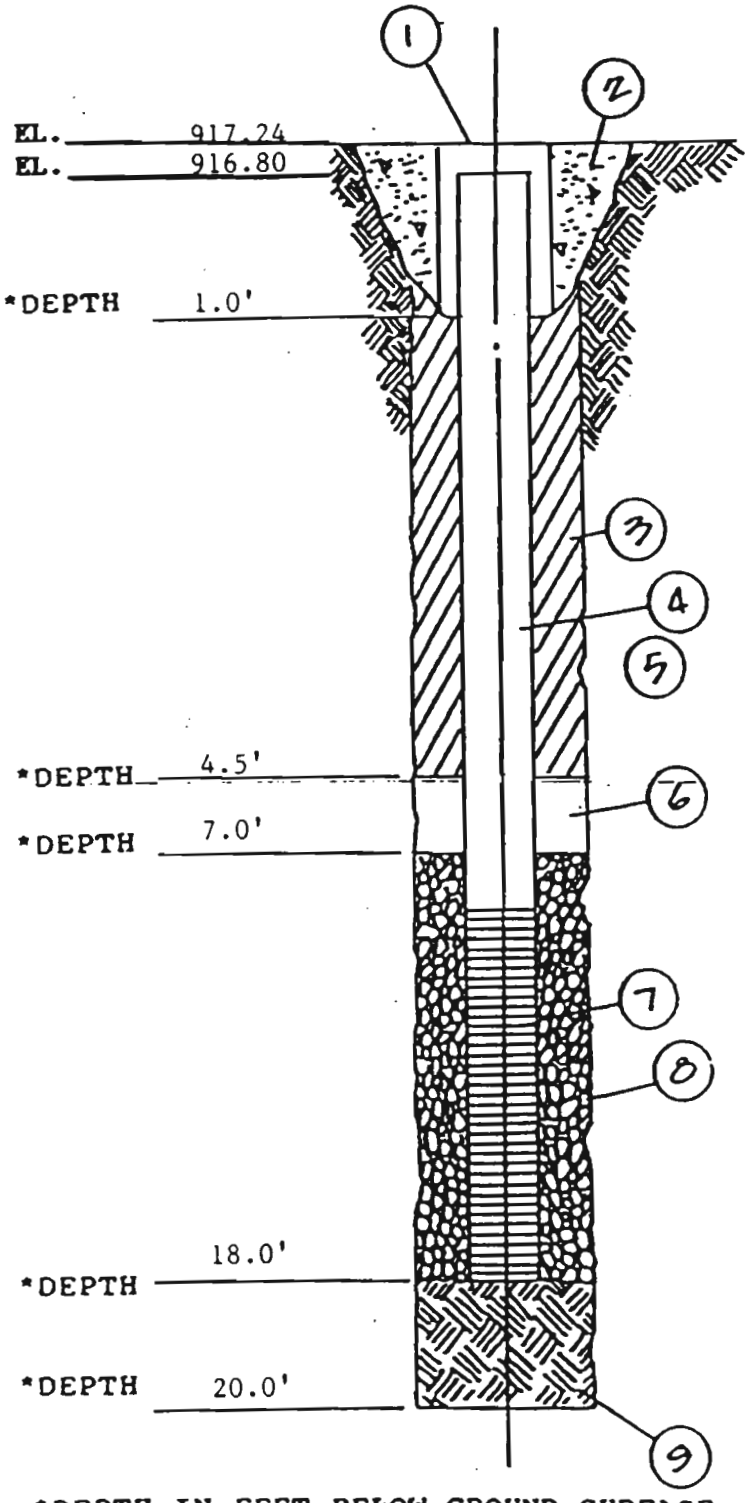
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	1	4	3	6	7	BG-2.2		3.5" TOPSOIL Brown Clayey SILT, Some Sand, trace glass, trace roots (Moist, FILL)	
		2	10	7	7	6	14	BG-2.3			
5		3	5	3	3	4	6	BG		Brown fine - coarse SAND and Silt, little fine Gravel (Moist, FILL) Contains trace brick	
		4	8	6	6	7	12	BG			
		5	5	4	6	5	10	BG		Brown fine - coarse SAND, little Silt, little Gravel (Moist-Wet, Loose) Contains trace silt, trace gravel	
10		6	21	5	5	6	10	BG			
		7	8	7	7	5	14	BG		(Wet) (Firm)	Driller Notes Water at Approximately 11-feet
15		8	5	6	6	6	12	BG			
		9	7	7	7	7	14	BG			Driller Notes "Running Sands" at 16-feet
			AU	G	E	R					Auger from 18.0' to 20.0'
20										Boring Complete at 20.0' Ground Water Monitoring Well Installed at Boring Completion Well Tip Set at 18' below ground surface. Refer to Well Installation Diagram for Details	Free Standing Water Measured at 11' at Boring Completion P.I.D. = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID measurements = 1.5 - 1.8 ppm
25											
30											
35											
40											

DRILLER: Ken Fuller
DRILL RIG: Acker ADII
METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



*DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. ESI-1 JOB No. BTA-92-100
PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE. "Quickrete" Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 7.8 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL RUNNING SANDS

EMPIRE
SOILS INVESTIGATIONS INC

DATE
STARTED: 5-7-92
FINISHED: 5-7-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG
BTA-92-100

BORING NO.: ESI-2
SURF. ELEV.: 918.1 ±
SHEET 1 OF 1

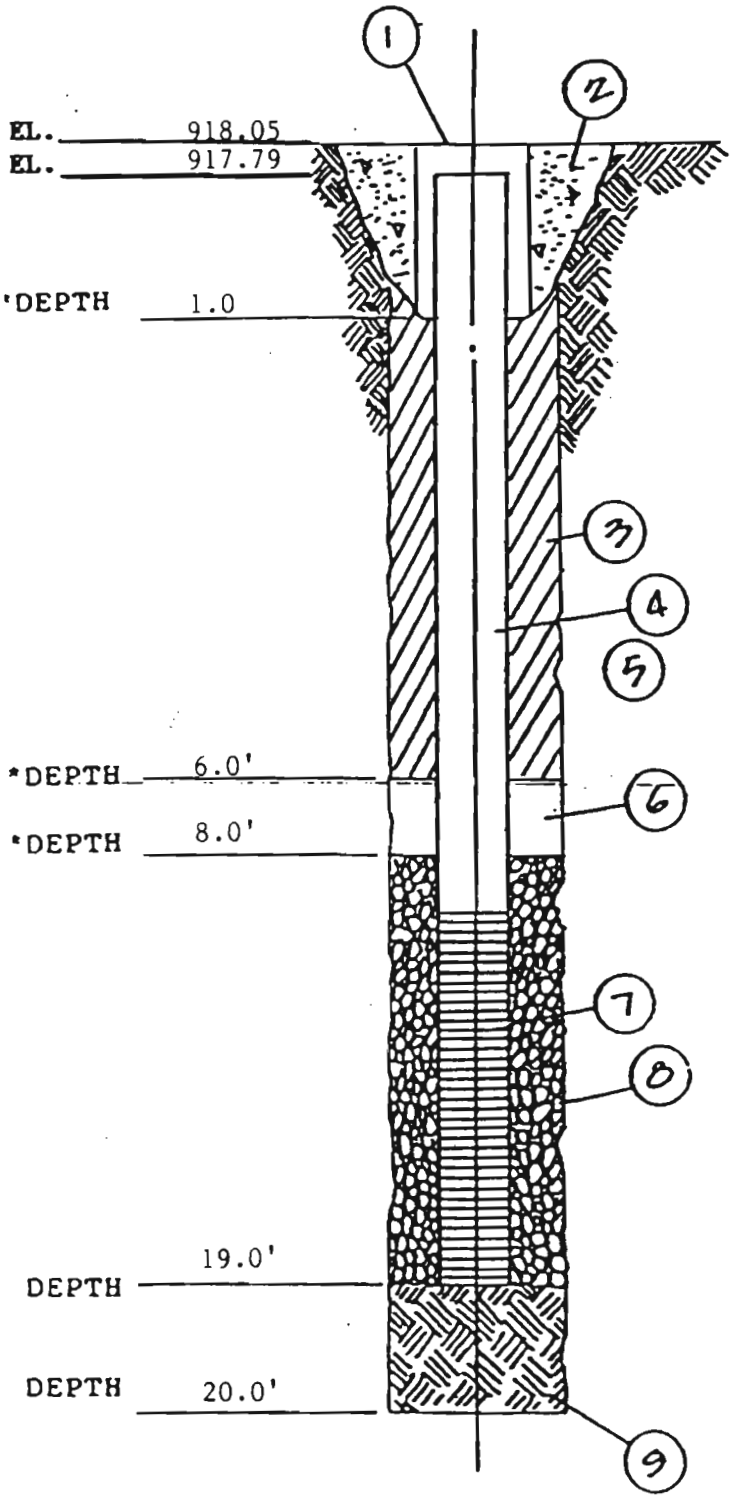
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	4	4	5	6	9	BG		Black - Brown Sandy SILT, Some Cinders, trace slag (Moist, Fill)	
		2	4	4	6	11	10	BG		Brown Clayey SILT, Little Shale Rock Fragment (Moist, Medium)	
5		3	4	12	9	10	21	BG-2.8			
		4	7	7	8	6	15	BG		Contains occasional Medium Sand Lense (Moist - Wet)	
		5	6	4	3	4	7	2.5-3.0		Contains Little Sand	
10		6	4	4	5	8	9	BG-2.5		Brown Fine -Coarse SAND, Some Clayey Silt, trace gravel (Moist, Loose)	Driller Notes Water at Approximately 12-feet
		7	6	7	8	9	15	BG-3.0		Contains "AND" Fine - Coarse Gravel (Wet, Firm)	
15		8	22	13	13	15	26	BG		Contains Occasional Shale Rock Fragment	
		9	10	12	10	10	22	BG		Contains Little Silt, trace gravel	Driller Notes "Running Sands" at Bottom of Hole
		10	10	4	7	7	11	BG		(Loose)	
20										Boring Complete at 20.0'	Free Standing Water Measured at 16.2' at Boring Completion
										Ground Water Monitoring Well Installed at Boring Completion	P.I.D. = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID Measurements = 1.8 - 2.4 ppm
										Well Tip Set at 19' below ground surface	
										Refer to Well Installation Diagram for Details	
25											
30											
35											
40											

DRILLER: Ken Fuller
DRILL RIG: Acker ADII
METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



*DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. ESI-2 JOB No. BTA-92-100
PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE "Quickrete" Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 9 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL SANDS

EMPIRE SOILS INVESTIGATIONS INC

DATE
STARTED: 5-11-92
FINISHED: 5-11-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

BTA-92-100

BORING NO.: ESI-3
SURF. ELEV.: 916.4 ±
SHEET 1 OF 1

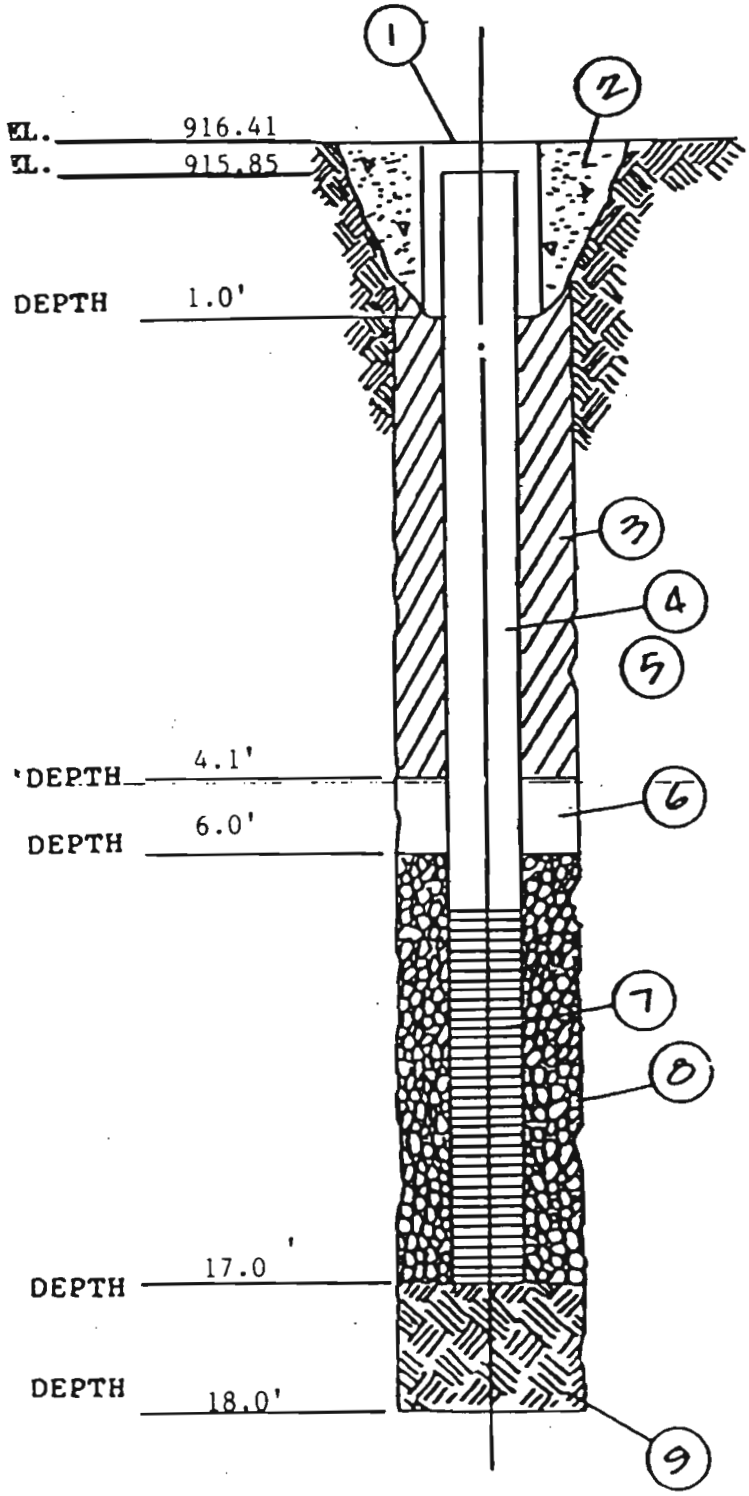
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0			AU	G	E	R				1' ASPHALTIC CONCRETE	
		1	7	7	8	6	15	BG-1.2		Brown Clayey SILT, Little Fine - Coarse Sand, trace gravel, trace broken rock fragment, trace brick (Moist, FILL)	
5		2	5	5	5	3	10	BG-1.8			
		3	4	4	4	34	8	7.0-8.0		Brown Clayey SILT, Little Sand, occasional broken rock fragment (Moist, Medium)	PID reading 10.5 - 11 ppm inside augers with augers set at 10' Driller Notes Water at Approximately 10-feet
		4	7	5	5	5	10	13.7-14			
10		5	11	5	3	4	8	9.5-10		Brown Fine - Coarse SAND, Little fine Gravel, Little Silt (Wet, Loose)	
		6	5	7	12	8	19	2.5-3.0		Contains "AND" Fine - Medium Gravel, trace silt (Firm)	
15		7	6	8	10	14	18	2.5-3.0			
		8	19	16	12	14	28	1.5-1.8			
20										Boring Complete at 18'	Free Standing Water measured at 15.5' at Boring Completion
										Ground Water Monitoring Well Installed at Boring Completion Well Tip Set at 17' below ground surface Refer to Well Installation Diagram for Details	P.I.D = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID measurements = 0.8 - 1.0 ppm
25											
30											
35											
40											

DRILLER: Ken Fuller
DRILL RIG: Acker ADII
METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



'DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. ESI-3 JOB No. BTA-92-100
PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE: "Quickrete" Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 6.7 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL RUNNING SANDS

EMPIRE SOILS INVESTIGATIONS INC

DATE
STARTED: 5-11-92
FINISHED: 5-11-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG
BTA-92-100

BORING NO.: ESI-4
SURF. ELEV.: 913.6 ±
SHEET 1 OF 1

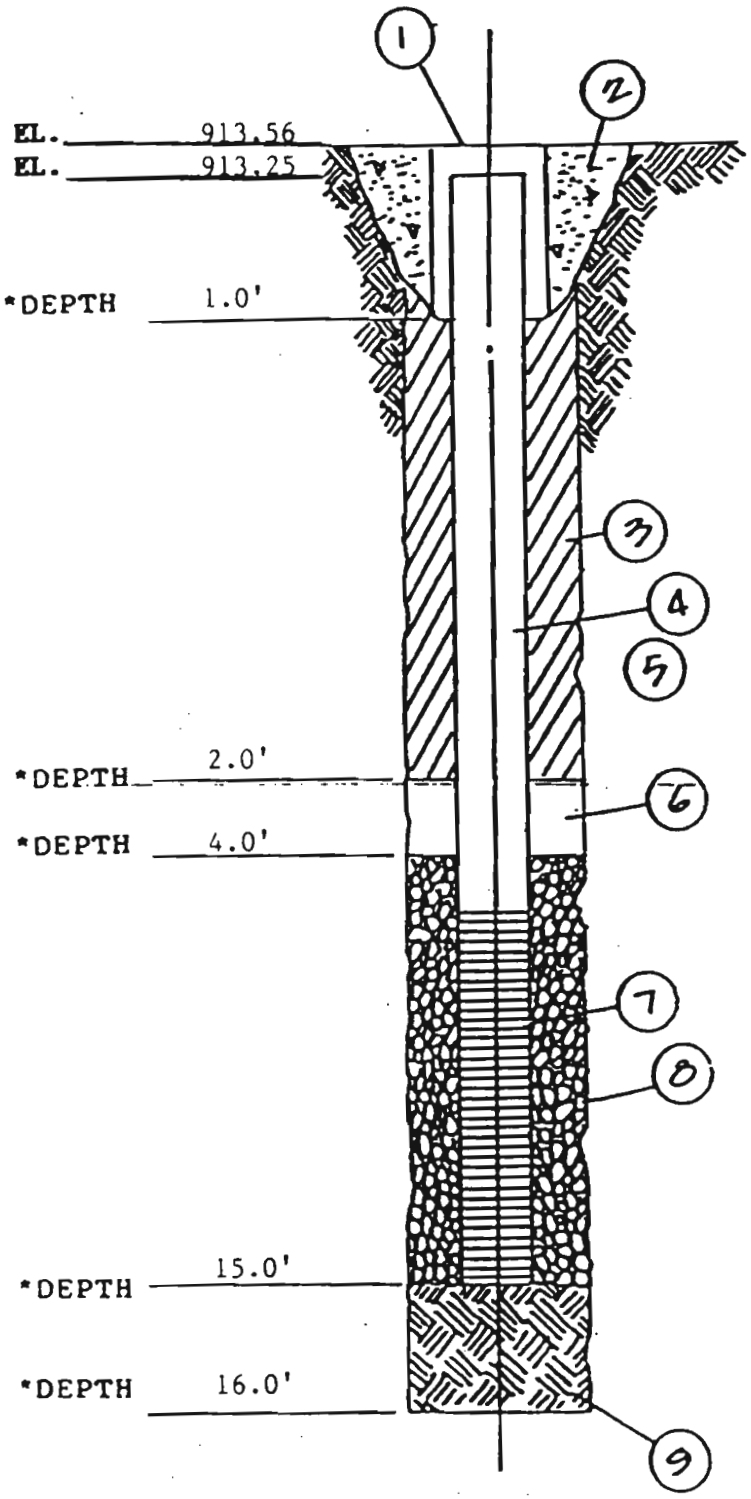
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0			AU	G	E	R				1' ASPHALTIC CONCRETE	
		1	5	7	9	9	16	BG-2.5		Brown Clayey SILT, Some Sand, occasional broken shale rock fragments (Moist, Medium)	
5		2	8	6	6	6	12	BG-2.4			
		3	8	7	5	5	12	BG-2.6		Contains occasional fine - medium Sand Parting	
		4	3	5	6	9	11	BG		Brown Fine - Coarse SAND, Some fine Gravel, Little Silt (Wet, Loose)	Driller Notes Water at Approximately 8.5-feet
10		5	9	9	9	11	18	BG-2.5		Contains trace gravel, trace silt (Firm)	
		6	5	10	7	18	17	BG-2.6			
15		7	4	4	4	7	8	BG-3.0		(Loose)	Driller notes "Running Sands" at bottom of hole
										Boring Complete at 16.0'	Free Standing Water measured at 11.7' at Boring Completion
20										Ground Water Monitoring Well Installed at Boring Completion Well Tip Set at 15' below ground surface Refer to Well Installation Diagram for Details	P.I.D. = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID measurements = 1.5 - 2.0 ppm
25											
30											
35											
40											

DRILLER: Ken Fuller
DRILL RIG: Acker ADII
METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



*DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. ESI-4 JOB No. BTA-92-100

PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE: "Quickrete " Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 4.7 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL RUNNING SANDS

EMPIRE SOILS INVESTIGATIONS INC

DATE
STARTED: 5-8-92
FINISHED: 5-8-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG
BTA-92-100

BORING NO.: ESI-5
SURF. ELEV.: 912.9 ±
SHEET 1 OF 1

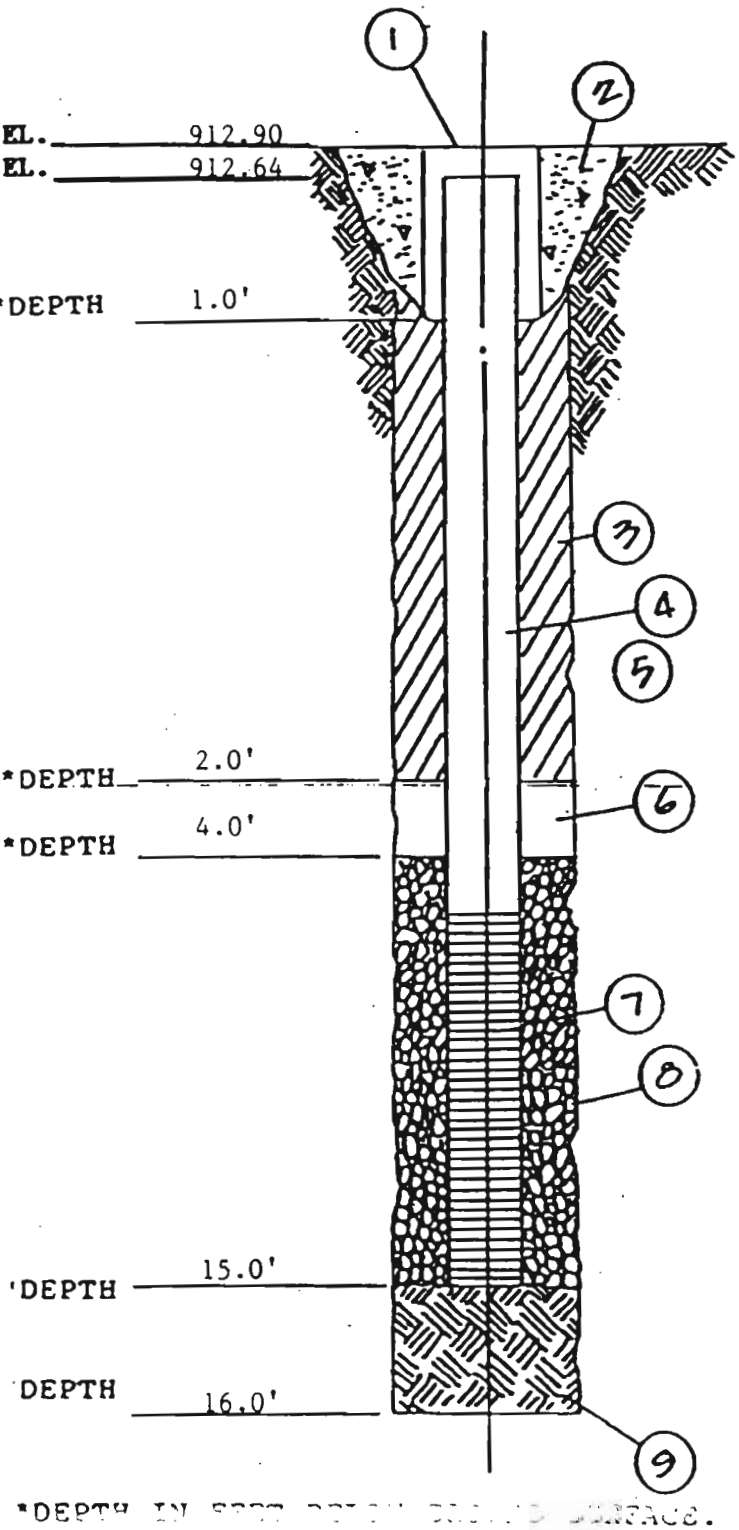
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0			AU	G	E	R				1' ASPHALTIC CONCRETE	
										6" SUBBASE STONE	
		1	9	7	7	11	14	BG		Brown Clayey Silt, Little Sand, trace broken shale fragment, trace cinder (Moist, FILL)	
5		2	8	6	5	10	11	BG			
		3	8	6	5	5	11	*			* No Recovery on Sample #3
		4	4	4	4	7	8	BG		Brown Fine - Medium SAND, Little Silt (Wet, Loose)	Driller Notes Water at Approximately 8-feet
10		5	17	5	7	9	12	BG		(Firm)	
		6	7	7	10	13	17	BG			
15		7	4	4	6	7	10	BG			
										Boring Complete at 16'	Free Standing Water not measured at Boring Completion
										Ground Water Monitoring Well Installed at Boring Completion Well Tip Set at 15' below ground surface Refer to Well Installation Diagram for Details	P.I.D. = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID measurements = 1.5 - 2.0 ppm
20											
25											
30											
35											
40											

DRILLER: Ken Fuller
DRILL RIG: Acker ADII
METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



WELL No. BS-5 JOB No. BTA-92-100

PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE: "Quickrete" Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 5 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL RUNNING SANDS

EMPIRE SOILS INVESTIGATIONS INC

DATE STARTED: 5-8-92
FINISHED: 5-8-92

EMPIRE
SOILS INVESTIGATIONS INC.

SUBSURFACE LOG
BTA-92-100

BORING NO.: ESI-6
SURF. ELEV.: 914.9 ±
SHEET 1 OF 1

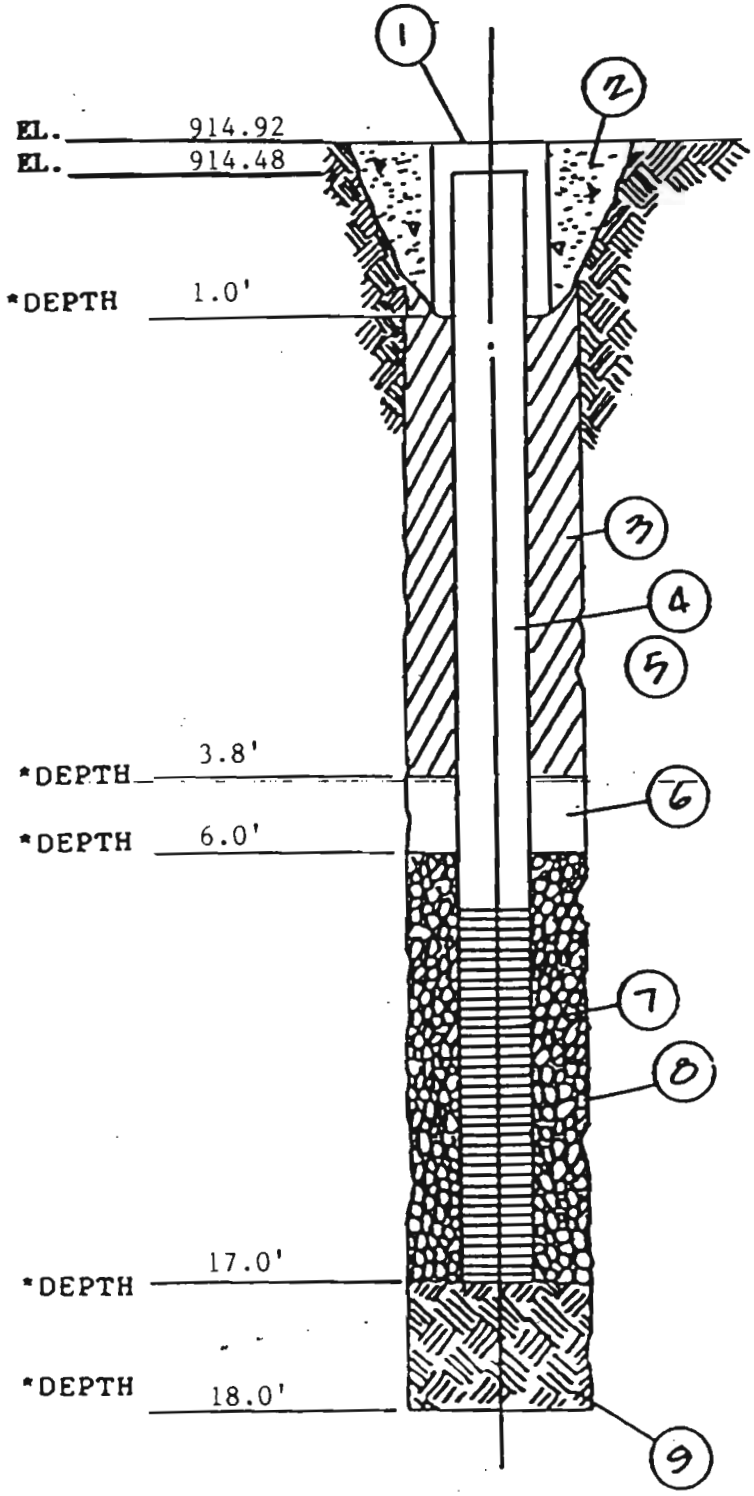
PROJECT: Spill No. 9109437
CLIENT: NYSDEC Pin No. SP91343

LOCATION: First Presbyterian Church
East Aurora, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	P.I.D.	SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	8	6	5	5	11	BG		3" TOPSOIL Brown Clayey SILT, Little Sand, trace roots, trace cinders, trace brick (Moist, FILL)	
		2	4	3	3	5	6	BG			
5		3	16	17	19	17	36	BG		Brown Fine - Medium SAND and Silt, trace gravel, trace clay (Moist, Loose)	Poor Recovery Sample #3
		4	10	10	9	6	19	BG		(Compact)	
		5	3	4	12	21	16	BG		Becomes Mottled (Firm) Contains Little Broken Shale Rock Fragments	
10		6	13	7	7	13	14	BG		(Moist - Wet)	Driller Notes Water at Approximately 10-feet
		7	16	11	13	13	24	BG		Contains "AND" fine Gravel, trace silt (Wet, Firm)	
15		8	30	88	16	14	104	BG		(Very Compact)	Driller notes "Running Sands" at bottom of hole
		9	10	9	10	7	19	BG			
20										Boring Complete at 18' Ground Water Monitoring Well Installed at Boring Completion Well Tip Set at 17' below ground surface Refer to Well Installation Diagram for Details	Free Standing Water measured at 10' at Boring Completion P.I.D. = Organic vapor measurements taken with a Photoionization Detector (PID). Measurements recorded in parts per million (ppm). BG = Background PID measurements = 1.5 - 2.0 ppm
25											
30											
35											
40											

METHOD OF INVESTIGATION: ASTM D-1586 Using 4 - 1/4" Hollow Stem Augers
WEATHER: Sunny, Warm
CLASSIFIED BY: L.A. Zimmerman

MONITOR WELL COMPLETION REPORT:



*DEPTH IN FEET BELOW GROUND SURFACE.

WELL No. ESI-6 JOB No. BTA-92-100

PROJECT: NYSDEC SPILL NO. 9109437
FIRST PRESBYTERIAN CHURCH, EAST AURORA

1. GATE BOX I.D.: 12 INCHES
2. SURFACE SEAL TYPE: "Quickrete" Concrete
3. BOREHOLE DIAMETER 10 INCHES
4. RISER PIPE:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   c. LENGTH 7.0 FEET
   d. JOINT TYPE FLUSH COUPLE THREADED
5. BACKFILL:
   a. TYPE TYPE I PORTLAND CEMENT
   b. INSTALLATION POUR FROM SURFACE
6. TYPE OF SEAL: BENTONITE PELLET
7. SCREEN:
   a. TYPE 40 SCHEDULE PVC
   b. I.D. 2 INCHES
   C. SLOT SIZE 0.010 In.
   d. LENGTH 10 FT.
8. SCREEN FILTER TYPE: #0 DRY MORIE
9. BACKFILL TYPE: NATURAL RUNNING SANDS

EMPIRE
SOILS INVESTIGATIONS INC

Matrix Environmental Technologies Inc.

SUBSURFACE LOG

PROJECT/LOCATION: AGWAY/Main Street, East Aurora, NY
PROJECT #: 93-065
CLIENT: Agway Energy
WELL/BORING #: MW5 AG-6
DATE STARTED: 2/12/93 DATE COMPLETED: 9/24/93
RECORDED BY: EAP MW10
GROUNDWATER DEPTH WHILE DRILLING: AFTER COMPLETION:
WEATHER: Sunny 55° DRILL RIG: Mobil D-40 (track) DRILLERS: Buffalo Drilling
DRILL TYPE/SIZE: 3 3/4 Auger SAMPLER HAMMER: WEIGHT FALL

SAMPLE NO.	OVA/HNU READING	DEPTH OF SAMPLE (FEET) FROM	TO	SAMPLE TYPE	BLOWS ON SAMPLER PER 6"	N	AMOUNT	MATERIAL CLASSIFICATION (BURMISTER SYSTEM)
								f-fine m-medium c-coarse "and" = 35 - 50% "some" = 20 - 35% "little" = 10 - 20% "trace" = 0 - 10%
S1	0.0	4	6	SS	8-6-4-4	10	50%	Brown fm SILT and CLAY some fm GRAVEL Mosit no odor
S2	193.2	9	11	SS	11-6-6-5	12	50%	Gray SILT and SAND Wet slight petro odor
S3	12.7	14	16	SS	1-6-11-15	17	100%	Brown fm SAND Wet no odor

REMARKS:

*SS-SPLIT SPOON SAMPLE U-UNDISTURBED TUBE P-PISTON TUBE C-CORE

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.

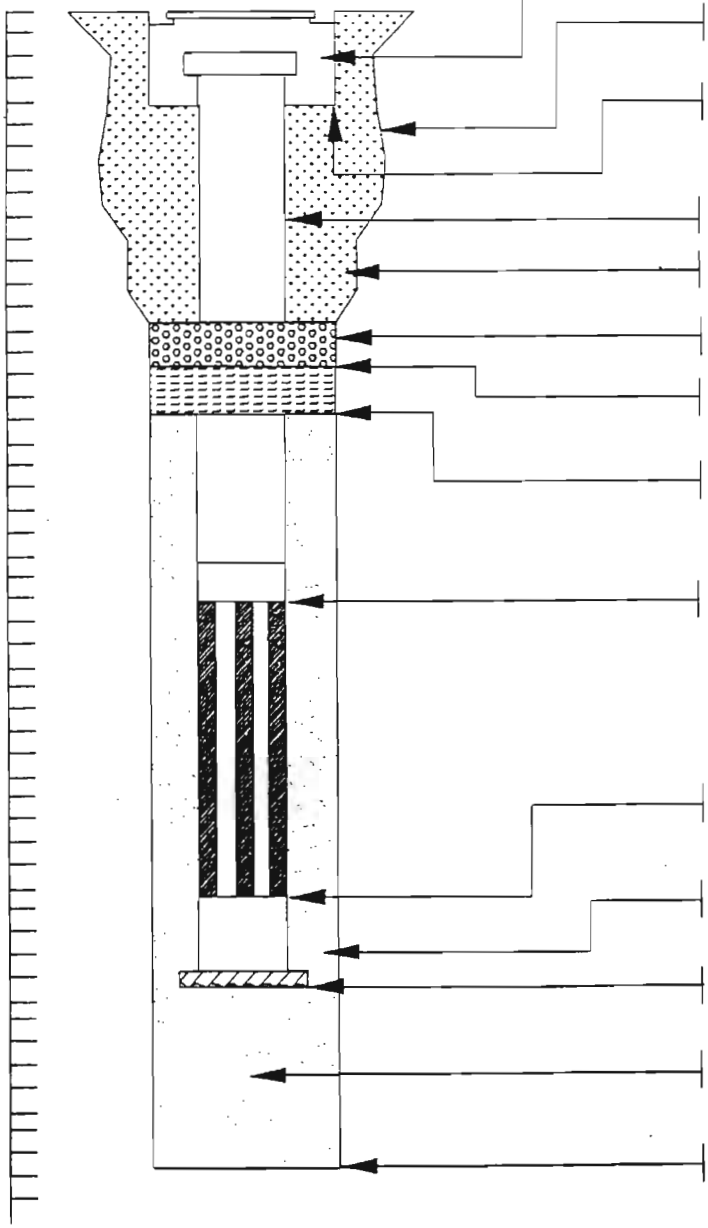
WELL CONSTRUCTION DETAIL

PROJECT NAME AGWAY/East Aurora PROJECT # 93-065

SITE Main Street, East Aurora, NY WELL # MW5 A&W

ADDRESS
(IF NOT SAME AS ABOVE)

DATE COMPLETED 9/24/93 SUPERVISED BY EAP



ELEVATION/DEPTH OF REFERENCE POINT: 99.30'/.25'

DEPTH OF SURFACE SEAL: .5'
TYPE OF SURFACE SEAL: Grout

DEPTH OF SURFACE CASING: 1.0'

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: PVC

DIAMETER OF BOREHOLE: 3 3/4"

TYPE OF FILLER: None

ELEVATION/DEPTH OF TOP OF SEAL: 97.30'/2.0'
TYPE OF SEAL: Bentonite

ELEVATION/DEPTH OF TOP OF GRAVEL PACK:
TYPE OF GRAVEL PACK:

ELEVATION/DEPTH OF TOP OF SCREEN: 95.30'/4.0'
DESCRIPTION OF SCREEN: .020 Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 85.80'/13.5'

ELEVATION/DEPTH OF BOTTOM OF GRAVEL PACK: 85.30'/14.0'

ELEVATION/DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 85.30'/14.0'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEVATION/DEPTH OF BOTTOM OF BOREHOLE: 85.30'/14.0'

Matrix Environmental Technologies Inc.

SUBSURFACE LOG

PROJECT/LOCATION: AGWAY/Main Street, East Aurora, NY
PROJECT #: 93-065
CLIENT: Agway Energy
WELL/BORING #: MW6 AGT
DATE STARTED: 2/12/93
DATE COMPLETED: 9/24/93
RECORDED BY: EAP
GROUNDWATER DEPTH WHILE DRILLING:
AFTER COMPLETION:
WEATHER: Sunny 55°
DRILL RIG: Mobil D-40 (track)
DRILLERS: Buffalo Drilling
DRILL TYPE/SIZE: 3 3/4 Auger
SAMPLER HAMMER: WEIGHT FALL

SAMPLE NO.	OVA/HNU READING	DEPTH OF SAMPLE (FEET) FROM	TO	SAMPLE TYPE	BLOWS ON SAMPLER PER 6"	N	AMOUNT	MATERIAL CLASSIFICATION (BURMISTER SYSTEM)
								f-fine, m-medium, c-coarse; "and" = 35 - 50%, "some" = 20 - 35%, "little" = 10 - 20%, "trace" = 0 - 10%
S1	0.0	4	6	SS	18-13-16-16	29	25%	Brown fm SAND and SILT some mc GRAVEL Damp no odor
S2	94.3	9	11	SS	1-2-3-2	5	25%	Brown mc GRAVEL Wet slight petro odor
S3	12	15	17		WOR 5-10-6	15	100%	Brown fm SAND Wet slight petro odor

WATER @ 11.5'

REMARKS:

*SS-SPLIT SPOON SAMPLE U-UNDISTURBED TUBE P-PISTON TUBE C-CORE

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.

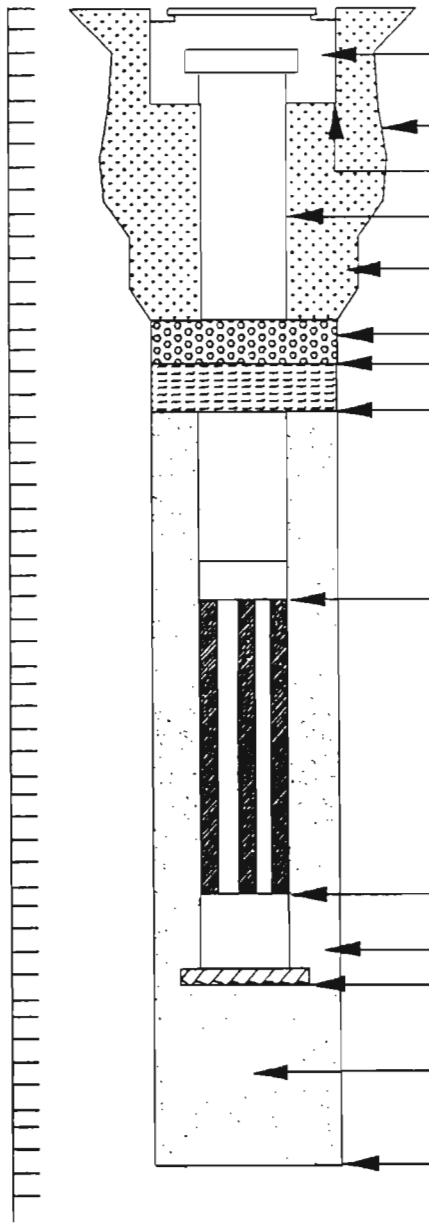
WELL CONSTRUCTION DETAIL

PROJECT NAME AGWAY/East Aurora PROJECT # 93-065

SITE Main Street, East Aurora, NY WELL # MW6 AGT

ADDRESS
(IF NOT SAME AS ABOVE)

DATE COMPLETED 9/24/93 SUPERVISED BY EAP



ELEVATION/DEPTH OF REFERENCE POINT: 98.59'/.25'

DEPTH OF SURFACE SEAL: .5'
TYPE OF SURFACE SEAL: Grout

DEPTH OF SURFACE CASING: 1.0'

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: PVC

DIAMETER OF BOREHOLE: 3 3/4"

TYPE OF FILLER: None

ELEVATION/DEPTH OF TOP OF SEAL: 95.59'/3.0'
TYPE OF SEAL: Bentonite

ELEVATION/DEPTH OF TOP OF GRAVEL PACK:
TYPE OF GRAVEL PACK:

ELEVATION/DEPTH OF TOP OF SCREEN: 93.59'/5.0'
DESCRIPTION OF SCREEN: .020 Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 84.09'/14.5'

ELEVATION/DEPTH OF BOTTOM OF GRAVEL PACK: 83.59'/15.0'

ELEVATION/DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 83.59'/15.0'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEVATION/DEPTH OF BOTTOM OF BOREHOLE: 83.59'/15.0'

Matrix Environmental Technologies Inc.

SUBSURFACE LOG

PROJECT/LOCATION: AGWAY/Main Street, East Aurora, NY
PROJECT #: 93-065
CLIENT: Agway Energy
WELL/BORING #: MW7 AG3
DATE STARTED: 2/12/93 DATE COMPLETED: 9/24/93
RECORDED BY: EAP
GROUNDWATER DEPTH WHILE DRILLING: AFTER COMPLETION:
WEATHER: Sunny 55° DRILL RIG: Mobil D-40 (track)
DRILLERS: Buffalo Drilling
DRILL TYPE/SIZE: 3 3/4 Auger SAMPLER HAMMER: WEIGHT FALL

SAMPLE NO.	OVA/HNU READING	DEPTH OF SAMPLE (FEET) FROM	TO	SAMPLE TYPE	BLOWS ON SAMPLER PER 6"	N	AMOUNT	MATERIAL CLASSIFICATION (BURMISTER SYSTEM)
								f-fine m-medium c-coarse "and" = 35 - 50% "some" = 20 - 35% "little" = 10 - 20% "trace" = 0 - 10%
S1	0.0	4	6	SS	10-6-4-3	10	50%	Brown SILT and CLAY Dry no odor
S2	0.0	9	11	SS	4-6-10-8	16	75%	Brown fm SAND Damp no odor
S3	11.3	15	17	SS	5-8-7-12	15	75%	Brown mf SAND Wet no odor

REMARKS:

*SS-SPLIT SPOON SAMPLE U-UNDISTURBED TUBE P-PISTON TUBE C-CORE

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.

