GENERAL ELECTRIC COMPANY

REVISED REMEDIAL INVESTIGATION REPORT GE CAPACITOR PLANT FORT EDWARD, NEW YORK

DECEMBER 1985

LAWLER, MATUSKY & SKELLY ENGINEERS
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

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LMSE-85/0311&337/008

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EXECUTIVE SUMMARY

In April 1985 the General Electric Company (GE) and the State of New York signed an Order on Consent requiring development of a groundwater remedial program for the Fort Edward Plant. This report addresses specific items identified in the consent order and forms the basis for the proposed Feasibility Study workplan that is provided under separate cover. Table S-1 summarizes issues raised by the consent order, the conclusions reached in this report, and the report section where detailed information can be found.

Waste management studies have been conducted at the site since 1975 when organic chemicals, including kerosene and PCBs, were discovered in the sewer system near the former leach field, west of the aluminum rolling mill, and west of Lower Allen Street. The present wastewater management system, which was installed at the site beginning in 1976, collects and treats all wastewater, including stormwater runoff, before it is discharged to the Hudson River. As part of the wastewater management system, many sewer lines were replaced with mechanical sealed joint pipes to prevent infiltration. A waste storage building was completed in 1980 for storage of hazardous wastes. Since 1983 trichloroethylene (TCE) has also been stored in the building. These improvements have eliminated, or repaired, all facilities known to contribute to groundwater contamination from the plant.

Studies of the on-site hydrogeology and groundwater quality were conducted for GE in 1976, and from 1982 to the present. The principal areas of concern on-site were the southeastern portion of the property, the areas west of the aluminum rolling mill and west of Lower Allen Street, and the northwest portion of the property where soils removed from the vicinity of the impounding basin were deposited. Off-site investigations were conducted from 1982 to 1985 by

TABLE S-1

SUMMARY OF CONCLUSIONS

ISSUE RAISED BY ORDER		CONCLUSION OF THIS REPORT	REPORT SECTION
I.	INTERIM REMEDIAL PROGRAM (PUMP AND TREAT)		
I.B (p.5)	Abate flow off-site of contaminants to the south-southeast	Operation of RW-1 (at 75 gpm) eliminates off-site movement of contaminated groundwater to the south-southeast.	Sections 3.4 and 6.2.2 and G&M (1985a)
I.B (p.5)	Collect, treat, and dispose of contaminated water	RW-1, with its piping system, the air stripper, and the carbon adsorption system, is an effective system. The stripper achieves over 95% removal of TCE: the effluent is disposed of within existing SPDES limits.	Section 2.2, Section 6.2.2 and Appendix B
I.B (p.5)	Evaluate long-term effectiveness of RW-1 in containing contaminated groundwater	RW-1, as operating, maintains a cone of depression that effectively contains contaminated groundwater on-site.	Section 6.2.2 and G&M (1985a)
I.B (p.5)	Monitor impacts of RW-1 and effectiveness of various treatment alternatives	Water level data indicate no adverse impacts of pumping RW-1; varying treatment technologies are available for the RW-1 effluent, but the existing air stripper with filtration and carbon adsorption is more than adequate for meeting the plant's discharge limitations.	Section 6.2.2 and Appendix B
II.	FINAL REMEDIAL PROGRAM (OFF-SITE INVESTIGATION)		
II.B (p.7)	Determine boundaries and discharge locations of upper aquifer contaminants	The off-site upper aquifer plume is defined and discharges ultimately at a row of springs north of Marion Street.	Section 5.1.1 and 5.2
II.B (p.7)	Determine water quality in the intermediate and deep aquifers	These data suggest that leakage along some well casings caused volatiles and PCBs to enter these wells.	Chapter 4
II.B (p.7)	Determine quality of flow northwest from the site	Wells along the site boundary show intermittent low concentrations of PCBs and volatile organic compounds at two wells; PCBs were detected in material collected from the bottom of two off-site residential wells. There is no evidence of present contaminant migration off-site in the groundwater.	Section 3.3
II.B (p.7)	Investigate and develop theories for the presence of dissolved PCBs southeast of the site; comment on hericides at those locations	Resampling confirmed the presence of herbicides and PCBs but not volatile organic compounds. The data, including distribution of PCBs and herbicides with relationship to the plant and the direction groundwater flow, implies that GE is not a source of the PCBs or herbicides found in the subject wells.	Section 5.3
II.C (p.7-8)	Monitor and sample state wells	These data are included in the evaluation of the effectiveness of RW-1.	Section 6.2.2

the New York State Department of Health (NYSDOH), New York State Department of Environmental Conservation (NYSDEC), and GE to determine groundwater quality in areas adjacent to the GE plant. These investigations included sampling groundwater from private wells. Most of the area is now served by municipal water supply. Along Park Avenue and Stevens Lane, south of the plant site, municipal water was provided at GE's expense.

The on-site and off-site hydrogeological studies indicate the presence of low permeability clay and till under shallow sand deposits. Under most of the site, the clay and till strata tend to confine contamination to the shallow aquifer. An intermediate shale aquifer and a deep limestone aquifer lie beneath the clay and till. Shallow groundwater on the plant site flows north-northwest on the northwestern portion of the property and to the south-southeast and then south over the rest of the site. South of the property, groundwater flows southerly; north and west of the plant it flows northwesterly toward the Hudson River.

Studies in 1975 and 1976 reported the presence of kerosene on-site. All monitoring wells where kerosene was detected have been bailed to remove free product and the sewer west of Lower Allen Street was excavated and removed. Kerosene has not been detected in off-site wells. Migration of this contaminant off-site is unlikely as the small quantities of kerosene found on-site are expected to be adsorbed onto soils where biodegradation can take place.

Investigations in the northwest corner of the site concluded that there are intermittent traces of volatile organic compounds and PCBs at two wells each along the site boundary. Groundwater from two off-site wells northwest of the plant contained low levels of volatiles but no PCBs. Material (comprising sediment, leaves, and twigs) from the bottom of two wells contained PCBs. The data from

the site wells indicate that there is no current off-site migration of contaminants from the northwestern part of the site.

PCBs and herbicides have been detected together in shallow wells southeast of the plant. These are attributed to an off-site source because groundwater flow from the site is to the south, rather than the southeast, and comparisons of PCB Aroclors between on-site and off-site samples could not determine that they were from the same source.

Contaminants have been detected in rock wells, both on- and off-site, but the chemicals measured in the rock wells are attributed to local leakage along well casings because of the manner in which the wells were constructed. These data do not necessarily indicate contaminants in the bedrock aquifers beyond the immediate vicinity of well casings.

During the drilling of on-site monitoring wells in 1983, PCBs were discovered in the bottom of well GM-27. Examination of data on the depth to clay suggests that the PCBs detected in well GM-27 are contained in a depression in the clay. PCBs are being recovered and disposed of off-site. Any PCBs from this area that might be dissolved in the groundwater are being captured by operation of the on-site groundwater recovery well, RW-1, and are therefore prevented from moving off-site.

There is a plume of volatile organic compounds (principally TCE) and PCBs in the shallow aquifer under the southeastern portion of the site. There is evidence that this contamination had migrated off-site along the southern boundary at Park Avenue. South of the plant site there is a plume west of Broadway that discharges at a series of springs southwest of the site. The data used to define the plume do not permit exclusion of contributions by off-site

sources. The springs flow into an intermittent brook that eventually discharges along with wastewater from the town of Fort Edward to the Hudson River. The predicted concentration of VOCs discharged to the Hudson River is 1 μg/l.

In 1983 GE initiated an interim remedial program to prevent off-site migration of contaminants by installing a groundwater recovery well, RW-1, at the southern boundary of the site. Operation of RW-1 has been effective in abating the off-site migration of the shallow aquifer volatile contaminants and is collecting some off-site contaminated groundwater from the area south of Park Avenue. Wastewater from RW-1 is treated by air-stripping, which effectively removes over 90% of all volatiles and over 95% of TCE, the principal constituent. After carbon adsorption, the effluent is discharged along with other plant wastewater at a permitted outfall. This interim remedial program of groundwater collection and treatment will continue until a final remedial program is in place.

The following report summarizes both reported and unpublished data from studies at the Fort Edward site. It demonstrates that remedial measures implemented on-site have eliminated, or repaired, all facilities known to be sources of groundwater contamination, and that operation of RW-1 has eliminated off-site migration of contaminants from the southeasterly portion of the site. Extensive sampling of residential wells surrounding the site has established the distribution of off-site contamination (whether attributable to GE or to other sources). All residences within one-half mile of the site with contaminated wells have been provided with municipal water supply.

CHAPTER 1

INTRODUCTION

1.1 OBJECTIVES

General Electric (GE) Company's Fort Edward Plant is a manufacturing facility for capacitors and capacitor products. Hydrogeologic studies on the site and in its immediate vicinity have identified groundwater contamination by trichloroethylene (TCE) and polychlorinated biphenyls (PCBs). In April 1985 GE and the New York State Department of Environmental Conservation (NYSDEC) signed an Order on Consent to assess the need for remediation of the groundwater contamination. That order requires, in part, the submission of this report on remedial investigations at the site.

The report is required to include (1) a summary of environmental and hydrogeologic conditions on- and off-site, (2) an evaluation of the areal and vertical extent of soil and groundwater contamination, and (3) the directions of current and probable future contaminant migration. An evaluation of the effectiveness of the interim remedial program (IRP) is also required, as well as a workplan for a feasibility study (FS) of remedial alternatives. This report summarizes and interprets information collected at the site over the period 1975 - May 1985; more complete and detailed hydrogeologic and engineering references are cited where appropriate. Table 1-1 lists the specific requirements and where each is addressed in this report.

1.2 FORMAT

Chapter 2 provides the site description, the regional setting, a brief chronology of site development, a description of the current

TABLE 1-1

REPORT SPECIFICATIONS (SECTION IIE, P.8-9, OF ORDER)

SECTION OF ORDER	SPECIFICATION	REPORT
II.E.1 (p.8)	Boring logs	Appendix A
II.E.1 (p.8)	Water level data	G&M (1985a)
II.E.1 (p.8)	Results of analyses	Chapters 3-6
II.E.2 (p.9)	Environmental and hydrogeologic conditions on- and off-site	Chapters 2 and 5
II.E.2a (p.9)	Effectiveness of the Interim Remedial Program	Section 6.2
II.E.2b (p.9)	Water quality of the upper aquifer	Chapters 3 and 5
II.E.2b (p.9)	Water quality of the bedrock aquifers	Chapter 4
II.E.3 (p.9)	Evaluation of areal and vertical extent of soil and groundwater contamination on-site and off-site, attributable to the site	Chapters 3-5
II.E.4 (p.9)	Evaluation of directions of migration of soil and groundwater contamination	Chapters 3-5
II.E.5 (p.9)	Evaluation of future directions of migration of groundwater contamination	Chapter 6
II.E.6 (p.9)	Work plan to evaluate remedial alternatives to abate migration off-site of shallow aquifer contaminated groundwater and to identify extent of (and mitigate and minimize effects of) past migration of contaminated groundwater off-site	Submitted under separate cover

wastewater treatment system (this facility now also treats contaminated groundwater from the site), a hydrogeologic overview of the site and its surroundings, and a summary of the key site features relevant to the remedial investigation. Chapters 3 and 4 describe on-site contamination of the shallow aquifer and evaluate conditions in the intermediate and deep aquifers, respectively. They include reviews of previous studies and the more recent data collected in 1984 and 1985. Chapter 5 provides an assessment of off-site shallow aquifer contamination and a description of the fate of off-site contaminants. Chapter 6 discusses remedial options, including measures already taken and those in progress. The workplan for the feasibility study is being submitted under separate cover. Appendices provide the supporting data, as required by the consent order.

CHAPTER 2

SITE DESCRIPTION

This chapter contains background information on the site and its surroundings and provides a framework for subsequent chapters where on- and off-site contaminants and remedial actions are discussed. The site and products produced are described first, followed by topography, regional geology, local land use, past and present wastewater management practices, and site geology and hydrogeology.

2.1 REGIONAL SETTING

2.1.1 General Site Description

The General Electric plant site is in the town of Fort Edward, north of the village of Fort Edward, Washington County, New York. Fort Edward is located in the east central part of the state, 40 river miles north of the Federal Dam at Troy and 194 river miles from the mouth of the Hudson River at the Battery.