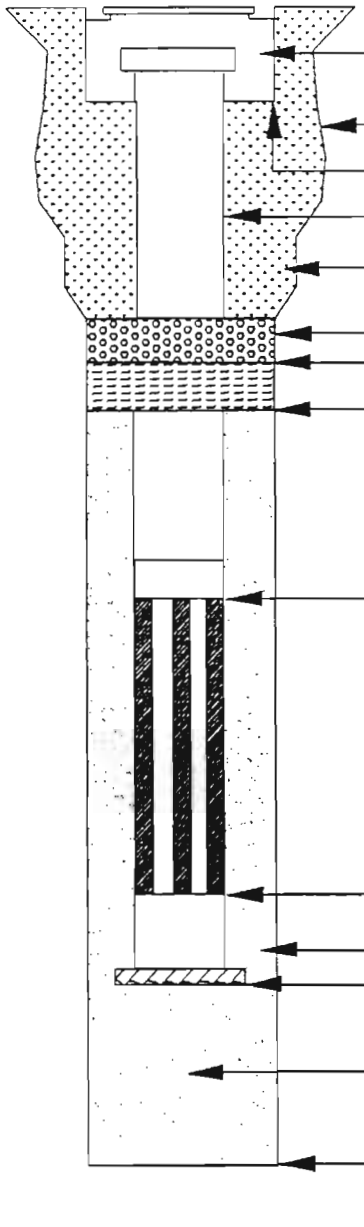
WELL CONSTRUCTION DETAIL

PROJECT NAME AGWAY/East Aurora PROJECT # 93-065

SITE Main Street, East Aurora, NY WELL # MW7 AG 8

ADDRESS
(IF NOT SAME AS ABOVE)

DATE COMPLETED 9/24/93 SUPERVISED BY EAP



GENERALIZED STRATIGRAPHY

ELEVATION/DEPTH OF REFERENCE POINT: 99.86'/.25'

DEPTH OF SURFACE SEAL: .5'
TYPE OF SURFACE SEAL: Grout

DEPTH OF SURFACE CASING: 1.0'

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: PVC

DIAMETER OF BOREHOLE: 3 3/4"

TYPE OF FILLER: None

ELEVATION/DEPTH OF TOP OF SEAL: 96.86'/3.0'
TYPE OF SEAL: Bentonite

ELEVATION/DEPTH OF TOP OF GRAVEL PACK:
TYPE OF GRAVEL PACK:

ELEVATION/DEPTH OF TOP OF SCREEN: 91.86'/5.0'
DESCRIPTION OF SCREEN: .020 Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 85.36'/14.5'

ELEVATION/DEPTH OF BOTTOM OF GRAVEL PACK: 84.86'/15.0'

ELEVATION/DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 84.86'/15.0'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEVATION/DEPTH OF BOTTOM OF BOREHOLE: 84.86'/15.0'

Matrix Environmental Technologies Inc.

SUBSURFACE LOG

PROJECT/LOCATION: AGWAY/Main Street, East Aurora, NY
PROJECT #: 93-065
CLIENT: Agway Energy
WELL/BORING #: MW8 AG9
DATE STARTED: 2/12/93 DATE COMPLETED: 9/24/93
RECORDED BY: EAP
GROUNDWATER DEPTH WHILE DRILLING: AFTER COMPLETION:
WEATHER: Sunny 55° DRILL RIG: Mobil D-40 (track) DRILLERS: Buffalo Drilling
DRILL TYPE/SIZE: 3 3/4 Auger SAMPLER HAMMER: WEIGHT FALL

SAMPLE NO.	OVA/HNU READING	DEPTH OF SAMPLE (FEET) FROM	TO	SAMPLE TYPE	BLOWS ON SAMPLER PER 6"	N	AMOUNT	MATERIAL CLASSIFICATION (BURMISTER SYSTEM)
								f-fine m-medium c-coarse "and" = 35 - 50% "some" = 20 - 35% "little" = 10 - 20% "trace" = 0 - 10%
S1	0.0	4	6	SS	14-12-14-9	26	50%	Brown SILT and CLAY trace m GRAVEL (shale) Dry no odor
S2	0.0	9	11	SS	7-8-7-8	15	25%	Brown SILT and CLAY trace GRAVEL Moist no odor
S3	72.3	15	17	SS	2-5-7-5	12	100%	Brown SAND Wet slight petro odor

REMARKS:

*SS-SPLIT SPOON SAMPLE U-UNDISTURBED TUBE P-PISTON TUBE C-CORE

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.

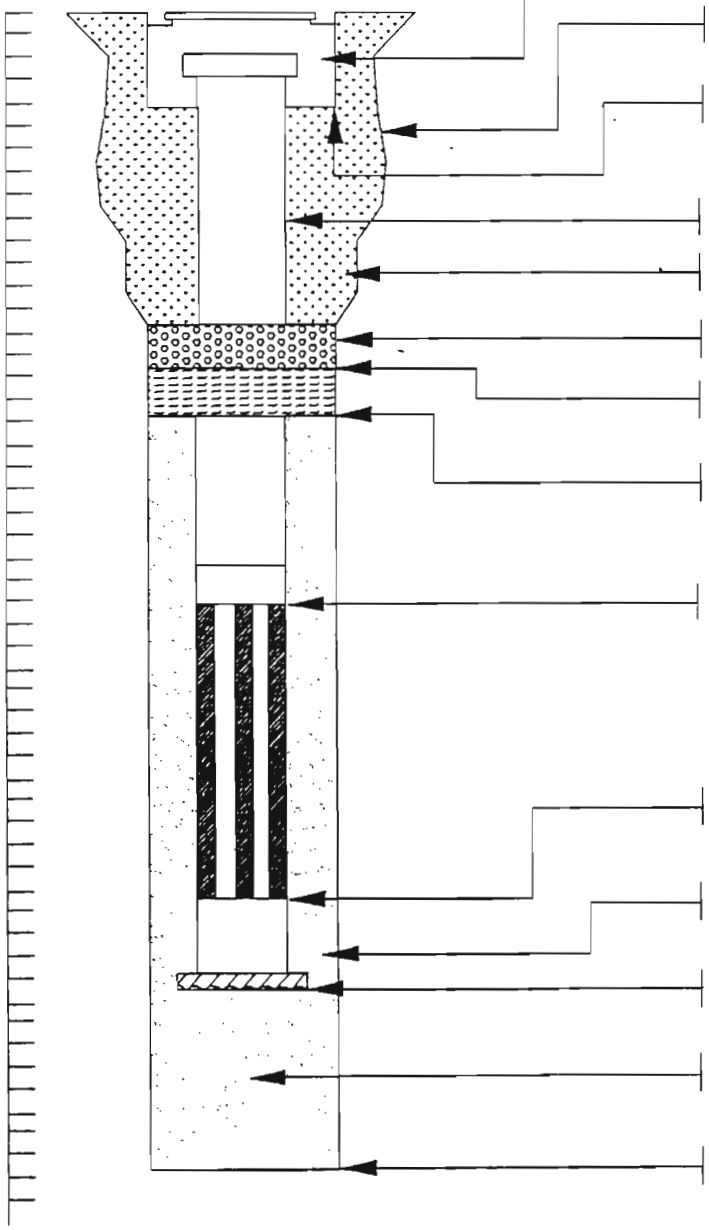
WELL CONSTRUCTION DETAIL

PROJECT NAME AGWAY/East Aurora PROJECT # 93-065

SITE Main Street, East Aurora, NY WELL # MW8 AGW

ADDRESS
(IF NOT SAME AS ABOVE)

DATE COMPLETED 9/24/93 SUPERVISED BY EAP



ELEVATION/DEPTH OF REFERENCE POINT: 99.53'/.25'

DEPTH OF SURFACE SEAL: .5'
TYPE OF SURFACE SEAL: Grout

DEPTH OF SURFACE CASING: 1.0'

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: PVC

DIAMETER OF BOREHOLE: 3 3/4"

TYPE OF FILLER: None

ELEVATION/DEPTH OF TOP OF SEAL: 96.53'/3.0'
TYPE OF SEAL: Bentonite

ELEVATION/DEPTH OF TOP OF GRAVEL PACK:
TYPE OF GRAVEL PACK:

ELEVATION/DEPTH OF TOP OF SCREEN: 94.53'/5.0'
DESCRIPTION OF SCREEN: .020 Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 85.03'/14.5'

ELEVATION/DEPTH OF BOTTOM OF GRAVEL PACK: 84.53'/15.0'

ELEVATION/DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 84.53'/15.0'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEVATION/DEPTH OF BOTTOM OF BOREHOLE: 84.53'/15.0'

Matrix Environmental Technologies Inc.

SUBSURFACE LOG

PROJECT/LOCATION: AGWAY/Main Street, East Aurora, NY
PROJECT #: 93-065
CLIENT: Agway Energy
WELL/BORING #: MW9 A&10
DATE STARTED: 2/12/93
DATE COMPLETED: 9/24/93
RECORDED BY: EAP
GROUNDWATER DEPTH WHILE DRILLING:
AFTER COMPLETION:
WEATHER: Sunny 55°
DRILL RIG: Mobil D-40 (track)
DRILLERS: Buffalo Drilling
DRILL TYPE/SIZE: 3 3/4 Auger
SAMPLER HAMMER: WEIGHT FALL

SAMPLE NO.	OVA/HNU READING	DEPTH OF SAMPLE (FEET) FROM	TO	SAMPLE TYPE	BLOWS ON SAMPLER PER 6"	N	AMOUNT	MATERIAL CLASSIFICATION (BURMISTER SYSTEM)
								f-fine, m-medium, c-coarse; "and" = 35 - 50%, "some" = 20 - 35%, "little" = 10 - 20%, "trace" = 0 - 10%
S1	140.3	4	6	SS	4-5-10-9	15	75%	Gray fm SILT and CLAY trace m GRAVEL Damp petro odor
S2	140.6	9	11	SS	6-7-11-18	18	75%	Gray fm SILT and GRAVEL Damp petro odor
S3	49.5	15	17	SS	3-5-8-9	13	75%	Gray mc SAND Wet petro odor
								WATER @ 12'10"

REMARKS.

*SS-SPLIT SPOON SAMPLE U-UNDISTURBED TUBE P-PISTON TUBE C-CORE

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.

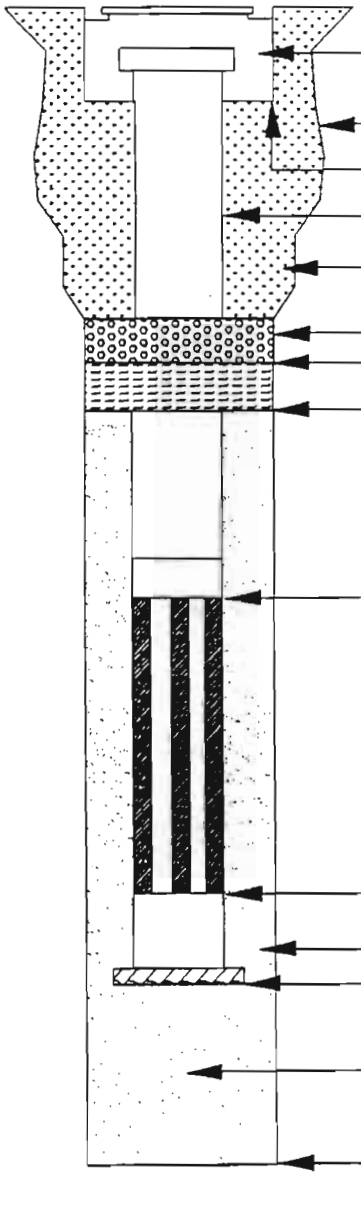
WELL CONSTRUCTION DETAIL

PROJECT NAME AGWAY/East Aurora PROJECT # 93-065

SITE Main Street, East Aurora, NY WELL # MW9 AG10

ADDRESS
(IF NOT SAME AS ABOVE)

DATE COMPLETED 9/24/93 SUPERVISED BY EAP



ELEVATION/DEPTH OF REFERENCE POINT: 101.54'/.25'

DEPTH OF SURFACE SEAL: .5'
TYPE OF SURFACE SEAL: Grout

DEPTH OF SURFACE CASING: 1.0'

I.D. OF RISER PIPE: 2"
TYPE OF RISER PIPE: PVC

DIAMETER OF BOREHOLE: 3 3/4"

TYPE OF FILLER: None

ELEVATION/DEPTH OF TOP OF SEAL: 98.54'/3.0'
TYPE OF SEAL: Bentonite

ELEVATION/DEPTH OF TOP OF GRAVEL PACK:
TYPE OF GRAVEL PACK:

ELEVATION/DEPTH OF TOP OF SCREEN: 96.54'/5.0'
DESCRIPTION OF SCREEN: .020 Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 87.04'/14.5'

ELEVATION/DEPTH OF BOTTOM OF GRAVEL PACK: 86.54'/15.0'

ELEVATION/DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 86.54'/15.0'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEVATION/DEPTH OF BOTTOM OF BOREHOLE: 86.54'/15.0'

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR C Cleaners

PROJECT NO.: 0266-31-4

STAFF: J.P. Hilton / J.T. Patterson

DATE: 3/14/94

WELL NO.: MPI-5I BEHIND AQUAM STORAGE BARN

1	TOTAL CASING AND SCREEN LENGTH (ft.)	40.75
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	11.15
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 5$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
Time / Gallons	15:15 / <1	15:43 / 5	15:55 / 10	15:59 / 15	16:02 / 20	15:47 / 30	15:53 / 40	16:02 / 50	16:06 / 60	16:13 / 70
pH	8.02	8.07	7.76	7.55	7.40	7.24	7.27	7.45	7.27	7.26
Conductivity	622	631	929	1023	1116	1411	1520	1637	1655	1684
Temperature (°C)	10.7	10.3	11.0	10.9	11.0	9.9	10.3	10.5	10.6	10.3
Appearance / Turbidity	CLOY >100	COY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	SLT CLOY >100	CLEAR 34	CLEAR 16	CLEAR 10

COMMENTS:
- Started well development w/ 1¼" PVC bailer @ 15:15
- Well wizard pump after 5 gallons.
- Exhibited continuous recharge

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C's CLEANER

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/15/94

WELL NO.: MPI-6 IN BACK OF LIBRARY

1	TOTAL CASING AND SCREEN LENGTH (ft.)	22.3
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.5
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 2.0$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
TIME / GALLONS	13:11 INITIAL	13:15 2.0	13:21 7.0	13:24 15	13:35 25	13:40 35	13:48 45	13:54 55	14:02 65	14:09 75	14:20 85
pH	7.21	7.12	7.11	7.08	7.14	7.14	7.14	7.18	7.12	7.08	7.07
CONDUCTIVITY	1455	1696	1693	1667	1596	1584	1694	1648	1656	1702	1684
TEMPERATURE	8.7	8.9	8.8	9.1	9.2	9.3	9.2	9.2	9.2	9.7	9.6
APPEARANCE / TURBIDITY	CLDY >100	CLDY >100	CLDY >100	CLDY >100	CLDY >100	CLDY >100	MILKY >100	MILKY 88	CLEAR 92	CLEAR 61	CLEAR 11

COMMENTS: CENTRIFUGAL PUMP USED
H_2O LEVEL STAYED ABOVE 15.5' DURING PUMPING
EXHIBITED MODERATE RECHARGE.
* CONDUCTIVITY CORRECTED TO 25°C

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C'S CLEANERS

PROJECT NO.: 0266-314-002

STAFF: JT PATTERSON

DATE: 3/22/94

WELL NO.: MPI-7D NEXT TO MR. C'S ENTRANCE

1	TOTAL CASING AND SCREEN LENGTH (ft.)	39.5
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.38
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 5.0$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
TIME / GALLONS	3:20 INITIAL	3:29 5.0	3:36 10.0	3:43 20.0	3:54 40	4:08 60	4:20 80	4:34 100	4:47 120	5:05 130
pH	9.73	9.51	9.56	9.01	8.24	7.71	7.61	7.63	7.40	7.35
CONDUCT.	1232	1332	1185	1164	1441	1524	1750	1766	1784	1813
TEMP	11.2	11.7	11.6	11.7	11.5	12.0	11.7	11.8	12.5	11.6
APP. / TURBID	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	CLOY >100	MICKY >100	CLOUDY 65	CLEAR 16

COMMENTS:
- WELL WIZARD DISPLACEMENT PUMP USED
- MOD. RECHARGE

AG 1 2225'

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C CLEANERS

PROJECT NO.: 0266-314-007

STAFF: J. PATERSON

DATE: 3/25/94

WELL NO.: MPI-8S IN WHALEY ST.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.76
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.89
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.5 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS) 3/28/94									
TIME / GALLONS	11:53 INITIAL	11:57 1.5	12:06 5.0	12:30 10	12:59 15	13:17 20	13:41 25	8:59 35	9:35 55	10:09 65
pH	7.80	7.76	7.82	7.54	7.51	7.68	7.60	7.52	7.47	7.42
CONDUCT	1440	1138	785	1397	1534	1637	1578	1806	1891	1737
TEMP	6.3	6.6	9.6	6.9	7.3	6.8	6.6	4.9	4.1	4.7
APP. TURBID ITY	BRN CLAY >100	>100	>100	>100	>100	>100	>100	>100	MICKY >100	CLEAR 32

COMMENTS: CENTRIFUGAL PUMP USED / BAILER PVC) AFTER 7g
SLOW RECHARGE

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/25/94

WELL NO.: MPI-9S IN WHALEY ST.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.84
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.82
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 15$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS) 3/28/94									
TIME / GALLONS	12:46 INITIAL	12:59 1.5	13:10 5	13:18 10	13:30 20	13:55 40	14:14 60	9:45 80		
PH	7.57	7.60	7.72	7.67	7.52	7.41	7.49	7.43		
CONDUCT	1305	1153	1051	1150	1647	1866	1996	1851		
TEMP.	7.2	7.1	6.8	8.2	8.6	10.8	10.2	5.4		
APP. / TURBID ↓	BRN CLOUDY >100	CLOUDY >100	CLOUDY >100	CLOUDY >100	CLOUDY >100	CLOUDY >100	MILKY 98	CLEAR 40		

COMMENTS: PUC BAILED AND
CENTRIFUGAL PUMP USED AFTER 10 G.
SLIGHT SHEEN ON DEVELOPMENT H2O
MODERATE RECHARGE

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C's CLEANER

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/15/84

WELL NO.: ESI 1 - NEAR AUTO PARTS STORE

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.5
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	11.10
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)	3:30 INITIAL	3:40 1.5	3:50 10	4:04 20	[illegible] 30	[illegible]	4:[illegible] 50	[illegible]	[illegible]	[illegible] 51	[illegible]
pH	7.50	7.48	7.36	7.39	[illegible]	[illegible]	7.36	[illegible]	[illegible]	[illegible]	[illegible]
CONDUCTIVITY	1422	1296	1106	1119	[illegible]	[illegible]	[illegible]	[illegible]	1142	[illegible]	[illegible]
TEMP	7.9	7.8	9.5	9.7	[illegible]	[illegible]	9.1	9.5	[illegible]	[illegible]	[illegible]
APPEARANCE — TURBIDITY	[illegible] >100	[illegible] >100	[illegible] >100	[illegible] >100	[illegible] >100	[illegible]	[illegible] >100	[illegible] >100	[illegible] >100	[illegible] 44	[illegible]

COMMENTS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C'S CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/17/94

WELL NO.: ESI-3S NEAR CORNER OF MR C'S

1	TOTAL CASING AND SCREEN LENGTH (ft.)	16.7
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.13
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) =$ 1.1 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)													
TIME / GALLONS	9:40 / INITIAL	9:43 / 1.1	9:50 / 5	11:00 / 10	11:03 / 15	11:09 / 25	11:14 / 35	11:20 / 45	11:30 / 65	11:37 / 85	11:47 / 105	11:54 / 125	12 / 1
pH	7.35	7.33	7.30	7.46	7.23	7.48	7.44	7.27	7.30	7.31	7.41	7.30	7.
CONDUCTIVITY	1724	1745	1736	1806	1893	1895	1927	1948	1948	1927	1906	1928	19
TEMPERATURE	7.5	7.4	7.6	8.1	8.4	9.2	9.7	7.8	9.5	9.5	8.8	9.2	9.
APPEARANCE / TURBIDITY	BRN CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	MILKY >100	MILKY >100	MILKY >100	MILKY >100	CLEAR 94	CLEAR 74	CLEAR 54	CL

COMMENTS:
- CENTRIFUGAL PUMP USED AT 9:55
- BROWN MUDDY WATER/FINE SANDS PUMPED UP.
- SLIGHT SOLVENT ODOR
- FAST RECHARGE
- HNU of 5 ppm INSIDE H_2O TANK
- HNU of 0 ppm IN CASING

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C. CLEANERS

PROJECT NO.: 0266 314-007

STAFF: J. PATTERSON

DATE: 3/17/94

WELL NO.: ESI-4 IN PAINE ST. BY CHURCH

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.35
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.76
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.1 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
TIME / GALLONS	13:43 INITIAL	13:47 1.5	13:51 B	14:04 7.5	14:08 15	14:12 25	14:27 35	14:32 45	14:48 55	
pH	7.07	7.09	7.12	7.10	7.10	7.25	7.14	7.17	7.21	
CONDUCT.	6540	6880	7100	7180	7240	7430	7270	7220	7290	
TEMP	6.8	6.5	6.8	6.6	7.4	8.5	7.6	9.5	8.7	
APP / TURBIDITY	SHEEN BRN >100	SHEEN BRN >100	MILKY 50	CLDY >100	CLDY >100	CLEAR 31	CLEAR 22	CLEAR 35	CLEAR 8	

COMMENTS:

CENTRIFUGAL PUMP USED — DISTURBED SED. AT BOTTOM

HNU'S @ 0 PPM EVERYWHERE

FAST RECHARGE — FINE SAND PUMPED UP

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C's CLEANERS

PROJECT NO.: 0266-314 222

STAFF: J. PATTERSON

DATE: 3/17/94

WELL NO.: ESI-5 IN PAINE ST. ½ WAY DOWN ST.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.38
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.62
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)	15:24 / INITIAL	15:29 / 1.2	15:38 / 10	15:49 / 15	15:57 / 20	16:09 / 25				
PH	7.14	7.18	7.24	7.30	7.42	7.42				
CONDUCT.	2780	1980	1511	1283	1275	1182				
TEMP	4.6	6.5	6.4	6.1	6.5	6.9				
APP TURBIDITY	BRN CLOUDY >100	CLOUDY >100	MILKY >100	MILKY 55	CLEAR 11	CLEAR 8				

COMMENTS: CENTRIFUGAL PUMP USED - (SHOULD HAVE BAILED)
SLOW RECHARGE
BROWN SAND FINES BROUGHT UP
NO ODOR PRESENT

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C'S CLEANER

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/18/94

WELL NO.: ESI-6 NEXT TO CHURCH ON DEALERSHIP S.OF

1	TOTAL CASING AND SCREEN LENGTH (ft.)	16.65
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.00
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)												
TIME / GALLONS	9:50 INITIAL	9:55 1.1	10:14 50	10:30 15	10:40 25	10:44 35	10:59 65	11:00 85	11:04 105	11:08 125	11:10 145	11:15 165	11
pH	7.26	7.16	7.09	7.07	7.13	7.08	7.09	7.09	7.11	7.12	7.12	7.09	7.
CONDUCTIVITY	2980	2720	2810	2840	2810	2910	2930	2930	2930	2920	2940	2930	
TEMPERATURE	9.4	9.7	10.1	10.1	11.0	11.1	10.0	10.5	10.8	10.6	10.6	10.8	VC
APPEARANCE / TURBIDITY	BRN CLOY >100	BRN CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	MILKY >100	MILKY >100	MILKY >100	MILKY >100	CLEAR 52	

COMMENTS:
- USED BAILER FOR FIRST 10 g.
- CENTRIFUGAL PUMP USED AFTER 10 g
- CONTINUOUS RECHARGE
- BROWN FINE SAND BROUGHT UP
- SLIGHT SOLVENT ODOR NOTICED

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR C CLEANERS

PROJECT NO.: 0266-314-002

STAFF: PATTERSON

DATE: 3/12/94

WELL NO.: AG-4 CORNER AGWAY BLD. BY ROAD

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.45
2	CASING INTERNAL DIAMETER (in.)	4"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.26
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 6.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
TIME / GALLONS	9:40 INITIAL	9:51 6	10:25 12	11:13 18	11:55 24	13:41 30	14:51 36	15:44 42	16:15 48	
pH	6.45	6.49	6.96	6.96	6.99	7.16	6.97	7.02	6.95	
CONDUCT.	7200	7120	4940	3640	3460	3400	3050	2960	2845	
TEMP	6.0	5.0	7.3	6.6	6.0	7.6	6.2	7.2	7.0	
APP TURBID -	CLOUDY >100	CLOUDY GREY >100	MILKY >100	MILKY >100	CLOUDY >100	MILKY 74	MILKY 44	CLEARS 43	CLEARS 30	

COMMENTS: STARTED DEVELOPMENT W/ CENTRIFUGAL PULSE PUMP, BUT H_2O LEVEL DROPPED QUICKLY AFTER 5 g. CONTINUED TO DEVELOPE W/ PVC BAILER, LET RECHARGE AND DEVELOP AGAIN.
STRONG ODOR FROM DEVELOPE WATER #GREY H_2O
INSIDE CASING H_2S @ 2 ppm

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C CLEANERS

PROJECT NO.: 0266-314-002

STAFF: JT PATTERSON

DATE: 3/16/94

WELL NO.: AG-5 FRONT CORNER OF AGWAY BLDG NEXT TO MAN HOLE

1	TOTAL CASING AND SCREEN LENGTH (ft.)	13.9
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.10
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 0.8$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)	11:25 INITIAL	11:30 1.0	14:27 2.0	14:33 3.0	14:41 4.0	15:01 5.0	15:58 6.0	3/18 12:01 7.0		
TIME / GAL										
pH	6.75	6.74	6.93	6.51	6.66	6.73	6.78	6.82		
COND.	2250	2240	2010	2040	2020	1880	1890	2014		
TEMP	5.5	5.4	5.0	5.4	5.3	4.8	4.6	6.0		
APP TURBIDITY	SLIGHTLY MILKY >100	SLIGHTLY MILKY >100	SLIGHTLY MILKY >100	SLIGHTLY MILKY >100	SLIGHTLY CLOY >100	SLIGHTLY CLOY >100	SLIGHTLY CLOY >100	SLIGHTLY CLOY >100		

COMMENTS: PVC BAILER USED FOR DEVELOPMENT. GREYISH H2O UPON BRINGING UP 1ST VOLUME, A STRONG SOLVENT ODOR. HNU'S IN CASING OF ≈ 150-200 PPM (HEAD SPACE 20' AWAY 0-1 PPM) STOPPED DEVELOPMENT ≈ 11:35 TO FURTHER TEST. A.L. MONITOR AIR ≈ EVERY ½ HR @ 3.0 VOLUMES, DISTURBED BOTTOM SEDIMENT — TURNED CLOY DISCONTINUED DEVELOPING - TOO MUCH SEDIMENT

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C's CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/21/94

WELL NO.: MPI-1S BY CHURCH, CORNER OF MAIN AND PAINE ST.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	19.3
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.82
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.6 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
TIME / GALLONS	9:38 INITIAL	9:42 1.6	9:45 5	9:51 10	9:56 15	10:01 25	10:11 45	10:25 65	10:41 85	10:57 95	11:08 105
pH	7.14	6.95	6.86	6.96	6.94	6.96	7.16	7.20	7.39	7.33	7.32
CONDUCTIVITY	1518	1948	2450	2520	2640	2710	2590	2550	2520	2500	2520
TEMP	8.1	8.2	9.4	9.5	9.4	9.6	10.0	9.5	10.2	10.4	9.6
APPEARANCE / TURBIDITY	BRN CLOY >100	SHEEN CLOY >100	SHEEN CLOY >100	SHEEN CLOY >100	SHEEN CLOY >100	SHEEN CLOY >100	SHEEN CLOY >100	SHEEN MICKY >100	SHEEN MICKY >100	CLEAR 54	CLEAR 48

COMMENTS:
- CENTRIFUGAL PUMP USED → LOW SETTING
- BRN FINE SAND
- SPOTTY SHEEN SEEN ON DEVELOPMENT WATER
- SLOW RECHARGE / MODERATE

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR "C" CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J PATERSON

DATE: 3/25/94

WELL NO.: MPI - 1I N PAINT ST.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	40 63
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.29
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 5.7$ gal.

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)										
TIME / GALLONS	9:45 / INITIAL	9:47 / 6.0	9:54 / 15	10:11 / 30	10:27 / 45	10:45 / 60	11:03 / 75	11:22 / 90	11:32 / 100	11:41 / 110
pH	7.48	7.64	7.54	7.44	7.48	7.33	7.49	7.41	7.31	7.29
CONDUCT.	1016	1071	1268	1445	1458	1572	1478	1608	1632	1645
TEMP	10.2	11.8	11.9	11.6	11.9	11.8	11.4	11.9	11.6	11.8
H" / TURB. / COLOR	BRN CLDY 100	BRN CLDY 100	BRN CLDY 100	BRN CLDY 100	BRN CLDY 100	CLDY 100	CLDY 100	MUCKY 100	CLEAR 79	CLEAR 20

COMMENTS: AIR DISPLACEMENT PUMP USED
≈ .75 G/MIN DISCHARGE

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C. CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/18/94

WELL NO.: MPI - 2 ACROSS ST. FROM MR. C'S IN TOWN HALL PARKING LOT.

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.75
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	11.3
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.1 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS / ACCUMULATED VOLUME PURGED (GALLONS)											
TIME / GALCONS	1:05 INITIAL	1:10 1.1	1:14 5.0	1:19 15	1:28 35	1:34 45	1:44 55	1:50 65	2:02 75	2:05 80	2:11 85
pH	7.23	7.24	7.17	7.05	7.17	7.18	7.25	7.25	7.30	7.31	7.32
CONDUCTIVITY	1536	1566	1522	1538	1499	1492	1503	1486	1516	1501	1491
TEMPERATURE	9.6	9.5	9.7	10.2	10.0	10.0	9.6	10.0	11.8	12.0	11.7
APPEARANCE / TURBIDITY	BRN CLDY >100	CLDY >100	CLDY >100	CLDY >100	CLDY >100	MILKY >100	MILKY >100	MILKY >100	CLEAR 78	CLEAR 16	CLEAR 11

COMMENTS: CENTRIFUGAL PUMP USED
FAST RECHARGE
SOLVENT ODOR
· FINE BRN. SAND PULLED UP

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Mr. C Cleaners

PROJECT NO.: 0266-314-002

STAFF: J. Patterson

DATE: 3/21/94

WELL NO.: MPI-3 Between church and car dealership

1	TOTAL CASING AND SCREEN LENGTH (ft.)	18.25
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.92
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) =$ 1.4 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
TIME / GALLONS	11:35 / INITIAL	11:36 / 1.4	11:43 / 5.0	11:53 / 10	12:04 / 20	12:17 / 30	12:29 / 40	12:45 / 50	13:02 / 60	
pH	7.61	7.69	7.60	7.31	7.30	7.28	7.28	7.28	7.26	
CONDUCT.	1461	1001	1034	1226	1497	1554	1667	1696	1720	
TEMP.	10.2	7.8	10.3	9.7	10.8	10.3	11.1	11.2	11.3	
APP. TURBIDITY	BRN CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	MILKY >400	CLEAR 42	CLEAR 29	

COMMENTS: Centripetal Pump used
- Slow/moderate recharge
- Slight sheen on development water (1st 10g)

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C'CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATTERSON

DATE: 3/22/94

WELL NO.: API - 4S NEXT TO LIBRARY

1	TOTAL CASING AND SCREEN LENGTH (ft.)	20.5
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.28
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.9 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)								
TIME / GALLONS	11:41 INITIAL	11:45 1.9	12:11 10	12:39 20	12:54 30	13:09 40	13:23 50	13:45 60	13:55 65
pH	7.89	7.85	7.59	7.60	7.60	7.51	7.64	7.73	7.65
CONDUCT	801	759	922	1156	1348	1486	1444	1565	1572
TEMP.	9.6	9.4	12.2	12.1	12.4	11.7	12.2	12.2	12.6
API. TURBIDITY	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	BRN CLOY >100	MILKY >100	CLOY >100	MILKY >100	CLEAR 24	CLEAR 31

COMMENTS:
- CENTRIFUGAL PUMP USED
- SLOW RECHARGE
- ↑ DISTURBED SEDIMENT.

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: Mc C Cleaners

PROJECT NO.: 0266-31-4

STAFF: J.T. Patterson

DATE: 3/15/94

WELL NO.: MPI-5S BEHIND ASWAY STORAGE BARN

1	TOTAL CASING AND SCREEN LENGTH (ft.)	18.1
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	11.12
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
Time / Gallons	10:12 / INITAL	10:14 / 1.5	10:40 / 6.5	10:47 / 15g	10:55 / 25g	11:00 / 35g	11:05 / 45g	11:15 / 55g	11:21 / 65g	11:29 / 75g	11:33 / 85g	11:3 / 9
pH	7.21	7.20	7.12	7.26	7.13	7.16	7.26	7.37	7.29	7.34	7.35	7.3
Conductivity	1316	1386	1488	1541	1578	1615	1590	1611	1608	1612	1606	162
Temperature (°C)	8.3	8.6	7.6	8.2	9.0	8.8	8.8	10.7	8.9	9.0	9.0	8.
Appearance / Turbidity	CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	PALE CLOY >100	[illegible]	MILKY >100	MILKY >100	CLEAR 40	[illegible]

COMMENTS: PVC BAILER USED FOR (1ST VOLUME
CENTRIFUGAL PUMP USED AFTER 1ST VOLUME
H_2O LEVEL STAYED ABOVE 13' DURING PUMPING
EXHIBITED CONTINUOUS RECHARGE

DMM12049.F2

Rev. 01/10/90

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C CLEANERS

PROJECT NO.: 0266-314-002

STAFF: J. PATERSON

DATE: 3/22/94

WELL NO.: MPI-4I NEXT TO LIBRARY

1	TOTAL CASING AND SCREEN LENGTH (ft.)	42.15
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.90
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 5.5$ gal.

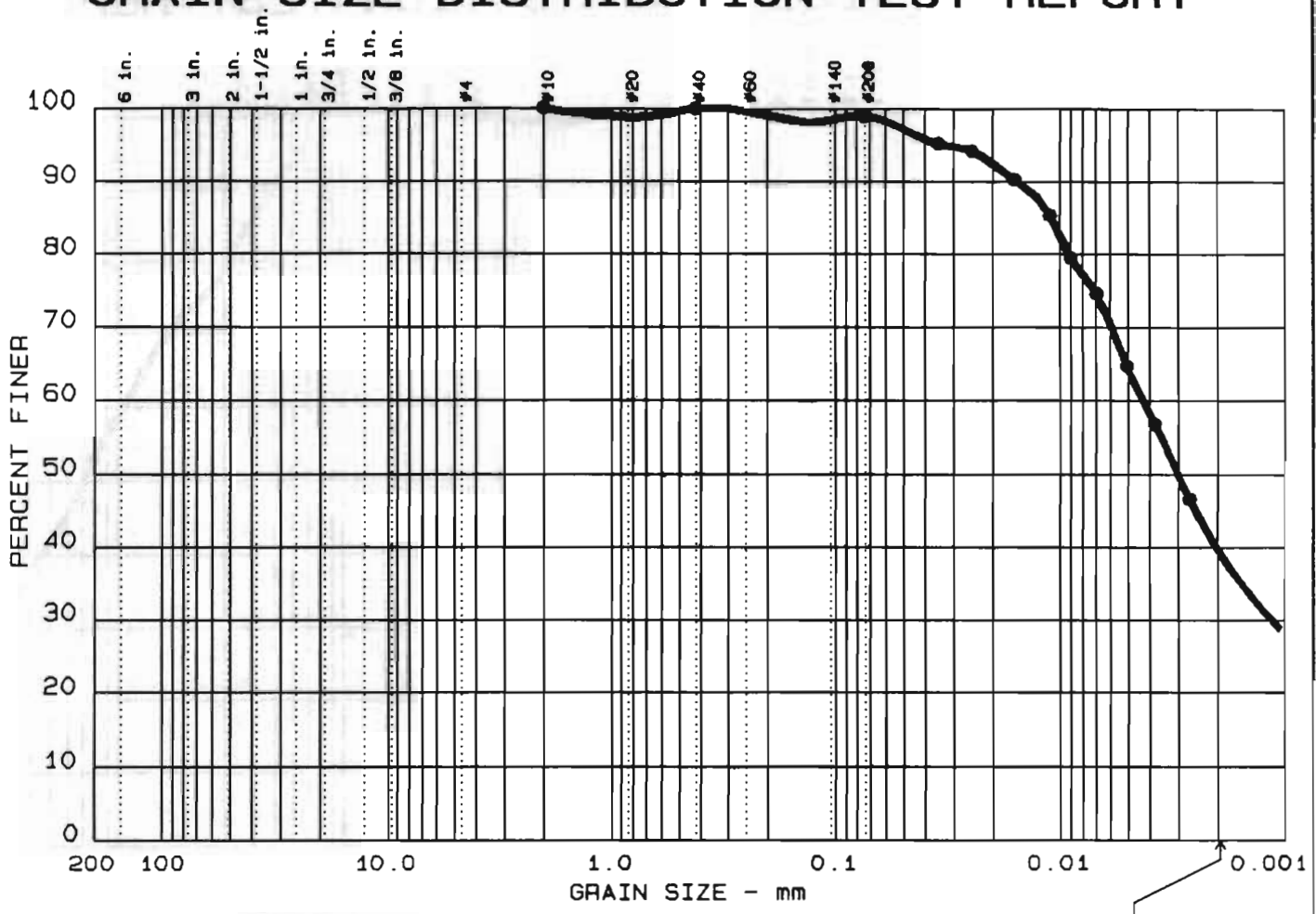
PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
TIME / GALLONS	9:23 INITIAL	9:30 5.0	9:39 10	9:40 20	10:10 50	10:40 70	10:49 90	11:16 110		
pH	7.92	7.75	7.88	7.84	8.13	7.76	7.59	7.52		
CONDUCTIVITY	862	1079	1080	1079	1350	1552	1553	1576		
TEMP.	9.7	10.2	10.1	10.7	10.9	10.9	10.7	10.8		
APPEARANCE / TURBIDITY	CLEAR >100	CLOY >100	CLOY >100	CLOY >100	CLOY >100	CLEAR 15	CLEAR >100	CLEAR 30		

COMMENTS: WELL WIZARD AIR DISPLACEMENT PUMP USED
- MODERATE RECHARGE
- BRN SAND FINES BROUGHT UP

APPENDIX F

- Physical Soil Testing Results

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	8	0.0	0.0	1.1	59.2	39.7

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_U
●	30	11			0.00	0.001				

MATERIAL DESCRIPTION	USCS	AASHTO
● GRAY LEAN CLAY	CL	

Project No.: 0266-31-4
Project: NYSDEC, MR. C CLEANERS
● Location: MPI-1D, 66-68'

Date: 04-18-94

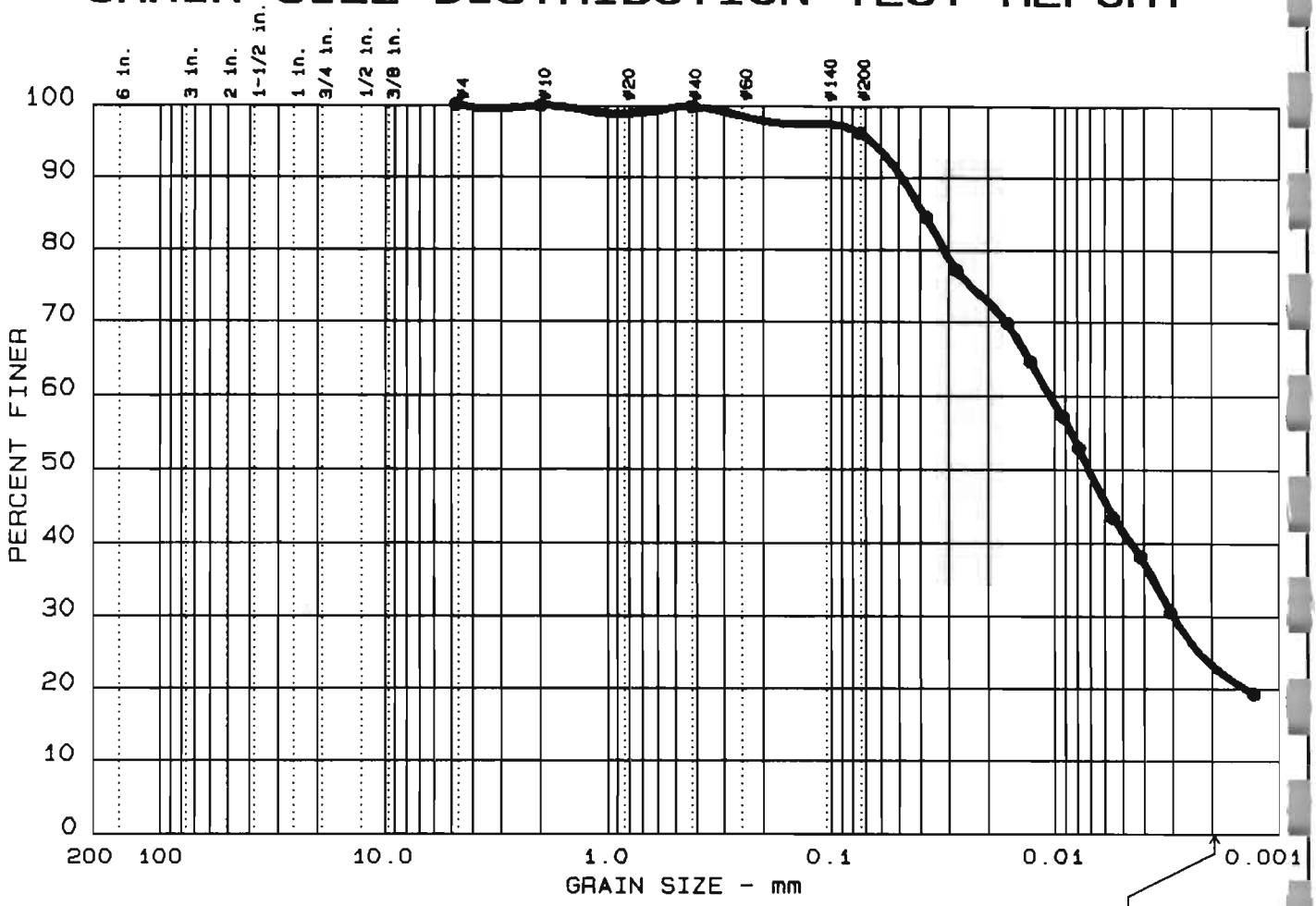
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	17	0.0	0.0	3.8	72.9	23.3

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	22	6			0.01	0.003				

MATERIAL DESCRIPTION	USCS	AASHTO
● GRAY SILTY CLAY	CL-ML	

Project No.: 0266-31-4
Project: MR. C'S CLEANERS
● Location: MPI-4D, 46-48'

Date: 04-15-94

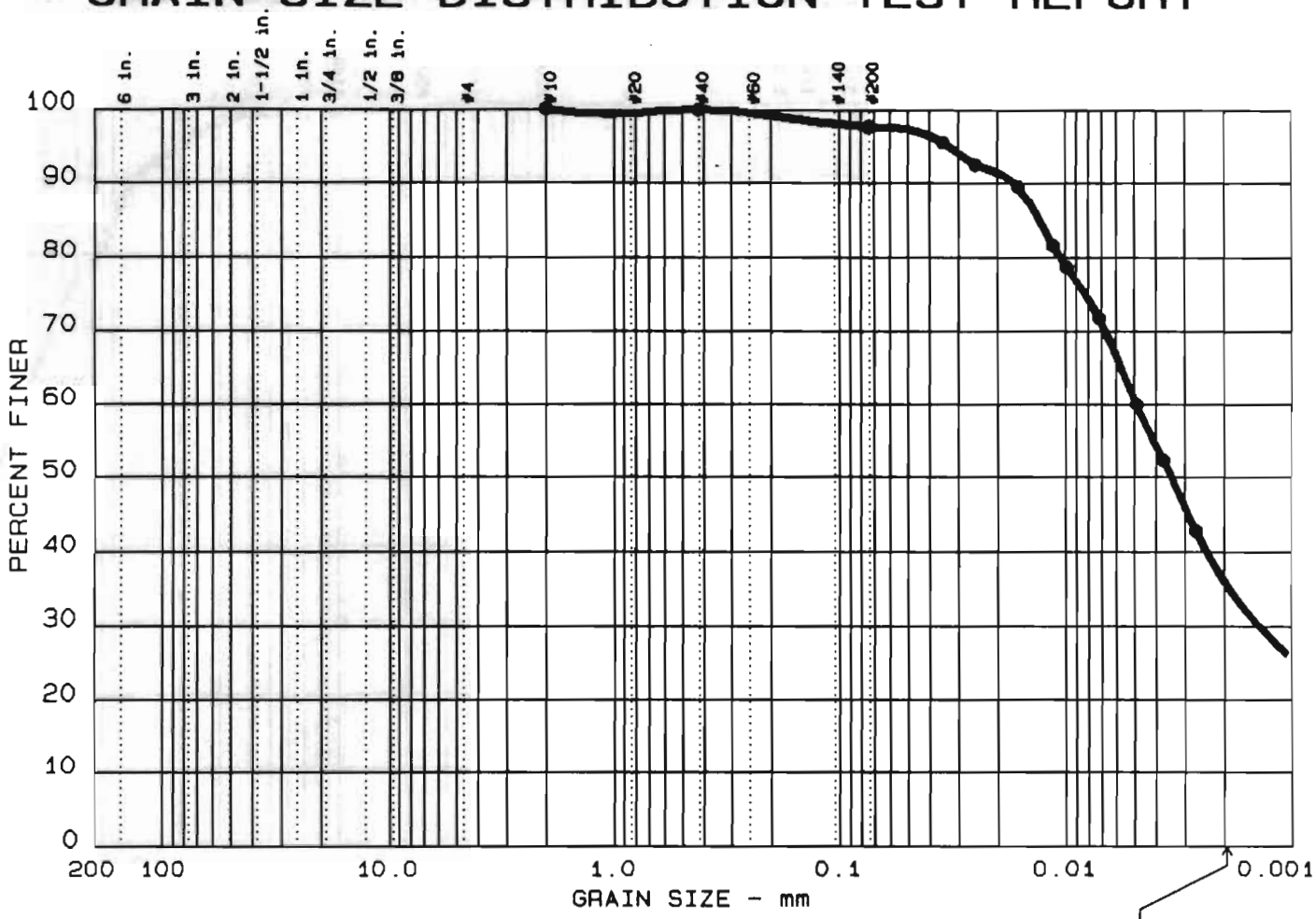
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	14	0.0	0.0	2.4	61.6	36.0

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	29	10			0.00	0.001				

	MATERIAL DESCRIPTION	USCS	AASHTO
●	GRAY LEAN CLAY	CL	

Project No.: 0266-31-4
Project: NYSDEC, MR. C CLEANERS
● Location: MPI-5D, 54-56'

Date: 04-18-94

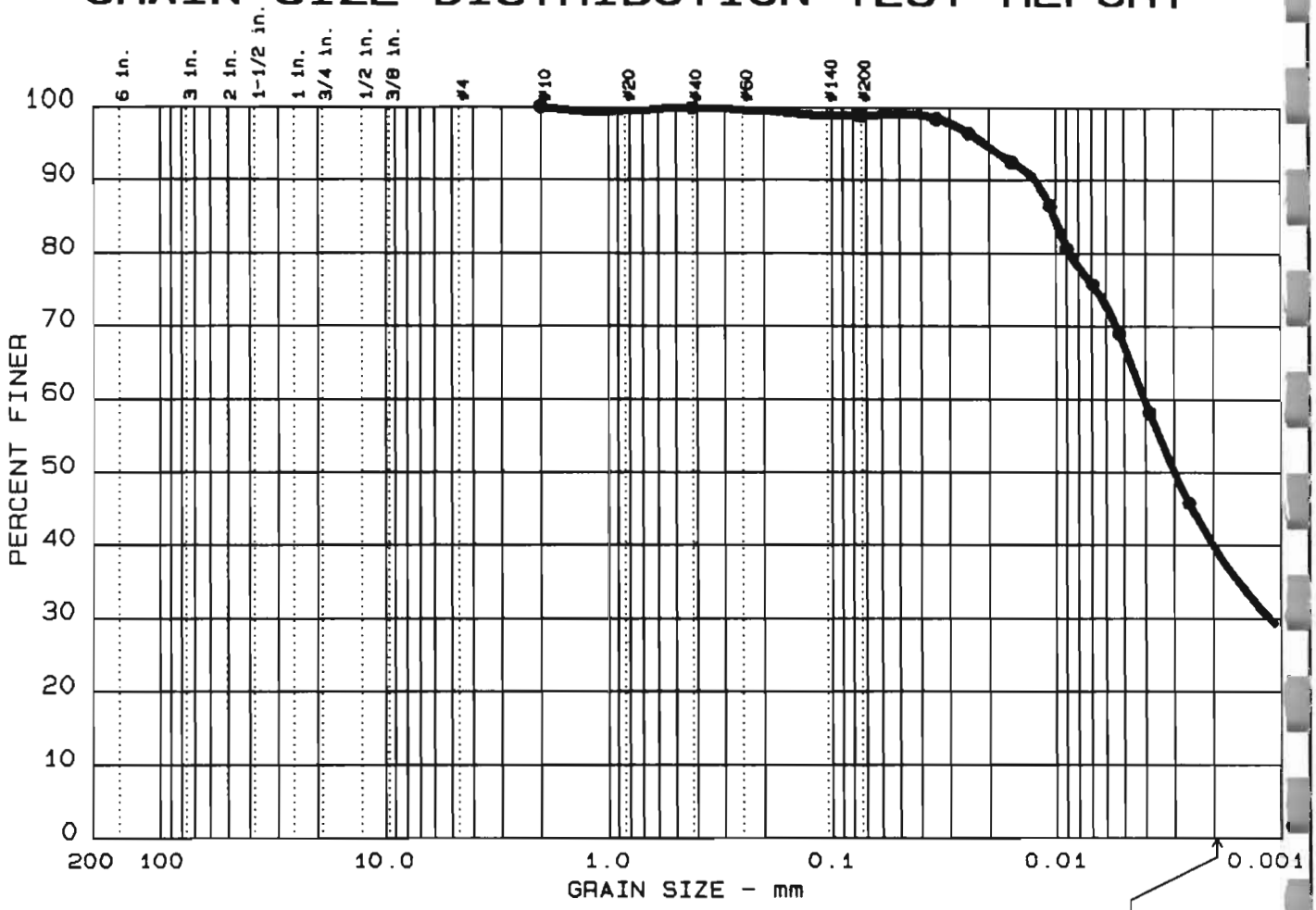
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	4	0.0	0.0	1.2	58.9	39.9

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	32	13			0.00	0.001				

MATERIAL DESCRIPTION	USCS	AASHTO
● GRAY LEAN CLAY	CL	

Project No.: 0266-31-4
Project: NYSDEC, MR. C CLEANERS
● Location: MPI-7D, 58-60'

Date: 04-18-94

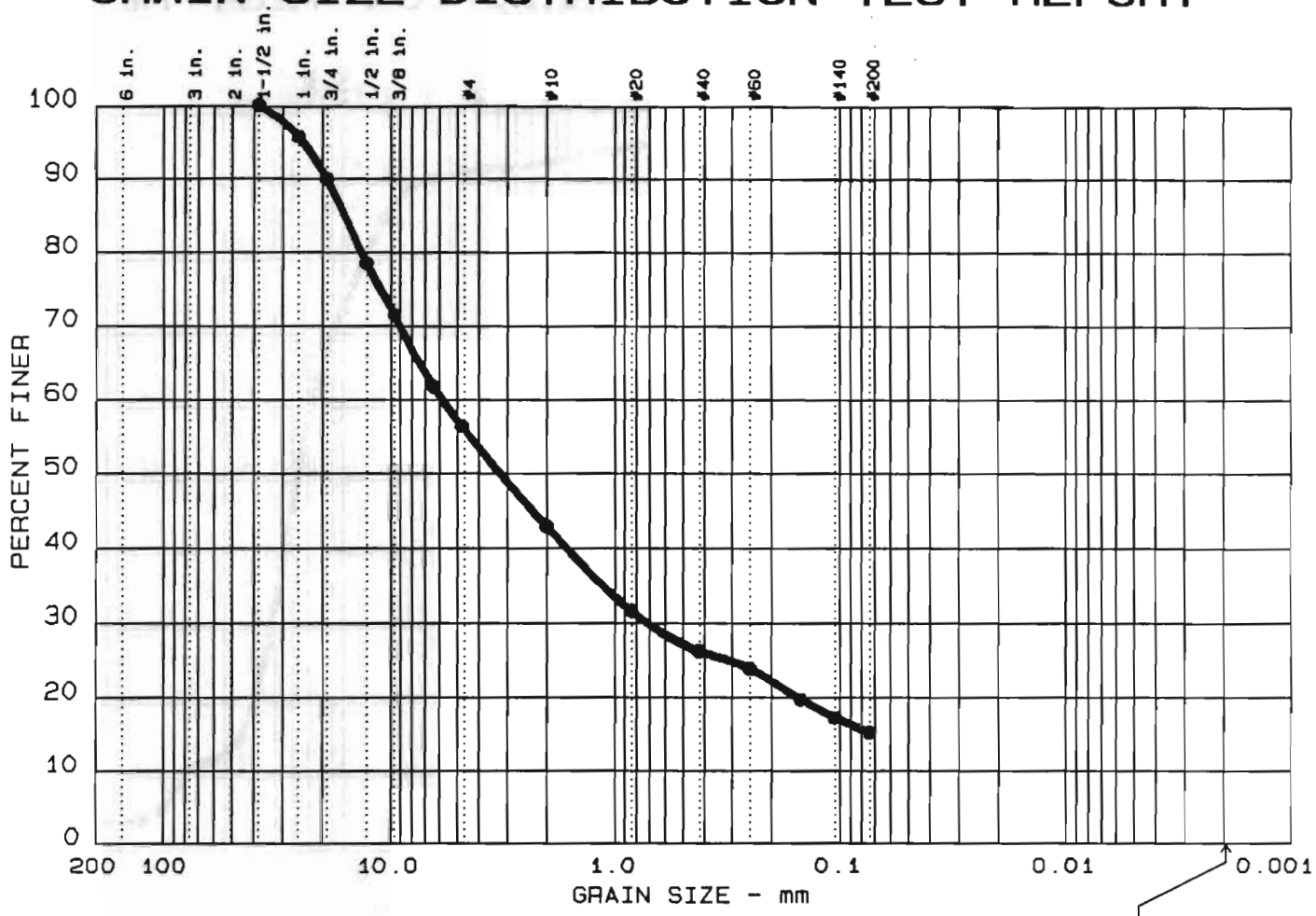
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	20	0.0	43.7	41.1	15.2	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			15.85	5.82	3.20	0.716				

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-3S / 8-14'

Date: 6-8-94

Remarks:

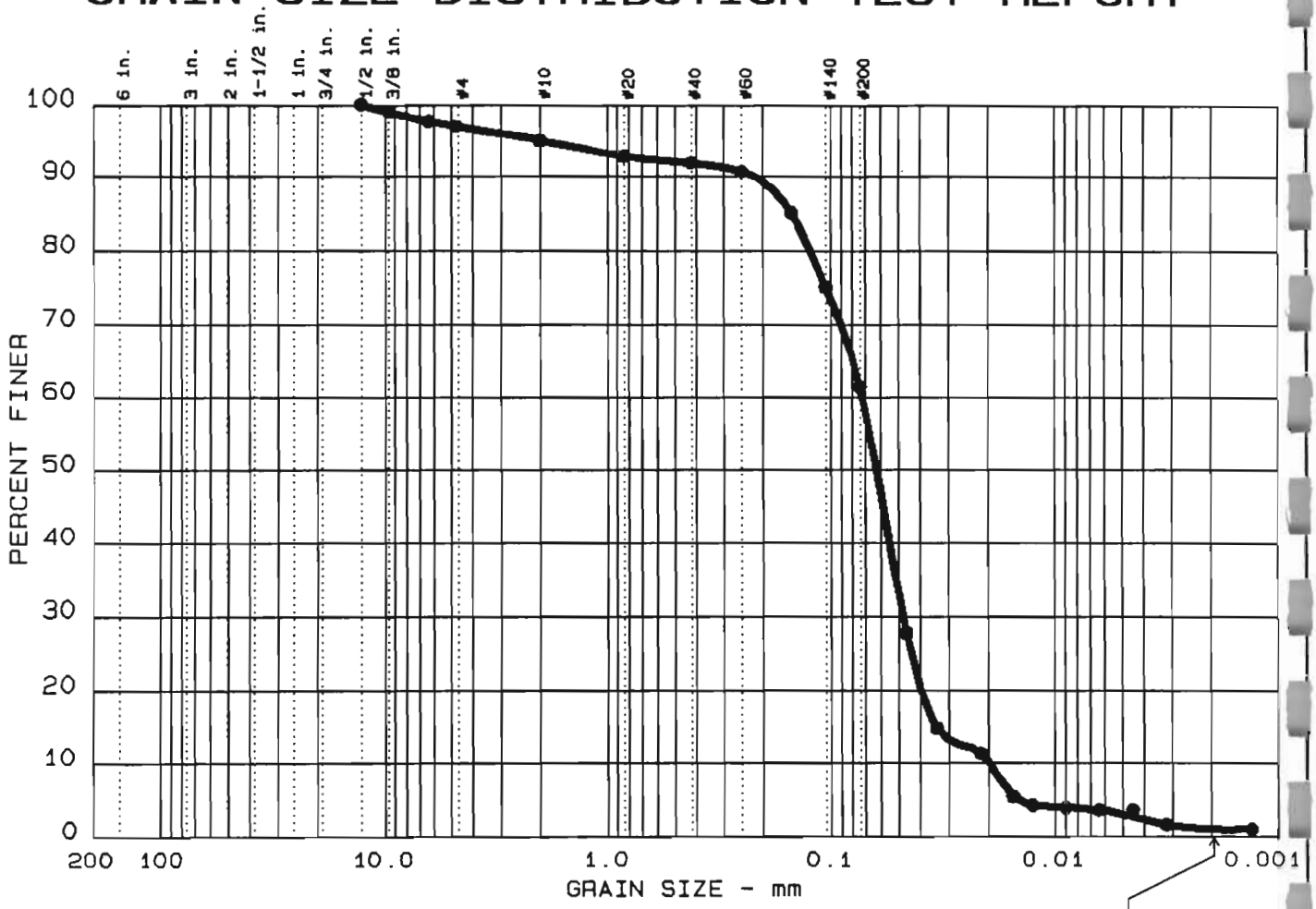
LAB I.D.#: 94-125

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	2	0.0	3.0	35.6	60.5	0.9

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.15		0.06	0.048	0.0337	0.0196	1.60	3.7

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-3S / 14-18'

Date: 6-8-94

Remarks:

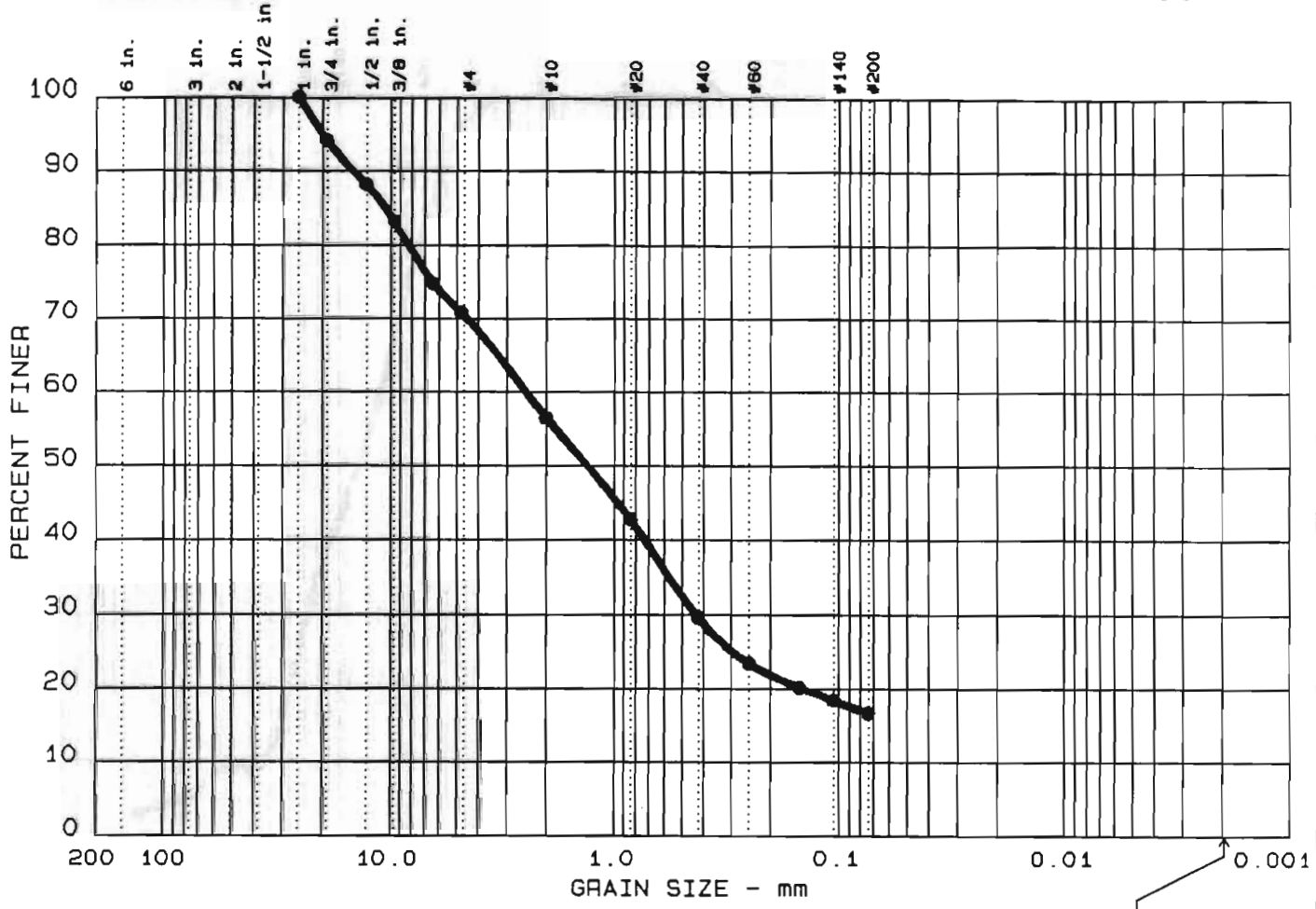
LAB I.D.#: 94-128

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	3	0.0	29.3	54.0	16.7	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			10.35	2.45	1.32	0.432				

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-5D(S) / 8-14'

Date: 6-8-94

Remarks:

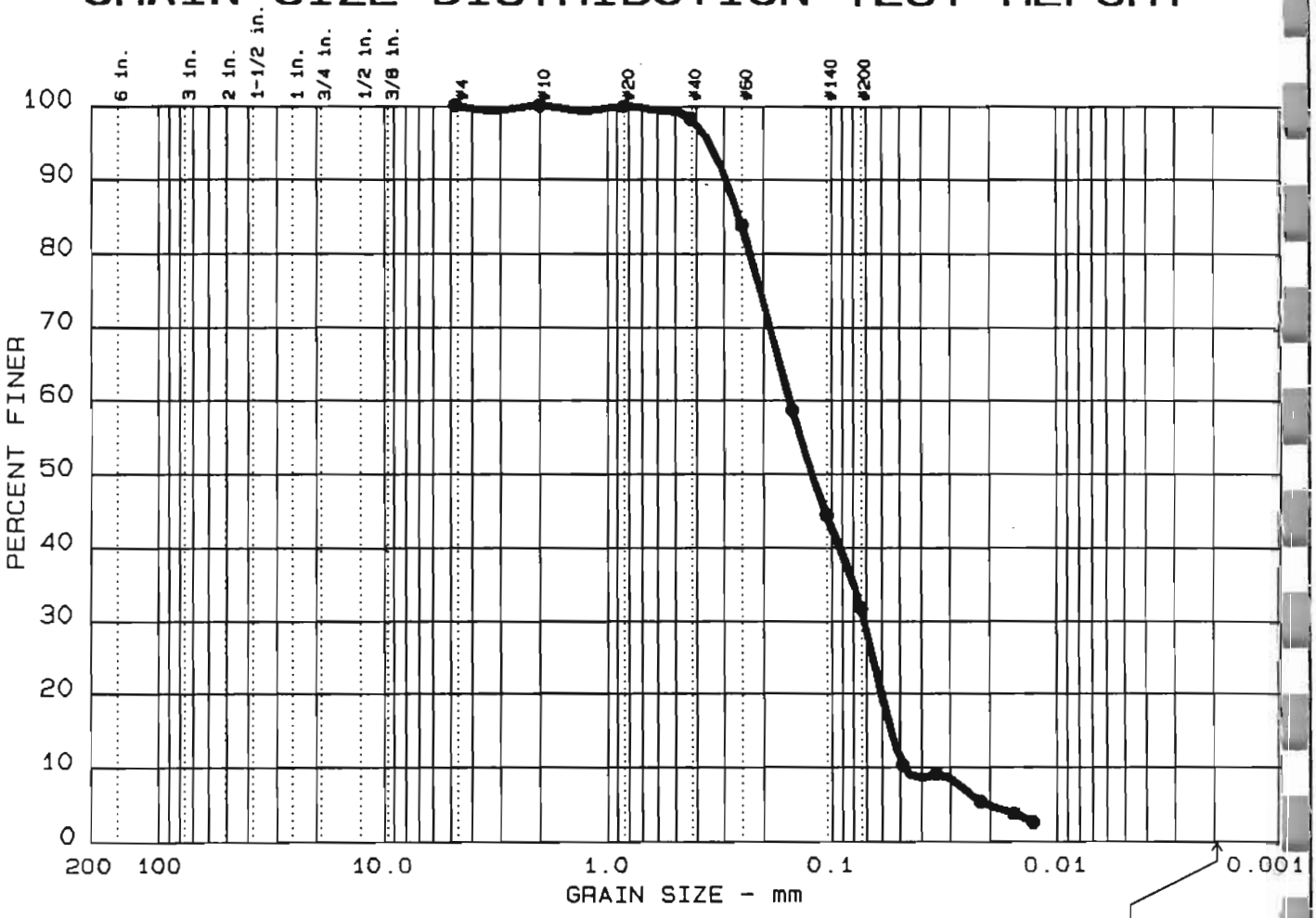
LAB I.D.#: 94-129

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	16	0.0	0.0	68.4	31.6	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.26	0.15	0.12	0.072	0.0546	0.0476	0.70	3.2

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-5D(S) / 14-18'

Date: 6-8-94

Remarks:

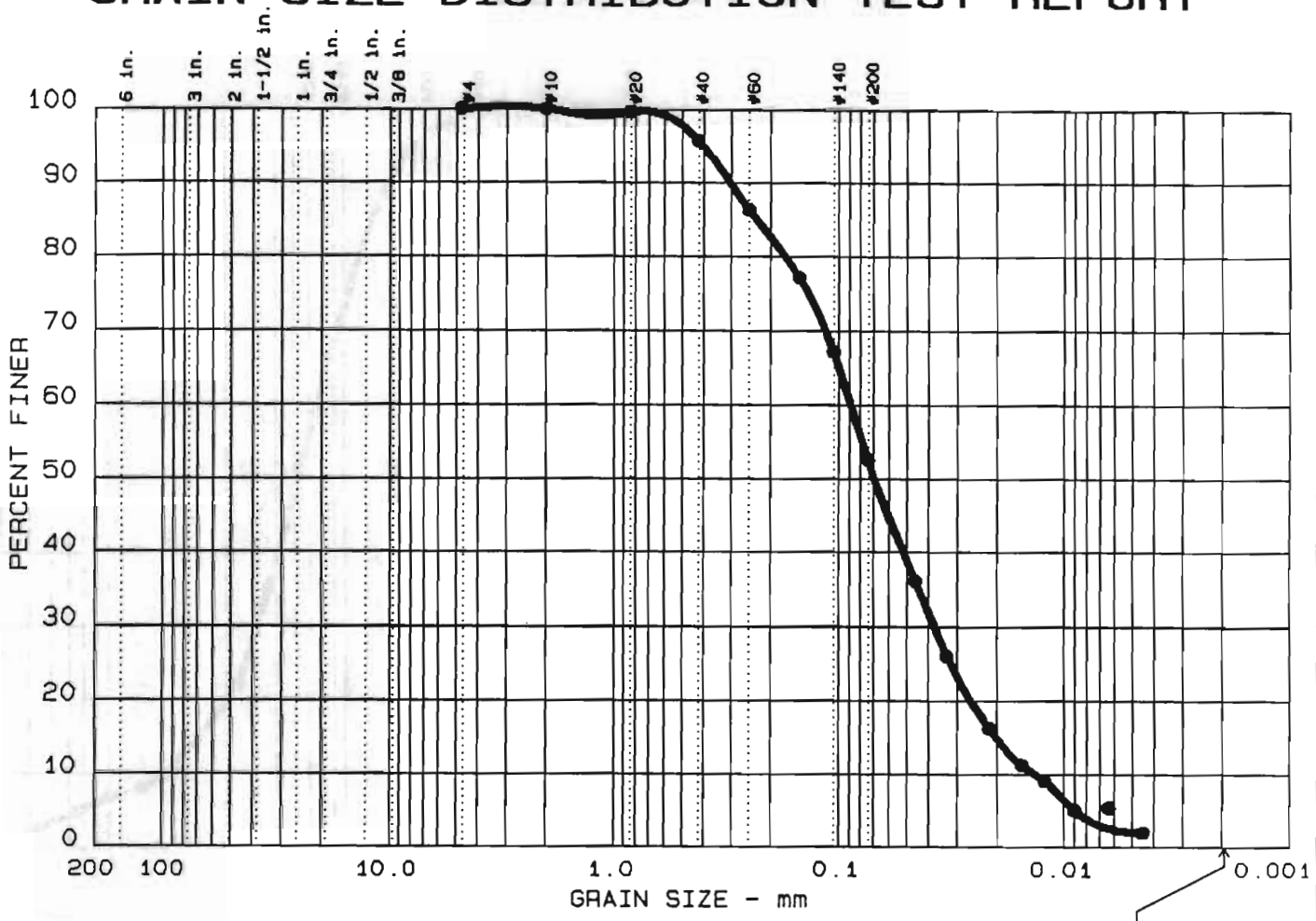
LAB I.D.#: 94-127

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	17	0.0	0.0	47.5	52.5	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.23	0.09	0.07	0.038	0.0200	0.0133	1.20	6.6

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-1D / 30-34' & 36-40'

Date: 6-8-94

Remarks:

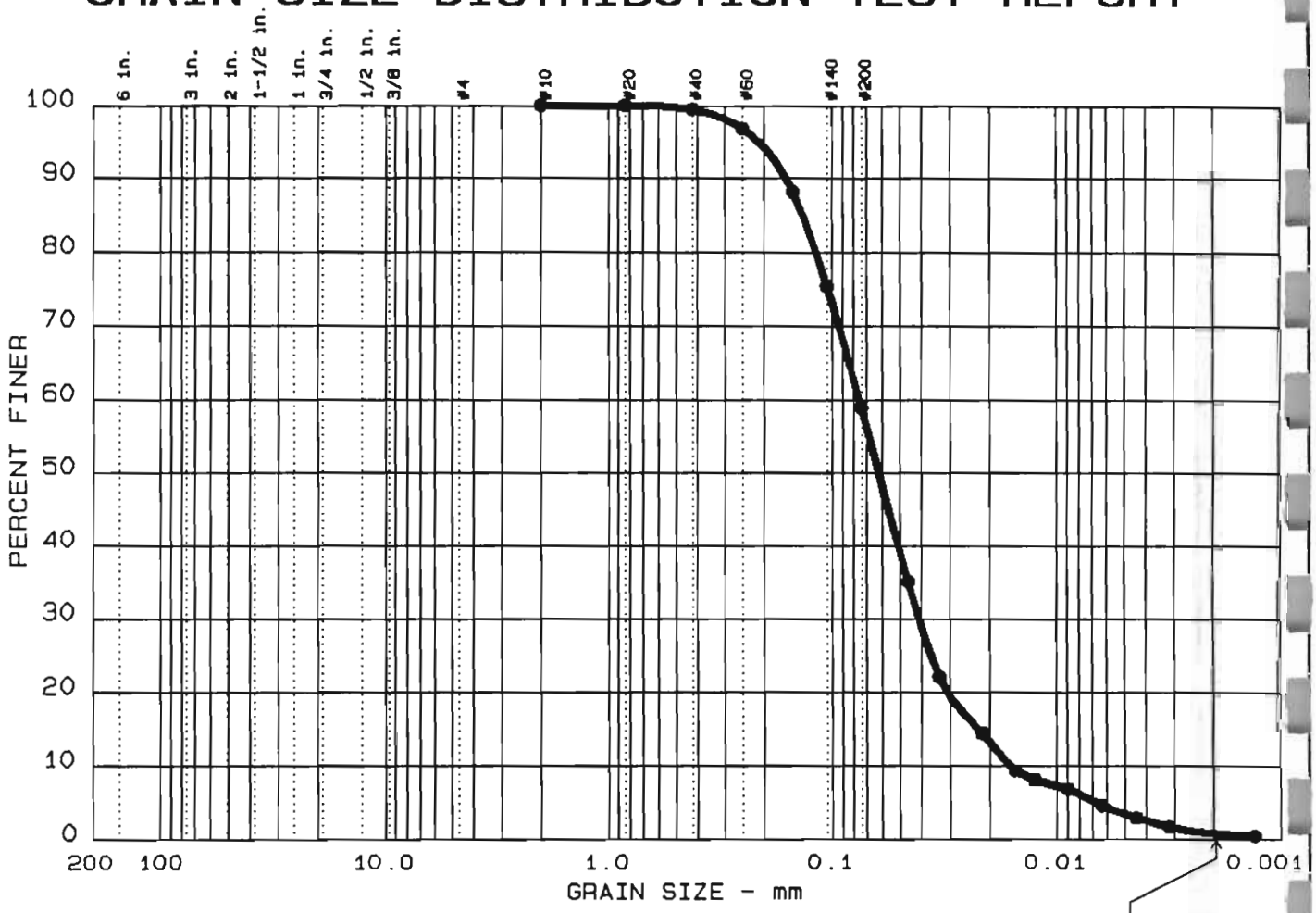
LAB I.D.#: 94-126

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	18	0.0	0.0	41.1	58.2	0.7

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.13	0.08	0.06	0.041	0.0222	0.0161	1.38	4.7

	MATERIAL DESCRIPTION	USCS	AASHTO
●			

Project No.: 0266-31-4
Project: Mr."C" Cleaners
● Location: MPI-5D(I) / 34-42'

Date: 6-8-94

Remarks:

LAB I.D.#: 94-124

GRAIN SIZE DISTRIBUTION TEST REPORT

MALCOLM PIRNIE, INC.

Figure No.

APPENDIX G

- Hydraulic Conductivity Testing

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.

BY..... DATE..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

SUBJECT MR. C. Cleaners

Slug Test Assumptions

- Base of Shallow Aquifer @ 27' bgs unless documented with deep well data
- Base of Intermediate Aquifer @ 42' bgs per deep well strat log

•Borehole diameter

- ESI wells drilled w/ 4¼" HSA, literature references a corresponding borehole dia. of 8¼" = .344' as r_w

- AG wells
  #1 and 5 drilled w/ 6¼" HSA ∴ 10½" borehole = .438' as r_w
  #4 drilled w/ 8¼" HSA ∴ 12½" borehole = .521' as r_w
  #6-10 drilled w/ 3¾" HSA ∴ 9" borehole = .333 as r_w

  8¼" HSA = 12½" hole / literature
  3¾" HSA = 9" hole / M. Gerstung @ BFlo Dalg

- MPI wells drilled with 6¼" HSA producing 12" hole per M. Gandy @ SJB Services

Effective Radius

- for partially saturated sand pack
- formula $r_{eff} = \left[(1-n)\, r_c^2 + n(r_w^2)\right]^{1/2}$

$n = .3$
r_c = radius of casing
r_w = radius of borehole

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.

BY..... DATE..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

SUBJECT.....

reff cont'd

- ESI wells $= [(1-.3)(.083)^2 + (.3)(.344)^2]^{1/2}$
$= [(.00482) + (.0355)]^{1/2}$
$= .20$

- AG wells #5 $[(1-.3)(.083)^2 + (.3)(.438)^2]^{1/2}$
$[(.00482) + (.05755)]^{1/2}$
$= .25$

#4 $[(1-.3)(.167)^2 + (.3)(.521)^2]^{1/2}$
$[(.01952) + (.08143)]^{1/2}$
$= .32$

#6-10 $[(1-.3)(.083)^2 + (.3)(.333)^2]^{1/2}$
$[(.00482) + (.03327)]^{1/2}$
$= .20$

- MPI Wells $= [(1-.3)(.083)^2 + (.3)(.5)^2]^{1/2}$
$[(.00482) + (.075)]^{1/2}$

$= .28$

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.

BY..... DATE..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

SUBJECT..... Mr C Slug Test Assumptions

- Base of Shallow Aquifer @ 27' bgs
- Base of Deeper Aquifer @ 42' bgs

Borehole diameter: /effective radius

ESI wells 1-6 drilled w/ 4¼" HSA /subsurface log documentation
8¼" ∴ r_w = .344'

AG wells

#195 drilled w/ 6¼" HSA	assumption	10½"	∴ .438'	= r_w
#4 drilled w/ 8¼" HSA		12¼"	∴ .521'	= r_w
#6-10 drilled w/ 3¾" HSA	/Eflo Data	8"	∴ .333	= r_w

$$AG\ 195 = [(1-.3)(.083)^2 + (.3)(.438)^2]^{1/2}$$
$$[(.00482) + .05755)]^{1/2}$$

$$= .25$$

$$AG\text{-}4 = [(1-.3)(.167)^2 + (.3)(.521)^2]^{1/2}$$
$$[(.01952) + (.08143)]^{1/2}$$

$$= .318$$

$$AG\text{-}6\text{-}10 = [(1-.3)(.093)^2 + (.3)(.333)^2]^{1/2}$$
$$[(.00482) + (.03327)]^{1/2}$$

$$.195$$

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.

BY..... DATE..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

SUBJECT.....

AG wells cont'd

- AG 1
  - Sand pack depth 2' below screen bottom. Assume bottom ~~& L~~ for ~~L~~ determination
  - Sand pack remains fully saturated ∴ $H \neq L$

- AG 4
  - Partially saturated sandpack $H = L$
- AG 5
  - No well construction diagram assume sand pack to .5' below screen,
  - partially saturated sand pack

AG 6
- Bflo Dale rpts 3¾" HSA create 8" borehole
- Partially saturated sandpack extends .5' below screen bottom

AG 7
- Partially saturated sandpack to .5' below screen

AG 8
- Partially saturated sandpack to .5 below screen

AG 9
- Partially saturated sandpack to .5' below screen

AG 10
- Partially saturated sandpack to .5' below screen

MPI Wells effective radius

$$r_{eff} = \left[(1-.3)(.083)^2 + (.3)(.5)^2 \right]^{1/2}$$

$$\left[(.00482) + (.075) \right]$$

.28

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.

BY..... DATE..... SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO.....

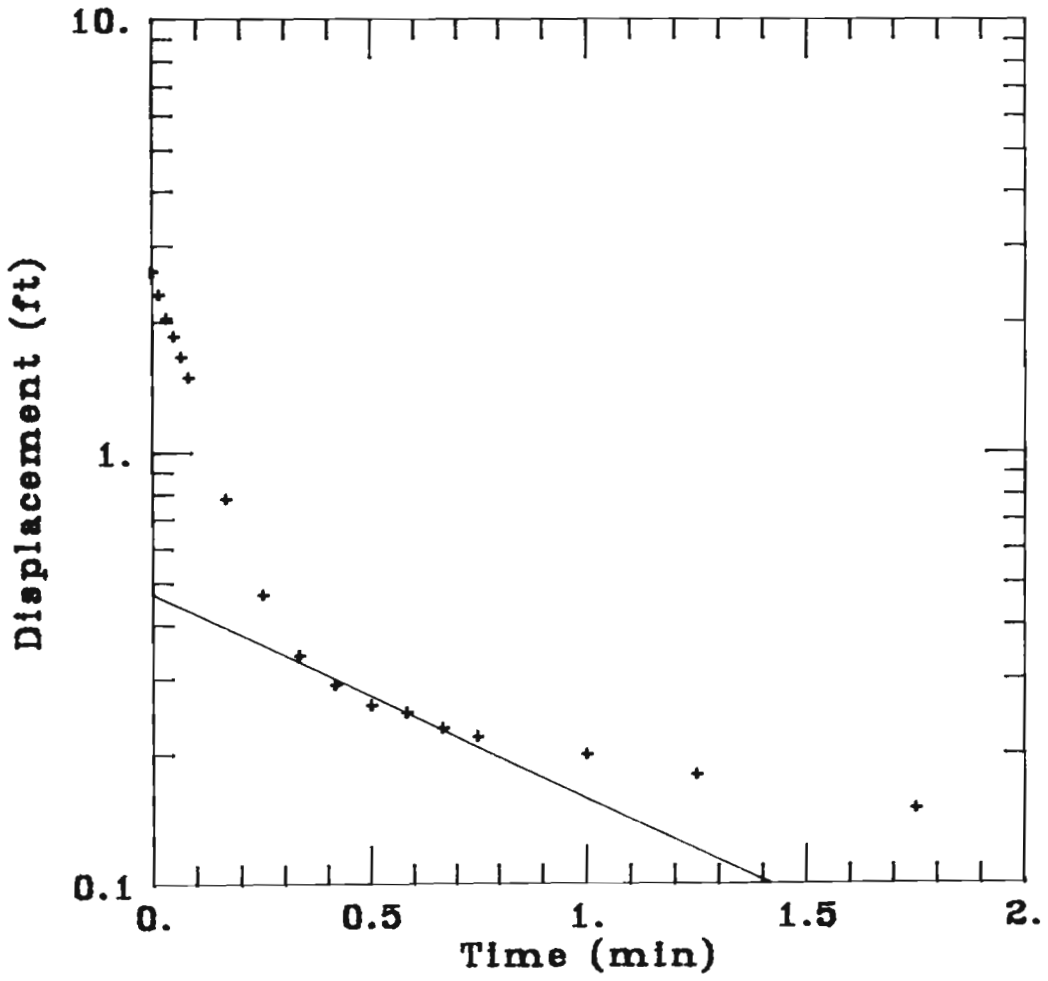
SUBJECT.....