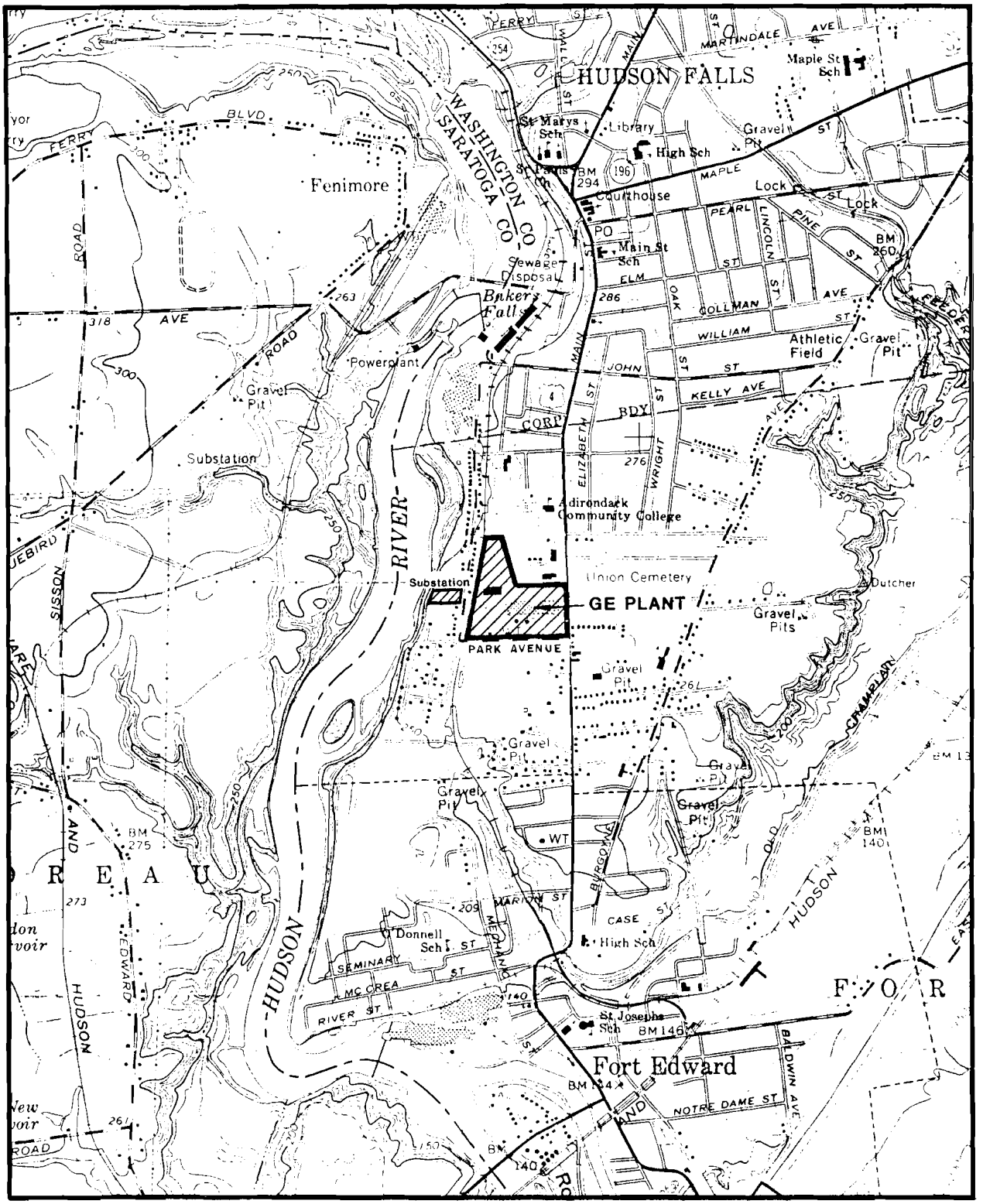
The plant is situated about 800 ft east of the Hudson River between the villages of Hudson Falls to the north and Fort Edward to the south. The property is approximately 32 acres in size, and is bounded on the east by Broadway, on the south by Park Avenue, and on the west by the Delaware-Hudson Railroad (Figure 2-1). On the north, the plant site abuts property owned by Washington County. More detailed descriptions of the site and its surroundings are provided in Sections 2.1.4 and 2.2.

The Fort Edward plant has been in continuous operation since 1942. From 1942 to 1946 selsyn motors were manufactured for the U.S. Department of Defense; since 1946 the plant has produced small

FIGURE 2-1

HUDSON FALLS - FORT EDWARD AREA SHOWING G E PLANT SITE

General Electric, Fort Edward Plant



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industrial capacitors. Operations related to capacitor production include aluminum rolling, tin plating, capacitor recovery and salvage operations, polypropylene film manufacture, refining and blending of dielectric fluids, and quality control operations (Table 2-1). Various cleaning operations to remove residues resulting from fabrication are also conducted at the site. These operations are conducted in approximately 900,000 ft^2 of manufacturing and 100,000 ft^2 of office area. Additional details about the site are provided in Sections 2.2 and 2.3.

Among the liquid products used in various operations were polychlorinated biphenyls, organic solvents, and kerosene. Kerosene is still used in the aluminum rolling mill. Organic solvents are used in metal cleaning and painting operations. PCBs, used as a dielectric fluid in capacitor manufacture, were not manufactured on-site, but the raw product was refined and mixed at Fort Edward. PCBs were last used on the site in 1977.

2.1.2 Topography

The plant site is on a relatively flat plateau roughly defined by the 250-ft elevation (above mean sea level) contour (Figure 2-1). This extensive plateau extends from well north of the village of Hudson Falls south to the village of Fort Edward. In general, elevations decrease from north to south.

Elevations also decrease east and west of the plant site. West of the site the land drops off sharply by 110 ft to the Hudson River, which is about 140 ft above sea level. Approximately 0.75 miles east of the plant site the plateau terminates in a steep slope into a narrow valley 130-150 ft above sea level through which the Old Champlain Canal and new Champlain Canal flow. Slopes are consider-

TABLE 2-1

MANUFACTURING OPERATIONS ASSOCIATED WITH CAPACITOR PRODUCTION

- Rolling of aluminum ingots into sheets that are subsequently employed as capacitor plates and cans
- Capacitor component washing, using vapor degreasing processes
- Rolling of capacitor plates with spacer paper
- Assembly of capacitor components
- Vacuum drying of capacitor prior to impregnation with oil
- Refining of impregnant
- Impregnation of capacitors with any of various oils, using vacuum flood fill process
- Cleaning exteriors of the filled capacitors, using vapor degreasing
- Iron phosphate or chromic acid pretreatment of the exteriors of filled capacitors prior to painting
- Painting exteriors of the capacitors
- Packaging, storing, and shipping

ably more moderate south of the plant site than to the east and west, as shown on Figure 2-1.

The plant site itself is flat, with less than a 10-ft difference in elevation over the entire property except at the north end where excavated soil is piled. Natural elevations range from approximately 259 to 263 ft above sea level (Geraghty & Miller [G&M] 1983).

2.1.3 Regional Geology

The Hudson Falls-Fort Edward area is located in the Hudson-Champlain lowland, which lies between the Adirondack Mountains to the northwest and the Taconic upland to the east (Cushman 1953). Bedrock in the Hudson-Champlain lowland is sandstone, limestone, and shale. Most of Hudson Falls and all of Fort Edward is underlain by the Snake Hill Formation, a black, dense shale laid down during the Ordovician Period. This formation, designated as the Canajoharie Shale on the 1970 version of the New York State Geologic Map but recently renamed (Fisher 1984), forms the intermediate aquifer in the area. Some residential wells near the site tap this aquifer. The Snake Hill Formation is underlain by limestone at 565 ft below grade on the plant site (G&M 1983). The two production wells on the plant site, which are not used at present and are sealed, penetrate the intermediate shale and tap the deep limestone aquifer. The bedrock in the northern portion of Hudson Falls and in the Glens Falls area is the Glens Falls Limestone. The contact between the shale and limestone formations is about 1 mile north of the site and runs in an east-west direction, crossing the Hudson River south of the bend near Hudson Falls.

Bedrock is overlain by unconsolidated deposits laid down during the last glacial period when the area was flooded by glacial Lake

Albany. Sedimentation in the lake resulted in extensive stratified deposits of lacustrine clays and silts. The plateau surrounding the plant site is one of the largest deltaic deposits in the region, formed where the Hudson River met Lake Albany. The deposit is mostly sand, 5 to more than 50 ft thick, and extends outward to the north, south, and east of Hudson Falls (Cushman 1953).

In most areas these permeable sands overlie silts of low permeability and clays, forming the shallow aquifer. In some areas contact between the clay and sand layers is at or near the ground surface and springs develop; several of these springs are located southwest of the plant site. This feature is discussed more fully in Section 2.4, where hydrogeology of the site vicinity is described, and in Section 5.2.

2.1.4 Land Use

Past and current land use in the vicinity of the plant site is shown in Figure 2-2. Information was obtained from the Town of Fort Edward tax maps, LMS' knowledge of the site, and a telephone conversation with Mr. Dan Sonatko, Town Clerk for the Town of Fort Edward. Past land use in the area is shown as some former businesses may have contributed to the observed groundwater contamination now reported in the area. It should be noted that the aerial photograph used as a base map in this report is the most recent available; however, it was prepared in 1976 and some changes have occurred since then.

The property northeast of the GE plant is owned by Washington County. A portion of that property is used by the Highway Department for vehicle storage and maintenance and for equipment storage; the County Municipal Building and a youth center (Washington County Annex) are also on that site. The Delaware-Hudson Railroad's

switching yard is located north of the GE plant. West of the site, Niagara Mohawk Power Corporation operates a substation for electric transmission across the Hudson River. Other developed land to the west is residential (Figure 2-2). The small development southwest of the site is the Hudson Highlands section of Fort Edward. Sewage disposal is via on-site septic tanks, which means that household chemicals and septic tank cleaners are discharged directly to the shallow aquifer throughout the area.

South of the plant the property that borders the Delaware-Hudson Railroad and Park Avenue is owned by the county and is vacant. To the east of this vacant property, across from the GE parking lot, are four private residences on Park Avenue. Several commercial buildings are located along Broadway. South and east of the site developed land is a mixture of residential, light industry, and commercial facilities.

Residential wells in the vicinity of the plant site that have been sampled are indicated on Figures 2-3 and 2-4 along with the two production wells (PW-1 and PW-2) on the GE plant site and the springs. The municipal water supply is now used at the plant. The two production wells were sealed in the summer of 1983 to prevent contaminant migration to the deep aquifer. Of the four deep residential wells on Park Avenue, one was installed in the early 1980s. In 1983, three of the four homes on Park Avenue with deep wells, the one on Park Avenue with a shallow well, and all residences on Stevens Lane were supplied with municipal water at GE's expense.

Municipal water is now available as far north as Park Avenue on the western side of Broadway. Homes south of Stevens Lane have been served by municipal water since before 1982. On the eastern side of Broadway, municipal water is available north to Gates Avenue and