MPI

- 1s Partially saturated sandpack extends .5' below screen
- 2s
- 3s
- 4s base of shallow Aquifer @ 27.5 per 4I data
- 5s base of shallow Aquifer @ 26 per 5I data
- 6s H_2O Above sandpack prior to test, ∴ H > L
- 8s partially saturated sandpack .5' below screen
- 9s " " " " "

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-1S



DATA SET:
MPI-1S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
MPI-1S

ESTIMATED PARAMETERS:
K = 0.008012 ft/min
y0 = 0.4711 ft

TEST DATA:
H0 = 2.61 ft
rc = 0.28 ft
rw = 0.5 ft
L = 10.54 ft
b = 17.74 ft
H = 10.54 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-1S

SE1000B
Environmental Logger
03/29 12:43

Unit# 00554 Test# 4

INPUT 1: Level (F) TOC

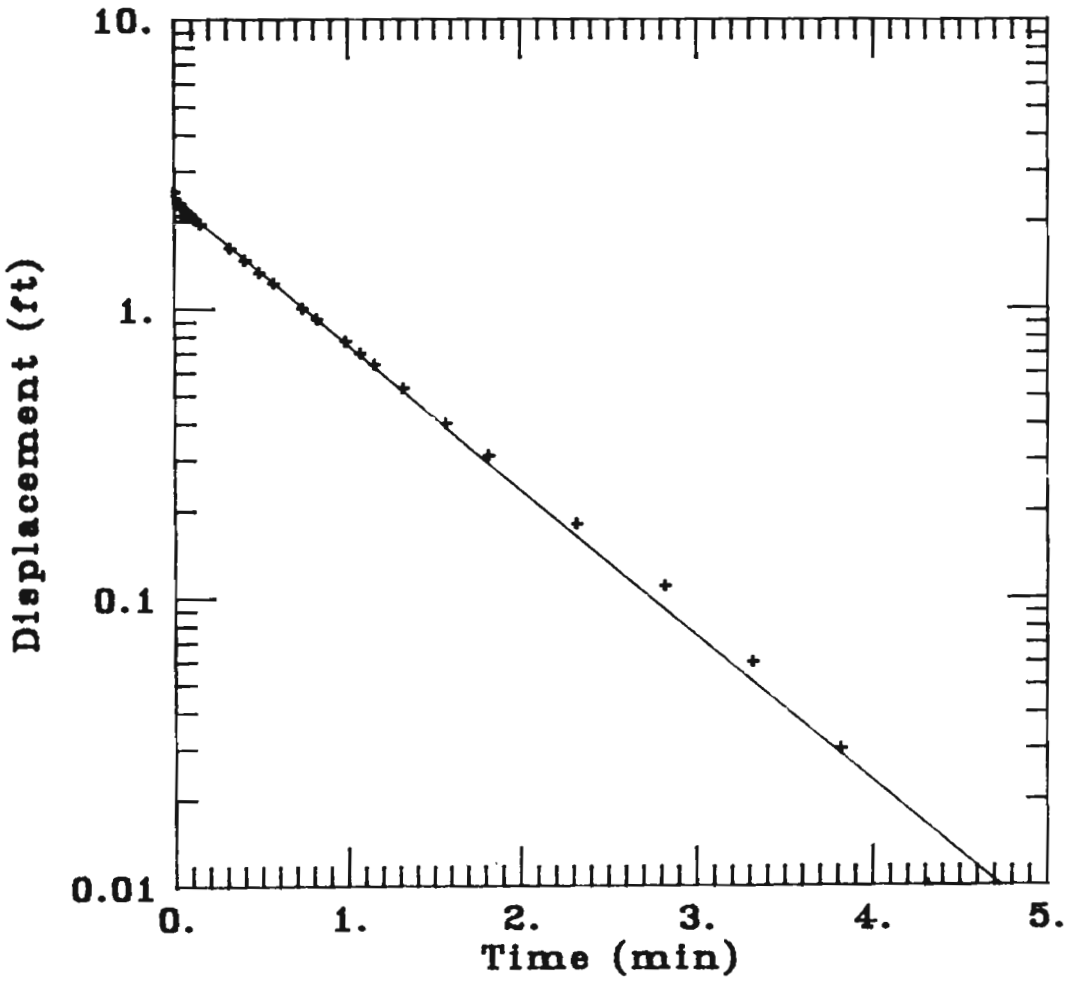
Reference 9.26
Scale factor 49.82
Offset 0.02

Step# 0 03/29 11:11

Elapsed Time	Value
0.0000	9.26
0.0033	9.27
0.0066	9.27
0.0099	9.27
0.0166	9.27
0.0233	9.27
0.0266	9.26
0.0300	9.29
0.0333	9.27
0.0500	9.26
0.0666	9.26
0.0833	8.74
0.1000	8.83
0.1166	8.70
0.1333	8.72
0.1500	8.69
0.1666	8.48
0.1833	8.74
0.2000	8.92
0.2166	9.57
0.2333	10.21
0.2500	11.87
0.2666	11.57
0.2833	11.30
0.3000	11.11
0.3166	10.92
0.3333	10.75
0.4167	10.04
0.5000	9.73
0.5833	9.60
0.6667	9.55
0.7500	9.52
0.8333	9.51
0.9167	9.49
1.0000	9.48
1.0833	9.48
1.1667	9.46
1.2500	9.46
1.3333	9.44
1.4166	9.44
1.5000	9.44
1.5833	9.43
1.6667	9.43
1.7500	9.43
1.8333	9.43
1.9167	9.41
2.0000	9.41
2.5000	9.40
3.0000	9.40
3.5000	9.38
4.0000	9.37
4.5000	9.35
5.0000	9.35
5.5000	9.35
6.0000	9.33
6.5000	9.33
7.0000	9.33
7.5000	9.32
8.0000	9.32
8.5000	9.32

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-1I



DATA SET:
MPI-1I
03/30/94

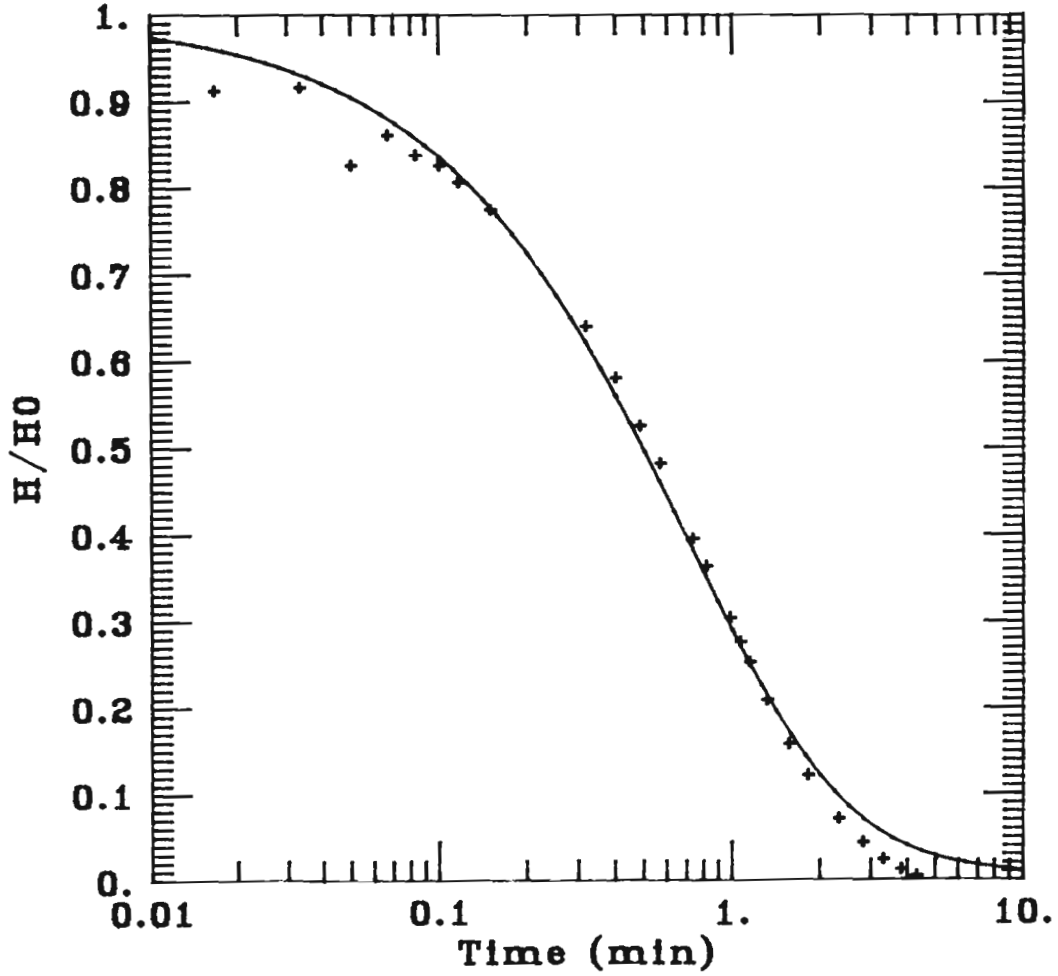
AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
MPI-1I

ESTIMATED PARAMETERS:
K = 0.0009669 ft/min
y0 = 2.359 ft 4.9 E-4

TEST DATA:
H0 = 2.53 ft
rc = 0.083 ft
rw = 0.5 ft
L = 12.3 ft
b = 33.63 ft
H = 33.63 ft

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-1I



DATA SET:
MPI-1I
03/30/94

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper et al.
TEST DATE:
3/29/94
OBS. WELL:
MPI-1I

ESTIMATED PARAMETERS:
T = 0.02102 ft^2/min
S = 9.6728E-06 8.7 E-4

TEST DATA:
H0 = 2.53 ft
rc = 0.083 ft
rw = 0.5 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-1I

SE1000B
Environmental Logger
03/29 12:48

Unit# 00554 Test# 2

INPUT 1: Level (F) TOC

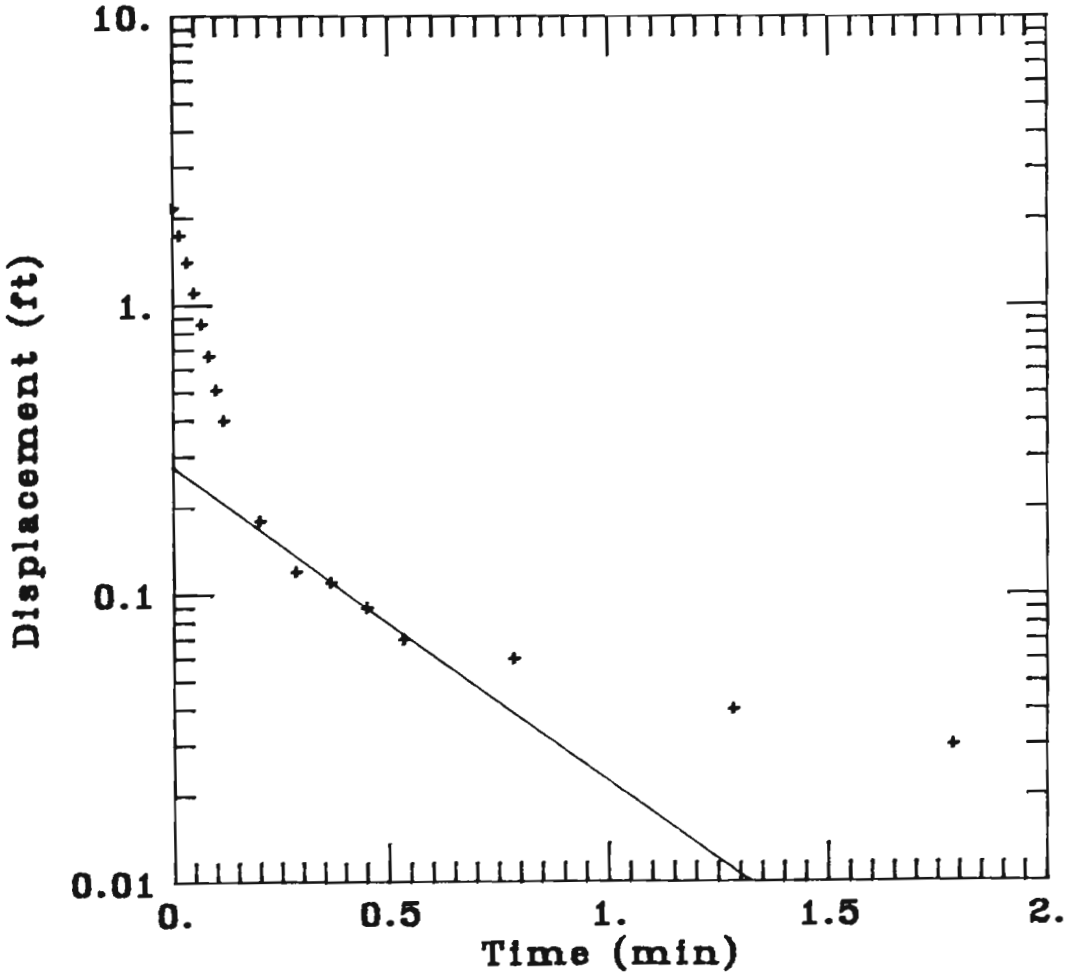
Reference 7.39
Scale factor 49.82
Offset 0.02

Step# 0 03/29 10:46

Elapsed Time	Value		
0.0000	7.39	0.6667	8.72
0.0033	7.39	0.7500	8.61
0.0066	7.39	0.8333	8.50
0.0099	7.39	0.9167	8.39
0.0133	7.39	1.0000	8.31
0.0166	7.39	1.0833	8.23
0.0200	7.39	1.1667	8.16
0.0233	7.21	1.2500	8.09
0.0266	7.05	1.3333	8.03
0.0300	6.71	1.4166	7.97
0.0333	6.76	1.5000	7.92
0.0500	6.27	1.5833	7.87
0.0666	6.22	1.6667	7.84
0.0833	5.95	1.7500	7.79
0.1000	6.28	1.8333	7.76
0.1166	6.77	1.9167	7.73
0.1333	6.57	2.0000	7.70
0.1500	8.06	2.5000	7.57
0.1666	9.18	3.0000	7.50
0.1833	9.92	3.5000	7.45
0.2000	9.70	4.0000	7.42
0.2166	9.71	4.5000	7.40
0.2333	9.67	END	
0.2500	9.57		
0.2666	9.51		
0.2833	9.48		
0.3000	9.43		
0.3166	9.38		
0.3333	9.35		
0.4167	9.16		
0.5000	9.01		
0.5833	8.86		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-2S



DATA SET:
MPI-2S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/24/94
OBS. WELL:
MPI-2S

ESTIMATED PARAMETERS:
K = 0.02209 ft/min
y0 = 0.2761 ft

TEST DATA:
H0 = 2.17 ft
rc = 0.28 ft
rw = 0.5 ft
L = 7.4 ft
b = 16.15 ft
H = 7.4 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-2S

SE1000B
Environmental Logger
03/28 11:01

Unit# 00554 Test# 8

INPUT 1: Level (F) TOC

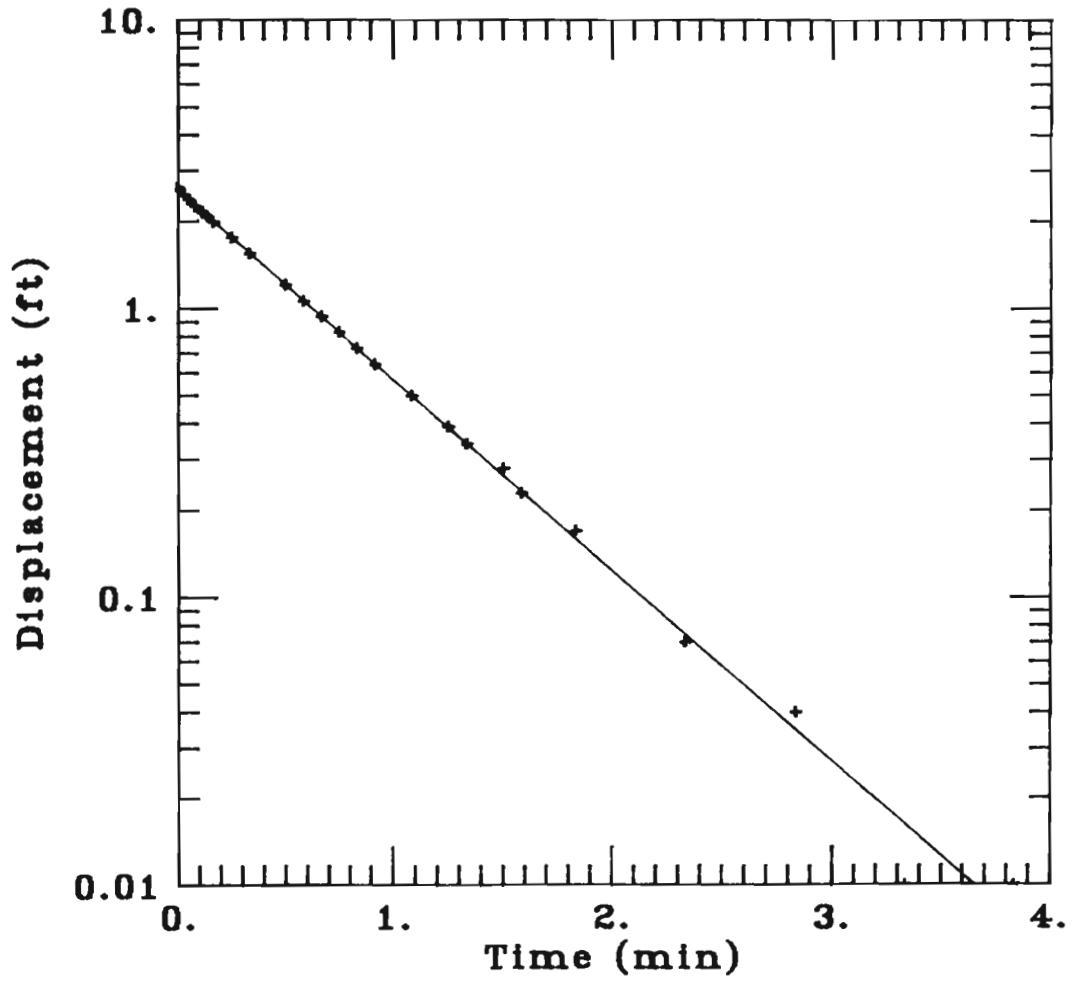
Reference 10.85
Scale factor 49.82
Offset 0.02

Step# 0 03/24 11:29

Elapsed Time	Value		
0.0000	10.85	0.6667	10.94
0.0033	10.85	0.7500	10.92
0.0066	10.85	0.8333	10.92
0.0099	10.86	0.9167	10.92
0.0133	10.85	1.0000	10.91
0.0166	10.86	1.0833	10.91
0.0200	10.85	1.1667	10.91
0.0233	10.85	1.2500	10.89
0.0266	10.85	1.3333	10.89
0.0300	10.85	1.4166	10.89
0.0333	10.85	1.5000	10.89
0.0500	10.85	1.5833	10.89
0.0666	10.47	1.6667	10.88
0.0833	10.55	1.7500	10.88
0.1000	10.39	1.8333	10.88
0.1166	10.31	1.9167	10.88
0.1333	10.94	2.0000	10.88
0.1500	10.69	2.5000	10.86
0.1666	11.30	3.0000	10.86
0.1833	11.91	3.5000	10.85
0.2000	12.95	4.0000	10.85
0.2166	13.02	4.5000	10.85
0.2333	12.59	5.0000	10.85
0.2500	12.26		
0.2666	11.95		
0.2833	11.71		
0.3000	11.52		
0.3166	11.36		
0.3333	11.25		
0.4167	11.03		
0.5000	10.97		
0.5833	10.96		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-3S



DATA SET:
MPI-3S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/23/94
OBS. WELL:
MPI-3S

ESTIMATED PARAMETERS:
K = 0.01185 ft/min
y0 = 2.584 ft

TEST DATA:
H0 = 2.62 ft
rc = 0.28 ft
rw = 0.5 ft
L = 9.37 ft
b = 17.62 ft
H = 9.37 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-3S

SE1000B
Environmental Logger
03/28 10:54

Unit# 00554 Test# 4

INPUT 1: Level (F) TOC

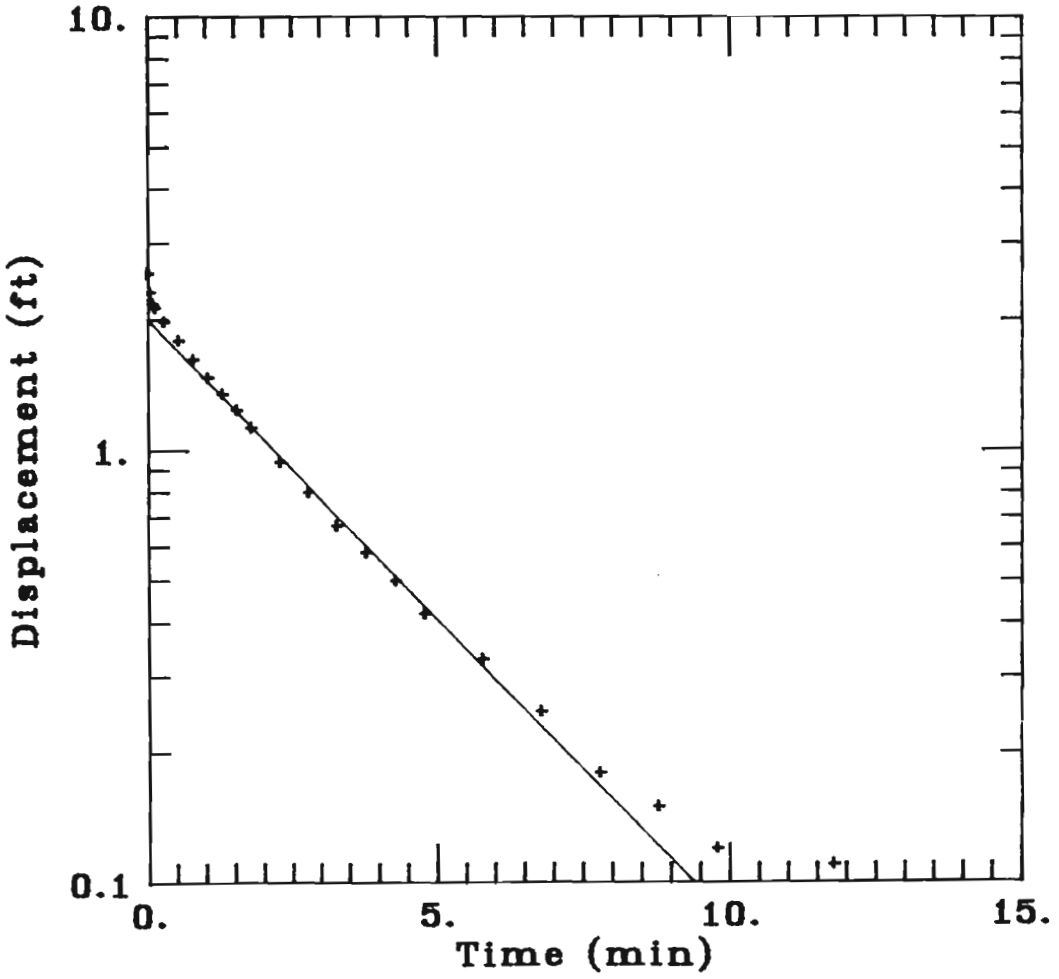
Reference 9.38
Scale factor 49.82
Offset 0.02

Step# 0 03/23 17:45

Elapsed Time	Value		
0.0000	9.39	0.6667	10.59
0.0033	9.39	0.7500	10.44
0.0066	9.39	0.8333	10.32
0.0099	9.39	0.9167	10.21
0.0133	9.39	1.0000	10.11
0.0166	9.39	1.0833	10.02
0.0200	9.39	1.1667	9.96
0.0233	9.39	1.2500	9.88
0.0266	9.39	1.3333	9.83
0.0300	9.39	1.4166	9.77
0.0333	9.17	1.5000	9.72
0.0500	8.73	1.5833	9.69
0.0666	8.46	1.6667	9.66
0.0833	8.32	1.7500	9.61
0.1000	9.25	1.8333	9.58
0.1166	9.23	1.9167	9.56
0.1333	10.44	2.0000	9.55
0.1500	11.97	2.5000	9.45
0.1666	12.00	3.0000	9.42
0.1833	11.91	3.5000	9.39
0.2000	11.85	4.0000	9.39
0.2166	11.77	4.5000	9.39
0.2333	11.70	5.0000	9.39
0.2500	11.64	5.5000	9.39
0.2666	11.59	6.0000	9.39
0.2833	11.53	6.5000	9.39
0.3000	11.48		
0.3166	11.42		
0.3333	11.37		
0.4167	11.14		
0.5000	10.93		
0.5833	10.74		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-4S



DATA SET:
MPI-4S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/23/94
OBS. WELL:
MPI-4S

ESTIMATED PARAMETERS:
K = 0.002171 ft/min
y0 = 2. ft

TEST DATA:
H0 = 2.56 ft
rc = 0.28 ft
rw = 0.5 ft
L = 12.06 ft
b = 18.56 ft
H = 12.06 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-4S

SE1000B
Environmental Logger
03/28 10:42

Unit# 00554 Test# 1

INPUT 1: Level (F) TOC

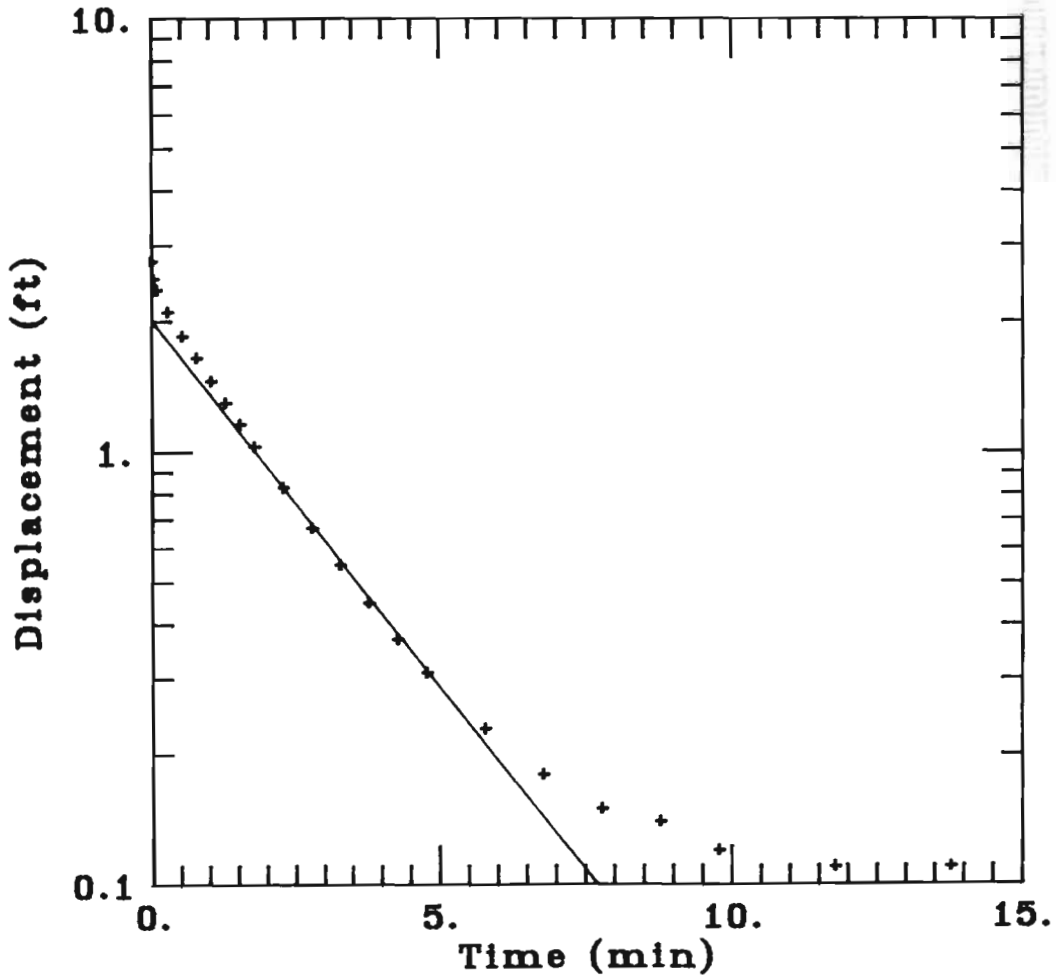
Reference 8.94
Scale factor 49.82
Offset 0.02

Step# 0 03/23 16:41

Elapsed Time	Value
0.0000	8.95
0.0033	8.95
0.0066	8.95
0.0099	8.97
0.0133	8.95
0.0166	8.95
0.0200	8.95
0.0233	8.95
0.0266	8.97
0.0300	8.95
0.0333	8.95
0.0500	8.70
0.0666	8.26
0.0833	8.27
0.1000	7.71
0.1166	7.80
0.1333	7.98
0.1500	7.91
0.1666	7.96
0.1833	7.99
0.2000	9.47
0.2166	11.50
0.2333	11.26
0.2500	11.25
0.2666	11.19
0.2833	11.15
0.3000	11.11
0.3166	11.09
0.3333	11.07
0.4167	11.00
0.5000	10.92
0.5833	10.85
0.6667	10.79
0.7500	10.73
0.8333	10.67
0.9167	10.62
1.0000	10.56
1.0833	10.51
1.1667	10.46
1.2500	10.41
1.3333	10.37
1.4166	10.32
1.5000	10.29
1.5833	10.24
1.6667	10.21
1.7500	10.18
1.8333	10.13
1.9167	10.10
2.0000	10.07
2.5000	9.88
3.0000	9.74
3.5000	9.61
4.0000	9.52
4.5000	9.44
5.0000	9.36
5.5000	9.31
6.0000	9.27
6.5000	9.22
7.0000	9.19
7.5000	9.16
8.0000	9.12
8.5000	9.11
9.0000	9.09
9.5000	9.08
10.0000	9.06
12.0000	9.05
14.0000	9.03
16.0000	9.01

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-4I



DATA SET:
MPI-4I
03/31/94

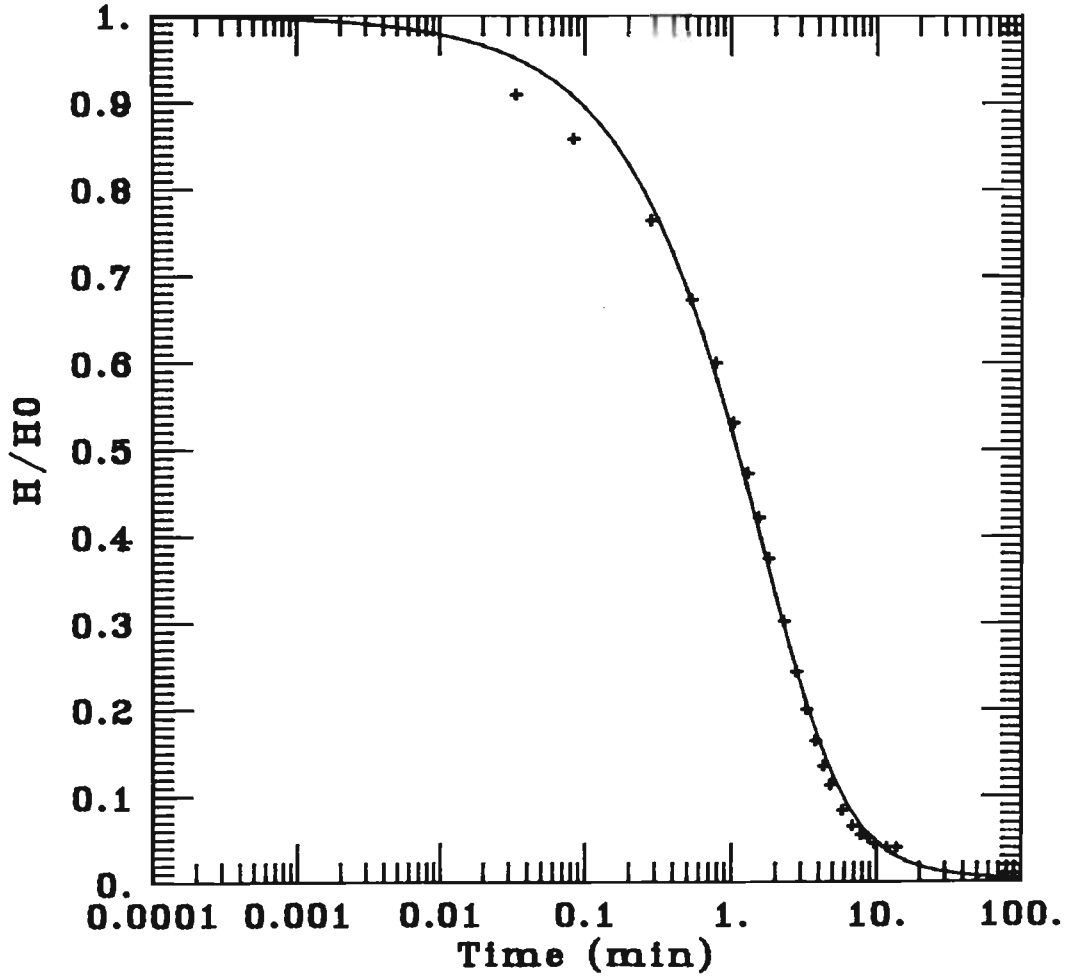
AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/23/94
OBS. WELL:
MPI-4I

ESTIMATED PARAMETERS:
K = 0.0002886 ft/min
y0 = 2.012 ft 1.5 E-4

TEST DATA:
H0 = 2.75 ft
rc = 0.083 ft
rw = 0.5 ft
L = 12.7 ft
b = 31.96 ft
H = 31.01 ft

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-4I



DATA SET:
MPI-4I
03/31/94

AQUIFER TYPE:
Confined

SOLUTION METHOD:
Cooper et al.

TEST DATE:
3/23/94

OBS. WELL:
MPI-4I

ESTIMATED PARAMETERS:
T = 0.006414 ft^2/min
S = 0.0001246 2.4 E-4

TEST DATA:
H0 = 2.75 ft
rc = 0.083 ft
rw = 0.5 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-4I

SE1000B
Environmental Logger
03/28 10:40

Unit# 00554 Test# 0

INPUT 1: Level (F) TOC

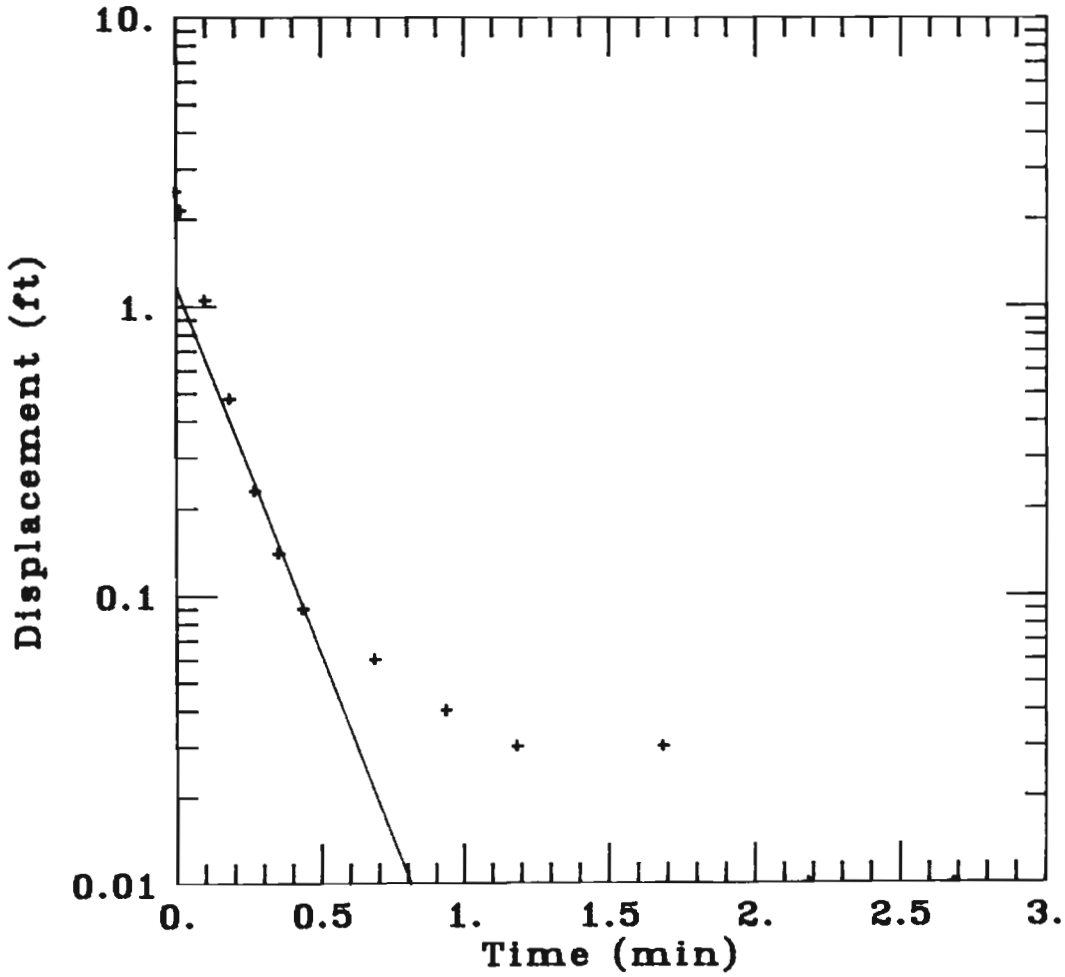
Reference 10.04
Scale factor 49.82
Offset 0.02

Step# 0 03/23 16:19

Elapsed Time	Value		
0.0000	10.13	0.7500	11.89
0.0033	10.13	0.8333	11.83
0.0066	10.13	0.9167	11.75
0.0099	10.13	1.0000	11.69
0.0133	10.13	1.0833	11.62
0.0166	10.13	1.1667	11.56
0.0200	10.13	1.2500	11.50
0.0233	10.13	1.3333	11.45
0.0266	10.13	1.4166	11.39
0.0300	10.13	1.5000	11.34
0.0333	10.13	1.5833	11.29
0.0500	9.59	1.6667	11.25
0.0666	9.33	1.7500	11.20
0.0833	9.03	1.8333	11.15
0.1000	8.85	1.9167	11.12
0.1166	8.84	2.0000	11.07
0.1333	8.97	2.5000	10.87
0.1500	9.06	3.0000	10.71
0.1666	9.30	3.5000	10.59
0.1833	10.49	4.0000	10.49
0.2000	12.14	4.5000	10.41
0.2166	12.79	5.0000	10.35
0.2333	12.52	5.5000	10.30
0.2500	12.54	6.0000	10.27
0.2666	12.47	6.5000	10.24
0.2833	12.43	7.0000	10.22
0.3000	12.40	7.5000	10.21
0.3166	12.36	8.0000	10.19
0.3333	12.35	8.5000	10.18
0.4167	12.24	9.0000	10.18
0.5000	12.14	9.5000	10.16
0.5833	12.06	10.0000	10.16
0.6667	11.97	12.0000	10.15
		14.0000	10.15

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-5S



DATA SET:
MPI-5S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/23/94
OBS. WELL:
MPI-5S

ESTIMATED PARAMETERS:
K = 0.05098 ft/min
y0 = 1.177 ft 2.6 E-2

TEST DATA:
H0 = 2.5 ft
rc = 0.28 ft
rw = 0.5 ft
L = 7.96 ft
b = 15.46 ft
H = 7.96 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-5S

SE1000B
Environmental Logger
03/28 10:50

Unit# 00554 Test# 2

INPUT 1: Level (F) TOC

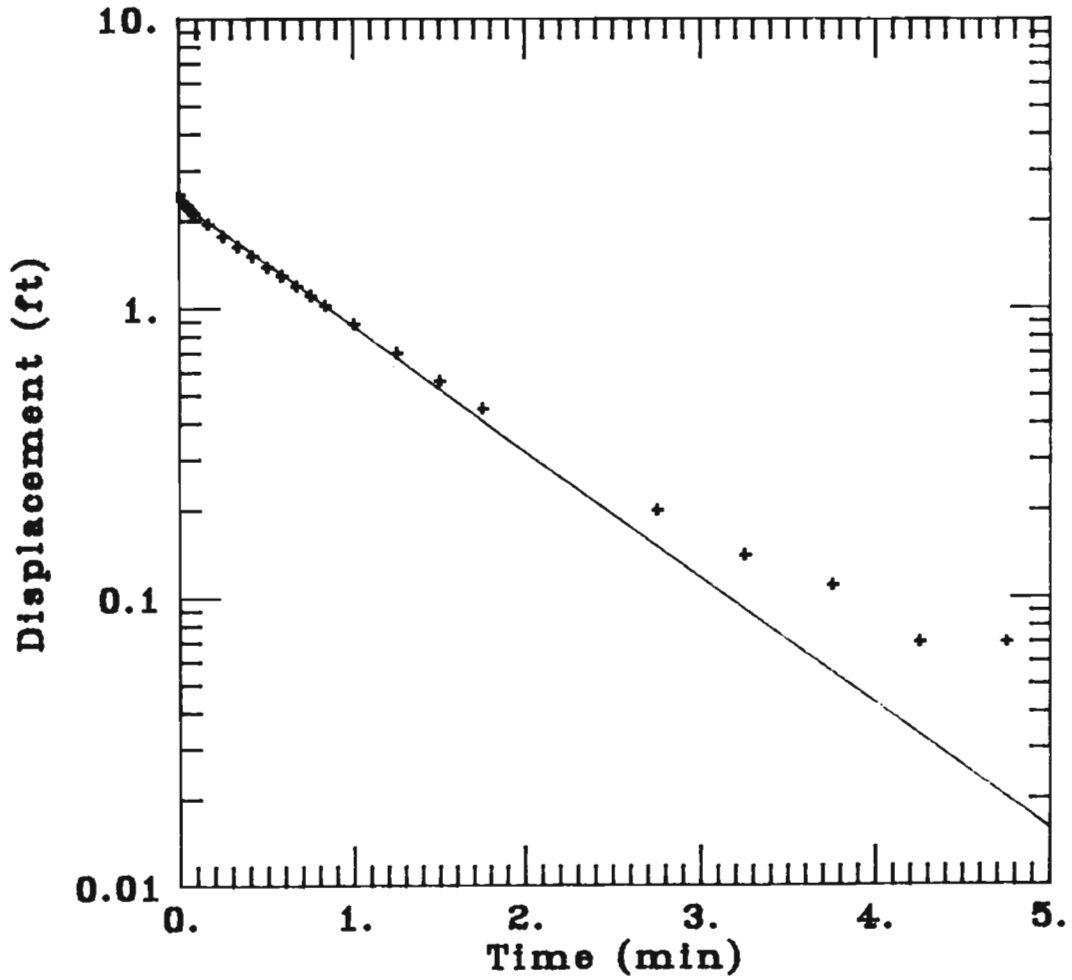
Reference 10.54
Scale factor 49.82
Offset 0.02

Step# 0 03/23 17:10

Elapsed Time	Value		
0.0000	10.54	0.6667	10.68
0.0033	10.55	0.7500	10.63
0.0066	10.54	0.8333	10.61
0.0099	10.55	0.9167	10.60
0.0133	10.55	1.0000	10.60
0.0166	10.55	1.0833	10.58
0.0200	10.55	1.1667	10.58
0.0233	10.55	1.2500	10.58
0.0266	10.55	1.3333	10.58
0.0300	10.55	1.4166	10.58
0.0333	10.55	1.5000	10.57
0.0500	10.54	1.5833	10.57
0.0666	10.54	1.6667	10.57
0.0833	10.54	1.7500	10.57
0.1000	10.47	1.8333	10.57
0.1166	10.08	1.9167	10.57
0.1333	9.92	2.0000	10.57
0.1500	10.25	2.5000	10.55
0.1666	10.41	3.0000	10.55
0.1833	10.33	3.5000	10.55
0.2000	10.44	4.0000	10.55
0.2166	10.42	4.5000	10.55
0.2333	10.46	5.0000	10.55
0.2500	10.46		
0.2666	11.18		
0.2833	11.49		
0.3000	12.55		
0.3166	13.04		
0.3333	12.69		
0.4167	11.59		
0.5000	11.02		
0.5833	10.77		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-5I



DATA SET:
MPI-5I
03/30/94

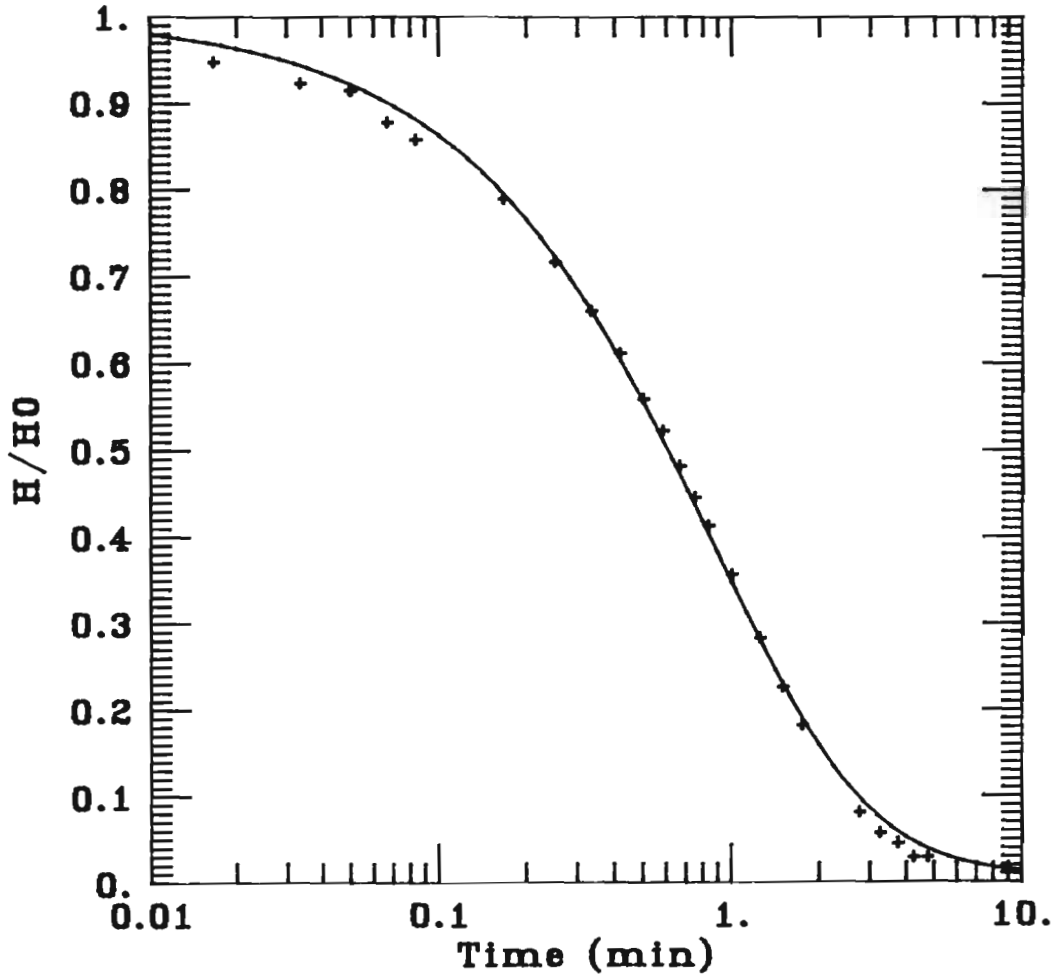
AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
MPI-5I

ESTIMATED PARAMETERS:
K = 0.0007671 ft/min
y0 = 2.345 ft 3.9 E-4

TEST DATA:
H0 = 2.47 ft
rc = 0.083 ft
rw = 0.5 ft
L = 12.5 ft
b = 32.14 ft
H = 31.56 ft

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-5I



DATA SET:
MPI-5I
03/30/94

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper et al.
TEST DATE:
3/29/94
OBS. WELL:
MPI-5I

ESTIMATED PARAMETERS:
T = 0.01868 ft^2/min
S = 4.8035E-06 7.6 E-4

TEST DATA:
H0 = 2.47 ft
rc = 0.083 ft
rw = 0.5 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-5I

SE1000B
Environmental Logger
03/29 12:40

Unit# 00554 Test# 5

INPUT 1: Level (F) TOC

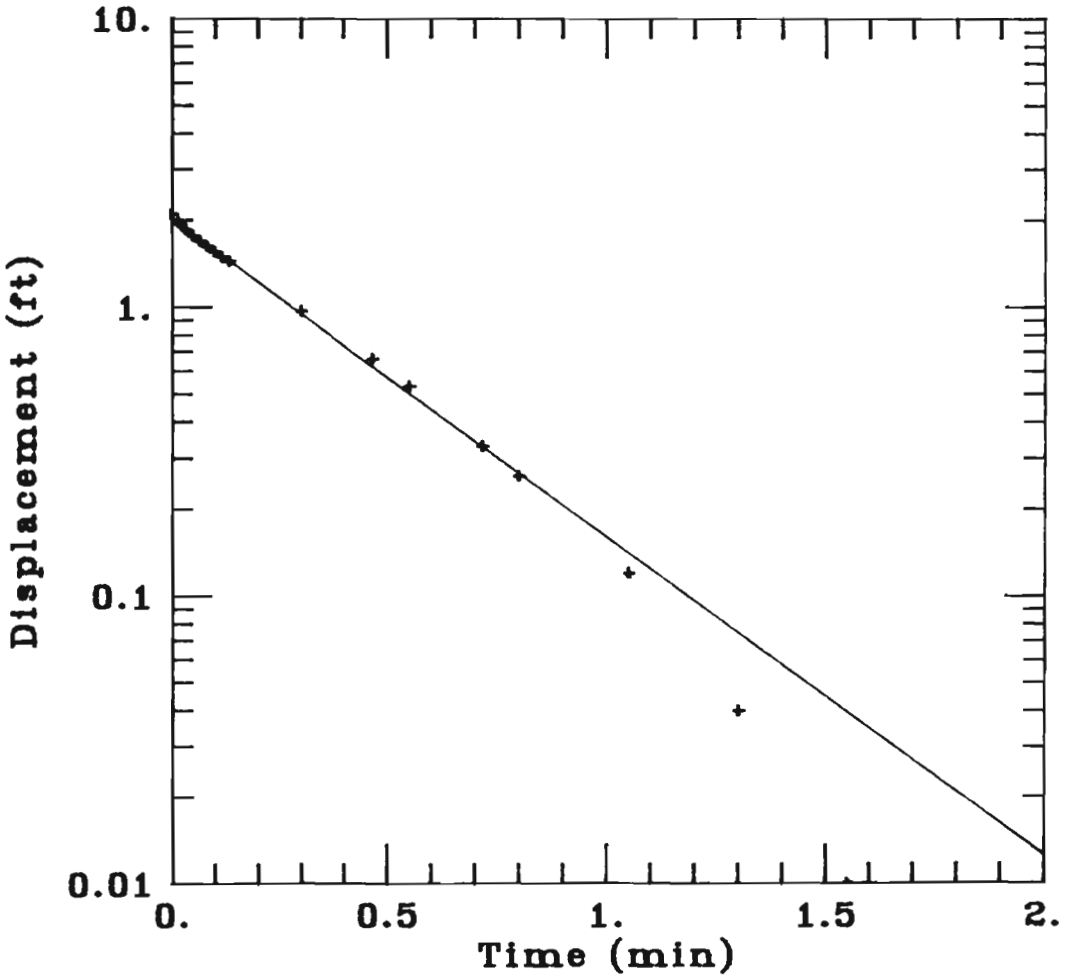
Reference 10.36
Scale factor 49.82
Offset 0.02

Step# 0 03/29 11:30

Elapsed Time	Value
0.0000	10.39
0.0033	10.39
0.0066	10.39
0.0099	10.39
0.0133	10.39
0.0166	10.39
0.0200	10.39
0.0233	10.39
0.0266	10.39
0.0300	10.39
0.0333	10.39
0.0500	10.39
0.0666	10.39
0.0833	10.01
0.1000	10.07
0.1166	10.01
0.1333	9.87
0.1500	9.51
0.1666	9.30
0.1833	9.30
0.2000	9.24
0.2166	12.42
0.2333	11.76
0.2500	12.83
0.2666	12.70
0.2833	12.64
0.3000	12.62
0.3166	12.53
0.3333	12.48
0.4167	12.31
0.5000	12.13
0.5833	11.99
0.6667	11.87
0.7500	11.74
0.8333	11.65
0.9167	11.55
1.0000	11.46
1.0833	11.38
1.1667	11.30
1.2500	11.24
1.3333	11.17
1.4166	11.11
1.5000	11.06
1.5833	11.02
1.6667	10.97
1.7500	10.92
1.8333	10.89
1.9167	10.84
2.0000	10.81
2.5000	10.67
3.0000	10.56
3.5000	10.50
4.0000	10.47
4.5000	10.43
5.0000	10.43

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-6S



DATA SET:
MPI-6S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
MPI-6S

ESTIMATED PARAMETERS:
K = 0.01682 ft/min
y0 = 2.03 ft 8.5 E-3

TEST DATA:
H0 = 2.1 ft
rc = 0.28 ft
rw = 0.5 ft
L = 13. ft
b = 17.18 ft
H = 13.18 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-6S

SE1000B
Environmental Logger
03/29 12:51

Unit# 00554 Test# 1

INPUT 1: Level (F) TOC

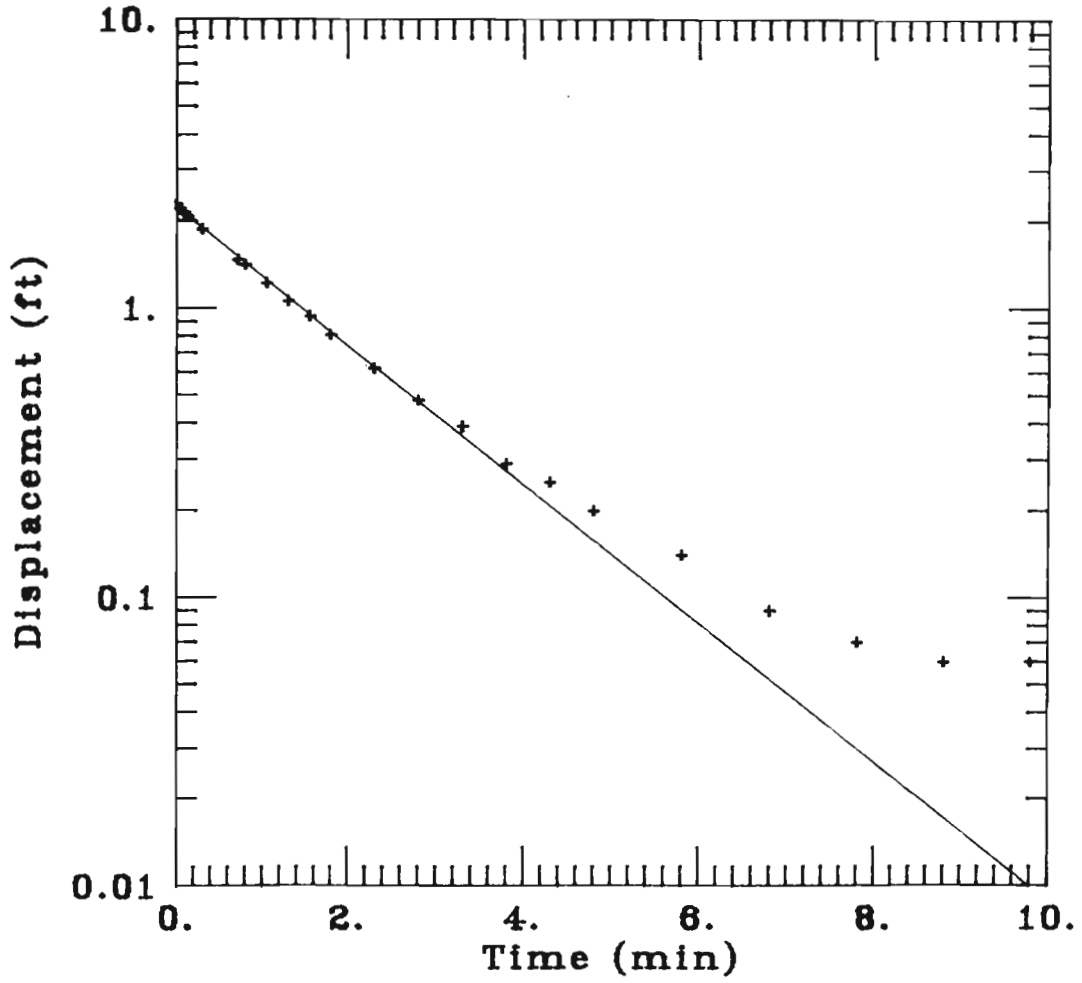
Reference 9.82
Scale factor 49.82
Offset 0.02

Step# 0 03/29 10:26

Elapsed Time	Value
0.0000	9.80
0.0033	9.82
0.0066	9.82
0.0099	9.82
0.0133	9.82
0.0166	9.82
0.0200	9.82
0.0233	9.82
0.0266	9.82
0.0300	9.82
0.0333	9.82
0.0500	9.59
0.0666	9.59
0.0833	9.20
0.1000	9.00
0.1166	8.95
0.1333	9.36
0.1500	9.37
0.1666	10.19
0.1833	11.55
0.2000	11.92
0.2166	11.78
0.2333	11.67
0.2500	11.58
0.2666	11.51
0.2833	11.44
0.3000	11.37
0.3166	11.31
0.3333	11.26
0.4167	11.01
0.5000	10.79
0.5833	10.62
0.6667	10.48
0.7500	10.35
0.8333	10.24
0.9167	10.15
1.0000	10.08
1.0833	10.02
1.1667	9.97
1.2500	9.94
1.3333	9.91
1.4166	9.88
1.5000	9.86
1.5833	9.85
1.6667	9.83
1.7500	9.83
1.8333	9.82
1.9167	9.82
2.0000	9.82
2.5000	9.80
3.0000	9.80
3.5000	9.80
4.0000	9.80
4.5000	9.80
5.0000	9.80

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-7I



DATA SET:
MPI-7I
03/30/94

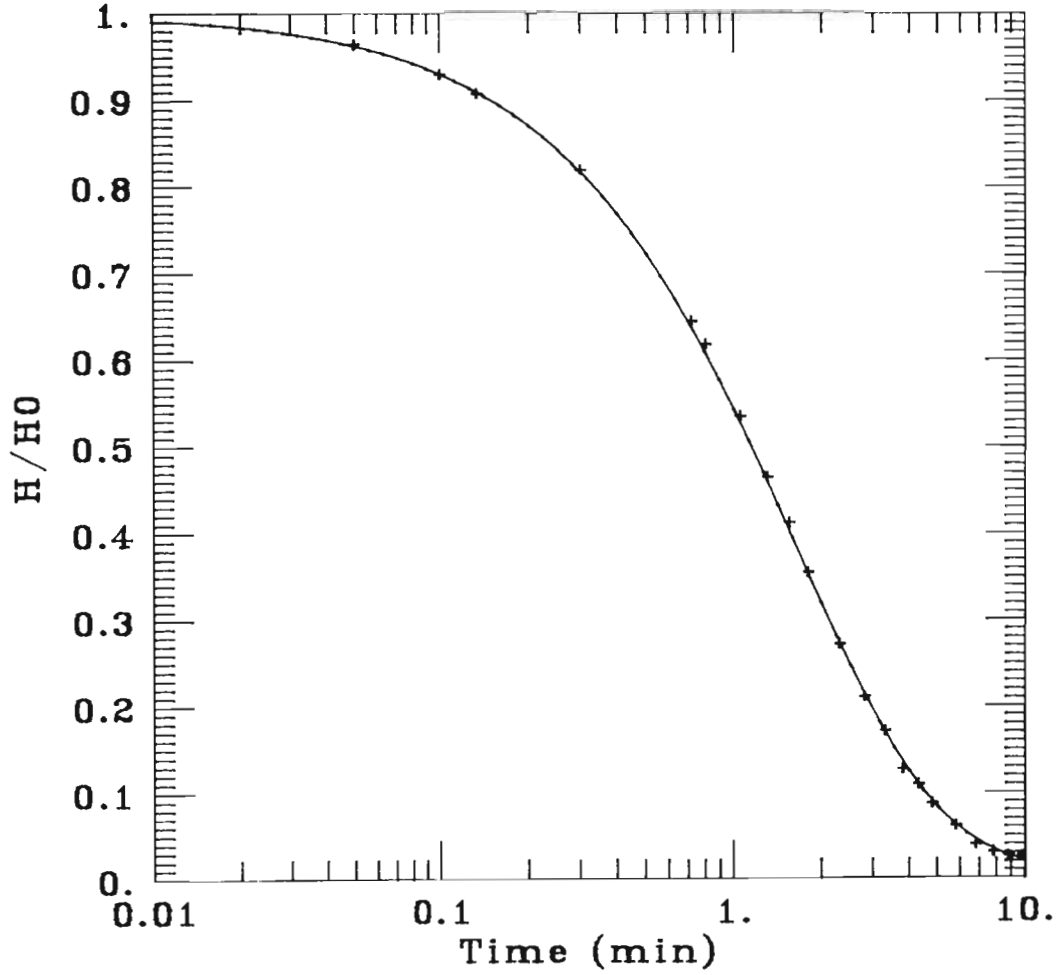
AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/24/94
OBS. WELL:
MPI-7I

ESTIMATED PARAMETERS:
K = 0.0004002 ft/min
y0 = 2.233 ft

TEST DATA:
H0 = 2.28 ft
rc = 0.083 ft
rw = 0.5 ft
L = 12.9 ft
b = 30.69 ft
H = 29.64 ft

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-7I



DATA SET:
MPI-7I
03/30/94

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Cooper et al.
TEST DATE:
3/24/94
OBS. WELL:
MPI-7I

ESTIMATED PARAMETERS:
T = 0.0168 ft^2/min
S = 1.E-08

6.6E-4

TEST DATA:
H0 = 2.28 ft
rc = 0.083 ft
rw = 0.5 ft

SLUG TEST FIELD DATA FOR
WELL # MPI-7I

SE1000B
Environmental Logger
03/28 11:02

Unit# 00554 Test# 9

INPUT 1: Level (F) TOC

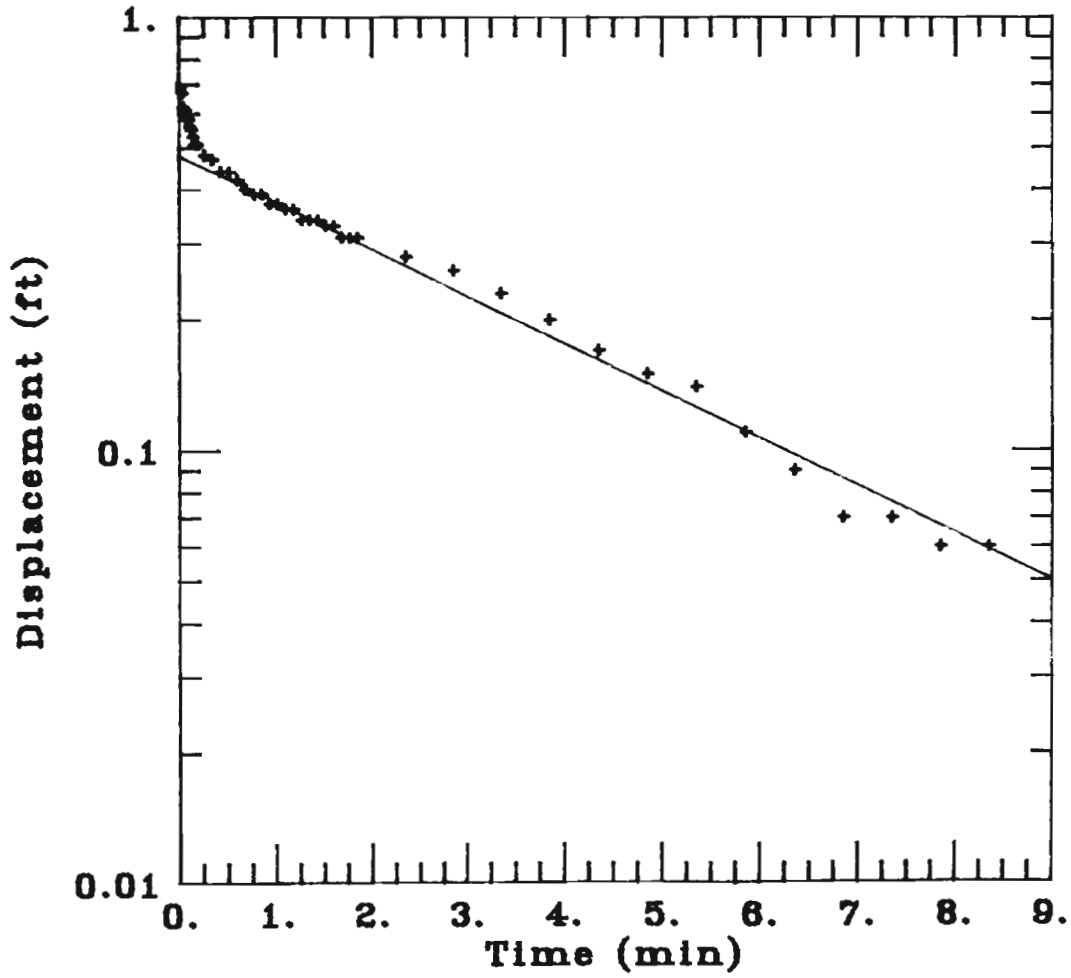
Reference 9.87
Scale factor 49.82
Offset 0.02

Step# 0 03/24 11:49

Elapsed Time	Value
0.0000	9.88
0.0033	9.88
0.0066	9.90
0.0099	9.90
0.0133	9.90
0.0166	9.90
0.0200	9.90
0.0233	9.88
0.0266	9.88
0.0300	9.90
0.0333	9.90
0.0500	9.68
0.0666	9.17
0.0833	8.72
0.1000	8.65
0.1166	9.00
0.1333	8.89
0.1500	9.71
0.1666	11.50
0.1833	12.15
0.2000	12.15
0.2166	12.13
0.2333	12.10
0.2500	12.07
0.2666	12.04
0.2833	12.00
0.3000	11.99
0.3166	11.96
0.3333	11.94
0.4167	11.83
0.5000	11.74
0.5833	11.66
0.6667	11.58
0.7500	11.49
0.8333	11.42
0.9167	11.34
1.0000	11.28
1.0833	11.22
1.1667	11.16
1.2500	11.09
1.3333	11.05
1.4166	10.98
1.5000	10.93
1.5833	10.89
1.6667	10.86
1.7500	10.81
1.8333	10.76
1.9167	10.73
2.0000	10.68
2.5000	10.49
3.0000	10.35
3.5000	10.26
4.0000	10.16
4.5000	10.12
5.0000	10.07
5.5000	10.02
6.0000	10.01
6.5000	9.98
7.0000	9.96
7.5000	9.96
8.0000	9.94
8.5000	9.94
9.0000	9.93
9.5000	9.93
10.0000	9.93
12.0000	9.93
14.0000	9.93

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-8S



DATA SET:
MPI-8S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
MPI-8S

ESTIMATED PARAMETERS:
K = 0.001941 ft/min
y0 = 0.4805 ft 9.9 E-4

TEST DATA:
H0 = 0.69 ft
rc = 0.28 ft
rw = 0.5 ft
L = 9.47 ft
b = 18.21 ft
H = 9.47 ft

SLUG TEST DATA FOR MPI-8S

SE1000B
Environmental Logger
03/30 10:01

Unit# 00554 Test# 2

INPUT 1: Level (F) TOC

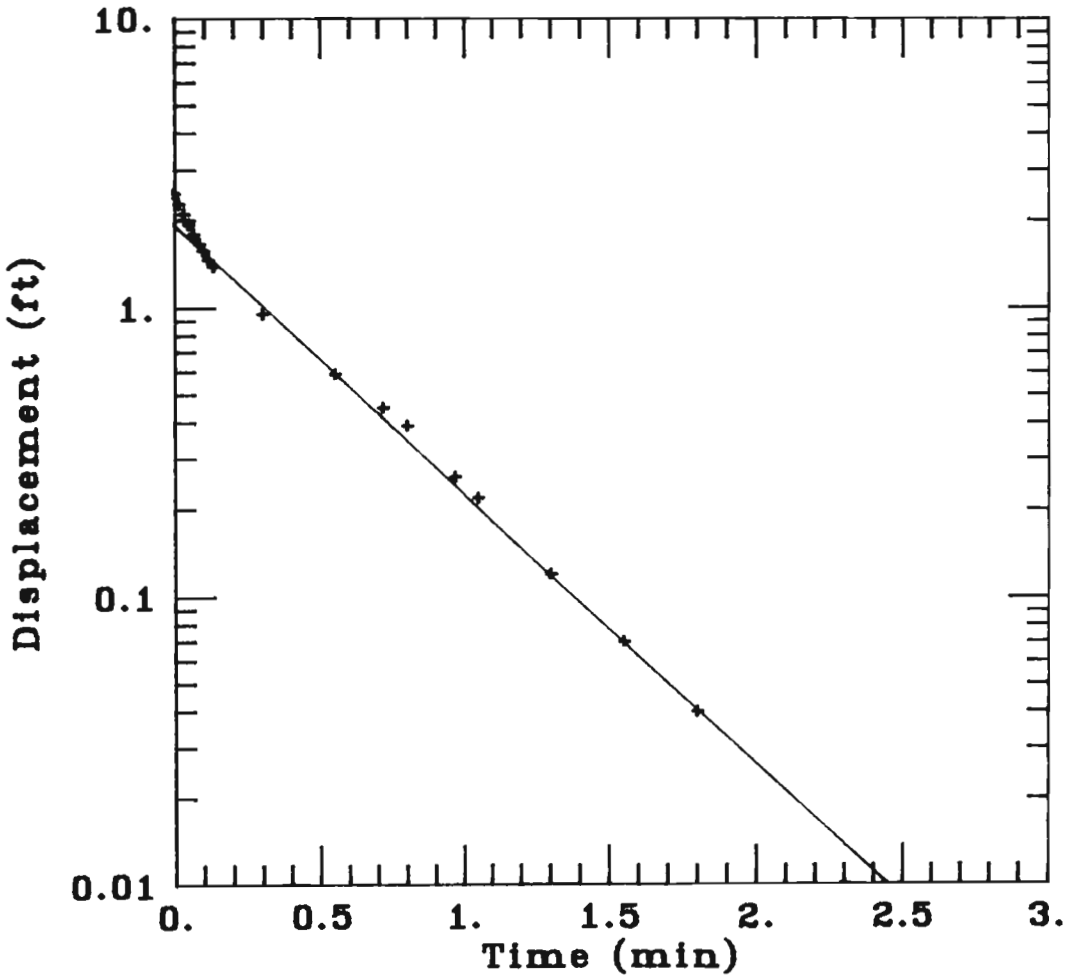
Reference 8.79
Scale factor 49.82
Offset 0.02

Step# 0 03/29 14:41

Elapsed Time	Value
0.0000	8.79
0.0033	8.79
0.0066	8.79
0.0099	8.80
0.0133	8.79
0.0166	8.79
0.0200	8.79
0.0233	8.80
0.0266	8.80
0.0300	8.79
0.0333	8.80
0.0500	8.67
0.0666	8.64
0.0833	8.52
0.1000	8.56
0.1166	8.97
0.1333	9.46
0.1500	9.48
0.1666	9.48
0.1833	9.46
0.2000	9.41
0.2166	9.40
0.2333	9.38
0.2500	9.37
0.2666	9.35
0.2833	9.34
0.3000	9.32
0.3166	9.30
0.3333	9.30
0.4167	9.27
0.5000	9.26
0.5833	9.23
0.6667	9.23
0.7500	9.21
0.8333	9.19
0.9167	9.18
1.0000	9.18
1.0833	9.16
1.1667	9.16
1.2500	9.15
1.3333	9.15
1.4166	9.13
1.5000	9.13
1.5833	9.13
1.6667	9.12
1.7500	9.12
1.8333	9.10
1.9167	9.10
2.0000	9.10
2.5000	9.07
3.0000	9.05
3.5000	9.02
4.0000	8.99
4.5000	8.96
5.0000	8.94
5.5000	8.93
6.0000	8.90
6.5000	8.88
7.0000	8.86
7.5000	8.86
8.0000	8.85
8.5000	8.85

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

MPI-9S



DATA SET:
MPI-9S
05/01/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
MPI-9S

ESTIMATED PARAMETERS:
K = 0.01679 ft/min
y0 = 1.928 ft 8.5 E-3

TEST DATA:
H0 = 2.48 ft
rc = 0.28 ft
rw = 0.5 ft
L = 9.29 ft
b = 17.95 ft
H = 9.29 ft

SLUG TEST DATA FOR
WELL # MPI-9S

SE1000B
Environmental Logger
03/29 12:38

Unit# 00554 Test# 6

INPUT 1: Level (F) TOC

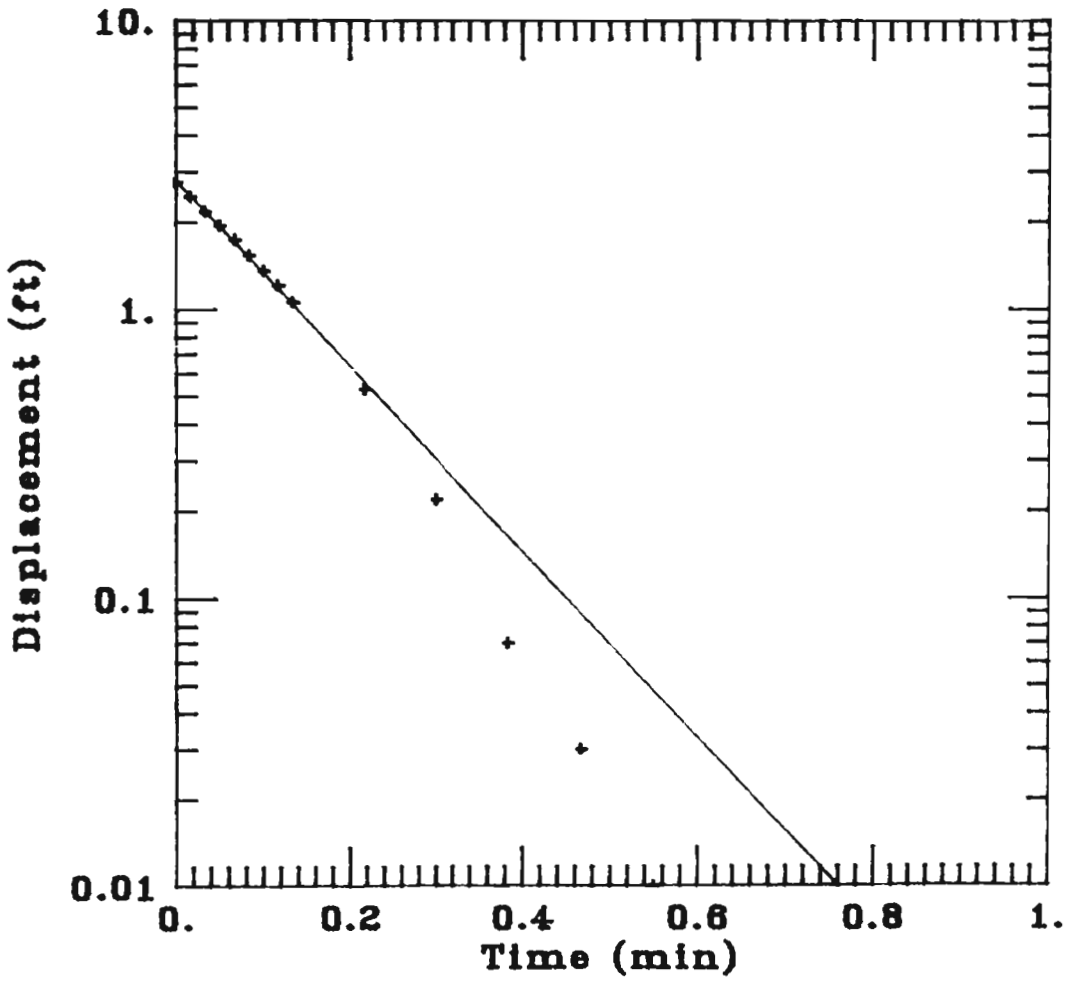
Reference 9.05
Scale factor 49.82
Offset 0.02

Step# 0 03/29 11:44

Elapsed Time	Value		
0.0000	9.05	0.5833	9.88
0.0033	9.05	0.6667	9.75
0.0066	9.05	0.7500	9.64
0.0099	9.05	0.8333	9.56
0.0133	9.05	0.9167	9.50
0.0166	9.05	1.0000	9.44
0.0200	9.05	1.0833	9.36
0.0233	9.05	1.1667	9.31
0.0266	9.05	1.2500	9.27
0.0300	9.05	1.3333	9.23
0.0333	9.05	1.4166	9.20
0.0500	8.23	1.5000	9.17
0.0666	8.31	1.5833	9.16
0.0833	8.20	1.6667	9.14
0.1000	8.89	1.7500	9.12
0.1166	8.65	1.8333	9.11
0.1333	8.68	1.9167	9.09
0.1500	8.75	2.0000	9.09
0.1666	9.71	2.5000	9.06
0.1833	11.18	3.0000	9.08
0.2000	11.53	3.5000	9.06
0.2166	11.33		
0.2333	11.15		
0.2500	10.98		
0.2666	10.84		
0.2833	10.71		
0.3000	10.62		
0.3166	10.51		
0.3333	10.43		
0.4167	10.15		
0.5000	10.00		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-1



DATA SET:
ESI-1
05/05/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
ESI-1

ESTIMATED PARAMETERS:
K = 0.0396 ft/min
y0 = 2.797 ft

TEST DATA:
H0 = 2.75 ft
rc = 0.2 ft
rw = 0.344 ft
L = 7.2 ft
b = 16.7 ft
H = 7.2 ft

SLUG TEST DATA FOR
WELL # ESI-1

SE1000B
Environmental Logger
03/29 12:32

Unit# 00554 Test# 8

INPUT 1: Level (F) TOC

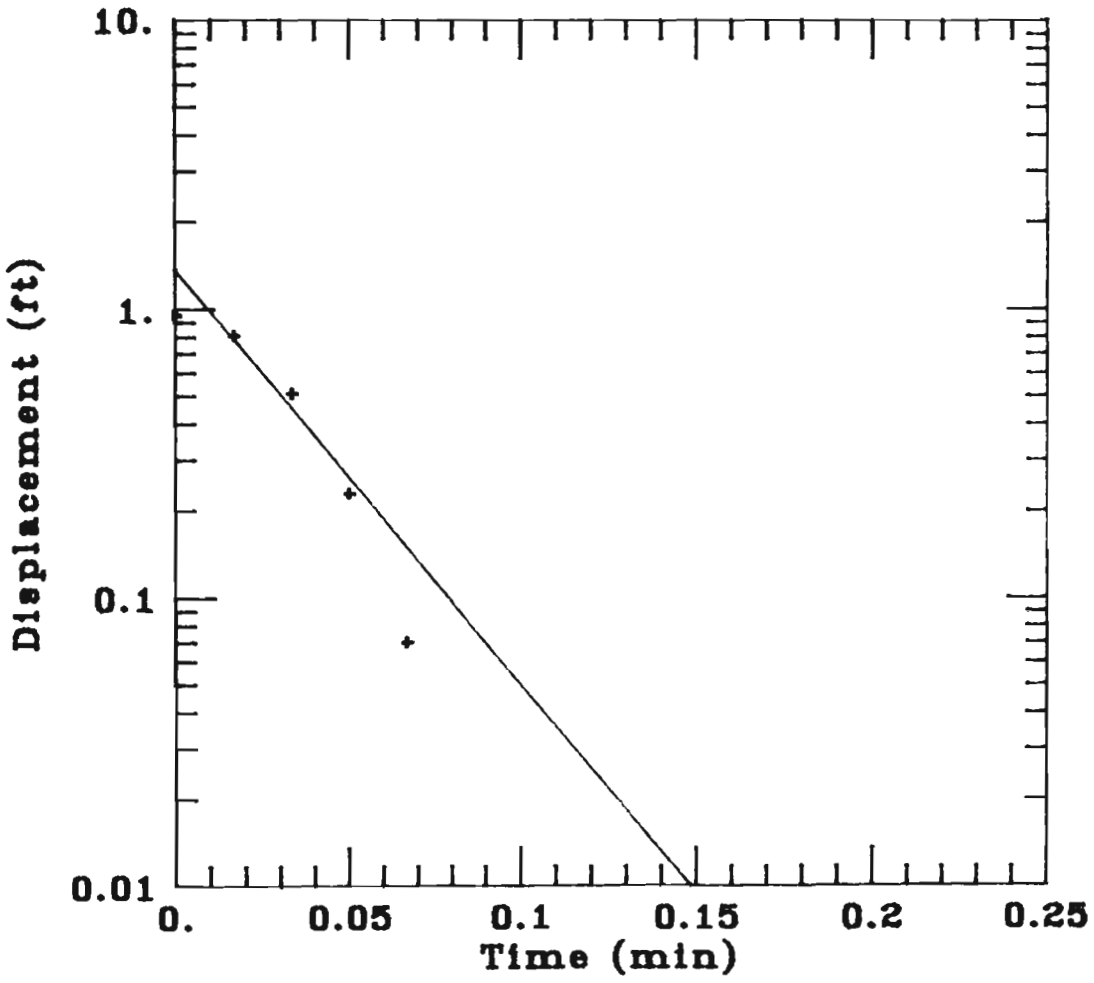
Reference 10.30
Scale factor 49.82
Offset 0.02

Step# 0 03/29 12:17

Elapsed Time	Value		
0.0000	10.30	0.5833	10.37
0.0033	10.30	0.6667	10.33
0.0066	10.30	0.7500	10.31
0.0099	10.30	0.8333	10.31
0.0133	10.30	0.9167	10.30
0.0166	10.30	1.0000	10.30
0.0200	10.30	1.0833	10.30
0.0233	10.30	1.1667	10.30
0.0266	10.30	1.2500	10.30
0.0300	10.31	1.3333	10.30
0.0333	10.30	1.4166	10.30
0.0500	9.87	1.5000	10.30
0.0666	9.90	1.5833	10.30
0.0833	9.85	1.6667	10.30
0.1000	9.82	1.7500	10.30
0.1166	9.85	1.8333	10.30
0.1333	10.07	1.9167	10.28
0.1500	10.14	2.0000	10.30
0.1666	11.73	2.5000	10.28
0.1833	12.56	3.0000	10.28
0.2000	13.05	3.5000	10.30
0.2166	12.75		
0.2333	12.48		
0.2500	12.25		
0.2666	12.04		
0.2833	11.84		
0.3000	11.66		
0.3166	11.51		
0.3333	11.36		
0.4167	10.83		
0.5000	10.52		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-3



DATA SET:
ESI-3
05/05/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/30/94
OBS. WELL:
ESI-3

ESTIMATED PARAMETERS:
K = 0.1763 ft/min
y0 = 1.372 ft 4.0 E-2

TEST DATA:
H0 = 0.95 ft
rc = 0.2 ft
rw = 0.344 ft
L = 7.23 ft
b = 17.53 ft
H = 7.23 ft

SLUG TEST DATA FOR ESI-3

SE1000B
Environmental Logger
03/30 10:08

Unit# 00554 Test# 6

INPUT 1: Level (F) TOC

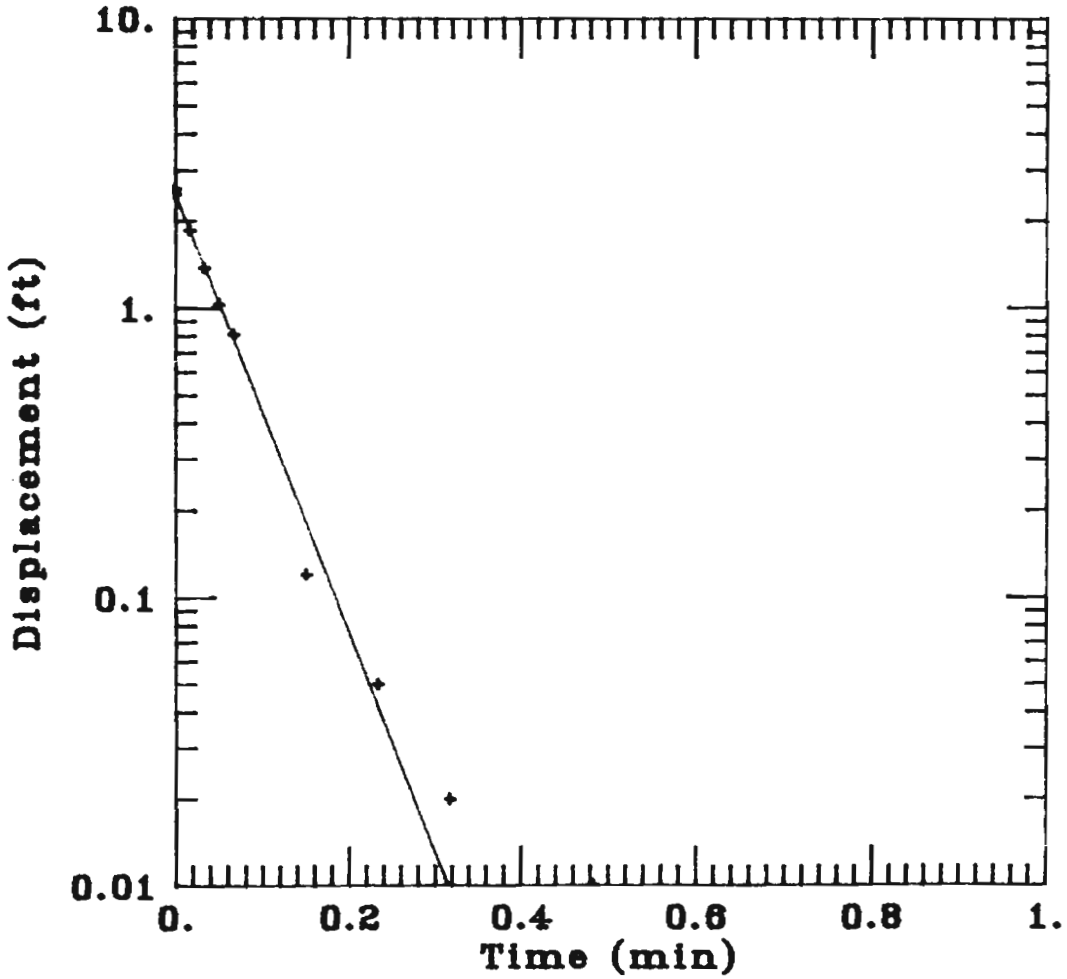
Reference 9.47
Scale factor 49.82
Offset 0.02

Step# 0 03/29 16:16

Elapsed Time	Value
0.0000	9.37
0.0033	9.39
0.0066	9.39
0.0099	9.37
0.0133	9.39
0.0166	9.37
0.0200	9.37
0.0233	9.37
0.0266	9.23
0.0300	8.63
0.0333	9.43
0.0500	9.28
0.0666	9.32
0.0833	9.29
0.1000	9.24
0.1166	9.29
0.1333	9.32
0.1500	9.34
0.1666	9.28
0.1833	9.34
0.2000	9.54
0.2166	10.03
0.2333	10.42
0.2500	10.28
0.2666	9.98
0.2833	9.70
0.3000	9.54
0.3166	9.47
0.3333	9.43
0.4167	9.39
0.5000	9.37
0.5833	9.37
0.6667	9.37
0.7500	9.37
0.8333	9.37
0.9167	9.37
1.0000	9.37
1.0833	9.37
1.1667	9.37
1.2500	9.37
1.3333	9.37
1.4166	9.37
1.5000	9.37
1.5833	9.37
1.6667	9.37
1.7500	9.39
1.8333	9.37
1.9167	9.37
2.0000	9.37
2.5000	9.37
3.0000	9.37
3.5000	9.37

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-4



DATA SET:
ESI-4
05/05/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
ESI-4

ESTIMATED PARAMETERS:
K = 0.09412 ft/min
y0 = 2.485 ft

TEST DATA:
H0 = 2.58 ft
rc = 0.2 ft
rw = 0.344 ft
L = 7.03 ft
b = 19.68 ft
H = 7.03 ft

SLUG TEST FIELD DATA FOR WELL # ESI-4

SE1000B
Environmental Logger
03/29 12:46

Unit# 00554 Test# 3

INPUT 1: Level (F) TOC

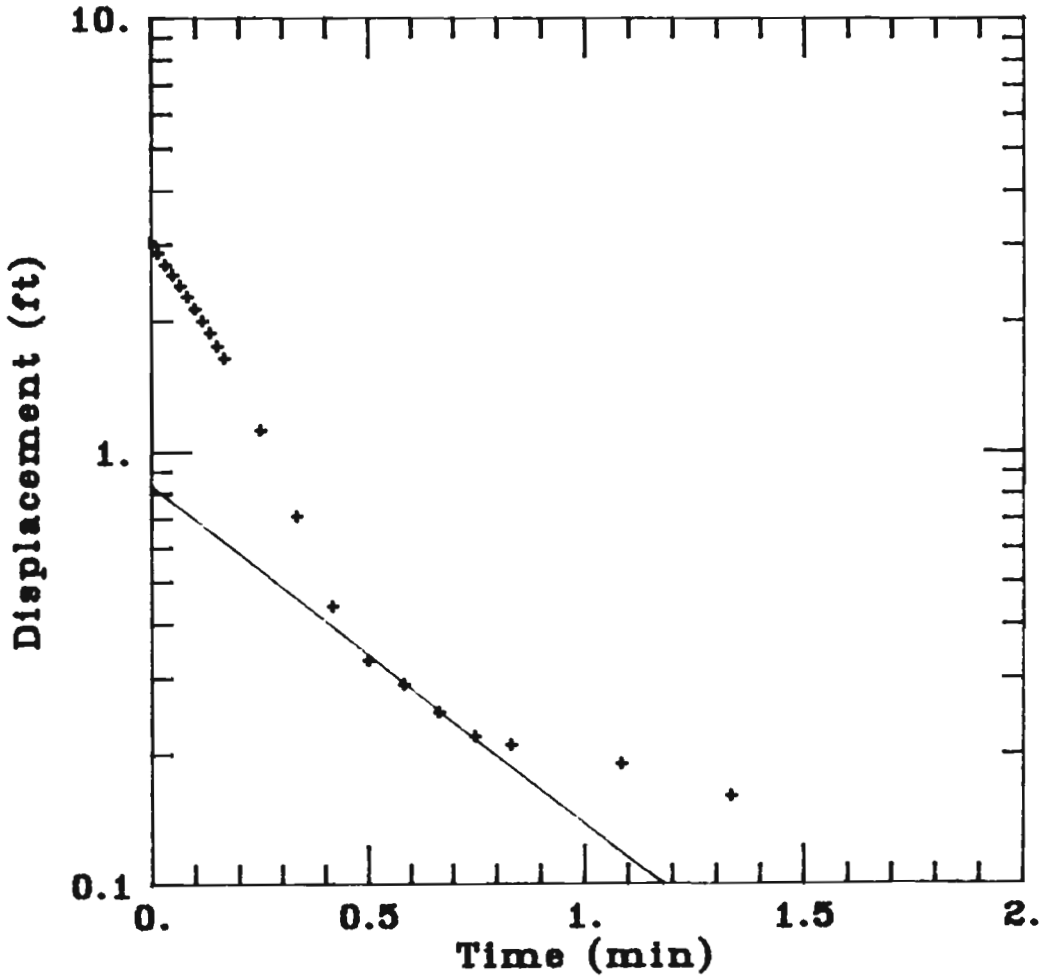
Reference 7.32
Scale factor 49.82
Offset 0.02