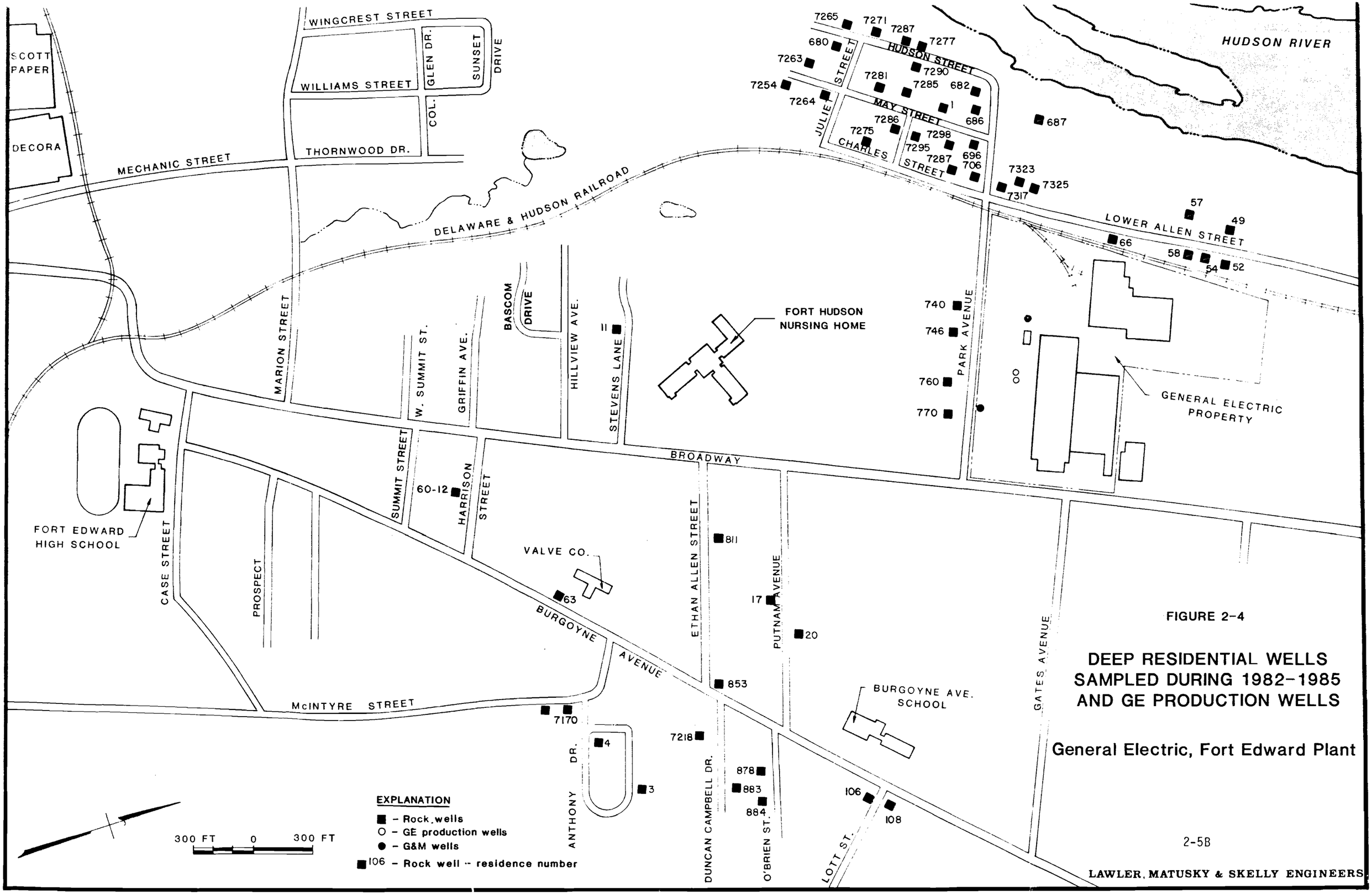


FIGURE 2-4

DEEP RESIDENTIAL WELLS SAMPLED DURING 1982-1985 AND GE PRODUCTION WELLS

General Electric, Fort Edward Plant

2-5B

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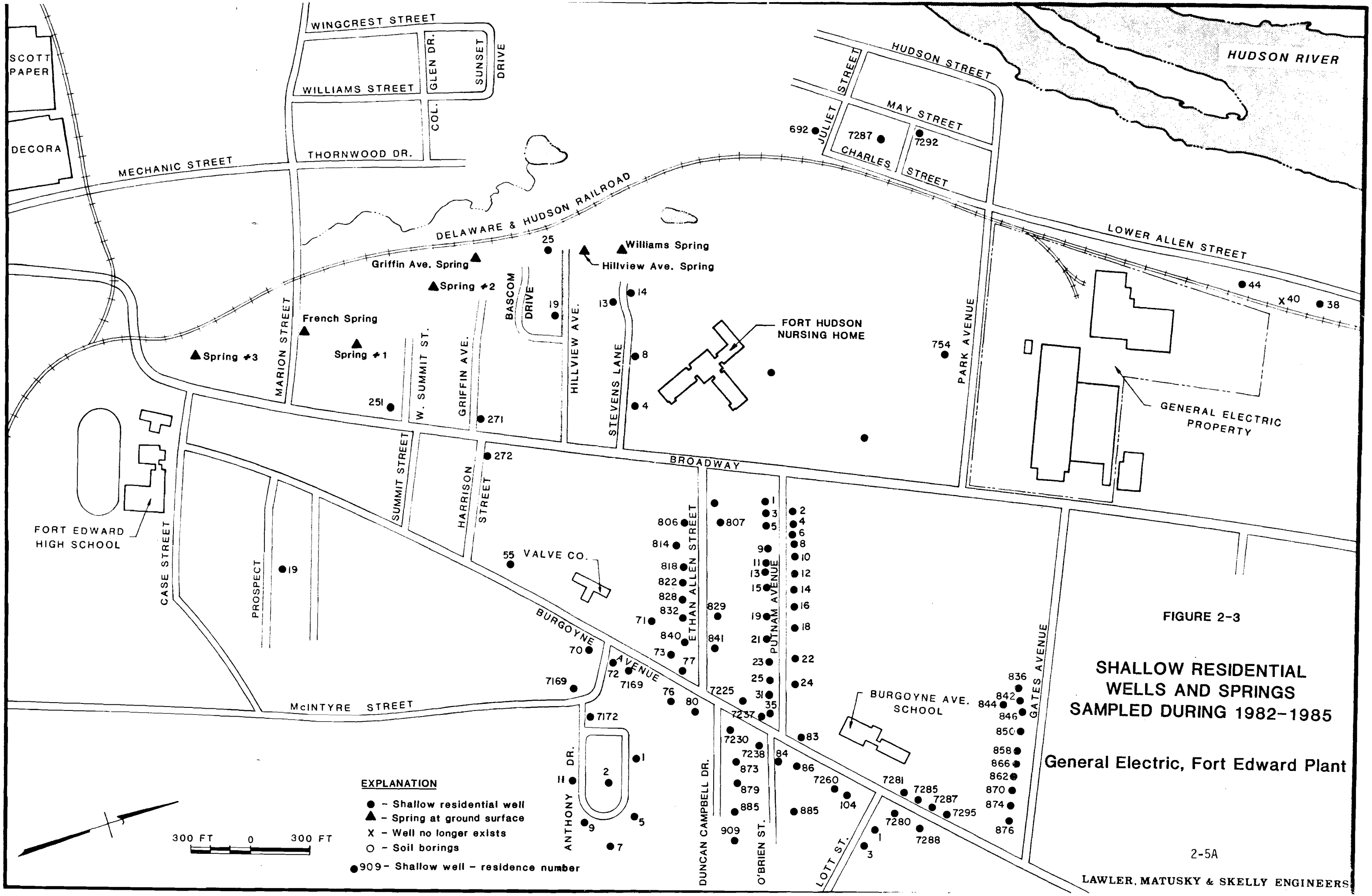


FIGURE 2-3

SHALLOW RESIDENTIAL WELLS AND SPRINGS SAMPLED DURING 1982-1985

General Electric, Fort Edward Plant

2-5A

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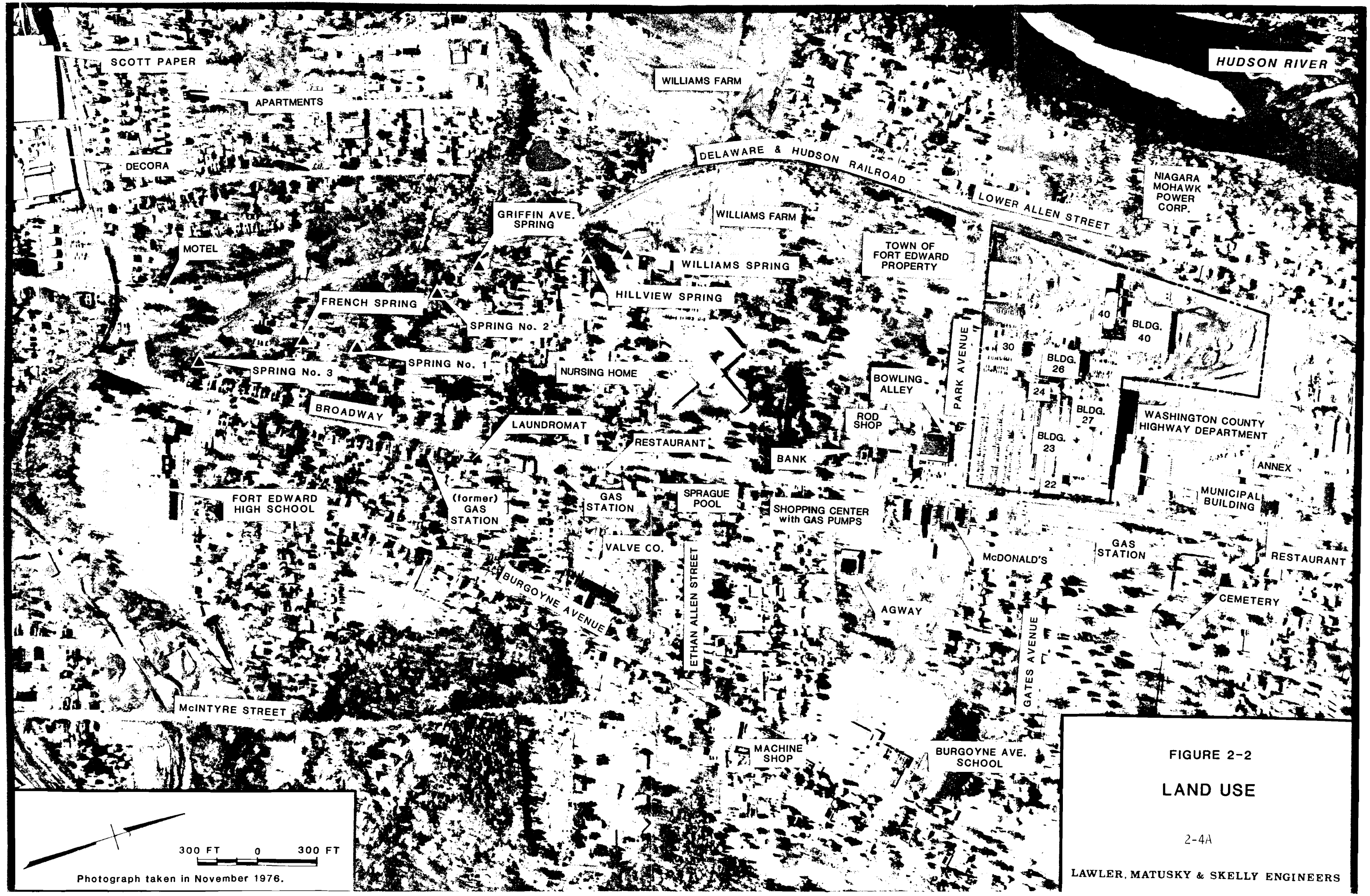


FIGURE 2-2

LAND USE

2-4A

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to Burgoyne Avenue on the east. All of Broadway as far north as Gates Avenue has access to city water, although not all homes use it. Municipal water is supplied to most, if not all, commercial establishments, as well as the Burgoyne Avenue School and the Fort Edward Nursing Home.

2.2 SITE FEATURES

2.2.1 Building Layout

Present facilities on the Fort Edward Site (Figure 2-5) consist of two large manufacturing buildings, several smaller ones located south and west of the largest building, an impounding basin on the southwest corner of the property, and parking areas. The main (largest) building is subdivided into four sections as follows: (1) original manufacturing building (Bldg. 23), (2) addition to manufacturing building (Bldg. 23 ext.), (3) warehouse (Bldg. 23-A), and (4) capacitor plant expansion (Bldg. 23-B). Building 23-A was later expanded to include a finished goods warehouse (Bldg. 26) and a maintenance and waste storage building (Bldg. 31). The second building, the aluminum rolling mill (Bldg. 40), has been expanded several times since its original construction. The largest addition was an aluminum foil mill that occupies the northern half of the present building. Smaller buildings on the site include a pump house, a maintenance building, and the wastewater treatment facility.

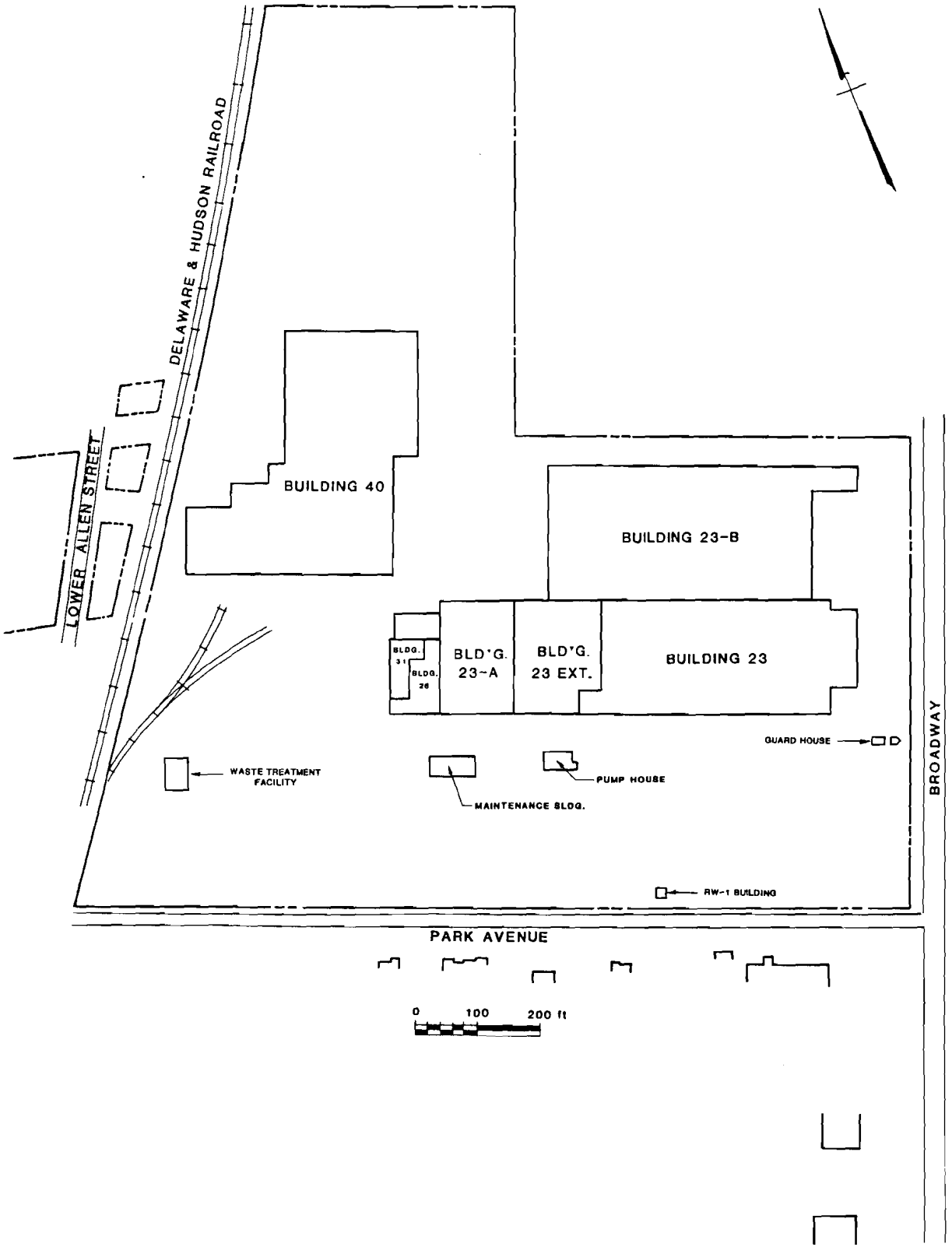
2.2.2 Past Wastewater Management Practices

Before wastewater treatment facilities were constructed in 1976, four sewer lines converged at a manhole located directly west of the southwest corner of the aluminum rolling mill (Figure 2-6).

FIGURE 2-5

BUILDING LAYOUT

General Electric, Fort Edward Plant

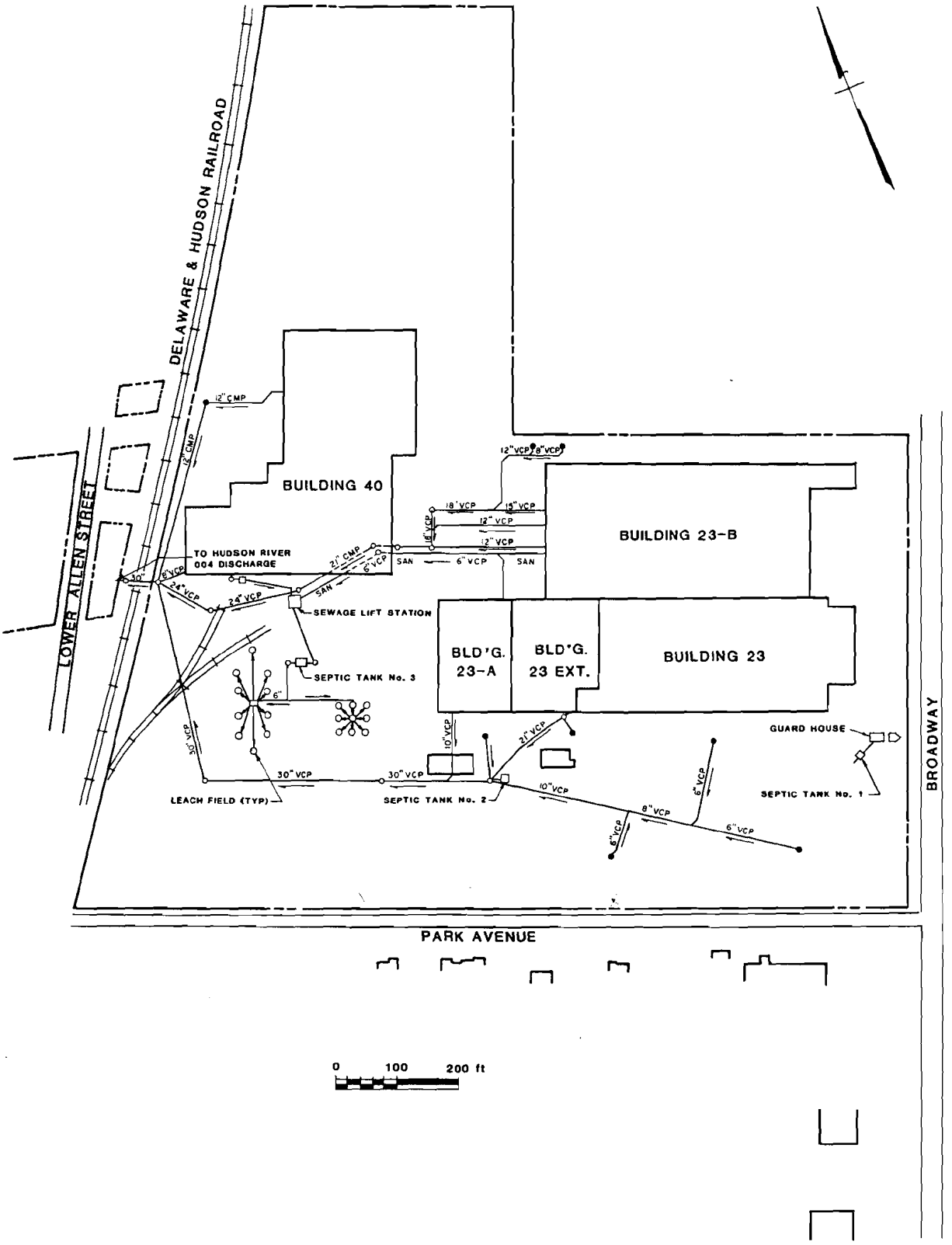


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FIGURE 2-6

PRE-1976 WASTEWATER MANAGEMENT

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

Wastewater was discharged from this common point directly into the Hudson River through a 30-in. vitrified clay pipe (VCP).