Step# 0 03/29 10:59

Elapsed Time	Value		
0.0000	7.32	0.6667	7.43
0.0033	7.32	0.7500	7.43
0.0066	7.32	0.8333	7.41
0.0099	7.32	0.9167	7.41
0.0133	7.32	1.0000	7.41
0.0166	7.32	1.0833	7.41
0.0200	7.32	1.1667	7.41
0.0233	7.32	1.2500	7.41
0.0266	7.32	1.3333	7.41
0.0300	7.32	1.4166	7.41
0.0333	7.32	1.5000	7.39
0.0500	7.25	1.5833	7.41
0.0666	7.25	1.6667	7.41
0.0833	7.24	1.7500	7.39
0.1000	7.00	1.8333	7.41
0.1166	6.58	1.9167	7.41
0.1333	7.08	2.0000	7.41
0.1500	7.05	2.5000	7.39
0.1666	6.78	3.0000	7.39
0.1833	6.61	3.5000	7.39
0.2000	7.14	4.0000	7.39
0.2166	6.97	4.5000	7.39
0.2333	7.22	5.0000	7.39
0.2500	9.36		
0.2666	9.90		
0.2833	9.27		
0.3000	8.79		
0.3166	8.45		
0.3333	8.23		
0.4167	7.54		
0.5000	7.47		
0.5833	7.44		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-5



DATA SET:
ESI-5
05/05/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
ESI-5

ESTIMATED PARAMETERS:
K = 0.009685 ft/min
y0 = 0.8353 ft

TEST DATA:
H0 = 3.04 ft
rc = 0.2 ft
rw = 0.344 ft
L = 7.01 ft
b = 19.63 ft
H = 7.01 ft

SLUG TEST FIELD DATA FOR
WELL # ESI-5

SE1000B
Environmental Logger
03/29 12:35

Unit# 00554 Test# 7

INPUT 1: Level (F) TOC

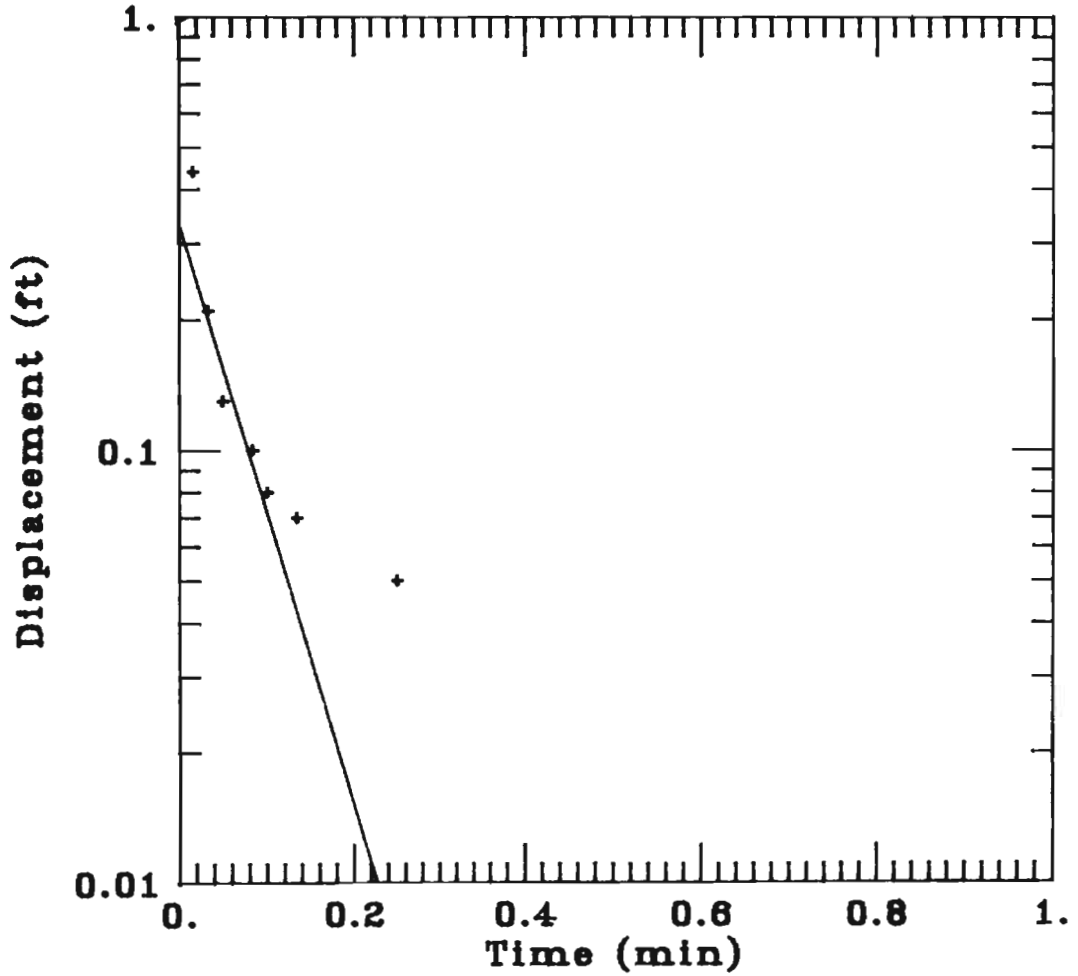
Reference 7.37
Scale factor 49.82
Offset 0.02

Step# 0 03/29 11:56

Elapsed Time	Value		
0.0000	1.21	0.6667	1.54
0.0033	1.21	0.7500	1.50
0.0066	1.21	0.8333	1.46
0.0099	1.21	0.9167	1.43
0.0133	1.21	1.0000	1.42
0.0166	1.21	1.0833	1.42
0.0200	1.21	1.1667	1.40
0.0233	1.20	1.2500	1.40
0.0266	1.06	1.3333	1.39
0.0300	1.04	1.4166	1.37
0.0333	0.88	1.5000	1.37
0.0500	0.71	1.5833	1.37
0.0666	0.54	1.6667	1.35
0.0833	0.96	1.7500	1.35
0.1000	0.69	1.8333	1.34
0.1166	0.77	1.9167	1.34
0.1333	1.80	2.0000	1.34
0.1500	2.50	2.5000	1.31
0.1666	4.25	3.0000	1.29
0.1833	4.08	3.5000	1.28
0.2000	3.90	4.0000	1.26
0.2166	3.76	4.5000	1.26
0.2333	3.62	5.0000	1.24
0.2500	3.48		
0.2666	3.34		
0.2833	3.21		
0.3000	3.09		
0.3166	2.96		
0.3333	2.85		
0.4167	2.33		
0.5000	1.92		
0.5833	1.65		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-6



DATA SET:
ESI-6
04/13/94

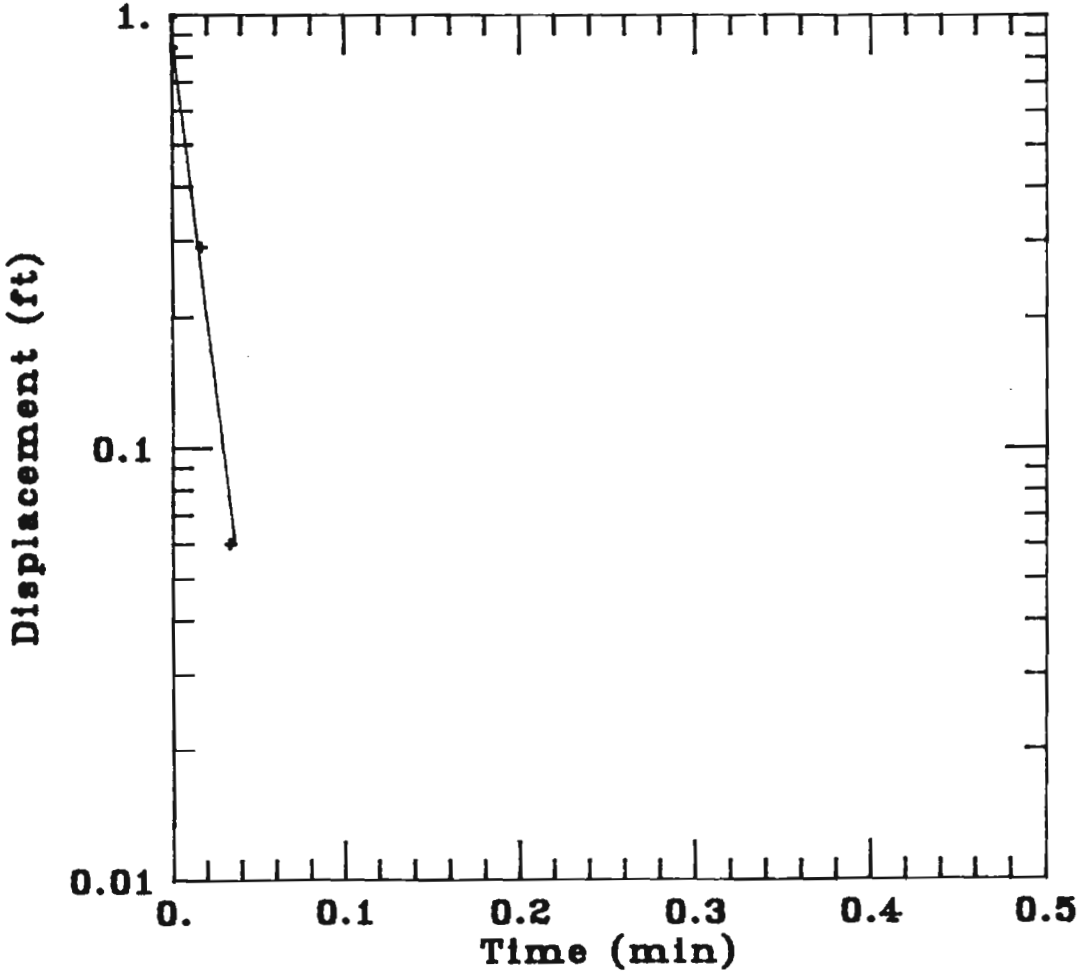
AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
ESI-6

ESTIMATED PARAMETERS:
K = 0.04954 ft/min
y0 = 0.3345 ft 2.2 E-2

TEST DATA:
H0 = 0.99 ft
rc = 0.18 ft
rw = 0.417 ft vs .313
L = 11. ft vs 7.1
b = 19.42 ft
H = 7.11 ft

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

ESI-6



DATA SET:
ESI-6-2
06/06/94

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
9/29/94

OBS. WELL:
ESI-6

ESTIMATED PARAMETERS:
K = 0.9647 ft/min
y0 = 0.8544 ft

TEST DATA:
H0 = 0.99 ft
rc = 0.2 ft
rw = 0.944 ft
L = 7.07 ft
b = 17.42 ft
H = 7.07 ft

SLUG TEST FIELD DATA FOR
WELL # ESI-6

SE1000B
Environmental Logger
03/29 12:53

Unit# 00554 Test# 0

INPUT 1: Level (F) TOC

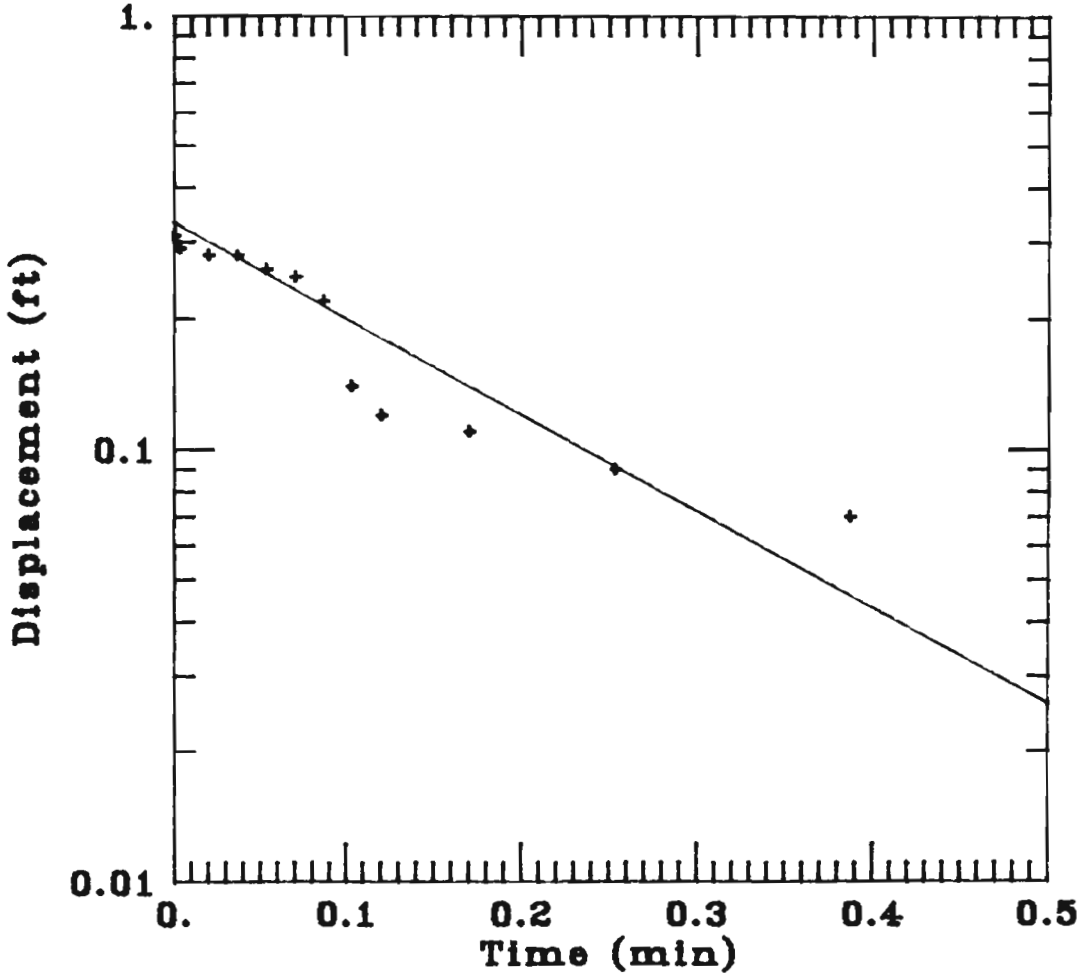
Reference 9.58
Scale factor 49.82
Offset 0.02

Step# 0 03/29 09:19

Elapsed Time	Value
0.0000	9.42
0.0033	9.43
0.0066	9.43
0.0099	9.43
0.0133	9.43
0.0166	9.43
0.0200	9.43
0.0233	9.43
0.0266	9.43
0.0300	9.43
0.0333	9.43
0.0500	10.22
0.0666	10.41
0.0833	10.42
0.1000	9.87
0.1166	9.64
0.1333	9.56
0.1500	9.56
0.1666	9.53
0.1833	9.51
0.2000	9.51
0.2166	9.50
0.2333	9.50
0.2500	9.50
0.2666	9.50
0.2833	9.50
0.3000	9.50
0.3166	9.50
0.3333	9.48
0.4167	9.48
0.5000	9.48
0.5833	9.48
0.6667	9.48
0.7500	9.48
0.8333	9.48
0.9167	9.48
1.0000	9.48

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-1



DATA SET:
AG-1
06/02/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-1

ESTIMATED PARAMETERS:
K = 0.003458 ft/min
y0 = 0.3337 ft

TEST DATA:
H0 = 0.31 ft
rc = 0.083 ft
rw = 0.438 ft
L = 11.4 ft
b = 17.94 ft
H = 13.14 ft

SLUG TEST DATA FOR AG-1

SE1000B
Environmental Logger
03/30 10:03

Unit# 00554 Test# 3

INPUT 1: Level (F) TOC

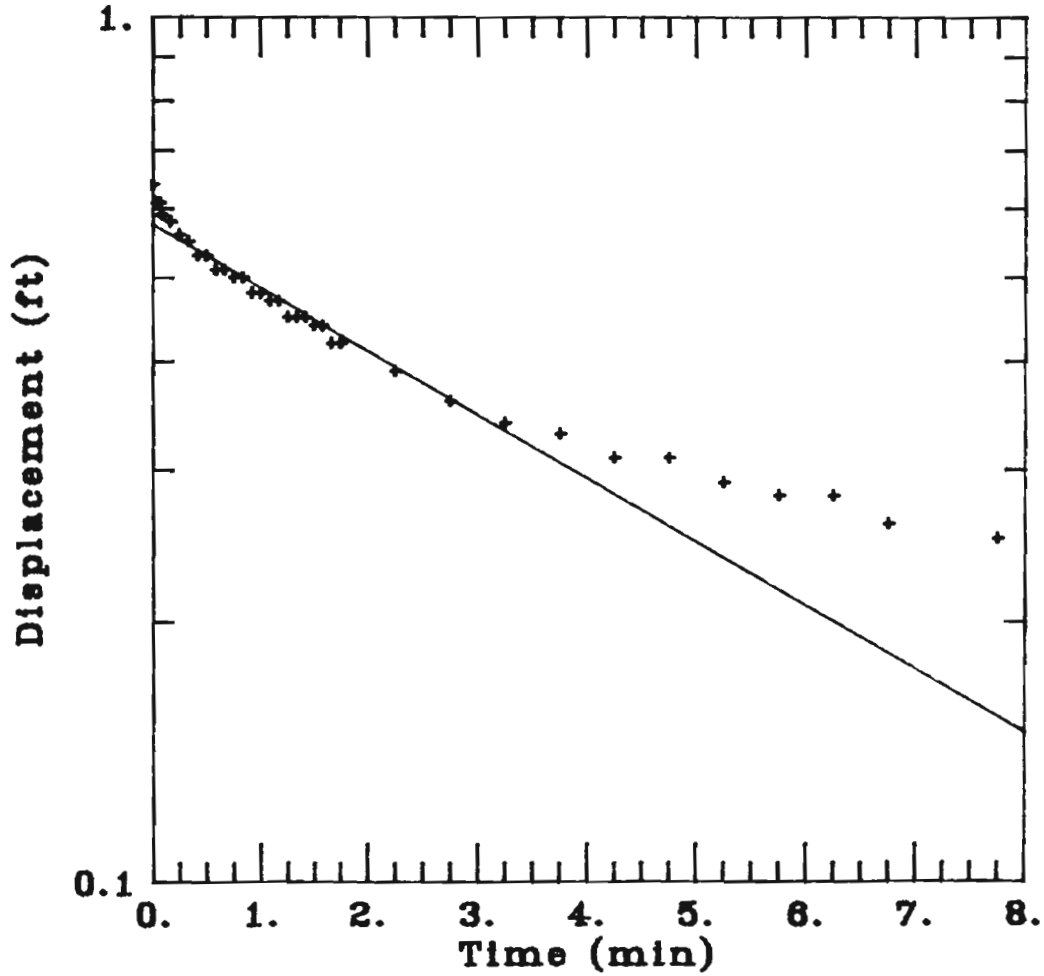
Reference 9.06
Scale factor 49.82
Offset 0.02

Step# 0 03/29 15:09

Elapsed Time	Value
0.0000	9.31
0.0033	9.31
0.0066	9.31
0.0099	9.31
0.0133	9.31
0.0166	9.31
0.0200	9.29
0.0233	9.35
0.0266	9.34
0.0300	9.37
0.0333	9.35
0.0500	9.34
0.0666	9.34
0.0833	9.32
0.1000	9.31
0.1166	9.28
0.1333	9.20
0.1500	9.18
0.1666	9.18
0.1833	9.18
0.2000	9.17
0.2166	9.17
0.2333	9.17
0.2500	9.17
0.2666	9.17
0.2833	9.15
0.3000	9.15
0.3166	9.15
0.3333	9.15
0.4167	9.15
0.5000	9.13
0.5833	9.13
0.6667	9.13
0.7500	9.13
0.8333	9.13
0.9167	9.13
1.0000	9.13
1.0833	9.13
1.1667	9.13
1.2500	9.13
1.3333	9.13
1.4166	9.13
1.5000	9.13
1.5833	9.13
1.6667	9.13
1.7500	9.13
1.8333	9.13
1.9167	9.13
2.0000	9.13
2.5000	9.13

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-4



DATA SET:
AG-4
06/02/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
AG-4

ESTIMATED PARAMETERS:
K = 0.001615 ft/min
y0 = 0.5761 ft

TEST DATA:
H0 = 0.64 ft
rc = 0.32 ft
rw = 0.521 ft
L = 10.13 ft
b = 18.98 ft
H = 10.13 ft

SLUG TEST DATA FOR AG-4

SE1000B
Environmental Logger
03/30 10:11

Unit# 00554 Test# 8

INPUT 1: Level (F) TOC

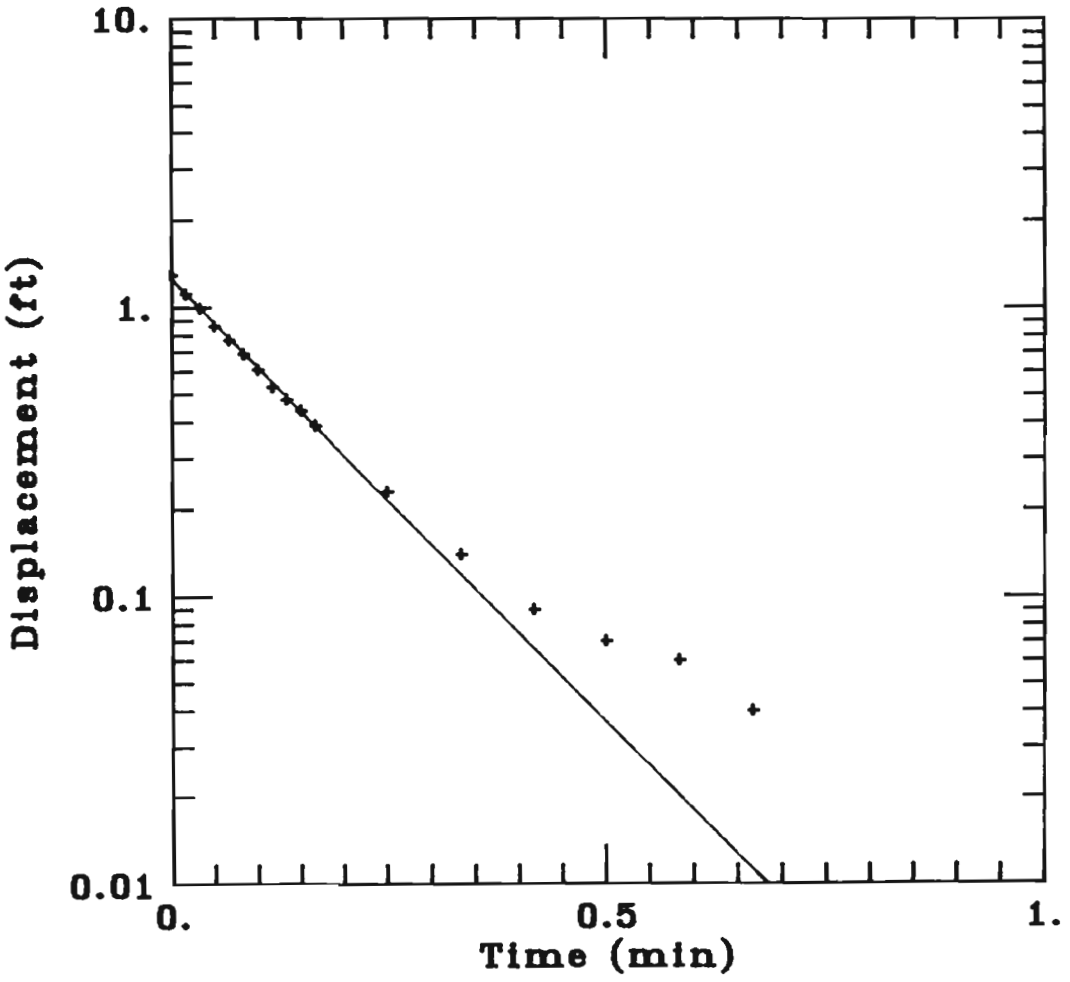
Reference 8.02
Scale factor 49.82
Offset 0.02

Step# 0 03/29 16:50

Elapsed Time	Value
0.0000	8.02
0.0033	8.03
0.0066	8.03
0.0099	8.03
0.0133	8.03
0.0166	8.03
0.0200	7.92
0.0233	7.92
0.0266	7.87
0.0300	7.79
0.0333	7.95
0.0500	7.84
0.0666	7.68
0.0833	7.68
0.1000	7.70
0.1166	7.72
0.1333	7.72
0.1500	7.90
0.1666	8.17
0.1833	8.28
0.2000	8.49
0.2166	8.64
0.2333	8.64
0.2500	8.66
0.2666	8.63
0.2833	8.63
0.3000	8.63
0.3166	8.63
0.3333	8.61
0.4167	8.60
0.5000	8.58
0.5833	8.57
0.6667	8.55
0.7500	8.55
0.8333	8.53
0.9167	8.53
1.0000	8.52
1.0833	8.52
1.1667	8.50
1.2500	8.50
1.3333	8.49
1.4166	8.49
1.5000	8.47
1.5833	8.47
1.6667	8.47
1.7500	8.46
1.8333	8.46
1.9167	8.44
2.0000	8.44
2.5000	8.41
3.0000	8.38
3.5000	8.36
4.0000	8.35
4.5000	8.33
5.0000	8.33
5.5000	8.31
6.0000	8.30
6.5000	8.30
7.0000	8.28
7.5000	8.28
8.0000	8.27
8.5000	8.28
9.0000	8.27
9.5000	8.27
10.0000	8.27

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-5



DATA SET:
AG-5
06/02/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
9/29/94
OBS. WELL:
AG-5

ESTIMATED PARAMETERS:
K = 0.05871 ft/min
y0 = 1.256 ft

TEST DATA:
H0 = 1.29 ft
rc = 0.25 ft
rw = 0.438 ft
L = 5.82 ft
b = 18.52 ft
H = 5.82 ft

SLUG TEST DATA FOR AG-5

SE1000B
Environmental Logger
03/30 10:13

Unit# 00554 Test# 9

INPUT 1: Level (F) TOC

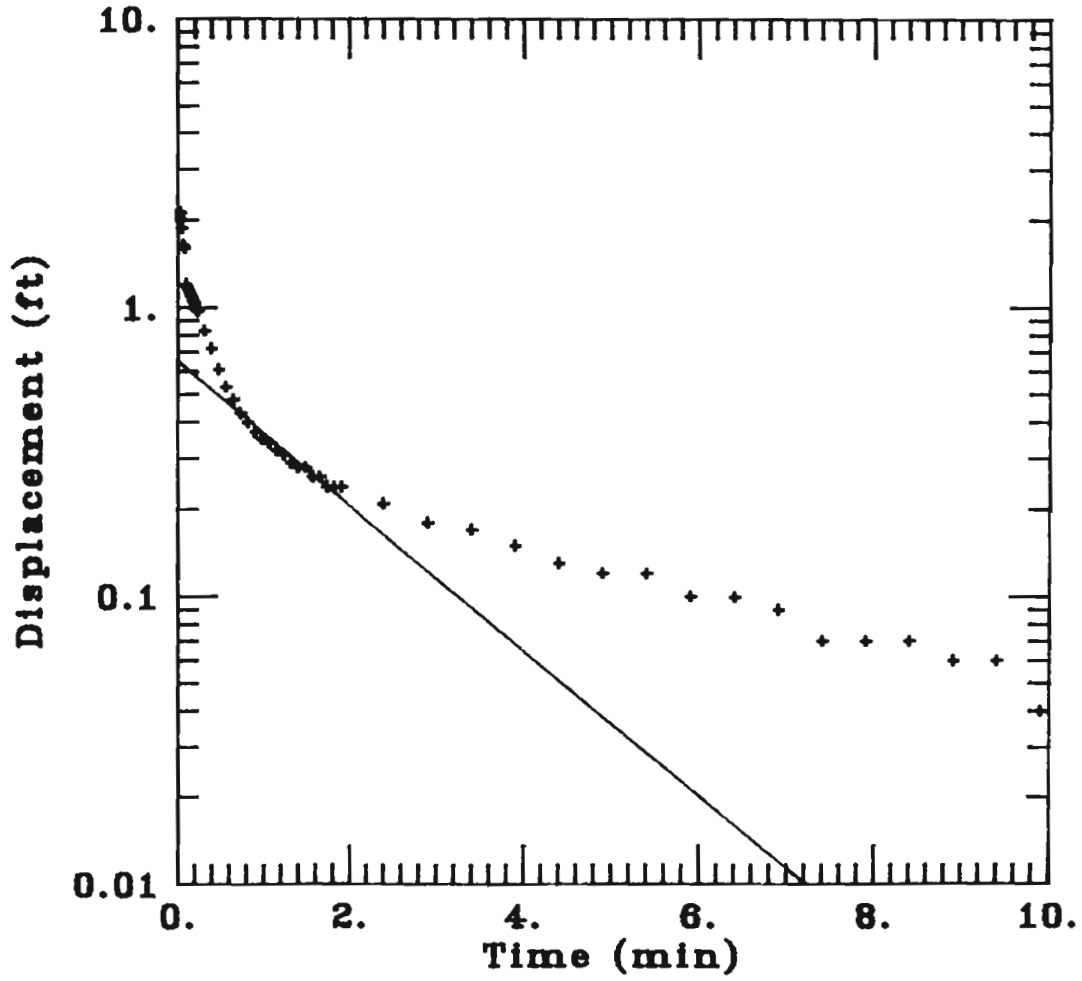
Reference 8.48
Scale factor 49.82
Offset 0.02

Step# 0 03/29 17:07

Elapsed Time	Value		
0.0000	8.48	0.6667	8.55
0.0033	8.48	0.7500	8.54
0.0066	8.48	0.8333	8.52
0.0099	8.48	0.9167	8.52
0.0133	8.48	1.0000	8.52
0.0166	8.48	1.0833	8.52
0.0200	8.48	1.1667	8.52
0.0233	8.48	1.2500	8.51
0.0266	8.46	1.3333	8.51
0.0300	8.44	1.4166	8.51
0.0333	7.83	1.5000	8.51
0.0500	8.35	1.5833	8.51
0.0666	7.96	1.6667	8.51
0.0833	8.07	1.7500	8.51
0.1000	8.08	1.8333	8.51
0.1166	8.14	1.9167	8.51
0.1333	8.66	2.0000	8.51
0.1500	9.51	2.5000	8.49
0.1666	9.77	3.0000	8.49
0.1833	9.59	3.5000	8.49
0.2000	9.47	4.0000	8.49
0.2166	9.34	4.5000	8.48
0.2333	9.25	5.0000	8.48
0.2500	9.17	5.5000	8.48
0.2666	9.09	6.0000	8.48
0.2833	9.01	6.5000	8.48
0.3000	8.96	7.0000	8.48
0.3166	8.92	7.5000	8.48
0.3333	8.87	8.0000	8.48
0.4167	8.71	8.5000	8.48
0.5000	8.62		
0.5833	8.57		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-6



DATA SET:
AG-6
06/02/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-6

ESTIMATED PARAMETERS:
K = 0.003472 ft/min
y0 = 0.656 ft

TEST DATA:
H0 = 2.09 ft
rc = 0.2 ft
rw = 0.333 ft
L = 5.9 ft
b = 18.59 ft
H = 5.9 ft

SLUG TEST DATA FOR AG-6

SE1000B
Environmental Logger
03/30 10:09

Unit# 00554 Test# 7

INPUT 1: Level (F) TOC

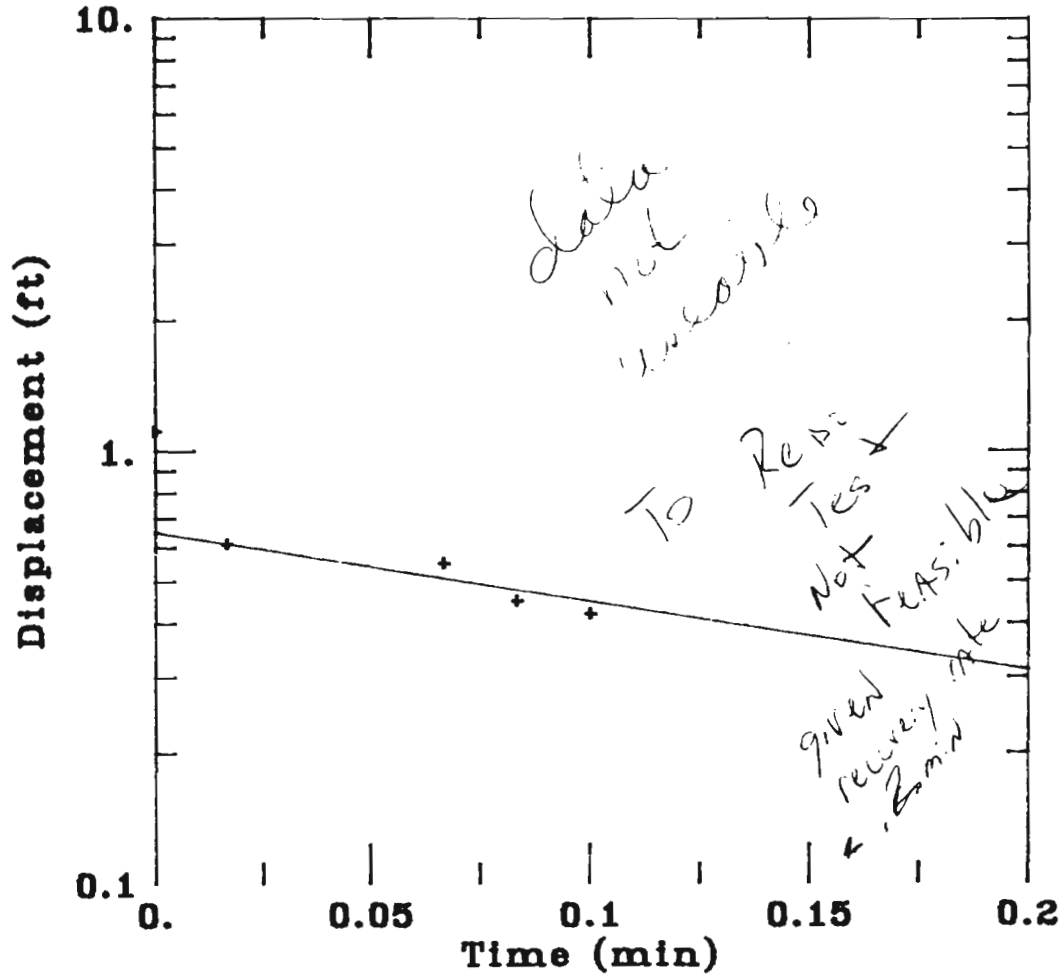
Reference 8.41
Scale factor 49.82
Offset 0.02

Step# 0 03/29 16:33

Elapsed Time	Value
0.0000	8.37
0.0033	8.56
0.0066	8.66
0.0099	8.55
0.0133	8.91
0.0166	9.24
0.0200	9.57
0.0233	9.63
0.0266	9.96
0.0300	10.12
0.0333	10.10
0.0500	10.14
0.0666	10.59
0.0833	10.72
0.1000	10.77
0.1166	10.70
0.1333	10.81
0.1500	10.56
0.1666	10.32
0.1833	10.28
0.2000	9.88
0.2166	9.85
0.2333	9.82
0.2500	9.79
0.2666	9.76
0.2833	9.73
0.3000	9.71
0.3166	9.66
0.3333	9.65
0.4167	9.51
0.5000	9.40
0.5833	9.29
0.6667	9.21
0.7500	9.16
0.8333	9.11
0.9167	9.08
1.0000	9.05
1.0833	9.03
1.1667	9.02
1.2500	9.00
1.3333	8.99
1.4166	8.97
1.5000	8.96
1.5833	8.96
1.6667	8.94
1.7500	8.94
1.8333	8.92
1.9167	8.92
2.0000	8.92
2.5000	8.89
3.0000	8.86
3.5000	8.85
4.0000	8.83
4.5000	8.81
5.0000	8.80
5.5000	8.80
6.0000	8.78
6.5000	8.78
7.0000	8.77
7.5000	8.75
8.0000	8.75
8.5000	8.75
9.0000	8.74
9.5000	8.74
10.0000	8.72

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-7



DATA SET:
AG-7
04/14/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-7

ESTIMATED PARAMETERS:
K = 0.009323 ft/min
y0 = 0.651 ft

NO
4.7 E-3

TEST DATA:
H0 = 1.11 ft
rc = 0.16 ft
rw = 0.333 ft
L = 10. ft 6.5
b = 18.66 ft
H = 6.11 ft 6.5

SLUG TEST DATA FOR AG-7

SE1000B
Environmental Logger
03/30 10:07

Unit# 00554 Test# 5

INPUT 1: Level (F) TOC

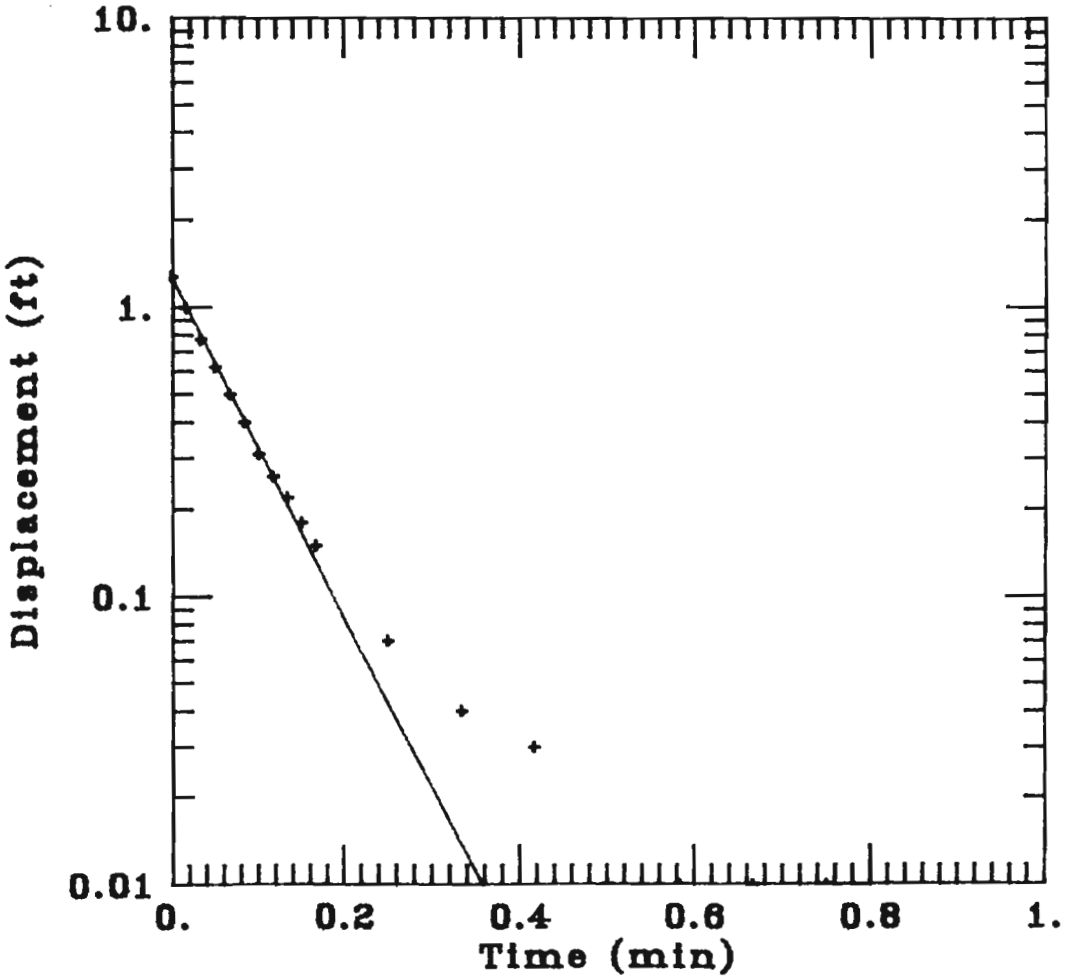
Reference 8.34
Scale factor 49.82
Offset 0.02

Step# 0 03/29 15:39

Elapsed Time	Value	Elapsed Time	Value
0.0000	8.38	0.6667	8.35
0.0033	8.74	0.7500	8.35
0.0066	8.76	0.8333	8.35
0.0099	8.85	0.9167	8.35
0.0133	9.39	1.0000	8.35
0.0166	9.61	1.0833	8.35
0.0200	9.09	1.1667	8.35
0.0233	9.31	1.2500	8.35
0.0266	9.66	1.3333	8.35
0.0300	9.34	1.4166	8.35
0.0333	9.28	1.5000	8.35
0.0500	9.45	1.5833	8.35
0.0666	8.95	1.6667	8.35
0.0833	8.73	1.7500	8.35
0.1000	8.68	1.8333	8.35
0.1166	8.89	1.9167	8.35
0.1333	8.79	2.0000	8.35
0.1500	8.76	2.5000	8.35
0.1666	8.35	3.0000	8.35
0.1833	8.35	3.5000	8.35
0.2000	8.35		
0.2166	8.35		
0.2333	8.35		
0.2500	8.35		
0.2666	8.35		
0.2833	8.35		
0.3000	8.37		
0.3166	8.35		
0.3333	8.35		
0.4167	8.35		
0.5000	8.35		
0.5833	8.35		

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-8



DATA SET:
AG-8
06/02/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-8

ESTIMATED PARAMETERS:
K = 0.08569 ft/min
y0 = 1.249 ft

TEST DATA:
H0 = 1.27 ft
rc = 0.2 ft
rw = 0.333 ft
L = 5.32 ft
b = 17.28 ft
H = 5.32 ft