The four sewer lines were (1) a 12-in. corrugated metal pipe (CMP), (2) an 8-in. VCP, (3) a 24-in. VCP, and (4) a 30-in. VCP. Effluent from the cooling tower, which services the aluminum rolling mill, and the roof drains at the north aluminum foil mill were connected to the 12-in. CMP. Roof drains from the west expansion of the aluminum rolling mill were connected to the 8-in. VCP. The 24-in. VCP collected water from the capacitor plant expansion (Bldg. 23-B) roof drains as well as process water and cooling water. It also serviced several floor and roof drains in the aluminum rolling mill. The 30-in. VCP originated on the south side of Building No. 23 as smaller diameter piping (6-12 in. VCP) that drained plant cooling water, process water, roof drains, and catch basins in the parking area.

Three septic tanks were maintained on-site prior to 1976. Tank No. 1 serviced the guardhouse at the east entrance to the property. Tank No. 2, located approximately 100 ft west of the pump house, was serviced by the 30-in. VCP. Tank No. 3, located approximately 200 ft west of the warehouse (Building No. 23-A), was used for disposal of sanitary waste from Building No. 23-B and Building No. 40. Wastes to Tank No. 3 flowed by gravity to a lift station where they were pumped to the septic tank-leach field system. In addition to sanitary wastes, the system received some process wastes.

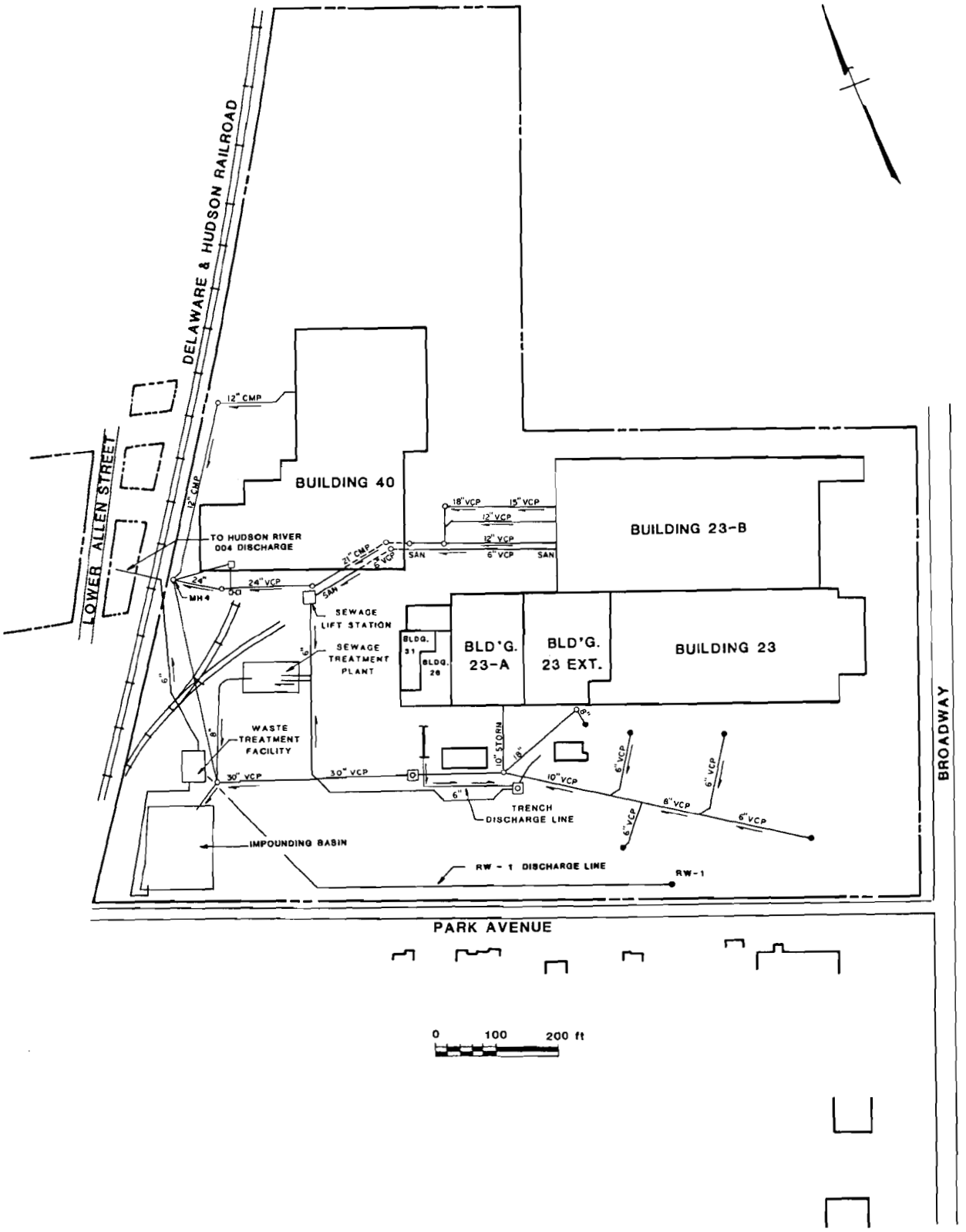
2.3 PRESENT WASTEWATER MANAGEMENT PRACTICES

Wastewater management practices at the Fort Edward Plant have been upgraded (Figure 2-7) since 1976. Many of the old sewer lines have been replaced. The 12-in. corrugated pipe from the aluminum rolling mill was replaced with a 12-in. ductile iron pipe with

FIGURE 2-7

PRESENT WASTEWATER MANAGEMENT

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

mechanical sealed joints. A new, 30-in. ductile iron mechanical sealed joint line replaced the 30-in. VCP draining Building No. 23.

The construction that began in 1976 included a new sewage treatment plant (Figure 2-7). The three septic systems in use prior to 1976 were abandoned or excavated. An extended aeration system rated at 40,000 gpd was installed to treat all sanitary waste. Influent lines to the new sewage treatment plant were modified as shown on Figure 2-7.

A 1.8 million gallon concrete-lined impounding basin was constructed in the southwest corner of the Fort Edward property. The common point for discharge of material directly to the Hudson River was abandoned in early 1977 and all flow, including storm water, was rerouted through a 24-in. line to the new impoundment. Flow from the impoundment is pumped through particulate filters and a carbon adsorption system to remove suspended solids and dissolved organic material; effluent from the carbon adsorption system is discharged through a 6-in. line to the Hudson River (Figure 2-7).

A Calgon carbon adsorption system was employed until 1983, when a Westvaco pulsed bed carbon adsorption system was installed to upgrade the treatment process. The new system consists of a dual filter module (two 5-ft-diameter, 6-ft-high cylinders) and an adsorber vessel. The latter is 10 ft in diameter, 16 ft in height, and has a capacity of 1400 ft^3, which is equivalent to approximately 40,000 lb of carbon. It is designed to treat 350 gpm with a minimum empty bed contact time of 30 min. Carbon is replaced in batches (pulses) of up to 2000 lb. Spent carbon is drawn off the bottom and fresh carbon is added to the top of the cylinder. Spent carbon is hauled off-site for disposal by an authorized disposal firm.

The efficiency of carbon adsorption for PCB removal was tested by Engineering-Science (ES). Tests were conducted in both the presence and the absence of TCE. In addition, the solubility of PCBs in water was determined. As expected, the results indicated no significant reduction in the adsorption capacity of virgin and presaturated carbons for PCB in the presence of TCE compared to the adsorption capacity of virgin carbon for PCBs only. The solubility of PCBs (Aroclor 1242) in water was 244 ± 31 μg/l, which supported earlier studies by ES and literature reported values. The capacity of carbon for Aroclor 1242 was estimated to be 4.3-mg/g carbon at the PCB solution phase concentration of 30 μg/l. The full report from this study is in Appendix B.

In 1984 an air stripper was installed in the waste treatment facility to remove volatile organics from the groundwater pumped from the recovery well (RW-1). Pumpage from RW-1 is conducted to the air stripper through a buried 3-in. pipe. Air stripper effluent is discharged first to the impounding basin, then to the waste treatment facility where it is filtered and passed through carbon.

The air stripper consists of a single square unit, 7 ft on a side and 12-14 ft high. The unit is packed with 2-in. Tripack, a polypropylene packing material. Groundwater flow rate is currently 75 gpm from RW-1. Air flow through the stripper is 3000 cfm with one fan operating. A second fan is available as backup or to augment the air flow; it is not used during the current mode of operation.

As part of the waste management program, a building (Bldg. 31) was constructed in 1980 for storing drums containing hazardous wastes awaiting shipment to the proper disposal facilities. Virgin trichloroethylene (TCE) has been stored in this building since 1983. The storage area was designed to contain any leaks or spills.

Since 1977 all surface drainage from this part of the site has been routed to the wastewater treatment facility.

2.4 HYDROGEOLOGY

2.4.1 Sources of Information

This section provides a review of the lithology, stratigraphy, and hydrogeology of the site and its surroundings as deduced from boring logs and monitoring well observations. Data discussed were collected in 1976 by Dames & Moore (D&M) and from 1982 to 1985 by G&M. In addition, there are data from the two GE production wells (Figure 2-4) that penetrate intermediate shale and tap the deep limestone aquifer. These wells were sealed in 1983 to prevent leakage along the well casing. Prior to 1976, borings were taken by Clark, Dietz and Associates - Engineers, Inc. (CDA) to describe foundation conditions; as these are not suitable for hydrogeologic interpretations, they are not included in this report.

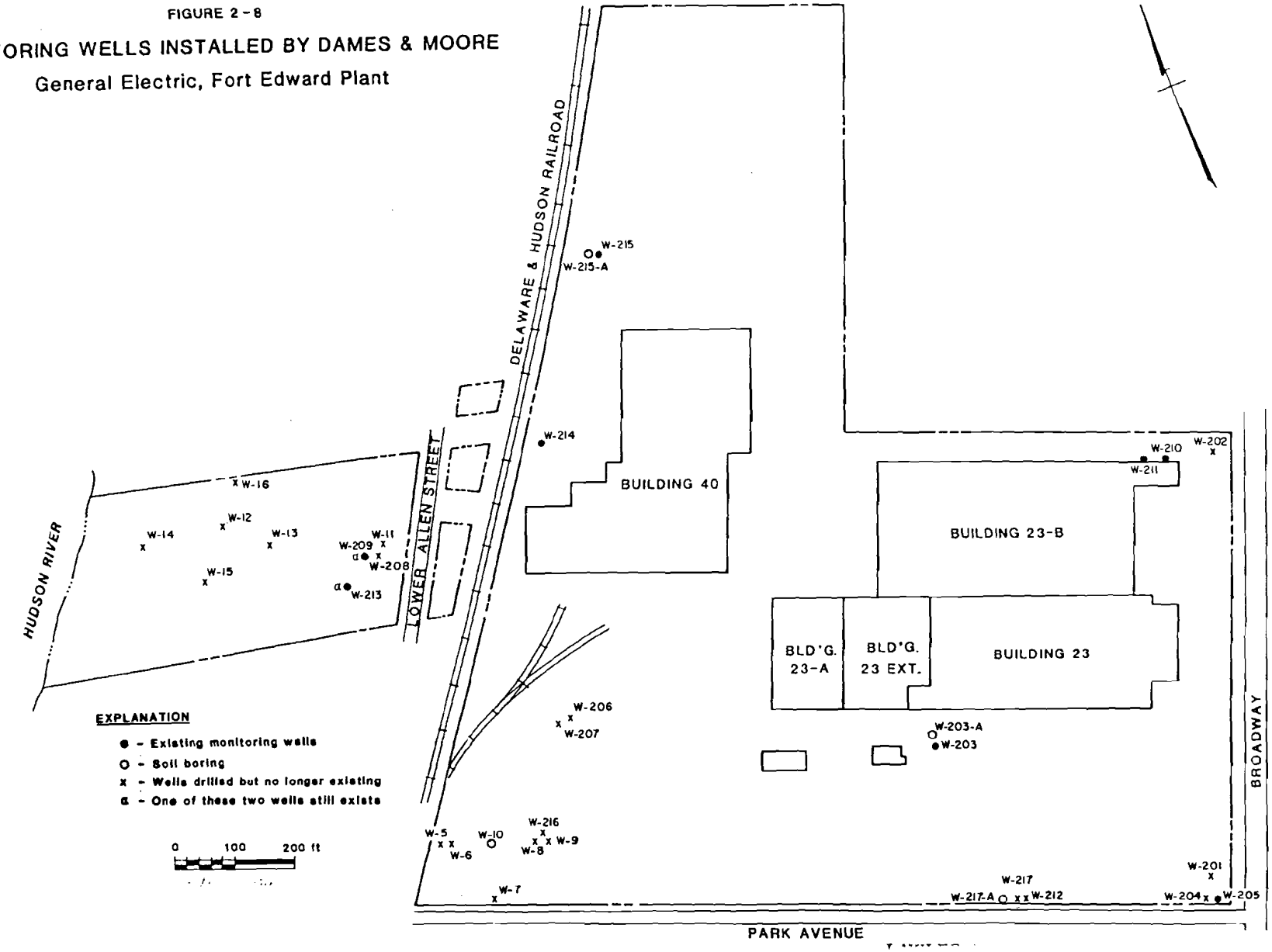
During March-April 1976, D&M investigated two potential sites for construction of an impounding basin. Twelve borings (W-5 to W-16) were drilled through the unconsolidated sediments into hard rock to examine subsurface conditions (Figure 2-8). Monitoring wells were installed in all but W-10 to measure water levels. Subsurface conditions at the two sites were reported in D&M (1976a).

A second study based on recommendations from the earlier CDA studies was conducted by D&M (1976b) to investigate hydrogeologic conditions and to define the extent of groundwater and soil contamination by PCBs. Twenty additional borings (W-200 series) were drilled, with monitoring wells installed in 17 out of the 20 (Figure 2-8). In contrast to the first study, not all borings penetrated the hard rock; the major objective was to determine water

FIGURE 2-8

MONITORING WELLS INSTALLED BY DAMES & MOORE

General Electric, Fort Edward Plant



levels in the shallow aquifer and to take water and soil samples for PCB analysis.

In 1982 G&M was retained to investigate the origin of kerosene in an abandoned sewer manhole west of Lower Allen Street and the extent of kerosene contamination in the shallow aquifer on the site. Twenty-four borings were drilled and monitoring wells were installed (GM-1 to GM-21; Figure 2-9) to determine groundwater flow patterns and the concentration of subsurface contaminants. Borings ranged in depth from 6-78 ft, with most (18 out of 24) less than 20 ft deep.

During the week of 8 August 1983, five additional monitoring wells were installed by G&M on the southern portion of the property. Wells GM-22 and GM-23 were installed to monitor groundwater quality between the leach field and Park Avenue; well GM-24, to monitor groundwater flow from the leach field to the area near well GM-21 and to RW-1; well GM-25, to collect water level data during the 30-day pump test; and well GM-8D, to examine groundwater quality in the bedrock below the leach field. Wells GM-22 through GM-25, whose locations are shown on Figure 2-9, were constructed with well screens spanning the water table zone.

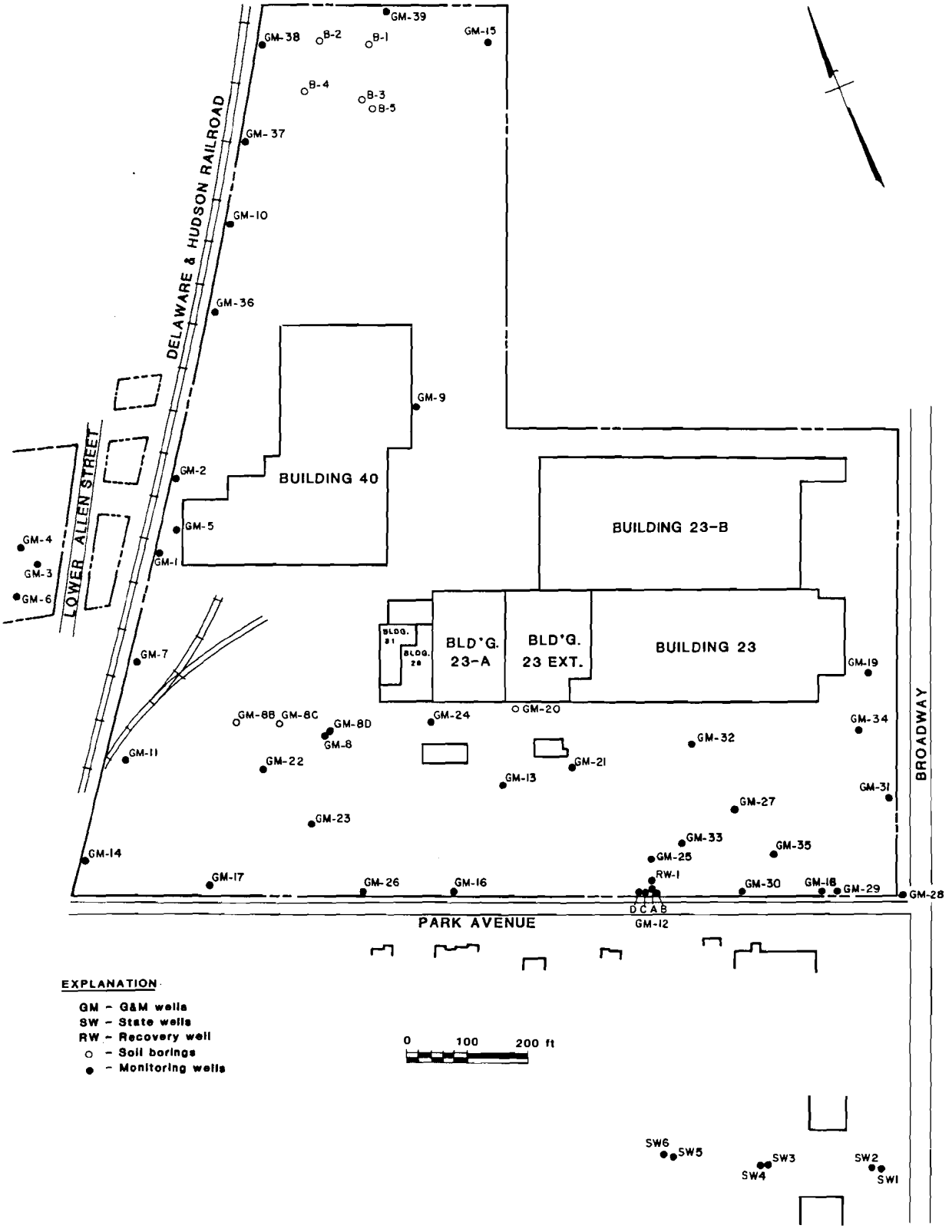
In November-December 1983 G&M drilled 10 wells (GM-26 through GM-35; Figure 2-9) through the entire thickness of the shallow aquifer: two (GM-26 and GM-27) were installed to measure water level changes caused by pumping of RW-1; the remaining eight (GM-28 through GM-35) were constructed to determine the extent of contamination found in well GM-27 and to monitor movement of the contaminant.

In early 1985 a study was undertaken in the northwest corner of the site, augmenting data collected from wells GM-10 and GM-15, to

FIGURE 2-9

BORINGS AND MONITORING WELLS INSTALLED BY GERAGHTY & MILLER, INC. AND THE STATE MONITORING WELLS

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

determine whether contaminants existed in this area of the plant site. Four shallow monitoring wells (GM-36 to GM-39) were installed and five soil borings (borings 3 and 5 were taken in the same location and composited) were drilled in the spoils area to determine the presence of contaminants. Residential wells adjacent to the site were sampled as well. In addition, shallow soil borings and surface soil investigations were made south of the plant site on the Williams Farm and Fort Edward Victorian, Inc. properties to determine the depth of the shallow aquifer.

Six monitoring wells were installed off-site by the State of New York in 1983 (Figure 2-9). These wells are 22 to 35 ft deep and are used to monitor water levels and contaminant concentrations just south of the site.

Tables 2-2 through 2-4 give the date drilled, total depth of the borings, and the screened interval for the D&M wells, the G&M wells, and the state wells, respectively. Boring logs for all of the monitoring wells discussed above, but not for the two production wells, are provided in Appendix A.

2.4.2 Site Geology

Using data developed during previous studies, Figure 2-10 describes subsurface conditions on the plant site. The section depicted runs from west of Lower Allen Street southeast to the property border on Park Avenue. Surface sediments are sand and sandy loam with some areas of fill material, e.g., the area near the old leach field at well GM-8 and the southeastern portion of the site near well GM-12. The sand layer is 10 ft deep on the western end of the property and thins to 6 ft at Lower Allen Street. East of Lower Allen Street the depth of the sand varies from 9.5 ft near the center of the main plant site (well GM-13) to 23 ft at GM-12.

TABLE 2-2

SUMMARY OF WELLS CONSTRUCTED BY DAMES & MOORE

General Electric Corp.

WELL No.	DATE INSTALLED	TOTAL DEPTH OF BORING[a]	SCREENED INTERVAL[a,b]
W-5	3-10-76	8.5	2.5 - 5.5
W-6	3-10-76	17	13 - 15
W-7	3-11-76	6	4 - 6
W-8	3-10-76	16.4	13 - 15
W-9	3-10-76	7.3	4 - 6
W-10	3-10-76	7.2	Soil boring
W-11	4-14-76	15	2 - 5
W-12	4-14-76	25	3.5 - 6.5
W-13	4-14-76	22	18 - 21
W-14	4-14-76	25	7.5 - 10
W-15	4-15-76	25	6 - 9
W-16	4-15-76	26	22 - 25
W-201	3-12-76	85	7 - 11
W-202	3-13-76	48	8 - 12
W-203	4-21-76	12.5	6.5 - 8.5
W-203A	4-24-76	45	Soil boring
W-204	4-21-76	9.5	6.5 - 9.5
W-205	4-21-76	18	15 - 17
W-206	4-22-76	6	2 - 7
W-207	4-22-76	18.5	15.5 - 18.5
W-208	4-22-76	7	4 - 7
W-209	4-22-76	4.5	1 - 4
W-210	4-23-76	7.5	4.5 - 7.5
W-211	4-23-76	14	11 - 14
W-212	4-23-76	8	5 - 8
W-213	4-23-76	7.5	3 - 7.5
W-214	4-23-76	7	4 - 7
W-215	4-24-76	7	4 - 7
W-215A	4-24-76	24	Soil boring
W-216	4-24-76	7	4 - 7
W-217	4-24-76	18	14.5 - 18
W-217A	4-24-76	63	Soil boring

[a]Feet below land surface.
[b]Interval measured from boring log scale.

Source: D&M 1976a,b.

TABLE 2-3

SUMMARY OF WELLS CONSTRUCTED BY GERAGHTY & MILLER, INC.

General Electric Corp.

WELL No.	DATE INSTALLED	TOTAL DEPTH OF BORING[a]	SCREENED INTERVAL[a]
GM-1	7-07-82	18	11 - 18
GM-2	7-08-82	15.8	8 - 13
GM-3	7-08-82	10.9	2.4 - 7.4
GM-4	7-08-82	8	3 - 8
GM-5	7-14-82	10	1.9 - 9.8
GM-6	7-08-82	8	3 - 8
GM-7	7-08-82	10	3 - 10
GM-8	7-09-82	10	3.5 - 10
GM-8B	8-08-83[b]	12	Soil boring
GM-8C	8-08-83[b]	11	Soil boring
GM-8D	8-08-83[b]	40	35 - 40
GM-9	7-09-82	10.5	2.5 - 10.4
GM-10	7-12-82	14	3.8 - 13.3
GM-11	7-12-82	8	3.1 - 7.8
GM-12A	7-13-82	24	5.2 - 23.9
GM-12B	9-21-82	14	9 - 14
GM-12C	9-22-82	25	20 - 25
GM-12D	10-01-82	78	68 - 73
GM-13	7-13-82	10.3	5.6 - 10.3
GM-14	7-14-82	9	4.2 - 8.9
GM-15	7-14-82	8	3.25 - 7.9
GM-16	9-22-82	15	9.5 - 14.5
GM-17	9-23-82	11	5.7 - 10.7
GM-18	9-23-82	20	14.3 - 19.3
GM-19	9-23-82	25	13.8 - 23.8
GM-20	-	6	Soil boring
GM-21	9-23-82	20	14.5 - 19.5
GM-22	8-08-83[b]	12	5 - 10
GM-23	8-08-83[b]	14	8 - 13
GM-24	8-08-83[b]	14	7 - 12
GM-25	8-08-83[b]	22	11 - 21
GM-26	11-22-83	12	5 - 10
GM-27	11-22-83	28.6	9 - 28.6
GM-28	12-05-83	36	10.7 - 35.0
GM-29	12-06-83	29	10 - 25
GM-30	12-06-83	25	10 - 25
GM-31	12-07-83	29	9 - 25
GM-32	12-07-83	23	10 - 20
GM-33	12-08-83	25	8 - 23
GM-34	12-08-83	29	10 - 25
GM-35	12-08-83	28	8 - 28
GM-36	3-18-85	13.5 - 14	3.5 - 13.5
GM-37	3-19-85	12	4.7 - 9.7
GM-38	3-19-85	12	6 - 11
GM-39	3-20-85	8.5	3.5 - 8.5
RW-1	8-23-83	26.6	10.6 - 20.6

[a]Feet below land surface.
[b]Week of
Source: G&M 1983, 1984, and unpublished data.