SLUG TEST DATA FOR AG-8

SE1000B
Environmental Logger
03/30 10:05

Unit# 00554 Test# 4

INPUT 1: Level (F) TOC

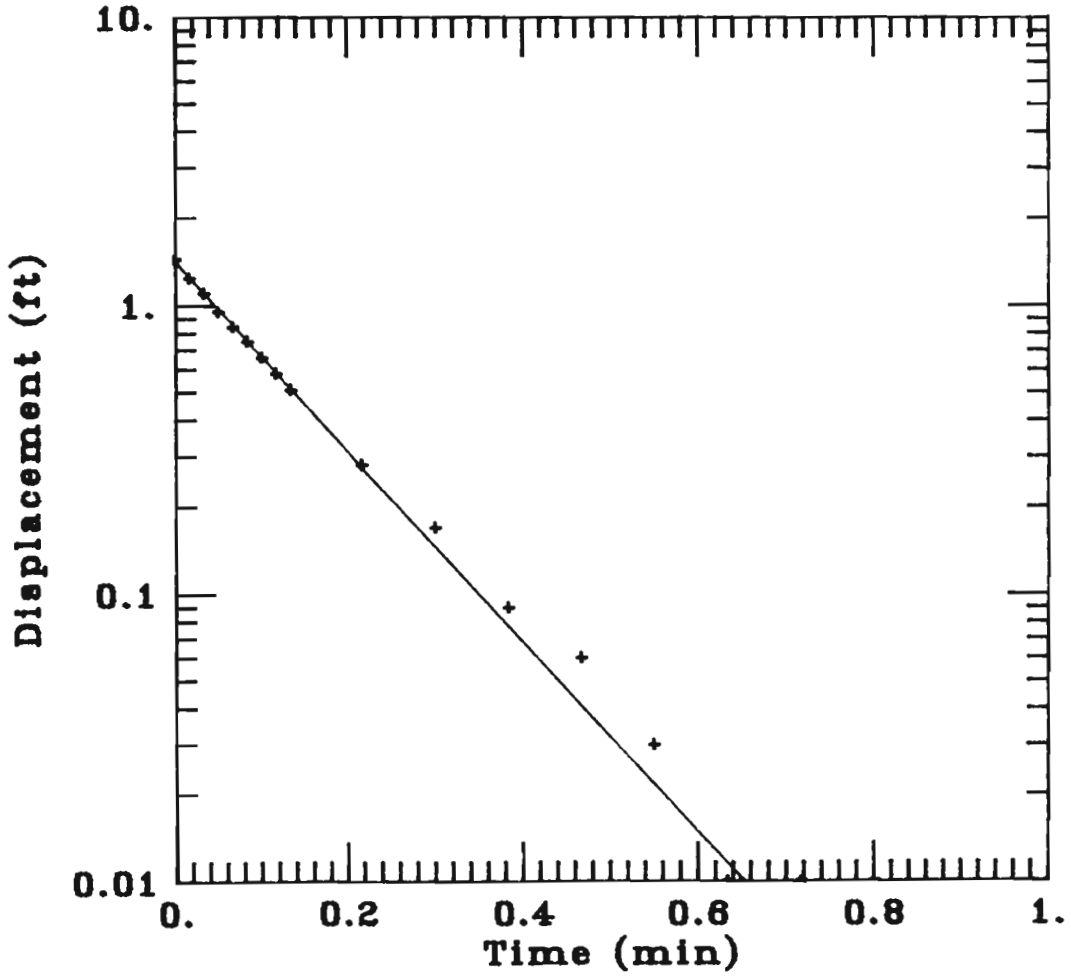
Reference 9.72
Scale factor 49.82
Offset 0.02

Step# 0 03/29 15:19

Elapsed Time	Value
0.0000	9.72
0.0033	9.72
0.0066	9.72
0.0099	9.72
0.0133	9.72
0.0166	9.72
0.0200	9.73
0.0233	9.72
0.0266	9.70
0.0300	8.79
0.0333	10.00
0.0500	9.68
0.0666	9.43
0.0833	9.54
0.1000	9.40
0.1166	9.54
0.1333	9.72
0.1500	10.77
0.1666	10.99
0.1833	10.71
0.2000	10.49
0.2166	10.34
0.2333	10.22
0.2500	10.12
0.2666	10.03
0.2833	9.98
0.3000	9.94
0.3166	9.90
0.3333	9.87
0.4167	9.79
0.5000	9.76
0.5833	9.75
0.6667	9.73
0.7500	9.73
0.8333	9.73
0.9167	9.73
1.0000	9.72
1.0833	9.72
1.1667	9.72
1.2500	9.72
1.3333	9.72
1.4166	9.72
1.5000	9.72
1.5833	9.72
1.6667	9.72
1.7500	9.72
1.8333	9.72
1.9167	9.72
2.0000	9.72
2.5000	9.72

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-9



DATA SET:
AG-9
06/03/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-9

ESTIMATED PARAMETERS:
K = 0.04851 ft/min
y0 = 1.416 ft

TEST DATA:
H0 = 1.44 ft
rc = 0.2 ft
rw = 0.333 ft
L = 5.23 ft
b = 17.29 ft
H = 5.23 ft

SLUG TEST DATA FOR AG-9

SE1000B
Environmental Logger
03/30 09:59

Unit# 00554 Test# 1

INPUT 1: Level (F) TOC

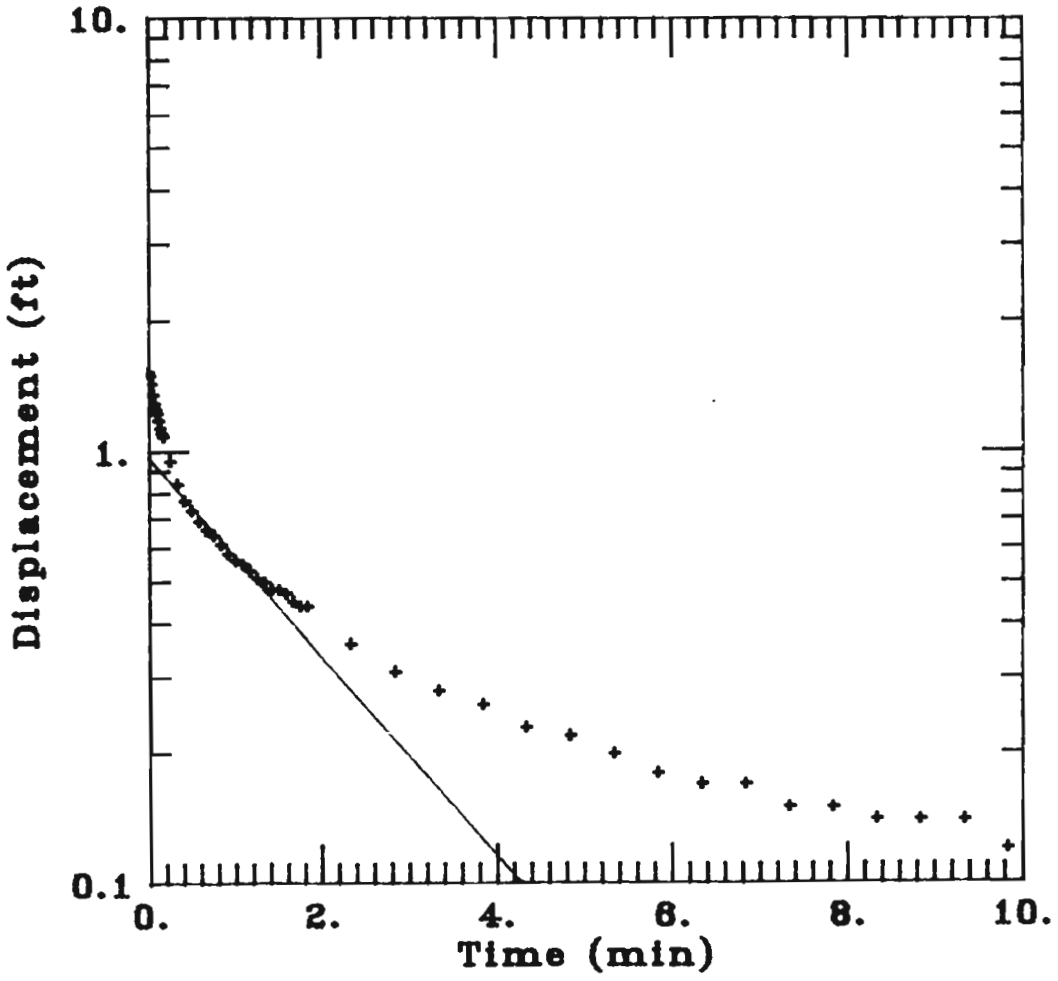
Reference 9.71
Scale factor 49.82
Offset 0.02

Step# 0 03/29 14:27

Elapsed Time	Value
0.0000	9.71
0.0033	9.72
0.0066	9.72
0.0099	9.72
0.0133	9.71
0.0166	9.72
0.0200	9.71
0.0233	9.71
0.0266	9.71
0.0300	9.72
0.0333	9.71
0.0500	9.71
0.0666	9.36
0.0833	9.41
0.1000	9.39
0.1166	9.36
0.1333	9.04
0.1500	9.30
0.1666	10.24
0.1833	10.95
0.2000	11.15
0.2166	10.95
0.2333	10.81
0.2500	10.66
0.2666	10.55
0.2833	10.46
0.3000	10.37
0.3166	10.29
0.3333	10.22
0.4167	9.99
0.5000	9.88
0.5833	9.80
0.6667	9.77
0.7500	9.74
0.8333	9.72
0.9167	9.72
1.0000	9.72
1.0833	9.71
1.1667	9.71
1.2500	9.71
1.3333	9.71
1.4166	9.71
1.5000	9.69
1.5833	9.71
1.6667	9.71
1.7500	9.69
1.8333	9.69
1.9167	9.71
2.0000	9.69
2.5000	9.69

Malcolm Pirnie	Client: NYSDEC
Project No.: 0266314	Location: East Aurora, NY

AG-10



DATA SET:
AG-10
06/09/94

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
3/29/94
OBS. WELL:
AG-10

ESTIMATED PARAMETERS:
K = 0.003616 ft/min
y0 = 0.9656 ft

TEST DATA:
H0 = 1.52 ft
rc = 0.2 ft
rw = 0.333 ft
L = 4.6 ft
b = 16.71 ft
H = 4.6 ft

SLUG TEST DATA FOR AG-10

SE1000B
Environmental Logger
03/30 09:56

Unit# 00554 Test# 0

INPUT 1: Level (F) TOC

Reference 10.29
Scale factor 49.82
Offset 0.02

St
ep# 0 03/29 14:03

Elapsed Time	Value
0.0000	10.30
0.0033	10.30
0.0066	10.30
0.0099	10.30
0.0133	10.30
0.0166	10.30
0.0200	10.30
0.0233	10.30
0.0266	10.30
0.0300	10.29
0.0333	10.30
0.0500	10.29
0.0666	9.69
0.0833	9.83
0.1000	10.30
0.1166	10.51
0.1333	11.20
0.1500	11.62
0.1666	11.81
0.1833	11.78
0.2000	11.72
0.2166	11.64
0.2333	11.58
0.2500	11.54
0.2666	11.51
0.2833	11.47
0.3000	11.42
0.3166	11.39
0.3333	11.37
0.4167	11.24
0.5000	11.13
0.5833	11.06
0.6667	11.02
0.7500	10.98
0.8333	10.95
0.9167	10.93
1.0000	10.90
1.0833	10.87
1.1667	10.85
1.2500	10.84
1.3333	10.82
1.4166	10.80
1.5000	10.79
1.5833	10.77
1.6667	10.77
1.7500	10.76
1.8333	10.74
1.9167	10.73
2.0000	10.73
2.5000	10.65
3.0000	10.60
3.5000	10.57
4.0000	10.55
4.5000	10.52
5.0000	10.51
5.5000	10.49
6.0000	10.47
6.5000	10.46
7.0000	10.46
7.5000	10.44
8.0000	10.44
8.5000	10.43
9.0000	10.43
9.5000	10.43
10.0000	10.41

APPENDIX H

- Data Validation Report
- Field Sampling Logs
- Memos

MALCOLM PIRNIE

MR. C CLEANERS SUPERFUND SITE
DATA VALIDATION REPORT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

JULY 1994

MALCOLM PIRNIE, INC.

S-3515 Abbott Road
P. O. Box 1938
Buffalo, New York 14219

0266-314-002

MALCOLM PIRNIE

TABLE OF CONTENTS

TABLES

MALCOLM PIRNIE

1.0 INTRODUCTION

The following discussion details Malcolm Pirnie's analytical data assessment and validation of results reported by NYTEST Environmental, Inc. for a total of 31 samples (25 groundwater and 6 wastewater samples) collected at the Mr. C Cleaners Site. Each sample was analyzed for Target Compound List (TCL) volatile organic compounds. Three of the 31 samples were additionally analyzed for TCL semi-volatile compounds, TCL pesticides/PCBs, Target Analyte List (TAL) inorganic elements, and soluble iron and manganese. The assessment of analytical data included a review of data consistency and data completeness, and adherence to accuracy and precision criteria.

The validation is based on laboratory compliance with Methods 91-1, 91-2, 91-3, and the 200-CLP series methods as contained in the 1991 NYSDEC Analytical Services Protocol (ASP). Data were evaluated as indicated in the following table:

Data Type	Criteria
All Data	Holding times Calibrations Blanks Matrix spike/matrix spike duplicate (MS/MSD) recoveries Field duplicate precision Data completeness
Organic Data	Surrogate recoveries Gas chromatograph/mass spectrometer (GC/MS) tuning Matrix spike blank (MSB) recoveries Internal standard performance.
Inorganic Data	Contract-required detection limit (CRDL) standards for ICP and AA Laboratory control sample (LCS) ICP interference check sample (ICS) ICP serial dilution analysis Furnace AA QC analysis

The Functional Guidelines (herein called the "guidelines" for evaluating organic and inorganic data (1991 and 1988 respectively) have been applied.

Data are valid and acceptable; however, those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U"

(non-detects), or "JN" (presumptive evidence for the presence of the material at an estimated value) are estimated values. The analytical results and appropriate data qualifiers are presented in Tables 1a through 1c, attached. All action is detailed in the discussion which follows.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon. Second, no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves only to increase confidence in data.

2.0 ORGANIC DATA ASSESSMENT

2.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified method holding time is exceeded the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "UJ", or unusable, "R", if the holding times are grossly exceeded. A review of the analytical data indicated that each sample was extracted and/or analyzed within holding time criteria.

2.2 Blank Contamination

Quality assurance (QA) blanks; i.e., method, trip, field, or rinse blanks, are prepared to identify any contamination which may have originated during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of volatile organic compounds during shipment. Field (rinse) blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects "U". The following analytes in the samples shown were qualified with "U" for these reasons:

MALCOLM PIRNIE

TABLE 1A
NYSDEC SUPERFUND - MR. C CLEANER RI
APRIL 1994 GROUNDWATER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	MPI 1S	MPI 1I	MPI 2	MPI 3	MPI 4S	MPI 4I	MPI 5S	MPI 5I	MPI 6	MPI 7I	MPI 8	MPI 8[3]	MPI 9	GWQ Stds
vinyl chloride							9J							2
methylene chloride	10UJ		10UJ	10UJ	10UJ	10UJ			20UJ	10UJ	10UJ	10UJ	10UJ	5
acetone		11				91		41		39				50**
1,1-dichloroethene									19J					5
1,2-dichloroethene (T)	20				2J		39		24J		16J	15J	24	5
chloroform					3J					2J				7
1,1,1 trichloroethane			14											5
trichloroethene	10J					10J	12		110		22J	23J	22	5
benzene					12									0.7
tetrachloroethene	290	3J			59	350	56	1J	1600	140	500	530	350	5
toluene														5
ethylbenzene														5
xylene (T)														5

Notes:

(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate Sample.
** Guidance Value
J Estimated value due to limitations identified during quality control review.
UJ Estimated detection limit.

TABLE 1A (Continued)
NYSDEC SUPERFUND - MR. C CLEANER RI
APRIL 1994 GROUNDWATER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	ESI-1	ESI-3	ESI-4	ESI-5	ESI-6	AG-1	AG-1[3]	AG-4	AG-5	AG-6	AG-7	AG-8	AG-9	AG-10	GWQ Stds
vinyl chloride									240					8J	2
methylene chloride	10UJ				10UJ	61J	120J	10UJ	54J	27UJ	10UJ	10UJ	11J	10UJ	5
acetone											46				50**
1,1-dichloroethene															5
1,2-dichloroethene (T)			2J		62			24	45J	1J			6J	27	5
chloroform															7
1,1,1 trichloroethane			4J												5
trichloroethene	3J		1J		16J	37J	64J	46					26J	2J	5
benzene								55	3200	28J	3J			110	0.7
tetrachloroethene		8,200	32	2J	390	3100	4400	220		36J		120	390		5
toluene								3J	740	10J	2J			6J	5
ethylbenzene								30	430	230	3J			47	5
xylene (T)								41	1900	410	6J			37	5

Notes:

(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate sample
** Guidance Value
J Estimated value due to limitations identified during quality control review.
UJ Estimated detection limit.

MALCOLM PIRNIE

TABLE 1B
NYSDEC SUPERFUND - MR. C CLEANER RI

MAY 1994 GROUNDWATER SAMPLING RESULTS
ADDITIONAL PARAMETERS

Parameter (ug/l)	ESI-3	MPI-7I	MPI-5S	MPI-7I[(1)]
Target Compound List - Semi-Volatile Organics:				
bis(2-ethylhexyl)phthalate	10J	3J		12
Butylbenzylphthalate	8J			6J
Diethylphthalate	75			2J
Di-n-butylphthalate	2J			
Target Compound List - Inorganics:				
Aluminum	6200	200UJ	792	200UJ
Barium	220	117J	214	114J
Calcium	189,000	175,000	126,000	169,000
Cobalt	16.1J			
Copper	44.1		25UJ	
Iron	21,200		4,480J	
Lead	11.9		7.4J	
Magnesium	35,800	37,800	20,700	35,200
Manganese	792	814	944	784
Mercury	0.21			
Nickel	40UJ			
Potassium	7,230	5,530	7,380	5,220
Silver			10UJ	
Sodium	205,000	157,000	192,000	152,000
Vanadium	50UJ		50UJ	
Zinc	104	20UJ	20UJ	
Soluble Iron			1,090	
Soluble Manganese	130	782J	734	130J
Remediation Assessment Parameters: (mg/l)				
Alkalinity, Total	276	299	356	
Hardness	503	578	377	
Total Cyanide			0.02	
Total Dissolved Solids	1,180	1,100	930	
Total Suspended Solids	1,090	1	70	

Notes:
(1) Duplicate Sample
J Estimated value due to limitations identified during quality control review
UJ Estimated detection limit

TABLE 1C
NYSDEC SUPERFUND - MR. C CLEANER RI
APRIL 1994 SEWER SAMPLING RESULTS[1]

Parameter[2] (ug/l)	MH-11	MH-61	MH-62E	MH-62E[3]	MH-62W	MH-64	MH-65	GWQ Stds
vinyl chloride								2
methylene chloride	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	5
acetone	10	21J	19J	17J	84J	20J	38J	50**
1,2-dichloroethene (T)		3J						5
chloroform	6J	5J	6J	6J	9J	5J	16	7
2-butanone					15J			
bromodichloromethane		2J	2J	2J	1J	2J	3J	50**
tetrachloroethene		4J	1J					5
toluene					10			5
ethylbenzene					2J			5
xylene (T)					21			5

Notes:

(1) Only compounds detected above the Analytical Detection Limit in one or more samples are shown here. Blank space means the compound was not detected above the Analytical Detection Limit.
(2) Analyzed by ASP Method 91-1.
(3) Duplicate Sample.
** Guidance Value
J Estimated value due to limitations identified during quality control review.
UJ Estimated detection limit.

a) Method Blank Contamination:

Login #	Blank ID	Parameter	Concentration	Sample
20266	VBLK51	Methylene Chloride	23 ug/l	MPI-1S, -2, -3, -4I, -4IMS, -4IMSD, -6, -8, -9, ESI-6, BDUP.
20266 and 20282	VBLK52	Methylene Chloride	3J ug/l	MPI-4S, ESI-1, AG-1, 4, 5, 6, 7, 8, 9, BDUP
20266 and 20282	VBLK 53	Methylene Chloride	1J ug/l	MPI-8DL, AG-5MS, 5MSO, 5DL, -6DL, -10
20349	VBLK65	Methylene Chloride	2J ug/l	MH-61, 62E, 62W, 64, 64MS, 64MSD, -65
20364	VBLK9	Methylene Chloride	3J ug/l	MH11

There were no analytes detected in the semi-volatiles method blank or the pesticide/PCBs method blanks.

b) Trip Blank Contamination:

Login #	Sample	Analyte	Concentration
20266	Trip Blank 4/7	Methylene Chloride	4 BJ ug/l
20282	Trip Blank 4/7	Methylene Chloride	3 BJ ug/l
20318	Trip Blank 4/9	Methylene Chloride	1J ug/l
20309	Trip Blank 4/9	Methylene Chloride	2J ug/l
20349	Trip Blank 4/15	Methylene Chloride	5 BJ ug/l

2.3 Mass Spectrometer Tuning

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data are to be classified as unusable, "R"; however, no samples were qualified due to improper tuning.

2.4 Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

a) Response Factor:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor < 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated "J". All non-detects for those compounds will be rejected ("R"). A review of the analytical data indicated that no samples should be qualified due to response factor requirements.

b) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent difference compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent difference is a measure of the instrument's daily performance. Percent RSD must be $<30\%$ and % difference must be $<25\%$. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are to be flagged as estimated, "J", and nondetects are to be flagged "UJ". If %RSD and % difference grossly exceed QC criteria, nondetect data may be qualified "R".

The following analytes in the samples shown were qualified for %RSD and %D.

Login #	Parameter	Samples Affected
20266	Methylene Chloride 2-Hexanone	MPI-1S, 2, 3, 4I, 4IMS, 4IMSD, 6, 8, 9, ESI-6, BDUP
20266 and 20282	Acetone 2-Butanone 2-Hexanone	MPI-4S, AG-1, 4, 5, 6, 7, 8, 9, ESI-1, BDUP
20266 and 20282	Acetone 2-Butanone 2-Hexanone	MPI-8DL, AG-5DL, 5MS, 5MSD, -6DL, -10
20303 and 20318	4-Methyl-2-pentanone	MPI-5S, 5I, 1I, ESI-4, -5, -3, MPI-7I
20349	Acetone 2-Butanone 2-Hexanone	MH61, 62E, 62W, 64, 64MS, 64MSD, 65
20303 and 20318	Carbazole Butylbenzylphthalate Pyrene 3,3'-Dichlorobenzidine bis(2-Ethylhexyl)phthalate di-n-Octylphthalate Dibenz(a,h)anthracene Benzo(g,h,i)perylene	MPI-5S, -7I, 7IMS, 7IMSD, ESI-3, BDUP

2.5 Surrogates/System Monitoring Compounds (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the affected samples. However, a review of the analytical data indicated that qualification due to surrogate/SMC recovery was not necessary.

2.6 Internal Standards Performance

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that internal standard are qualified as estimated "J", and all

nondetects as "UJ" only if internal standard area is <50%. Non-detects are qualified as "R" if there is a severe loss of sensitivity (<25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgement to determine either partial or total rejection of the data for that sample fraction. Qualification of the data due to poor internal standards performance was not necessary.

2.7 Compound Identification

a) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ±0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary ion intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. A review of the analytical data indicated that no samples should be qualified due to compound identification.

b) Pesticide/PCB Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns utilized for pesticide/PCB analysis. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25%. If the %D is >25%, then identification of the pesticide and/or PCB is questionable.

A review of the analytical data indicated that no samples should be qualified due to Pesticide/PCB compound identification.

2.8 Matrix Spike/Spike Duplicate, MS/MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data. Review of the MS/MSD results indicated that qualification of the data was not necessary.

3.0 INORGANIC DATA ASSESSMENT

3.1 Holding Time

According to the ASP, CLP Methodology, the following maximum holding times for aqueous samples are recommended for the specified analyses:

Analyses	Recommended Holding Time
Mercury	Prepare and analyze within 26 days of VTSR
Cyanide	Prepare and analyze within 14 days of VTSR
Metals	Prepare and analyze within 180 days of VTSR

Comparison of the dates of sample receipt (from the laboratory chain-of-custody forms) to the dates of sample preparation and analysis (from the laboratory preparation logs and Form XIVs) indicated that all samples were prepared/analyzed prior to expiration of the recommended holding time.

3.2 Instrument Calibration

Initial calibrations of the atomic absorption (AA), inductively coupled plasma (ICP), and mercury cold vapor (CV) systems are accomplished via the analysis of standards at concentrations which define the working range of the particular instrument. To verify the accuracy of the initial calibration for each analyte, an EPA initial calibration verification (ICV) solution must be analyzed at each wavelength that is used for sample analyses. Recoveries of each analyte contained in the ICV solution should be within the control limits established by the EPA. In addition, the correlation coefficient for the initial calibration curve must be >0.995 for AA analyses. To ensure calibration accuracy during each analytical run, a continuing calibration verification (CCV) solution must be analyzed at each wavelength that is used for sample analyses. The CCV solution must be analyzed at a frequency of 10% or every two (2) hours (whichever is more frequent) during an analytical run. The CCV solution must also be analyzed at the beginning of the analytical run and after the last analytical sample. In addition, recoveries of each analyte in the CCV solution should be within the control limits established by the EPA. If the criteria above are not met, calibration cannot be verified; therefore, positive results are to be estimated and qualified with a "J" and nondetects are to be qualified with a "UJ".

As assessment of the calibration data for all inorganic analyses indicated that the proper number of calibration standards were analyzed at the beginning of each analytical run and at the appropriate frequency throughout the analytical run. In addition, the recoveries of each analyte contained in the ICV and CCV solutions were within criteria, and the correlation coefficients for AA data were greater than 0.995.

3.3 Contract-Required Detection Limit (CRDL) Standards for ICP and AA

To verify the linearity near the CRDL for ICP analysis, an ICP standard must be analyzed at a concentration of two (2) times the CRDL [or at the CRDL for AA], or two (2) times the instrument detection limit (IDL), whichever is greater. The standard must be analyzed at the beginning and end of each sample analysis run, or a minimum of twice per eight (8) hour shift, whichever is more frequent (but not before the ICV). To verify linearity near the CRDL for AA analysis, an AA standard must be analyzed at the CRDL or the IDL, whichever is greater. The standard must be analyzed at the beginning of each sample analysis run, but not before the ICV. If the criteria above is not met, linearity cannot be verified and results are qualified with either a "J" or "UJ" (nondetects). A review of the analysis run logs (Form XIV) and the raw data indicated that the CRDL standards for both ICP and AA met these criteria.

3.4 Blank Contamination

For inorganic analyses, initial calibration blanks, (ICBs), continuing calibration blanks (CCBs), and preparation blanks (PBs), are analyzed to determine the existence and magnitude of any inorganic contamination. Ideally, no contaminants should be detected in any of the blanks and no contaminants should be detected in the preparation blanks or ICBs at concentrations greater than the CRDL. In addition, when more than one blank is associated with a given sample, qualification is based on a comparison with the associated blank having the highest concentration of a contaminant. An assessment of all blank analytical data indicated that no contaminants were detected at concentrations greater than the CRDL. However, the following table summarizes contaminants which were detected in blanks at concentrations greater than the IDL:

Blank	Element	Conc.	Action Level (ug/l)	CRDL (ug/l)
Login #20303 and 20318				
CCB1	Aluminum	42	210	200
CCB2	Antimony	43.5	217.5	60
CCB1 and CCB2	Beryllium	2	10	5
CCB2	Copper	17	85	25
CCB2	Iron	97	485	100
CCB3	Potassium	2,184	10,920	5,000
CCB1	Silver	7.3	36.5	10
CCB3	Zinc	13.4	67	20
CCB3	Nickel	23.2	116	40
ICB	Vanadium	11.6	58	50

The action levels listed for each analyte are equal to five (5) times the highest concentration of the analyte detected in any blank. According to the guidelines, any positive results for these analytes detected in the sample at a concentration which is greater than the IDL but less than the action level must be qualified as not detected (ND), and the method detection limit (MDL) set equal to the value detected in the sample. The estimated value is then qualified with a "U". Qualification to the appropriate samples has been made and is presented in Table 1b.

3.5 ICP Interference Check Sample (ICS):

To verify inter-element and background correction factors, an ICS is analyzed at the beginning and end of each analytical run (or a minimum of twice per eight-hour work shift). The ICS consists of two solutions, A and AB. Solution A contains the interferents and solution AB contains the analytes mixed with the interferents. The solutions are analyzed consecutively. If the solutions are not analyzed, potential interferences cannot be assessed and the data would be rejected. A review of the ICS analyses results indicated that copper and silver were detected in the ICSA solution at concentrations greater than two times (2x) the IDL. However, no substantial effect on the ICP analyses from these interferents was exhibited. In addition, the ICS solutions were analyzed at the proper frequency.

3.6 Matrix Spike (MS Analysis)

The analysis of an inorganic matrix spike sample provides the data user with information regarding sample matrix effects on the digestion procedure and analytical

methodology. Matrix spike recoveries for inorganic elements must be within the 75% to 125% recovery "window" unless the sample concentration exceeds the spike concentration by a factor of four (4) or more. If the recovery of an analyte does not fall within this "window", a post-digestion spike must be analyzed for each element (except silver) which did not meet criteria. The following analytes, for the samples shown, have been qualified with a "J" (estimated) because of MS/MSD:

Analyte	MS/MSD	Sample Affected
Thallium Silver	MPI-5S	All samples in Login #20303.

It was noted that post-digestion spikes were not necessary.

3.7 Duplicate Analyses

Laboratory duplicate analysis is an indicator of the precision of sample results and a measure of laboratory performance. A control limit of 20% RPD is used for aqueous and 30% for soil sample results which are greater than five (5) times the CRDL, and a control limit of +/- the CRDL is used for soil sample results which are less than five (5) times the CRDL. If the criteria are not met, poor precision is indicated and any positive results are to be estimated and qualified with a "J"; any "nondetects" are to be qualified with a "UJ".

A review of the laboratory duplicate results indicated that qualification of the data due to duplicate analyses criteria was not necessary.

3.8 Laboratory Control Sample (LCS) Analysis

As an additional measure of accuracy, the ASP requires that an aqueous LCS be prepared and analyzed for every group of aqueous and soil samples in a sample delivery group (SDG), or for each batch of samples digested, whichever is more frequent. The percent recovery for analytes contained in the LCS must fall within the control limits established by the EPA. If the % recovery does not meet criteria, the laboratory must take corrective action such as analyzing another LCS after instrumentation adjustment. Review of the LCS data indicated that all criteria were met.

3.9 Furnace Atomic Absorption (AA) QC Analyses

All furnace AA analyses (As, Se, Tl and Pb) require duplicate injections. For concentrations greater than the CRDL, the duplicate injection results must agree within 20% RSD. If the results do not agree to within 20% RSD, the sample must be rerun. In addition, analysis of a post-digestion spike is required for each sample. The recovery of the analyte in each post-digestion spike must be within the control limit, (i.e., 85-115%). If the recovery of the analyte is outside of this criteria, the analyte may be quantitated using the Method of Standard Addition (MSA), depending on sample absorbance. If the sample absorbance is >50% of the post-digestion spike absorbance and the spike recovery is outside the 85-115% control limit, the sample result is calculated using MSA. A review of the raw furnace atomic absorption data indicated the following elements/samples did not meet the 85 - 115% criteria, but did not require the MSA for quantitation because the sample absorbance was <50% of the post digestion spike absorbance:

Selenium	BDUP, ESI-3
Thallium	MPI-5S

3.10 Inductively Coupled Plasma (ICP) Serial Dilution Analysis

If the concentration of an analyte in a sample is sufficiently high (a minimum of 50 times the IDL), a five-fold dilution of the sample is analyzed to determine whether significant physical or chemical interferences exist. The results of the dilution must agree to within 10% difference (%D) of the original results.

A review of the ICP serial dilution results indicated that ICP serial dilution analyses requirements were met.

3.11 Summary and Conclusion

Overall, the analyses were compliant with the 1991 NYSDEC ASP. Although compliant, the following login numbers contained duplicate Form 1s due to the reasons given:

Login #	Sample	Reason
20266	MPI-8	Dilution runs due to target compound concentration range exceedances.
20282	AG-1, AG-4, AG-5, AG-6, AG-9	Dilution runs due to target compound concentration range exceedances.

Based on the evaluation herein, the analytical data generated for the Mr. C Cleaners Site remedial investigation are valid (with the qualifications noted herein) and useful for the purposes of completing the remedial investigation.

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-15
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 13:42

Casing Diameter (inches): 2
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 9.45
Bottom Depth (ft.) 19.20
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 14:14 Finish: 14:29

Method: PVC BAILER
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.7
Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 15

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ____

Field Personnel: JT PATERSON / J HILTON

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 15:03 Finish: 15:07

Method: POLY DISPOS. BAILER
Sampler: JTP / J. HILTON
Present Water Level (ft.): 9.46
Air Temperature (F°): 55°
Depth of Sample (ft.): 9.46
Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 9.2 pH 7.45 Specific Conductivity (μmhos/cm): 2220
Turbidity (NTU): >100 Other: Eh: +82

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS RI

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP | J. HILTON

DATE: 4/4/94

WELL NO.: MPI - 1S

1	TOTAL CASING AND SCREEN LENGTH (ft.)	19.26
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.45
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.7$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	5.0	100	15.0						
pH	7.58	7.35	7.40	7.36						
CONDUCTIVITY	1422	2330	1973	2210						
TEMPERATURE	8.2	8.9	9.7	9.3						
APPEARANCE / TURBIDITY	BEIGE >900	MILKY >100	CLOUDY >100	CLOUDY >100						
COMMENTS: Eh	+94	+92	+100	+105						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI - II
LAB SAMPLE NO.:

WELL DATA: DATE: 4-6-94 TIME: 0905
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 7.64 Bottom Depth (ft.) 41.00
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4-6-94 TIME: Start: 9:14 Finish: 1:53
Method: DEDICATED BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 5.7 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 18.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No X
Field Personnel: RLD/JP

SAMPLING DATA: DATE: 4/6/94 TIME: Start: 10:36 Finish: 10:39
Method: PP. W/SOS BAILER Sampler: JTD/RLD
Present Water Level (ft.): 11.65 Air Temperature (F°): 40°
Depth of Sample (ft.): 11.65 Weather Conditions: RAIN
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 8.8 pH 7.35 Specific Conductivity (mhos/cm): 1531
Turbidity (NTU): 9 Other: Eh: +151

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS R.I

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP RLD

DATE: 4/6/94

WELL NO.: MPI - 1I

1	TOTAL CASING AND SCREEN LENGTH (ft.)	41.00
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.64
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 5.7$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	6.0	12.0	18.0						
pH	7.02	7.14	7.24	7.20						
CONDUCTIVITY	1402	1422	1508	1488						
TEMPERATURE	7.1	10.0	9.2	10.0						
APPEARANCE / TURBIDITY	CLEAR / 17	CLEAR / 48	CLEAR / 28	CLEAR / 11						
COMMENTS: Eh	+138	+142	+145	+147						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-2
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 15:12

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.91 Bottom Depth (ft.) 17.75
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 15:18 Finish: 15:28

Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.2 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 6.0

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP J. HILTON

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 15:33 Finish: 15:36

Method: POLY DISPOS. BAILER Sampler: JTP / J. HILTON
Present Water Level (ft.): 10.92 Air Temperature (F°): 55°
Depth of Sample (ft.): 10.92 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 10.2 pH 7.38 Specific Conductivity (μmhos/cm): 1522
Turbidity (NTU): >100 Other: Eh: +101

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP J. HILTON

DATE: 4/4/94

WELL NO.: MPI - 2

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.75
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.91
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.0	4.0	6.0						
pH	7.44	7.44	7.38	7.32						
CONDUCTIVITY	1571	1560	1543	1546						
TEMPERATURE	9.7	10.0	10.2	10.1						
APPEARANCE / TURBIDITY	CLEAR / 51	CLEAR / 99	CLEAR / >100	CLEAR / >100						
COMMENTS: Eh	+91	+88	+90	+94						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUNDWATER GRAB
LOCATION NO.: MPI-3
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 13:08

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.61 Bottom Depth (ft.) 18.06
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 13:15 Finish: 13:24

Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.4 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 7.5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location? Yes ____ No ✓
Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 14:48 Finish: 14:51

Method: POLY DISPOS. BAILER Sampler: JTP J. HILTON
Present Water Level (ft.): 9.61 Air Temperature (F°): 55
Depth of Sample (ft.): 9.61 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 8.4 pH 7.29 Specific Conductivity (μmhos/cm): 1657
Turbidity (NTU): >100 Other: Eh: +55

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP / J. HILTON

DATE: 4/4/94

WELL NO.: MPI - 3

1	TOTAL CASING AND SCREEN LENGTH (ft.)	18.06
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.61
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.4$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.5	5.0	7.5						
pH	7.42	7.25	7.28	7.23						
CONDUCTIVITY	1626	1643	1668	1651						
TEMPERATURE	8.6	9.2	9.8	9.6						
APPEARANCE / TURBIDITY	CLOY >100	CLOY >100	CLOY >100	CLOY >100						
COMMENTS: Eh	+52	+58	+57	+56						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I. | TYPE OF SAMPLE: GROUND WATER GRAB
CLIENT: NYSDEC | LOCATION NO.: MPI - 4S
JOB NO.: 0266 - 314 - 002 | LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 | TIME: 11:20
Casing Diameter (inches): 2" | Casing Material:
Screened Interval (ft BGS): | Screen Material:
Static Water Level Below TOR (ft.): 9.12 | Bottom Depth (ft.) 20.83
Elevation Top of Well Riser: | Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 | TIME: Start: 11:30 Finish: 11:37
Method: PVC BAILER | Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): ≈3 | Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 2.0 | Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 5.5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ____
Field Personnel: JTP, SHILTON

SAMPLING DATA: DATE: 4/4/94 | TIME: Start: 12:28 Finish: 12:32
Method: POLY DISPOS. BAILER | Sampler: JTP, SHILTON
Present Water Level (ft.): 9.13 | Air Temperature (F°): 54°
Depth of Sample (ft.): 9.13 | Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: | TIME: Start: Finish:
Filtered: Yes ____ No ____ | Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: | Color:
Contains Sediment | Odor: NONE Other:
Temperature (°C): 8.2 pH 7.46 | Specific Conductivity (μmhos/cm): 1933
Turbidity (NTU): >100 | Other: Eh: +82

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R I

PROJECT NO.: C266 - 314 - CO2

STAFF: STP J HILTON

DATE: 4/4/94

WELL NO.: MPI - 4S

1	TOTAL CASING AND SCREEN LENGTH (ft.)	20.83
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.12
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 2.0$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.5	4.0	5.5						
pH	7.36	7.45	7.45	7.46						
CONDUCTIVITY	2210	2260	2150	1937						
TEMPERATURE	8.0	8.7	9.3	9.8						
APPEARANCE / TURBIDITY	MILKY >100	CLOY >100	CLOY >100	MILKY >100						

COMMENTS:

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-4I
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 11:21

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.11 Bottom Depth (ft.) 42.11
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 11:38 Finish: 12:10

Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 5.4 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 17

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ____

Field Personnel: JTP, JHILTON

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 12:15 Finish: 12:21

Method: POLY DISPOS. BAILER Sampler: JTP, JHILTON
Present Water Level (ft.): 10.38 Air Temperature (F°): 55°
Depth of Sample (ft.): 10.38 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 11.0 pH 7.45 Specific Conductivity (μmhos/cm): 1619
Turbidity (NTU): 16 Other: Eh: +81

REMARKS: #MS/MSD TAKEN

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: C266 - 314 - CC2

STAFF: JTP / J. HICTON

DATE: 4/4/94

WELL NO.: MPI - 4I

1	TOTAL CASING AND SCREEN LENGTH (ft.)	42.11
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.11
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 5.4$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	5.5	11	17						
pH	7.62	7.45	7.47	7.46						
CONDUCTIVITY	1642	1694	1698	1639						
TEMPERATURE	9.2	11.1	11.3	11.0						
APPEARANCE / TURBIDITY	CLEAR / 6	MILKY / 5.00	CLEAR / 60	CLEAR / 21						
COMMENTS: Eh		NOT OBTAINED FOR THESE MEASUREMENTS	+111	+106						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I.
CLIENT: NYSDEC
JOB NO.: 0266 - 314 - 002

TYPE OF SAMPLE: GROUNDWATER GRAB
LOCATION NO.: MPI - 5S
LAB SAMPLE NO.:

WELL DATA: DATE: 4/6/94 TIME: 11 17
Casing Diameter (inches): 2 Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.55 Bottom Depth (ft.) 18.10
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/6/94 TIME: Start: 11:28 Finish: 11:50
Method: POLY DISPOS BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ____ No ____
Standing Volume (GAL.) 1.3 Was Well purged below sand pack? Yes ____ No ____
Volume Purged (GAL.) 6.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓
Field Personnel: J-P R DUBISZ

SAMPLING DATA: DATE: 4/6/94 TIME: Start: 12 18 Finish: 12:45
Method: DISP. BAILER Sampler: J-P R D
Present Water Level (ft.): 10.55 Air Temperature (F°): 40°
Depth of Sample (ft.): 10 55 Weather Conditions: RAIN
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 4.8/7.6 pH 7.58/7.37 Specific Conductivity (umhos/cm): 1654/1645
Turbidity (NTU): 35/45 Other: Eh: +5/+5

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP R. DuBiss

DATE: 4/6/94

WELL NO.: MPI - 5s

1	TOTAL CASING AND SCREEN LENGTH (ft.)	18.10
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.55
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 13$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	WITNESS	2.0	4.0	6.0						
pH	7.26	7.17	7.12	7.21						
CONDUCTIVITY	1606	1591	1586	1632						
TEMPERATURE	8.0	7.9	8.0	7.7						
APPEARANCE / TURBIDITY	CLEAR / 34	CLEAR / 52	CLEAR / 56	CLEAR / 90						
COMMENTS: Eh	+71	+36	+37	+6						

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WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-5I
LAB SAMPLE NO.:

WELL DATA: DATE: 4/6/94 TIME: 11:10
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.65 Bottom Depth (ft.) 40.75
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/6/94 TIME: Start: 1115 Finish: 1200
Method: POLY DISPOS. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 3 Was well purged dry? Yes ✓ No
Standing Volume (GAL.) 5 Was well purged below sand pack? Yes ✓ No
Volume Purged (GAL.) 15

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes No ✓
Field Personnel: JTP RDUBISZ

SAMPLING DATA: DATE: 4/6/94 TIME: Start: 1208 Finish: 1210
Method: POLY DISPOS. BAILER Sampler: JTP RLD
Present Water Level (ft.): 10.69 Air Temperature (F°): 40°
Depth of Sample (ft.): 10.69 Weather Conditions: RAIN
Is sampling equipment dedicated to sample location: Yes No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes No Cool to 4°C:
Preservative: H_2SO_4 HNO_3 NaOH Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 9.6 pH 7.44 Specific Conductivity (μmhos/cm): 1598
Turbidity (NTU): 6 Other: Eh: +49

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP RLD

DATE: 4/6/94

WELL NO.: MPI - 5I

1	TOTAL CASING AND SCREEN LENGTH (ft.)	40.75
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.65
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 5.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	5.0	10.0	15.0						
pH	7.38	7.34	7.29	7.28						
CONDUCTIVITY	1422	1407	1550	1517						
TEMPERATURE	7.8	9.7	9.7	9.7						
APPEARANCE / TURBIDITY	6 / clear	11 / CLEAR	17 / clear	7 / clear						
COMMENTS: Eh	+146	+80	+39	+20						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-6
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 12:42

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.06 Bottom Depth (ft.) 22.35
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 12:46 Finish: 12:57

Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 21 Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 7.5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP / J HILTON

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 14:40 Finish: 14:43

Method: POLY DISPOS. BAILER Sampler: JTP J. HILTON
Present Water Level (ft.): 10.05 Air Temperature (F°): 55°
Depth of Sample (ft.): 10.05 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 8.5 pH 7.21 Specific Conductivity (μmhos/cm): 1691
Turbidity (NTU): 98 Other: Eh: +53

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: C266 - 314 - CC2

STAFF: STP / J HILTON

DATE: 4/4/94

WELL NO.: MPI - 6

1	TOTAL CASING AND SCREEN LENGTH (ft.)	22.35
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.06
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 2.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.5	5.0	7.5						
pH	7.26	7.16	7.15	7.18						
CONDUCTIVITY	1687	1698	1689	1682						
TEMPERATURE	8.4	8.3	8.6	8.7						
APPEARANCE / TURBIDITY	CLEAR / >100	MILKY / >100	MILKY / >100	MILKY / >100						
COMMENTS: Eh	+25	+21	+16	+18						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-7I
LAB SAMPLE NO.:

WELL DATA: DATE: 4/7/94 TIME: 8:58

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.90 Bottom Depth (ft.) 39.50
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/7/94 TIME: Start: 9:05 Finish: 9:58

Method: POLY DISPOS. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 30 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 5.0 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 15.0

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP RLD

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

SAMPLING DATA: DATE: 4/7/94 TIME: Start: 1010 Finish: 1043

Method: POLY DISPOS. BAILER Sampler: JTP RLD
Present Water Level (ft.): 9.95 Air Temperature (F°): 35
Depth of Sample (ft.): 9.95 Weather Conditions: PT cloudy
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 7.8/9.5 pH 7.93/8.08 Specific Conductivity (μmhos/cm): 1805/1834
Turbidity (NTU): 6/4 Other: Eh: +78/+58

REMARKS: BLIND DUPLICATE + MS/MSD TAKEN

For BNAs, Pest, Metals

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: C266 - 314 - CC2

STAFF: JTB RLD

DATE: 4/4/94

WELL NO.: MPI - 7I

1	TOTAL CASING AND SCREEN LENGTH (ft.)	39.50
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.90
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 5.0$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	5.0	10.0	15.0						
pH	7.64	7.58	7.57	7.76						
CONDUCTIVITY	1869	1887	1833	1838						
TEMPERATURE	6.7	8.4	3.4	9.3						
APPEARANCE / TURBIDITY	CLEAR / 9	CLOUDY / 24	CLOUDY / 8	CLOUDY / 7						
COMMENTS: Eh	+103	+97	+92	+90						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-8
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 10:13

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.03 Bottom Depth (ft.) 17.76
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 10:20 Finish: 10:31

Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 3 Was well purged dry? Yes ___ No ✓
Standing Volume (GAL.) 1.5 Was well purged below sand pack? Yes ___ No ✓
Volume Purged (GAL.) 5.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location? Yes ___ No ✓

Field Personnel: JTP, JH

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 10:58 Finish: 11:04

Method: POLY DISPOSABLE BAILER Sampler: JTP, J HILTON
Present Water Level (ft.): 9.46 Air Temperature (F°): 50°
Depth of Sample (ft.): 9.46 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ___ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ___ No ___ Cool to 4°C:
Preservative: H_2SO_4 ___ HNO_3 ___ NaOH ___ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 7.9 pH 7.27 Specific Conductivity (μmhos/cm): 1915
Turbidity (NTU): 12 Other: Eh: +148

REMARKS: * BLIND DUP TAKEN

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: C266 - 314 - CO2

STAFF: JTP, SHILTON

DATE: 4/4/99

WELL NO.: MPI - 8

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.76
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.03
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.5$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	1.5	3	4.5						
pH	7.11	7.00	7.01	6.98						
CONDUCTIVITY	1911	1743	1762	1784						
TEMPERATURE	7.7	7.8	7.9	8.1						
APPEARANCE / TURBIDITY	CLEAR / 9	CLEAR / 98	CLEAR / 76	CLEAR / 99						

COMMENTS:

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: MPI-9
LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 TIME: 10:33
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.28 Bottom Depth (ft.) 17.84
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 TIME: Start: 10:37 Finish: 10:48
Method: PVC BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 3 Was well purged dry? Yes ___ No ✓
Standing Volume (GAL.) 1.5 Was well purged below sand pack? Yes ___ No ✓
Volume Purged (GAL.) 5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ___ No ✓
Field Personnel: JTP, JHILTON

SAMPLING DATA: DATE: 4/4/94 TIME: Start: 11:08 Finish: 11:13
Method: POLY DISPOS. BAILER Sampler: JTP, J HILTON
Present Water Level (ft.): 9.28 Air Temperature (F°): 51°
Depth of Sample (ft.): 9.28 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ___ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ___ No ___ Cool to 4°C:
Preservative: H_2SO_4 ___ HNO_3 ___ NaOH ___ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ___ Turbid: ✓ Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 10.2 pH 7.01 Specific Conductivity (mhos/cm): 2140
Turbidity (NTU): >100. Other: Eh: +141

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: 0266 - 314 - CO2

STAFF: JTP, J HILTON

DATE: 4/4/94

WELL NO.: MPI - 9

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.84
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.28
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.5$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.5	4.0	5.5						
pH	7.00	6.91	6.95	7.02						
CONDUCTIVITY	2120	2110	2100	2100						
TEMPERATURE	9.4	10.5	10.6	10.6						
APPEARANCE / TURBIDITY	CLEAR / 4	CLOY / >100	CLOY / >100	CLOY / >100						

COMMENTS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR "C" CLEANERS R.I.