TABLE 2-4

SUMMARY OF WELLS CONSTRUCTED BY THE STATE OF NEW YORK

General Electric Company

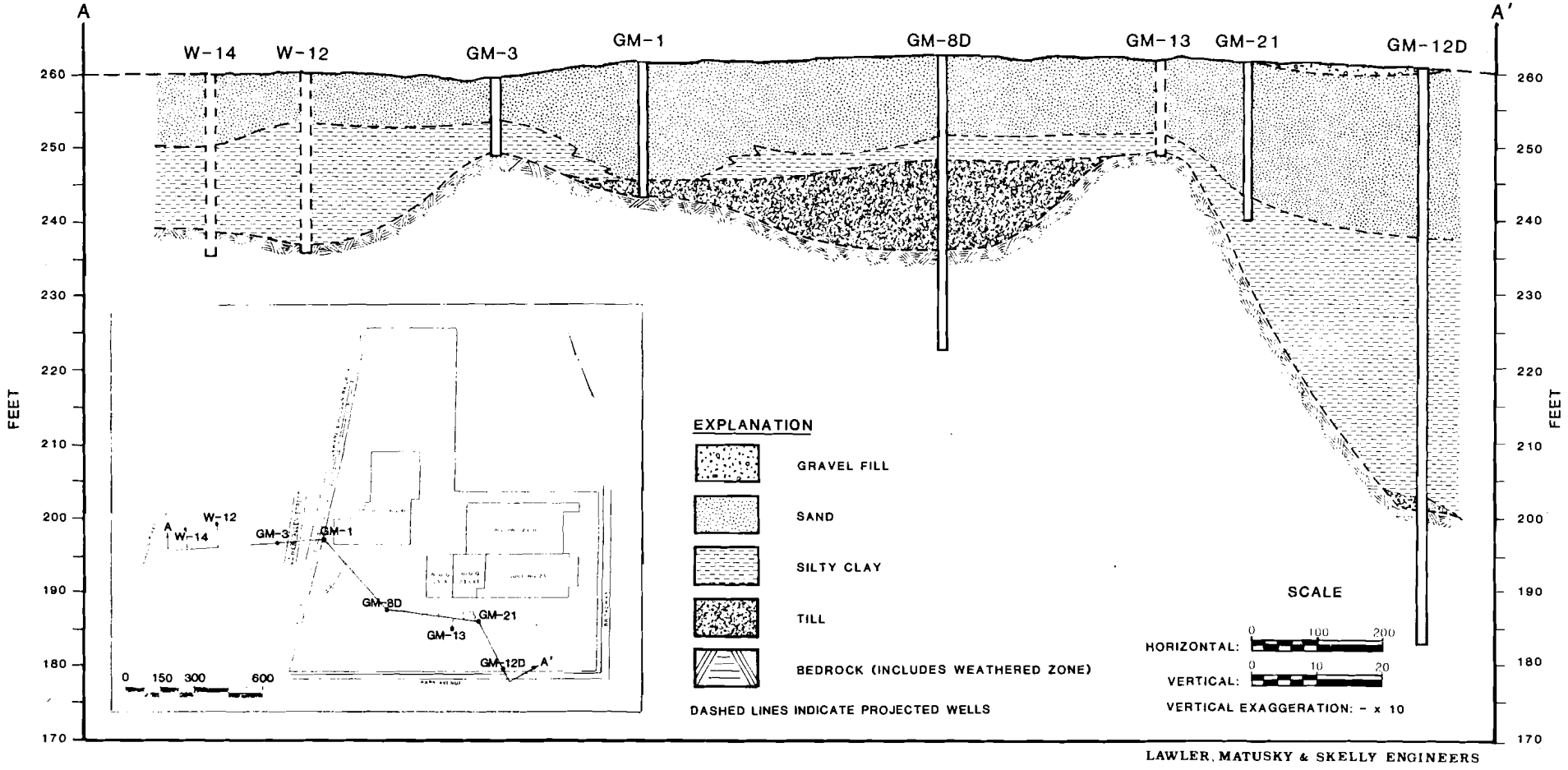
WELL No.	DATE INSTALLED	TOTAL DEPTH OF BORING[a]	BOTTOM OF SCREEN[a]
SW-1	4-20-83	35	33.5
SW-2	4-21-83	22	21.5
SW-3	4-22-83	31	29
SW-4	4-21-83	22	21.5
SW-5	4-21-83	30	27
SW-6	4-21-83	22	21

[a]Feet below land surface.

Source: Recra Research, Inc. 1983.

FIGURE 2-10

GEOLOGIC CROSS-SECTION FROM A TO A'
General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

The sand layer is underlain by low permeability silty clay over the entire property except for the area near the railroad tracks east of Lower Allen Street where low permeability silty sand and till materials underlie the upper sand layer. The clay ranges in thickness from a few feet near well GM-13 to 35 ft at the southern border near well GM-12. The maximum thickness of the clay is 46 ft at the southeastern corner of the property (D&M 1976b).

The upper bedrock layer that forms the intermediate aquifer is shale of the Snake Hill Formation (Fisher 1984). Bedrock is near the surface in the western portion of the property but drops off steeply to about 60 ft below grade toward the southeast. The Snake Hill Formation is approximately 500 ft thick at the plant site, as indicated by the drilling logs for PW-1 and PW-2. These wells are 585 and 602 ft deep, respectively, and penetrate the entire thickness of the Snake Hill Formation and the uppermost 20-26 ft of the underlying limestone that forms the deep aquifer in the region (G&M 1983).

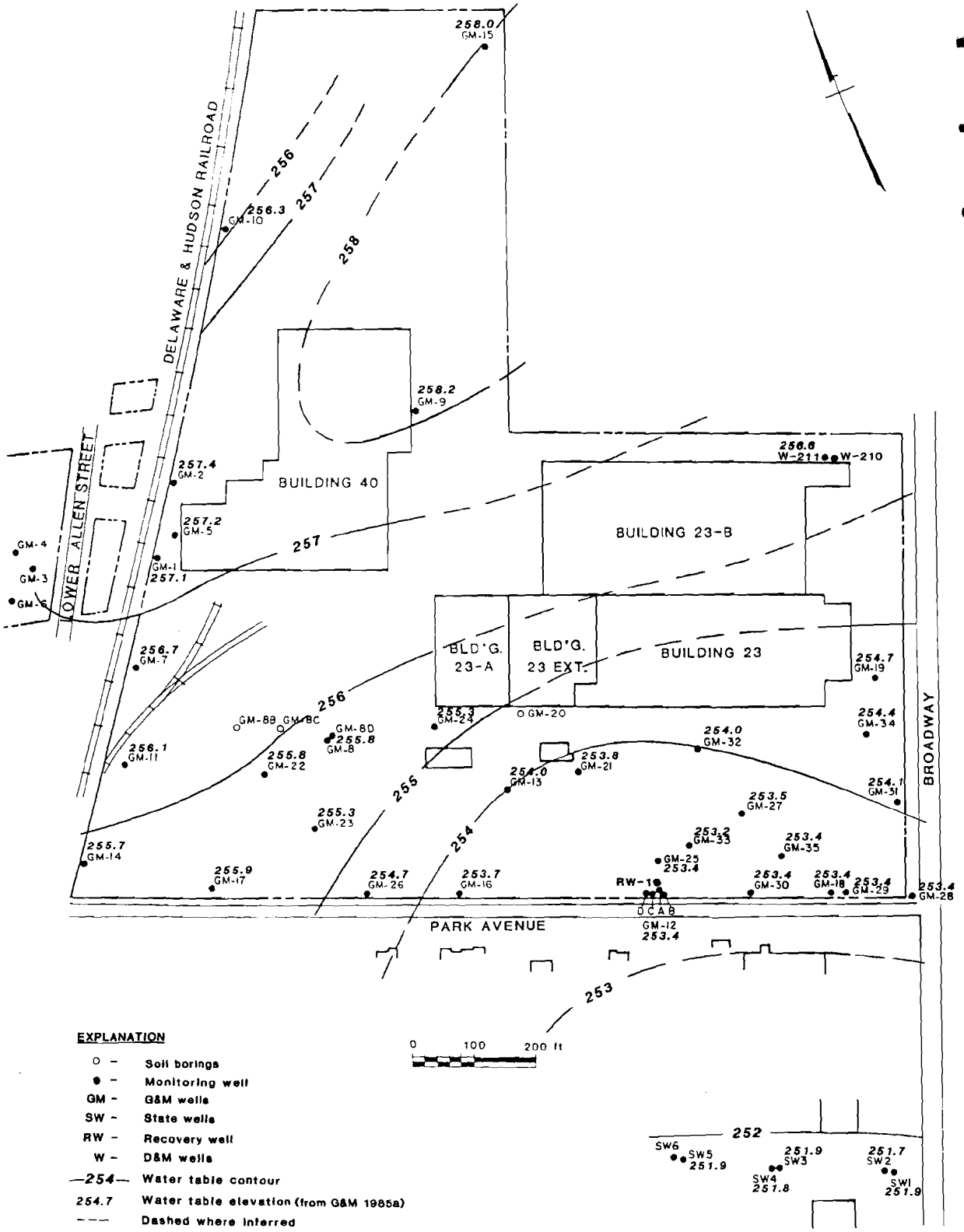
2.4.3 Hydrogeology

The upper sand aquifer is underlain by the low permeability clay and till strata that retard downward movement of groundwater to the bedrock. The approximate configuration of the water table depicted in Figure 2-11 is based on data collected by G&M in August 1984 (G&M 1985a). The water table elevation ranged from about 5 to 10 ft below grade over the site; it dropped from about 6.5 to about 10 ft below grade near the southeastern property line. The highest water table elevation on the site occurs between wells GM-9 and GM-15, which are located along a water table divide (G&M 1983). Groundwater flows away from the divide to the north-northwest and southeast. As it flows from the site, the direction shifts from southeasterly to southerly. South of the plant site, where the

FIGURE 2-11

WATER TABLE ELEVATIONS ON 27 AUGUST 1984

General Electric, Fort Edward Plant



EXPLANATION

o –	Soil borings
• –	Monitoring well
GM –	G&M wells
SW –	State wells
RW –	Recovery well
W –	D&M wells
—254—	Water table contour
254.7	Water table elevation (from G&M 1985a)
– – –	Dashed where inferred

LAWLER, MATUSKY & SKELLY ENGINEERS

sand/clay contact is at the surface, the water table reaches the surface as springs (Figure 2-3).

Water table elevation varies with seasonal patterns of infiltration and rainfall. Rainfall averages about 36 in. per year (D&M 1976a). Heath et al. (1963) estimates that annual recharge is approximately 25-40% of the annual precipitation in an area like Fort Edward. Infiltration to the groundwater varies seasonally. It is low and intermittent during winter when the ground is frozen. Maximum recharge occurs in early spring when the ground thaws and rainfall is generally heaviest and evapotranspiration is low. In summer and early fall, recharge is generally low due to seasonal precipitation patterns and high evapotranspiration.

Data are not sufficient to describe groundwater flow patterns in the rock aquifers. In general, movement is along horizontal bedding planes in the shale and through any natural fissures, faults, and solution channels in the limestone. Vertical seepage along or through corroded well casings is also possible when wells are improperly sealed during installation. Piezometric heads in the intermediate (shale) and deep (limestone) aquifers decline with increasing depth in the bedrock, as determined from measurements in the top of the shale (GM-8D and GM-12D) and the limestone (on-site production wells PW-1 and PW-2) and from information in the driller's logs for PW-1 and PW-2 (D&M 1976a; G&M 1983).

2.5 SUMMARY OF KEY SITE FEATURES

The previous sections describe the regional topography and geology, past and current land use, building layout, past and present wastewater management practices, and hydrology. Among these are certain key features that are particularly relevant to the groundwater contaminant evaluation and assessment of the Fort Edward site.

All facilities believed to have caused groundwater contamination have been repaired or eliminated. Prior to 1976, wastewater and stormwater runoff from parking areas were discharged directly to the Hudson River without treatment. In 1976 construction of a new treatment system began and all wastewater, including site storm water, is now treated for removal of contaminants before discharge to the Hudson River. Old sewer lines were replaced with ductile iron pipe with mechanical sealed joints. TCE is now stored indoors. The two GE production wells that tap the deep limestone aquifer are no longer in use and have been sealed to prevent contaminants from entering the deep aquifer.

Another key feature is the geology of the site. Three aquifers are located beneath the site - shallow sand, intermediate shale, and deep limestone. The presence of relatively impermeable clay and till strata underlying the shallow sand aquifer has confined contamination to the shallow zone. Groundwater flow in the shallow aquifer has been mapped.

Land use in the site vicinity is predominantly residential; sanitary wastes are discharged to septic tanks throughout the area. Along Broadway the dominant land use is commercial. Based on past and current land use in the vicinity of the Fort Edward plant, the nature of the contaminants, and the extensive use of septic systems, there may be sources of off-site groundwater contamination besides GE.

CHAPTER 3

ASSESSMENT OF ON-SITE CHEMICAL DISTRIBUTION IN THE SHALLOW AQUIFER

On-site studies of contaminants commenced in 1975 with an evaluation of kerosene, oil, grease, and PCBs in the sewer system. Subsequent studies from 1976 through 1985 have evaluated PCBs and solvents in the groundwater.

3.1 KEROSENE RESIDUE

Kerosene has been reported from several locations on the plant site; however, no off-site contamination is apparent. Clark, Dietz and Associates - Engineers, Inc. ([CDA] 1975) detected kerosene in the septic tank-leach field system, the 12-in. CMP paralleling the west end of the aluminum rolling mill, and the 30-in. sewer west of Lower Allen Street. West of the aluminum rolling mill kerosene was reported 8 to 9 ft below grade.

As part of a larger study of groundwater quality on the plant site in 1982, G&M investigated the extent of subsurface kerosene accumulation and the source of the kerosene. The G&M (1983) data indicated a 4-in.-thick layer of kerosene in well GM-5 and a thin film in wells GM-1 and GM-2. No kerosene was observed in well GM-4 west of Lower Allen Street; wells GM-3 and GM-6, also west of Lower Allen Street, were dry at the time of sampling. Soil samples had no detectable kerosene. Dissolved kerosene constituents measured in groundwater from well GM-2 were less than 10 μg/l for any constituent (G&M 1983).

Remedial actions have been taken at the plant site to remove known sources of kerosene. Sewer lines were replaced in 1976 with new sealed mechanical joint pipes, and the abandoned sewer line west of

Lower Allen Street was excavated and removed. At present, all sewers on the site, including the storm sewers, are routed to the impounding basin for treatment through the carbon adsorption system so any residual kerosene in the sewers or parking areas is removed prior to wastewater discharge from the site. The impounding basin has an oil/water separator to prevent contamination of the carbon adsorption system with floating product.

Monitoring wells GM-1, F-2, F-6, and GM-5, which have on occasion revealed floating petroleum or kerosene constituents, have been bailed to remove the free product. These wells will be monitored whenever on-site wells are sampled. Any product found will be bailed from the wells. In addition, no product detectable as sheen or odor has been found in wells on the northwest corner of the site or in any off-site well. While soils on the site probably still contain kerosene or its constituents, discharge from the site is unlikely because the kerosene is probably adsorbed by soils and biodegraded.

3.2 SHALLOW AQUIFER PCBs

CDA (1975) reported PCBs in the septic tank-leach field system and the sewer west of the aluminum rolling mill. They hypothesized that contamination of the sewer was due to infiltration of contaminated groundwater resulting from incidental leaks and spills in the drum storage area. To define the extent of this contamination, there have been subsequent investigations into PCB concentrations in the upper sand aquifer at the site. In 1976 D&M analyzed soil and shallow groundwater samples for PCBs from eight locations on the plant site. Results of PCB analyses shown in Table 3-1 indicated concentrations less than 10 μg/l in groundwater and less than 1 μg/g in soil samples at most stations (D&M 1976b).

TABLE 3-1

PCBs IN SOIL AND SHALLOW
GROUNDWATER SAMPLES DURING 1976

General Electric Company

GROUNDWATER

MONITORING WELL No.	PCB CONCENTRATION (μg/l) AROCLOR 1016	AROCLOR 1254
W-203[a,b]	100.0	46.0
W-204	4.6	0.2
W-206	2.5	2.2
W-207	4.4	6.8
W-210	5.2	1.0
W-212	0.9	0.2
W-214	11.0	2.9
W-215	0.8	0.1
W-216	5.0	<0.1

SOIL[c]

MONITORING WELL No.	DEPTH (ft)	PCB CONCENTRATION (μg/g) AROCLOR 1016	AROCLOR 1254
W-203[b]	1	1.000	0.310
W-203	4	0.082	0.045
W-204	2	0.043	0.039
W-206[b]	1	0.023	0.035
W-210[b]	1	0.130	0.130
W-212	1	4.000	7.100
W-214	1	0.006	0.003
W-215	1	0.015	0.001
W-216[b]	1	0.170	0.130

[a]Black oil reported at 10 ft below grade.
[b]Fingerprint resembles Aroclor 1248 more than 1016.
[c]Taken from soil borings.

Source: D&M 1976a.

Well F-6, west of building 23-B and north of buildings 23-A and 23 ext., was found by G&M to have floating oil. The product was removed and reportedly contained PCBs. No additional product has been found in this well. Since none of the other monitoring wells around this location contained product, the accumulation was apparently localized (G&M 1983).

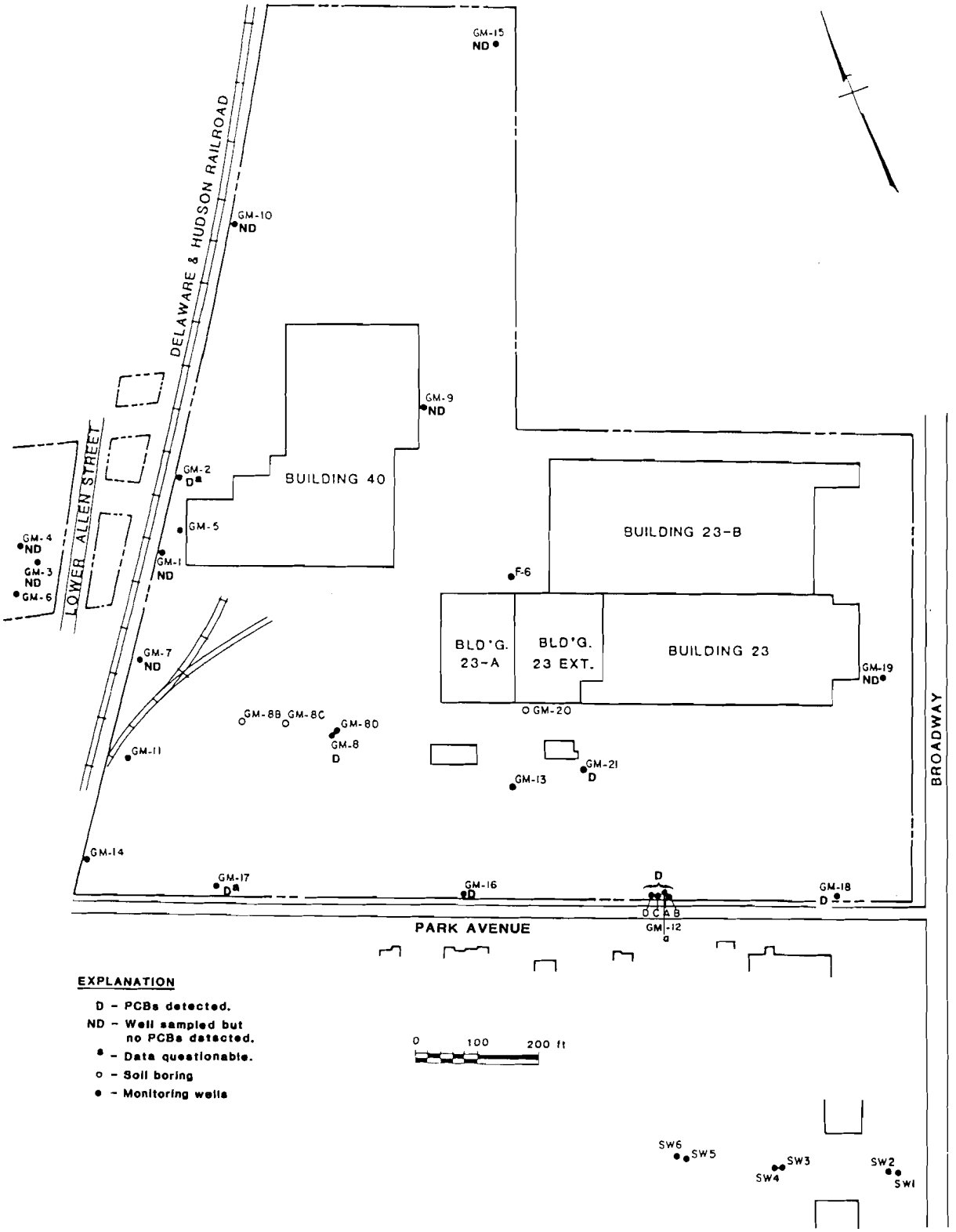
From July to November 1982, G&M (1983) collected groundwater samples from 17 different shallow monitoring wells. Samples were analyzed by both Energy Resources Company, Inc. (ERCO) and GE. PCBs were detected in wells GM-2, GM-8, GM-12A, GM-12B, GM-12C, GM-16, GM-17, GM-18, GM-19, and GM-21. No PCBs were found in GM-1, GM-3, GM-4, GM-7, GM-10, GM-15, or GM-19 (Figure 3-1). The data for GM-2, GM-12A, and GM-17 are questionable: concentrations measured by ERCO at GM-2 are near the reported detection limit. At GM-12A on 15 July, GE's results were below the detection limit; ERCO reported 1.1 μg/l as Aroclor 1016, while Aroclor 1248 was nondetectable. At well GM-17 the field blank (collected the day after sampling) analyzed by GE showed PCBs in the same concentration range as the groundwater sample (Table 3-2).

Locations where PCBs were measured in conjunction with the 6-month remedial pump test (G&M 1985a) during late 1984 and 1985 and the investigations in the northwest corner of the site are shown in Figure 3-2. Table 3-3 shows PCB concentrations only for those wells where measurable PCB concentrations were recorded; wells where no PCBs were detected on any sampling date are indicated on Figure 3-2. PCBs were detected consistently in wells GM-11, GM-12A, GM-12B, GM-12C, GM-21, GM-24, and GM-25. The highest concentration in any sample was measured during October 1984 in well GM-8, located in the old septic tank-leach field. When sampled for a second time in March 1985, this well was dry. Throughout the 1984-1985 pump test, PCB concentrations declined in most wells that

FIGURE 3-1

PCBs IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING 1982

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

TABLE 3-2 (Page 1 of 2)

PCB CONCENTRATIONS[a] MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982

General Electric Company

WELL No.	SAMPLE DATE	ANALYZED BY	REPORTED AS AROCLOR 1242	AROCLOR 1016	AROCLOR 1248
GM-1	07-15-82	GE[b]	<0.5	NA	NA
GM-2	07-15-82	GE	<0.5	NA	NA
GM-2	07-12-82	GE	<0.5	NA	NA
GM-2	07-12-82	GE	<0.5	NA	NA
GM-2	07-12-82	GE	<0.5	NA	NA
Field Blank near Well 2	07-12-82	GE	<0.5	NA	NA
GM-2	07-12-82	ERCO	NA	ND	0.2
GM-2	07-12-82	ERCO	NA	ND	0.2
GM-2	07-12-82	ERCO	NA	ND	0.1
Trip Blank	07-12-82	ERCO	NA	ND	ND
GM-3	07-16-82	GE	<0.5	NA	NA
Field Blank near Well 3	07-16-82	GE	<0.5	NA	NA
GM-4	07-15-82	GE	<0.5	NA	NA
Field Blank near Well 4	07-15-82	GE	<0.5	NA	NA
GM-4	07-16-82	ERCO	NA	ND	ND
GM-7	09-02-82	GE	<0.5	NA	NA
GM-8	09-07-82	GE	4.1	NA	NA
GM-9	09-07-82	GE	<0.5	NA	NA
GM-10	09-07-82	GE	<0.5	NA	NA
GM-12A	07-15-82	GE	<0.5	NA	NA
Field Blank near Well 12A	07-15-82	GE	<0.5	NA	NA
GM-12A	07-15-82	ERCO	NA	1.1	ND
GM-12A	09-07-82	GE	6.5	NA	NA

[a]All concentrations in μg/l.
[b]Samples compared to Aroclor 1242 standard, detection limit is 0.5 μg/l.

ND = Not detected at 0.1 μg/l.
NA = Not analyzed.

Source: G&M 1983.

TABLE 3-2 (Page 2 of 2)

PCB CONCENTRATIONS[a] MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982

General Electric Company

WELL No.	SAMPLE DATE	ANALYZED BY	REPORTED AS AROCLOR 1242	AROCLOR 1016	AROCLOR 1248
GM-12B	09-30-82	GE	5.3	NA	NA
GM-12B	09-30-82	GE	5.3	NA	NA
GM-12B	09-30-82	ERCO	NA	10.5	ND
GM-12B	09-30-82	ERCO	NA	8.9	NA
GM-12C	09-30-82	GE[b]	16	NA	NA
GM-12C	09-30-82	ERCO	NA	25.6	ND
GM-15	09-30-82	GE	<0.5	NA	NA
GM-16	10-01-82	GE	2.0	NA	NA
GM-17	09-30-82	GE	0.6	NA	NA
Field Blank near Well 17	10-01-82	GE	0.8	NA	NA
do	10-01-82	ERCO	NA	ND	ND
GM-18	09-30-82	GE	<0.5	NA	NA
GM-19	10-01-82	GE	0.6	NA	NA
GM-21	10-01-82	GE	13	NA	NA
Field Blank near Well 21	10-07-82	ERCO	NA	ND	ND

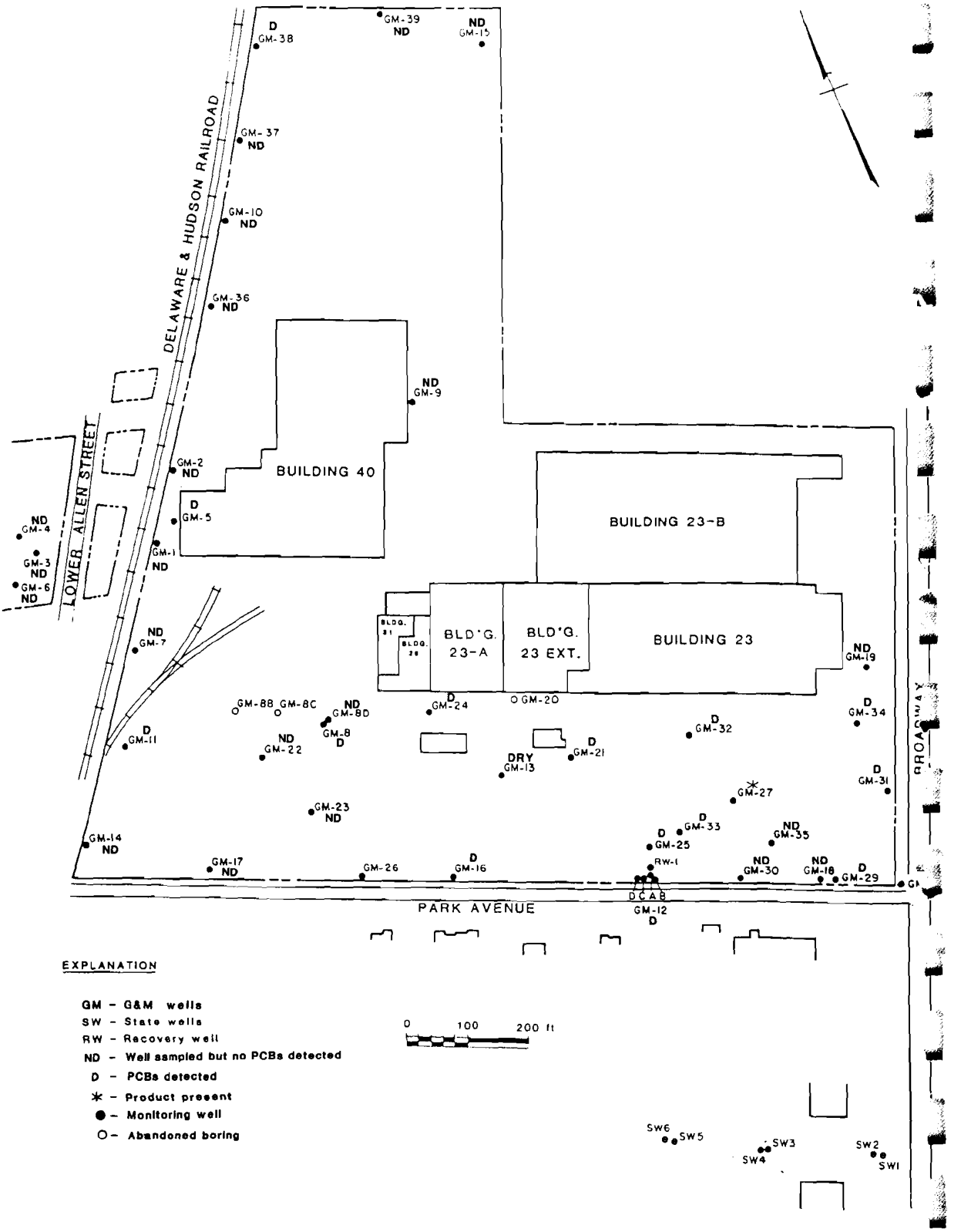
[a]All concentrations in μg/l.
[b]Samples compared to Aroclor 1242 standard. Detection limit is 0.5 μg/l.