PROJECT NO.: 0266-314-002

STAFF: JTP J HILTON

DATE: 4/5/94

WELL NO.: ESI-1

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.72
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.53
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.0	4.0	6.0						
pH	7.47	7.50	7.54	7.45						
CONDUCTIVITY	1022	1060	1083	1047						
TEMPERATURE	10.0	9.6	10.0	10.5						
APPEARANCE / TURBIDITY	CLOUDY >100	CLOUDY >100	CLOUDY >100	CLOUDY >100						
COMMENTS: Eh	+30	+35	+52	+59						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS RI
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: ESI-3
LAB SAMPLE NO.:

WELL DATA: DATE: 4/7/94 TIME: 8:59

Casing Diameter (inches): 2" Casing Material: PVC
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.65 Bottom Depth (ft.) 16.70
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/7/94 TIME: Start: 9:08 Finish: 9:50

Method: POLY DISPOS BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.1 Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 5

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP RLD

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

SAMPLING DATA: DATE: 4/7/94 TIME: Start: Finish:

Method: POLY DISPOS BAILER Sampler: JTP RLD
Present Water Level (ft.): Air Temperature (F°): 35°
Depth of Sample (ft.): 15 Weather Conditions:
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____ Cool to 4°C: ____
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other ____

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ____ Turbid: ✓ Color:
Contains Sediment ✓ Odor: NONE Other:
Temperature (°C): 9.2/10.0 pH 7.74/7.79 Specific Conductivity (mhos/cm): 1884/1984
Turbidity (NTU): >100/>100 Other: Eh: +5/+59

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C' CLEANERS R.I.

PROJECT NO.: 0266-314-002

STAFF: JTP RLD

DATE: 4/7/94

WELL NO.: ESI-3

1	TOTAL CASING AND SCREEN LENGTH (ft.)	16.10
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.65
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 11$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	1.5	3	5						
pH	7.31	7.23	7.25	7.29						
CONDUCTIVITY	578	1999	1980	1975						
TEMPERATURE	5.3	6.3	5.9	6.5						
APPEARANCE / TURBIDITY	[illegible]	>100	>100	>100						
COMMENTS: Eh	-132	-0	+10	+19						

WATER SAMPLING FIELD DATA SHEETS

26
35
61

PROJECT: MR. "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: ESI-4
LAB SAMPLE NO.:

WELL DATA: DATE: 4/6/94 TIME: 8:52

Casing Diameter (inches): 2"
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 7.49
Bottom Depth (ft.) 14.61
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/6/94 TIME: Start: 9:08 Finish:

Method: POLY DISPOS. BAILER
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$):
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.2
Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP / R. DuBIse

SAMPLING DATA: DATE: 4/6/94 TIME: Start: 10:43 Finish: 10:45

Method: POLY DISPOS. BAILER
Sampler: JTP R. DuBIse
Present Water Level (ft.): 7.48
Air Temperature (F°): 40°
Depth of Sample (ft.): 7.48
Weather Conditions: RAIN
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment
Odor: NONE Other:
Temperature (°C): 5.9 pH 7.44
Specific Conductivity (μmhos/cm): 3360
Turbidity (NTU): 67
Other: Eh: +139

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I.

PROJECT NO.: 0266-314-002

STAFF: JTP RLD

DATE: 4/6/94

WELL NO.: ESI-4

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.61
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.49
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.3	4.0	6.0						
pH	6.78	7.16	7.27	7.27						
CONDUCTIVITY	3140	3410	3420	3430						
TEMPERATURE	7.2	5.7	5.4	5.5						
APPEARANCE / TURBIDITY										
COMMENTS: Eh	+128	+130								

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR "C" CLEANERS R.I.
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: ESI-5
LAB SAMPLE NO.:

WELL DATA: DATE: 4/6/99 TIME: 930

Casing Diameter (inches):
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 7.41
Bottom Depth (ft.) 14.15
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/6/99 TIME: Start: 10:05 Finish: 10:45

Method: Peristaltic Pump
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$):
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.2
Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 6.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTF R. LAMBISE

SAMPLING DATA: DATE: 4/6/99 TIME: Start: 10:50 Finish: 10:53

Method:
Sampler:
Present Water Level (ft.): 7.41
Air Temperature (F°):
Depth of Sample (ft.): 7.41
Weather Conditions:
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment
Odor: NONE Other:
Temperature (°C): 6.3 pH 7.68
Specific Conductivity (μmhos/cm): 481
Turbidity (NTU): >100
Other: Eh: +147

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: 0266-314-002

STAFF: JTP/RLD

DATE: 4/6/94

WELL NO.: ESI-5

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.15
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	7.41
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	20	[illegible]	0 [illegible]						
pH	7.86	7.75	7.[illegible]6	-7[illegible]						
CONDUCTIVITY	534	5[illegible]	-12[illegible]0	-197						
TEMPERATURE	6.2	5.[illegible]	[illegible]	[illegible]						
APPEARANCE / TURBIDITY	[illegible] / >100	[illegible]	[illegible]	[illegible]						
COMMENTS: Eh	+144	[illegible]	[illegible]	+17[illegible]						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R.I. | TYPE OF SAMPLE: GROUND WATER GRAB
CLIENT: NYSDEC | LOCATION NO.: ESI-6
JOB NO.: 0266-314-002 | LAB SAMPLE NO.:

WELL DATA: DATE: 4/4/94 | TIME: 13:30
Casing Diameter (inches): 2" | Casing Material:
Screened Interval (ft BGS): | Screen Material:
Static Water Level Below TOR (ft.): 9.78 | Bottom Depth (ft.) 16.65
Elevation Top of Well Riser: | Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/4/94 | TIME: Start: 13:36 Finish: 14:04
Method: PVC BAILER | Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 | Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.2 | Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 15

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓
Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/4/94 | TIME: Start: 14:56 Finish: 14:58
Method: POLY DISPOS. BAILER | Sampler: JTP T. HILTON
Present Water Level (ft.): 9.78 | Air Temperature (F°): 55°
Depth of Sample (ft.): 9.78 | Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: | TIME: Start: Finish:
Filtered: Yes ____ No ____ | Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: ✓ | Color:
Contains Sediment | Odor: NONE Other:
Temperature (°C): 10.7 pH 7.60 | Specific Conductivity (μmhos/cm): 2920
Turbidity (NTU): >100 | Other: Eh: +70

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R.I

PROJECT NO.: 0266 - 314 - 002

STAFF: JTP J. HILTON

DATE: 4/4/94

WELL NO.: ESI - 6

1	TOTAL CASING AND SCREEN LENGTH (ft.)	16.65
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.78
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) = 1.2$ gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	5.0	10.0	15						
pH	7.34	7.26	7.31	7.27						
CONDUCTIVITY	3150	2970	2900	2830						
TEMPERATURE	11.6	11.4	11.2	11.3						
APPEARANCE / TURBIDITY	CLOY >100	CLOY >100	CLOY >100	CLOY >100						
COMMENTS: Eh	+76	+79	+82	+82						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-1
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 8:46
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.30 Bottom Depth (ft.) 22.20
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 8:50 Finish: 9:07
Method: POLY DISPOS. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi r^2 h/231$): 3 Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 2.2 Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 6.5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓
Field Personnel: JTP / J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 10:30 Finish: 10 39
Method: POLY DISPOS. BAILER Sampler: JTP / J. HILTON
Present Water Level (ft.): 9.30 Air Temperature (F°): 40°
Depth of Sample (ft.): 9.30 Weather Conditions: CLOUDY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 8.3 pH 7.41 Specific Conductivity (μmhos/cm): 2130
Turbidity (NTU): 21 Other: Eh: +23

REMARKS: * BLIND DUPLICATE #2 TAKEN

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: JTP J. HILTON

DATE: 4/5/94

WELL NO.: AG - 1

1	TOTAL CASING AND SCREEN LENGTH (ft.)	22 20
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.30
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 2.2$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.0	4.0	6.5						
pH	7.42	7.14	7.17	7.13						
CONDUCTIVITY	2130	2140	2170	2180						
TEMPERATURE	7.6	8.7	8.8	9.0						
APPEARANCE / TURBIDITY	CLEAR / 52	CLEAR / 42	CLEAR / 28	CLEAR / 19						
COMMENTS: Eh	+116	+118	+129	+131						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-4
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 11:30

Casing Diameter (inches): 4" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 8.26 Bottom Depth (ft.) 17.45
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 11:35 Finish: 12:33

Method: DISPOS. POLY BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): ≈3 Was well purged dry? Yes ✓ No
Standing Volume (GAL.) 6.1 Was well purged below sand pack? Yes ✓ No
Volume Purged (GAL.) 18.

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes No ✓

Field Personnel: JTP S. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 13:28 Finish: 13:30

Method: POLY DISPOS. BAILER Sampler: JTP J. HILTON
Present Water Level (ft.): 9.10 Air Temperature (F°): 55°
Depth of Sample (ft.): 9.10 Weather Conditions: PART SUNN
Is sampling equipment dedicated to sample location: Yes No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes No Cool to 4°C:
Preservative: H_2SO_4 HNO_3 NaOH Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: PETROLEUM Other:
Temperature (°C): 9.9 pH 7.15 Specific Conductivity (μmhos/cm): 3260
Turbidity (NTU): 6 Other: Eh: -47

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: JTP J. HILTON

DATE: 4/5/94

WELL NO.: AG-4

1	TOTAL CASING AND SCREEN LENGTH (ft.)	17.45
2	CASING INTERNAL DIAMETER (in.)	4"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.26
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 6.1$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	6.0	12.0	18.0						
pH	7.13	7.10	7.24	7.14						
CONDUCTIVITY	5440	6620	4916	4170						
TEMPERATURE	8.0	9.1	9.9	10.0						
APPEARANCE / TURBIDITY	CLEAR / 14	CLEAR / 12	CLEAR / 21	CLEAR / 29						
COMMENTS: Eh	-46	-183	-126	-81						

- SLIGHT FUEL ODOR

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-5
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 11:49
Casing Diameter (inches):
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 8.70
Bottom Depth (ft.) 13.80
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 11:59 Finish: 12:19
Method: POLY DISPOS. BAILER
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 0.9
Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 6.5

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓
Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 12:45 Finish: 12:52
Method: POLY DISPOS. BAILER
Sampler: JTP J HILTON
Present Water Level (ft.): 8.71
Air Temperature (F°): 55°
Depth of Sample (ft.): 8.71
Weather Conditions: PART SUNN
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment
Odor: STRONG PETROLEUM Other: HEAVY SHEEN
Temperature (°C): 8.2 pH 7.06 Specific Conductivity (umhos/cm): 1744
Turbidity (NTU): 45 Other: Eh: −90

REMARKS: * MS/MSD #2 TAKEN

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. "C" CLEANERS RI

PROJECT NO.: C266-314-CC2

STAFF: STP J. HILTON

DATE: 4/5/94

WELL NO.: AG-5

1	TOTAL CASING AND SCREEN LENGTH (ft.)	13.80
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.70
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 0.9$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.0	4.5	6.5						
pH	7.06	7.09	7.02	7.10						
CONDUCTIVITY	1719	1791	1752	1770						
TEMPERATURE	8.6	7.7	7.9	7.8						
APPEARANCE / TURBIDITY	CLEAR / 24	CLEAR / 58	CLEAR / 64	CLEAR / 61						
COMMENTS: Eh	-116	-104	-108	-102						

- STRONG PETROLEUM ODOR
- HEAVY SHEEN ON PURGE WATER

WATER SAMPLING FIELD DATA SHEETS

45

PROJECT: MR. "C" CLEANERS R I. TYPE OF SAMPLE: GROUND WATER GRAB
CLIENT: NYSDEC LOCATION NO.: AG-6
JOB NO.: 0266-314-002 LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 11:36
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 8.57 Bottom Depth (ft.) 13.8
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 12:35 Finish: 13:34
Method: POLY DISPOS. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H / 231$): > 3 Was well purged dry? Yes ✓ No
Standing Volume (GAL.) 0.9 Was Well purged below sand pack? Yes ✓ No
Volume Purged (GAL.) 3.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location? Yes No ✓
Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 2:36 Finish: 2:38
Method: POLY DISPOS. BAILER Sampler: JTP J. HILTON
Present Water Level (ft.): 8.93 Air Temperature (F°): 55°
Depth of Sample (ft.): 8.93 Weather Conditions: SUNNY
Is sampling equipment dedicated to sample location: Yes No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes No Cool to 4°C:
Preservative: H_2SO_4 HNO_3 NaOH Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: ✓ Color:
Contains Sediment Odor: STRONG FUEL Other:
Temperature (°C): 8.3 pH 7.17 Specific Conductivity (μmhos/cm): 1293
Turbidity (NTU): 73 Other: Eh: -36

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: JTP J. HILTON

DATE: 4/5/94

WELL NO.: AG - 6

1	TOTAL CASING AND SCREEN LENGTH (ft.)	13.81
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.57
4	VOLUME OF WATER IN CASING (gal.)	

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

$V = 0.0408 (2^2 \times (1 - 3) =$ 0.9 gal.

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	1.0	2.0	3.0						
pH	7.14	7.13	7.19	7.28						
CONDUCTIVITY	1259	1235	1305	1327						
TEMPERATURE	8.6	8.6	8.8	7.8						
APPEARANCE / TURBIDITY	MICKY >100	CLOUDY >100	MILKY >100	MILKY >100						
COMMENTS: Eh	-55	-63	-57	-71						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-7
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 8:18

Casing Diameter (inches):
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 8.66
Bottom Depth (ft.) 14.45
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 8:21 Finish: 8:44

Method: POLY DISPOS. BAILER
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): 3
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 1.0
Was well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 4

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP / J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 10:54 Finish: 10:57

Method: POLY DISPOS. BAILER
Sampler: JTP | J. HILTON
Present Water Level (ft.): 8.68
Air Temperature (F°): 40°
Depth of Sample (ft.): 8.68
Weather Conditions: CLOY
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment
Odor: SLIGHT Other:
Temperature (°C): 6.3 pH 12.61 Specific Conductivity (μmhos/cm): 2120
Turbidity (NTU): >100 Other: Eh: -122

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: STP / J. HILTON

DATE: 4/5/94

WELL NO.: AG-7

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14 45
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	8.66
4	VOLUME OF WATER IN CASING (gal.)	

V = 0.0408 (2^2 x (1 - 3) = 1.0 gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	1.0	2.0	4.0						
pH	12.20	12.37	12.11	12.12						
CONDUCTIVITY	4430	4320	4280	4070						
TEMPERATURE	6.7	6.2	5.7	5.5						
APPEARANCE / TURBIDITY	CLOY >100	CLOY >100	CLOY >100	CLOY >100						
COMMENTS: Eh	-70	-81	-72	-64						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-8
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 9:09

Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 9.95 Bottom Depth (ft.) 14.54
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 9:12 Finish: 9:30

Method: P.O.4 DISPOSE. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): > 3 Was well purged dry? Yes ___ No ✓
Standing Volume (GAL.) 0.8 Was Well purged below sand pack? Yes ___ No ✓
Volume Purged (GAL.) 6.0

Is purging equipment dedicated to sample location?
Yes ___ No ✓

Field Personnel: JTP J. HILTON

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 11:05 Finish: 11:07

Method: POLY DISPOS. BAILER Sampler: JTP / J. HILTON
Present Water Level (ft.): 9.96 Air Temperature (F°): 45°
Depth of Sample (ft.): 9.96 Weather Conditions: CLOY
Is sampling equipment dedicated to sample location: Yes ___ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ___ No ___ Cool to 4°C:
Preservative: H_2SO_4 ___ HNO_3 ___ NaOH ___ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 7.9 pH 7.66 Specific Conductivity (mhos/cm): 1126
Turbidity (NTU): >100 Other: Eh: +20

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: JTP S. HILTON

DATE: 4/5/94

WELL NO.: AG - 8

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.54
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.95
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 0.8$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	WITH	2.0	4.0	6.0						
pH	7.43	7.34	7.44	7.40						
CONDUCTIVITY	1252	1131	1163	1150						
TEMPERATURE	7.1	7.2	7.3	7.4						
APPEARANCE / TURBIDITY	CLEAR / 52	CLOY / >100	CLOY / >100	CLOY / >100						
COMMENTS: Eh	+129	+126	+128	+129						

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-9
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 9:38

Casing Diameter (inches): 2"
Casing Material:
Screened Interval (ft BGS):
Screen Material:
Static Water Level Below TOR (ft.): 9.97
Bottom Depth (ft.) 14.44
Elevation Top of Well Riser:
Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 9:42 Finish: 10:00

Method: POLY DISPOS. BAILER
Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3
Was well purged dry? Yes ____ No ✓
Standing Volume (GAL.) 0.8
Was Well purged below sand pack? Yes ____ No ✓
Volume Purged (GAL.) 6.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓

Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 11:15 Finish: 11:17

Method: POLY DISPOS. BAILER
Sampler: JTP J. HILTON
Present Water Level (ft.): 9.98
Air Temperature (F°): 50°
Depth of Sample (ft.): 9.98
Weather Conditions: PART SUNN
Is sampling equipment dedicated to sample location: Yes ____ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:

Filtered: Yes ____ No ____
Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:

Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: NONE Other:
Temperature (°C): 7.7 pH 7.44 Specific Conductivity (μmhos/cm): 1280
Turbidity (NTU): >100 Other: Eh: +60

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR "C" CLEANERS RI

PROJECT NO.: C266-314-CC2

STAFF: STP J. HILTON

DATE: 4/5/94

WELL NO.: AG-9

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.44
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	9.97
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 0.8$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	2.0	4.0	6.0						
pH	7.30	7.26	7.30	7.27						
CONDUCTIVITY	1351	1297	1287	1275						
TEMPERATURE	7.4	7.3	7.1	7.2						
APPEARANCE / TURBIDITY	MILKY >100	CLOY >100	CLOY >100	CLOY >100						
COMMENTS: Eh	+138	+135	+137	+138						

DMM12049.F2

Rev. 01/10/90

WATER SAMPLING FIELD DATA SHEETS

PROJECT: MR. "C" CLEANERS R I
CLIENT: NYSDEC
JOB NO.: 0266-314-002

TYPE OF SAMPLE: GROUND WATER GRAB
LOCATION NO.: AG-10
LAB SAMPLE NO.:

WELL DATA: DATE: 4/5/94 TIME: 9:45
Casing Diameter (inches): 2" Casing Material:
Screened Interval (ft BGS): Screen Material:
Static Water Level Below TOR (ft.): 10.53 Bottom Depth (ft.) 14.40
Elevation Top of Well Riser: Datum Ground Surface:
Elevation Top of Screen:

PURGING DATA: DATE: 4/5/94 TIME: Start: 10:08 Finish: 10:48
Method: POLY DISPOS. BAILER Pumping Rate (gal/min):
Well Volumes Purged ($\pi R^2 H/231$): >3 Was well purged dry? Yes ✓ No
Standing Volume (GAL.) 0.7 Was Well purged below sand pack? Yes ✓ No
Volume Purged (GAL.) 4.0

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

Is purging equipment dedicated to sample location?
Yes ____ No ✓
Field Personnel: JTP J. HILTON

SAMPLING DATA: DATE: 4/5/94 TIME: Start: 13:05 Finish: 13:08
Method: POLY DISPOS. BAILER Sampler: JTP J. HILTON
Present Water Level (ft.): 10.53 Air Temperature (F°): 50°
Depth of Sample (ft.): 10.53 Weather Conditions: PART SUNN
Is sampling equipment dedicated to sample location: Yes ___ No ✓
Source and type of water used in field for QC purposes:

PRESERVATION DATA: DATE: TIME: Start: Finish:
Filtered: Yes ____ No ____ Cool to 4°C:
Preservative: H_2SO_4 ____ HNO_3 ____ NaOH ____ Other

PHYSICAL AND CHEMICAL DATA:
Appearance: Clear: ✓ Turbid: Color:
Contains Sediment Odor: STRONG FUEL Other: HEAVY SHEEN
Temperature (°C): 11.0 pH 7.26 Specific Conductivity (μmhos/cm): 1414
Turbidity (NTU): >100 Other: Eh: -70

REMARKS:

WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: MR. C" CLEANERS R I

PROJECT NO.: C266 - 314 - CC2

STAFF: TP S. HILTON

DATE: 4/5/94

WELL NO.: AG - 10

1	TOTAL CASING AND SCREEN LENGTH (ft.)	14.40
2	CASING INTERNAL DIAMETER (in.)	2"
3	WATER LEVEL BELOW TOP OF CASING (ft.)	10.53
4	VOLUME OF WATER IN CASING (gal.)	

$V = 0.0408 (2^2 \times (1 - 3) = 0.7$ gal.

WELL I.D.	VOL. GAL./FT.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)									
	INITIAL	1.0	2.0	4.0						
pH	7.04	7.13	7.11	7.13						
CONDUCTIVITY	1384	1276	1312	1359						
TEMPERATURE	8.8	8.8	9.2	9.4						
APPEARANCE / TURBIDITY	MILKY >100	CLOUDY >100	CLOUDY >100	CLOUDY >100						
COMMENTS: Eh	-58	-85	-82	-52						

- STRONG HYDROCARBON SMELL SIGNIFICANT!
- OILY SHEEN ON H_2O

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.: 0266-314-002

SITE NAME: MR. "C" CLEANERS

SAMPLERS (SIGNATURE): John T. Patton

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml preserved 9[illegible]-1	REMARKS
MPI 6	4/4/94	14:40		X	MPI-6 (LIBRARY)	2	2	
MPI-3	4/4/94	14:48		X	MPI-3 (DEALERSHIP)	2	2	
MPI-1S	4/4/94	14:14		X	MPI-1S (CHURCH)	2	2	
ESI 6	4/4/94	14:56		X	ESI-6 (CHURCH)	2	2	
MPI-4S	4/4/94	12:28		X	MPI-4S (LIBRARY)	2	2	
MPI-4I	4/4/94	12:15		X	MPI-4I (LIBRARY)	2	2	
MPI-8	4/4/94	10:58		X	MPI-8 (WHALEY ST.)	2	2	
MPI 9	4/4/94	11:08		X	MPI-9 (WHALEY ST.)	2	2	
MPI 2	4/4/94	15:33		X	MPI-2 (TOWN HALL)	2	2	
BD	4/4/94			X	BLIND DUPLICATE	2	2	
MS	4/4/94			X	MATRIX SPIKE	2	2	
MSD	4/4/94			X	MATRIX SPIKE DUPLICATE	2	2	
TB	4/4/94				TRIP BLANK	1	1	

RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
John T. Patton	4/4/94 16:36				
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE/TIME:	REMARKS: ANALYTICAL AS PER MALCOLM PIRNIE	

Distribution: Original accompanies shipment, copy to coordinator field files

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.: 0266-314-002

SITE NAME: MR. "C" CLEANERS

SAMPLERS (SIGNATURE): John T. Patten

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml 91-1						REMARKS
AG-1	4/5/94	10:36		X	By Agway Storage Barn	2	2						
AG-4	4/5/94	13:28		X	By Sidewalk on Main	2	2						
AG-5	4/5/94	12:45		X	By Agway Office	2	2						
AG-6	4/5/94	14:36		X	By Agway Office	2	2						
AG-7	4/5/94	10:54		X	By Agway Office	2	2						
AG-8	4/5/94	11:05		X	By Fence close to Ag Office	2	2						
AG-9	4/5/94	11:15		X	By Whalley St. Sidewalk	2	2						
AG-10	4/5/94	13:05		X	By Agway Showroom	2	2						
BD#2	4/5/94			X	Blind Duplicate #2	2	2						
MS#2	4/5/94			X	Matrix Spike #2	2	2						
MSD#2	4/5/94			X	Matrix Spike Dup. #2	2	2						
TB	4/5/94				Trip Blank	1	1						
ESI-1	4/5/94	15:27		X	By Auto Parts Store	2	2						

RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
John T. Patten	4/5/94 16:15				
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE/TIME	REMARKS: Analysis As Per Malcolm Pirnie	

Distribution: Original accompanies shipment, copy to coordinator field files

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.: 0266-314-002

SITE NAME: MR. "C" CLEANERS

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml	VOA 8L-1	CYANIDE PLASTIC	BNA AMBER	PEST/PCB AMBER	TOS TSS ALKALI PLASTIC	TAL METALS + HARDNESS	SOL. METALS (FIELD FILT.) PLASTIC	REMARKS
MPI-5S	4/6/94	12:18		X		8	2	1	1	1	1	1	1		
MPI-5I	4/6/94	12:08		X		2	2								
CSI-4	4/6/94	10:43		X		2	2								
CSI-5	4/6/94	10:50		X		2	2								
MPI-1I	4/6/94	10:36		X		2	2								
TB	4/6/94				TRIP BLANK	1	1								

RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
[signature]	4/6/94 14:21				
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE/TIME:	REMARKS: ANALYSIS AS PER MALCOLM PIRNIE	

Distribution: Original accompanies shipment, copy to coordinator field files

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
0266-314-002	MR. "C" CLEANERS

SAMPLER'S (SIGNATURE): John T. Pelton

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml 91-1	BNA 91-2 AMBER	PEST/PCB 91-3 AMBER	CYANIDE 335.2 PLASTIC	TAL METALS + HARDNESS	SOLUBLE METALS (Fe + Mn)	TSS, TDS, ALKALINITY PLASTIC	REMARKS
MPI-7I	4/7/94	10:10		✓	BY ENTRANCE OF MR "C"	8	2	1	1	1	1	1	1	
ESI-3	4/7/94	10:50		X	BY ENTRANCE OF MR "C"	8	2	1	1	1	1	1	1	
BD	4/7/94			X	BLIND DUPLICATE	3		1	1		1			
MS	4/7/94	10:10		X	TAKEN FROM MPI-7I	3		1	1		1			
MSD	4/7/94	10:10		X	TAKEN FROM MPI-7I	3		1	1		1			
TB	4/7/94				TRIP BLANK	1	1							

RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
John T. Pelton	4/7/94 2:00				
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE/TIME:	REMARKS: ANALYSIS AS PER MALCOLM PIRNIE	

Distribution: Original accompanies shipment, copy to coordinator field files

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.: 0266-314-002

SITE NAME: MR. C CLEANERS

SAMPLERS (SIGNATURE): John T. Pate

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml 91-1							REMARKS
-65	4/12/94	12:00 pm		X		2	2							
MH-61	4/12/94	1:30 am		X		2	2							
* MH-62E	4/12/94	1:00 am		X		2	2							
MH-62W	4/12/94	1:20 am		X		2	2							
MH-64	4/12/94	12:30 am		X		2	2							
MS	4/12/94	12:30 am		X	MS @ MH-64	2	2							
MSD	4/12/94	12:30 pm		X	MSD @ MH-64	2	2							
TB	4/12/94				TRIP BLANK	2	2							
BD	4/12/94			X	BLIND DUPLICATE	2	2							

RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
John T. Pate	4/12/94 12:02				
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE/TIME:	REMARKS: ANALYSIS AS PER MALCOLM PIRNIE.	

Distribution: Original accompanies shipment, copy to coordinator field files

* BD TAKEN

MALCOLM PIRNIE, INC.

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
0266-314-002	MR. "C" CLEANERS

SAMPLERS (SIGNATURE):

STATION NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA 40 ml 91-1						REMARKS
MH-11	4/13/94	10:14		X	MANHOLE - 11 (WHALEY ST)	2	2						

RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
[signature]	4/1/94 13:25				
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED BY (SIGNATURE):
SAMPLE					
RELINQUISHED BY (SIGNATURE):	DATE/TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE/TIME:	REMARKS: ANALYSIS AS PER MALCOLM PIRNIE	

Distribution: Original accompanies shipment, copy to coordinator field files

MALCOLM PIRNIE

INTEROFFICE CORRESPONDENCE

To: File, Mr. C Cleaners Site **Date:** April 14, 1994

From: J.M. Asquith

Re: Manhole Sampling

On April 11, 1994 at 11 pm, John Patterson (MPI) and Jeanne Asquith performed sampling in six manholes for the Mr. C Cleaners Site in East Aurora, New York. The samples were obtained with a dipper decontaminated after each sample was collected. The samples (7) were collected to be analyzed for volatiles. The following manholes were inspected:

Manhole 12, Whaley Ave near Library
Manhole 11, Intersection of Whaley and Fillmore Ave.
Manhole 65, In front of Delia's Car Dealership
Manhole 64, In sidewalk, in front of Mobil, at corner of Main and Elm St.
Manhole 62, Intersection of Paine and Main St. (An east and a west branch sample were collected)
Manhole 61, Paine Street, approximately half way between Oakwood and Main St.

Manhole 12 was inspected and a sample was not obtained as there was not visible pipe nor sewer/water flow. Asquith contacted Bob Bove of the Village of East Aurora and Mr. Bove indicated that Manhole 12 is a flush-out manhole. Mr. Bove explained that it can be filled with water via a water line installed in the manhole. A bell cap lifts and allows the water to flow into the sewer line.

Manhole 11 contained three sewer inflow pipes from the West, East, and South. The East and West lines contained high flow, and the pipe was approx 1/4 to 1/3 full. The South line (from Whaley) contained very little to no flow. A sample could not be obtained due to the low flow. A water line was installed above the Northern pipe (where flow exits) and according to Mr. Bove was used for the infiltration testing performed approx 10 years ago. John Patterson tried to sample this manhole a second time on April 13 during the day and obtained some sample. Patterson indicated that the flow was still very low.

Manhole 65 also contained very low flow, but a sample was obtained. Some sand and gravel was present in the pipe along the bottom and the pipe appeared to be separated about 2-4". Groundwater may have been seeping in at this location.

Manhole 64 contained high flow and the pipe was approx 1/2 full. Matrix Spike and Matrix Spike Duplicate were collected in addition to the sample.

Manhole 62 flow was relatively slow, and the pipe was 1/3 to 1/2 full. Some sediment was present in the pipes. Samples were taken from the flow coming from the East pipe and the West pipe. The blind duplicate was collected at 62E location.

Manhole 61 flow was at medium speed, and the pipe was approx 1/2 full. Sample was obtained.

ds

MALCOLM PIRNIE

INTEROFFICE CORRESPONDENCE

To: David Harty **Date:** March 15, 1994

From: Gina Oliverio Senia

Re: Tetrachloroethylene in Air Sampling - Mr. C Cleaners Site

On Monday March 13, 1994 replicate (2) air samples were collected in support of the Remedial Investigation being conducted at the Mr C Cleaners Site located in East Aurora, New York. Samples were collected for tetrachloroethylene (PCE) analysis from the following locations:

SAMPLE IDENTIFICATION	SAMPLE LOCATION *
BG-1	Boys/Girls Club 16 Paine Street
BG-2	Northeast section of basement
BA-1	Jackson's Bowling Alley 30 Whaley Avenue
BA-2	Southeast corner of basement
C-1	First Presbyterian Church 9 Paine Street
C-1	Westernmost classroom #114 - former day-care center, center of room
VH-1	Village Hall 571 Main Street
VH-2	Northeast corner of basement - records room
OB	Outdoor Background Southeast corner of First Presbyterian Church
TB	Trip Blank

NOTE: * Samples were collected at ground level

Mr. Cameron O'Connor from the NYSDOH was present throughout the duration of the sampling activities. Mr. Greg Sutton of the NYSDEC was present only during sample collection at Jackson's bowling alley.

Samples were collected in accordance with DOH Method #311-7, attached. A GAST pump was utilized to provide an air flow rate of 500 ml/min through a 10-inch sampling tube containing Porapak-N. Air was permitted to flow through the tube for 60 minutes. The initial flow rate was measured, adjusted as necessary, and recorded prior to sample collection using a Matheson #603 rotameter. The flow rate was again measured and

recorded prior to the end of sample collection. Initial and final flow rates were within the 10% difference criteria stated in Method 311-7 at each location. Field notes are attached.

The outdoor background sample was collected using a battery powered pump. Initial and final flow rates were measured as described above; no problems were encountered.

Two (2) replicate samples were collected from each location with the exception of the outdoor background (OB). Sample OB was collected as a single sample. In additon, the trip blank was "collected" as a single sample; the trip blank consisted of a sample tube containing Porapak-N which accompanied the investigatory samples to each location.

After sample collection, each tube was capped and placed in a cardboard storage container for subsequent transport to General Testing Laboratories.

General Testing Corporation

A Full Service Environmental Laboratory

MAR. 30 1994

Mr. Dave Harty
Malcolm Pirnie, Inc.
So. 3515 Abbott Road
Buffalo, NY 14219

Re: Mr. C's

Dear Mr. Dave Harty

Enclosed are the results of the analysis requested. The Analytical Data was provided to you on 03/22/94 per a Facsimile transmittal. All data has been reviewed prior to report submission.

Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Janice Jaeger
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019

General Testing Corporation

A Full Service Environmental Laboratory

Effective 10/1/91

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range and reanalysis could not be performed.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits. (Flag the entire batch - Inorganic analytes only)

* - Duplicate analysis not within control limits. (Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits. (Only used on the QC summary sheets)

M - Duplication injection precision not met (GFA only).

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

General Testing Corporation

CASE NARRATIVE

Company: Malcolm Pirnie, Inc.
Mr. C's
Job#: R94/00844

Volatile Organics

MPI air sample tubes were analyzed for Tetrachloroethene by NYSDOH Method 311-7.

All Initial and Continuing Calibration criteria were compliant.

All surrogate compounds were within QC limits for recovery.

The Trip Blank (R94/0844-009) was free from contamination.

The Laboratory Blanks were free from contamination.

Traces of 1,1,1-Trichloroethane were detected in samples R94/0844-001 - 008 between 2.1 and 21 ug/M3. Traces of Trichloroethene were detected in samples R94/0844-003 and 004 between 1.7 and 3.5 ug/M3.

No other analytical or QC problems were encountered.

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00844 Date: MAR. 30 1994

Client:
Mr. Dave Harty
Malcolm Pirnie, Inc.
So. 3515 Abbott Road
Buffalo, NY 14219

Sample(s) Reference
Mr. C's

Received : 03/15/94 P.O. #:

NYSDOH METHOD 311-7 ANALYTICAL RESULTS - ug/m3

Sample:	-001	-002	-003	-004	-005	-006	-007	-008
Location:	BG1	BG2	BA1	BA2	C-1	C-2	VH-1	VH-2
Date Collected:	03/14/94	03/14/94	03/14/94	03/14/94	03/14/94	03/14/94	03/14/94	03/14/94
Time Collected:	09:20	09:20	10:50	10:50	12:15	12:15	13:35	13:35
Date Analyzed:	03/18/94	03/18/94	03/18/94	03/18/94	03/18/94	03/18/94	03/18/94	03/18/94
Dilution:	1	1	1	1	1	1	1	1
Tetrachloroethene	1.7 U	1.8	220	130	16	9.4	1.7	1.7 U
	2.5x10-4 U	2.6x10-4	0.032	0.019	0.002	0.001	2.5x10-4	2.5x10-4 U
Surrogate Standard Recoveries								
Bromochloromethane	103	103	107	107	108	104	102	106
(Acceptance limits: 60-138%)								

Unless otherwise noted, analytical methodology has been obtained from references as cited in 40 CFR, parts #136 & #261.

NY ID# in Rochester: 10145
NJ ID# in Rochester: 73331
NJ ID# in Hackensack: 02317
NY ID# in Hackensack: 10801

Laboratory Director

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00844 Date: MAR. 30 1994

Client:
Mr. Dave Harty
Malcolm Pirnie, Inc.
So. 3515 Abbott Road
Buffalo, NY 14219

Sample(s) Reference
Mr. C's

Received : 03/15/94 P.O. #:

NYSDOH METHOD 311-7 ANALYTICAL RESULTS - ug/m3

Sample:	-009	-010
Location:	TRIP BLANK	OUTSIDE BACKGROUND
Date Collected:	03/14/94	03/14/94
Time Collected:	10:50	14:50
Date Analyzed:	03/18/94	03/18/94
Dilution:	1	1
Tetrachloroethene	1.7 U	1.7 U
Surrogate Standard Recoveries		
Bromochloromethane (Acceptance limits: 60-138%)	103	94

Unless otherwise noted, analytical methodology has been obtained from references as cited in 40 CFR, parts #136 & #261.

NY ID# in Rochester: 10145
NJ ID# in Rochester: 73331
NJ ID# in Hackensack: 02317
NY ID# in Hackensack: 10801

Laboratory Director

GENERAL TESTING CORPORATION/CHAIN-OF-CUSTODY RECORD

710 Exchange Street
Rochester, NY 14608

85 Trinity Place
Hackensack, NJ 07601

GTC Job No. R94/844
Client Project No. _____

Sample Origination & Shipping Information

Collection Site MrC's

Address _____ Street _____ City _____ State _____ Zip _____

Collector Gina Oliveto Serra (Print) _____ (Signature)

Bottles Prepared by _____ Rec'd by _____

Bottles Shipped to Client via _____ Seal/Shipping # _____

Samples Shipped via _____ Seal/Shipping # _____

Sample(s) Relinquished by:		Received by:		Date/Time
1. Sign / for	Gina Oliveto Serra / MPI	1. Sign / for	K Wagner / GTC	3/14/94 4:25
2. Sign / for	K Wagner / GTC	2. Sign / for	Dick Cawley	3/14/94 5:05
3. Sign / for		3. Sign / for		/ /

Sample(s) Received in Laboratory by Tom Hastings 3/15/94 @ 08:20

	Client I.D.#	Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Preserved N	Filtered Y	Filtered N	Bottle Set(s) (see below)	Rec at G
1	C-2	Church 1215		PCE						
	R944	3/14/94 ~~1220~~								
2	VH-1	Village Hall 1335								
		3/14/94 ~~1320~~								
3	VH-2	Village Hall 1335								
		3/14/94 1050								
4	TB	Trip Blank								
		3/14/94 1050								
5	OB	Outside background								
		3/14/94 1450								

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each											

Additional Analytes As per Gina., Volume = 3x1/tube 3/21

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y)

GENERAL TESTING CORPORATION/CHAIN-OF-CUSTODY RECORD

710 Exchange Street, Rochester, NY 14608 — 85 Trinity Place, Hackensack, NJ 07601

GTC Job No. R94/844

Client Project No. _____

Sample Origination & Shipping Information

Collection Site Mr C's

Address _____ Street _____ City _____ State _____ Zip _____

Collector Gina Oliveria Senia (Print) _____ (Signature)

Bottles Prepared by Tubes

Bottles Shipped to Client via _____

Samples Shipped via _____

Rec'd by _____

Seal/Shipping # _____

Seal/Shipping # _____

Sample(s) Relinquished by:		Received by:		Date/Time
1. Sign / for	Gina Oliveria Senia / MPI	1. Sign / for	[illegible] / GTC	3/14/94 / 4:25
2. Sign / for	[illegible] / GTC	2. Sign / for	C. Ck Cahill	3/14/94 / 5:00
3. Sign / for		3. Sign / for		/ / :

Sample(s) Received in Laboratory by Tom Hastings 3/15/94 @ 08:20

	Client I.D.#	Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Preserved N	Filtered Y	Filtered N	Bottle Set(s) (see below)	Rec'd at GTC
1	BG-1	Boys/Girls Club		PCE						
R941		3/14/94 9:20								
2	BG-2									
		3/14/94 9:20								
3	BA-1	Bowling Alley								
		3/14/ 10:50								
4	BA-2	Bowling Alley								
		/ / 10:50								
5	C-1	Church								
		/ / 12:55								

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each											

Additional Analytes 6 tubes for QC start up

As per Gina Volume = 30 l / tube 3/21

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____ (X), _____ (Y)