ND = Not detected at 0.1 μg/l.
NA = Not analyzed.

Source: G&M 1983.

FIGURE 3-2

PCBs IN ON-SITE MONITORING WELLS DURING 1984-1985
General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

TABLE 3-3

PCB CONCENTRATIONS[a] MEASURED
IN ON-SITE MONITORING WELLS DURING 1983, 1984, AND 1985

General Electric Company

	1983	1984			1985			
WELL No.	JUN	OCT	NOV	DEC	JAN	FEB	MAR	MAY
GM-5	-	-	-	0.7	-	-	<0.5	-
GM-8	1600	212	-	-	-	-	Dry	-
GM-11	-	-	-	1.2	-	-	1.0	1.1
GM-12A	-	-	-	8.7	-	-	2.4	-
GM-12B	-	-	-	2.8	-	-	Dry	-
GM-12C	43	-	-	16	-	-	3.7	-
GM-16	-	<0.5	<0.5	-	0.9	-	<0.5	-
GM-21	81	50	43	28	-	25	22	-
GM-24	-	2.9	2.7	2.2	-	1.9	1.3	-
GM-25	-	13	11	5.1	-	3.5	2.0	-
GM-28	-	-	2.1	2.0	-	<0.5	<0.5	2.4
GM-29	-	0.9	<0.5	<0.5	-	<0.5	<0.5	-
GM-31	-	<0.5	<0.5	0.5	-	<0.5	<0.5	<0.5
GM-32	-	0.9	<0.5	<0.5	-	1.6	1.4	1.9
GM-33	-	<0.5	<0.5	0.8	-	<0.5	1.2	1.8
GM-34	-	1.1	<0.5	0.7	-	<0.5	<0.5	-
GM-38	-	-	-	-	-	-	2.2	<0.5

[a]All concentrations are total PCBs measured as μg/l Aroclor 1242. Data are only for wells where PCBs were above detection limits.
- Not sampled.

Source: G&M 1985b; GE unpublished data; NYSDOH unpub. data.

initially had greater than 1 μg/l PCB and were measured on more than one occasion.

The results of the 1982 and 1984-1985 sampling show consistent presence of PCBs in the shallow aquifer on the southeastern portion of the plant site. Groundwater in this area flows to the southeast and then south, which would explain the presence of PCBs found in wells along the southern border of the property. The reason that PCBs were not detected in wells GM-30 and GM-35 but were detected in adjacent wells is not known.

Although PCBs have been detected from the shallow aquifer on the southeastern portion of the site, RW-1 is collecting groundwater from the shallow aquifer. Therefore, any PCBs moving with the groundwater in this area are being collected by RW-1 and removed through the wastewater treatment system.

There appears to be no detectable PCB contamination in the shallow aquifer on the western portion of the plant site, including the area west of Lower Allen Street. PCB concentrations in water in this area were generally below detection limits. The only exceptions are the on-site areas near wells GM-11 and GM-38. Concentrations measured at GM-11 were 1.2, 1.0, and 1.1 μg/l in December 1984, March, and May 1985, respectively. The PCB concentration measured in groundwater from well GM-38 in March 1985 was 2.2 μg/l but it was below detection limits in May 1985. Additional water samples, as well as samples of material from the bottom of the wells at 38 and 44 Lower Allen Street, were taken on 1 May 1985 for PCB and volatile organics analyses. No PCBs were found in water samples. Material from the bottom of the wells, which was comprised of sediment, leaves, and twigs (GE, pers. commun.), had measurable PCB concentrations (Table 3-4). Locations of the residences sampled are shown on Figure 2-3. PCBs have not been de-

TABLE 3-4

ORGANIC COMPOUNDS IN
SHALLOW RESIDENTAL WELLS ON LOWER ALLEN STREET[a]

General Electric Company

RESIDENT ADDRESS	WELL DEPTH (ft)	SAMPLE DATE	TOTAL VOLATILE ORGANICS (g/l)	TRANS-1,2-DICHLORO-ETHANE	1,1,1-TRI-CHLORO-ETHANE	TRI-CHLORO-ETHYLENE	BENZENE	ETHYL BENZENE	TOLUENE	CHLORO-ETHANE	1,1-DICHLORO-ETHYLENE	1,1-DI-CHLORO-ETHANE	DI-CHLORO-METHANE	POLY-CHLORINATED BIPHENYLS (g/l)[b]
38 Lower Allen St	33.3	2-12-85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
		5-01-85 (water)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.5
		5-01-85 (soil)	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	ND	9.8
44 Lower Allen St	14.5	2-12-85	87.6	ND	2.8	ND	ND	16	4.8	36	28	ND	ND	NA
		Rep.	151.5	ND	3.5	ND	ND	18	58	41	31	ND	ND	NA
		5-01-85 (water)	32.5	ND	0.5	ND	ND	8.7	4.5	ND	18.8	ND	ND	<0.5
		5-01-85 (soil)	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	ND	9.0
40 Lower Allen St	15	5-07-83 (water)	49	ND	11	29	1	ND	ND	ND	ND	5	3	ND

[a]Data represent only those compounds that were detected, unless otherwise indicated.
[b] μg/g for soils.
ND - Not detected.
NA - Not analyzed.

Source: G&M 1985b; GE, unpublished data; DOH, unpublished data.

tected in the other monitoring wells on the northwest corner of the site.

3.3 NORTHWEST PORTION OF PROPERTY

Studies have been conducted on the northwestern portion of the plant site to determine the extent, if any, of soil and groundwater contamination. When the impounding basin, located near the former leach field, was constructed in 1976 (Figures 2-6 and 2-7), the excavated soils were deposited on the northwestern portion of the property. Soils from the Hudson Falls site have also been deposited there. CDA (1975) reported that the septic tank-leach field had received PCBs and kerosene; consequently, contamination of the soils from that area was probable. During a 1976 hydrogeological investigation, D&M discovered PCBs in soil and groundwater samples from the site of the impounding basin (D&M 1976a). During that same study, D&M found measurable quantities of two PCB isomers in water and soil samples taken from monitoring well W-215 in the northwestern portion of the property (Figure 2-8; Table 3-1). Those data are shown below:

SAMPLES	CONCENTRATION OF PCB ISOMER	
	1016	1254
Soil (μg/g)	0.015	0.001
Groundwater (μg/l)	0.8	0.1

As part of a larger groundwater quality study in 1982, G&M installed two monitoring wells in the shallow sand aquifer on the northwestern portion of the property (Figure 2-9) and analyzed samples for free hydrocarbons and dissolved organic chemicals (G&M 1983). No PCBs were found in monitoring wells GM-10 or GM-15; low concentrations of several volatile organics (1,1,1-trichloroethane, 1,1-dichloroethane, chloroethane, and ethylbenzene) and two base/

neutral compounds were detected in groundwater samples from GM-10, and traces of trichloroethylene and trans-1,2-dichloroethylene were detected in monitoring well GM-15 (Table 3-5).

Discovery of volatile organic and base/neutral compounds in monitoring well GM-10 led to installation of four new monitoring wells (GM-36 to GM-39) along the northwest perimeter of the site in March 1985 (Figure 2-9) to determine the extent of any contaminant plume in this area (G&M 1985a). Of particular concern was the possibility of a groundwater plume's being intercepted by any of the several residential wells on Lower Allen Street. NYSDEC had detected low levels of volatiles in a sample taken from one of the residential wells in 1983 (Table 3-4). As discussed in Section 2.4, groundwater flow in the upper sand aquifer is northwesterly in the northwest corner of the plant site. Off-site, groundwater flows northwesterly toward the Hudson River, based on water level measurements from two residential wells on Lower Allen Street (G&M, unpub. data) and data of D&M (1976b) on the GE property west of Lower Allen Street.

In addition to installing and sampling four new monitoring wells, G&M drilled four soil borings in the northwest portion of the site, resampled wells GM-10 and GM-15, and sampled two shallow residential wells along Lower Allen Street. No sample could be taken at the third residence because the well had been filled. No volatile organics were detected in any of the on-site monitoring wells or in the soil borings (Table 3-5). Trace levels (below quantifiable limits) of base/neutral compounds were measured in all six of the monitoring wells on 27 March 1985.

No volatiles were detected in the residential well at 38 Lower Allen Street; volatile organics were measured in both replicate samples taken on 12 February 1985 at 44 Lower Allen Street, directly west of the GE plant (Table 3-4). To confirm the initial re-

TABLE 3-5 (Page 1 of 2)

SUMMARY OF WATER QUALITY DATA FROM MONITORING WELLS AND BORINGS IN THE NORTHWEST CORNER OF SITE[a]

General Electric Company

	COMPOUND										
	VOLATILE ORGANICS (μg/l)							BASE/NEUTRALS (μg/l)			
WELL No.	CHLORO-ETHANE	1,1-DI-CHLORO-ETHANE	ETHYL-BENZENE	TRANS-1,2-DI-CHLORO-ETHYLENE	1,1,1-TRI-CHLORO-ETHANE	TRI-CHLORO-ETHYLENE	TOLUENE	BIS-(2-ETHYL-HEXYL)-PHTHALATE	NAPH-THALENE	ACID EXTRACTABLE (μg/l)	POLYCHLORINATED BIPHENYLS (μg/l)[b] AS AROCLOR 1242
GM-10											
09-07-82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
09-13-82	3.0	6.7	3.8	ND	9.0	ND	Trace	23	27	ND	NA
03-00-83[c]	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
04-06-83	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
08-00-83[c]	ND	23	ND	ND	ND	ND	36.5	NA	NA	NA	NA
10-28-83	ND	57	61	19	50	ND	70	NA	NA	NA	NA
03-27-84	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
01-04-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
03-04-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
03-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	ND
05-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5
GM-15											
09-07-82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
09-08-82	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA
09-15-82	ND	ND	ND	Trace	ND	Trace	ND	ND	ND	ND	NA
03-00-83	ND	ND	ND	ND	ND	3	ND	NA	NA	NA	NA
04-06-83	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
08-00-83	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
10-28-83	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
04-02-84	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
07-11-84	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
01-04-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND
03-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND
03-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	ND
05-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5

[a]Only those compounds detected are recorded, unless otherwise listed.
[b]μg/g for soil samples.
[c]Exact date of sampling unavailable.
ND - Not detected.
NA - Not analyzed.
Trace - Detected but less than minimum reporting level.
Data Sources: G&M 1983; 1985a and b; and unpublished data; GE unpublished data.

TABLE 3-5 (Page 2 of 2)

SUMMARY OF WATER QUALITY DATA FROM MONITORING WELLS AND BORINGS IN THE NORTHWEST CORNER OF SITE[a]

General Electric Company

	COMPOUND										
	VOLATILE ORGANICS (μg/l)							BASE/NEUTRAL (μg/l)			
WELL No.	CHLORO-ETHANE	1,1-DI-CHLORO-ETHANE	ETHYL-BENEZENE	TRANS-1,2-DI-CHLORO-ETHYLENE	1,1,1-TRI-CHLORO-ETHANE	TRI-CHLORO-ETHYLENE	TOLUENE	BIS-(2-ETHYL-HEXYL)-PHTHALATE	NAPH-THALENE	ACID EXTRACTABLE (μg/l)	POLYCHLORINATED BIPHENYLS (μg/l)[b] AS AROCLOR 1242
GM-36											
05-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	ND
05-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5
GM-37											
03-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	ND
05-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5
GM-38											
03-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	2.2
05-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5
GM-39											
3-27-85	ND	ND	ND	ND	ND	ND	ND	Trace	Trace	NA	ND
5-08-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<0.5
Boring 1											
3-21-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	1.9
Boring 2											
3-21-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<1.0
Boring 3											
3-21-85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Boring 4											
3-21-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	<1.0
Boring 5											
3-21-85	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	1.8

[a]Only those compounds detected are recorded, unless otherwise listed.
[b]μg/g for soil samples.
[c]Exact date of sampling unavailable.
ND - Not detected.
NA - Not analyzed.
Trace - Detected but less than minimum reporting level.
Data Sources: G&M 1983; 1985a and b; and published data; GE unpublished data.

sults, additional water samples as well as samples of material from the bottom of the wells were taken from the two residentials on 1 May 1985 for PCB and volatile organics analyses. Volatile organics measured in the well at 44 Lower Allen Street were lower than in February and were lower than the New York State Department of Health drinking water guideline of 50 μg/l for a single organic compound or 100 μg/l for total organics. The low and variable concentrations of volatile organics off-site and the absence of volatiles in the site monitoring wells along the site's northwest boundary indicate that no volatile contaminants are now leaving the site.

3.4 ORGANIC CHEMICAL DISTRIBUTION IN THE SHALLOW AQUIFER

A plume of organic chemicals, principally volatile organic compounds, exists in the shallow sand aquifer on the plant site. This section describes work conducted by G&M and GE from 1982-1985 to investigate the nature of the plume.

During 1982, concentrations of acid and base/neutral extractable organic compounds were measured in 17 shallow aquifer monitoring wells. Of the acid extractable compounds, only a trace of phenol was detected in well GM-12B. Base/neutral extractable compounds were found in 10 of the 17 wells sampled (G&M 1983). With the exception of well GM-19, which contained a trace of two phthalates, the monitoring wells where acid or base/neutral extractable compounds were detected are the same as those that contain volatile organics (discussed below). The highest concentrations of acid or base extractable compounds (1132 and 188 μg/l) were measured at wells GM-21 and GM-8, respectively (G&M 1983). GM-8 is located in the abandoned leach field and GM-21 is downgradient of it. No analyses for acid or base extractable compounds were conducted during 1983-1985. The remainder of this discussion focuses on the volatile organic compounds. The data are divided into two group-

ings: those collected from July 1982 to July 1984 prior to full-time operation of RW-1, and from October 1984 to May 1984 when RW-1 was pumping.

During 1982 - July 1984, volatile organic compounds were detected in on-site monitoring wells. Figure 3-3 shows the range of total VOC concentrations measured and those wells with no detectable volatiles. Table 3-6 gives the concentration of total VOCs for those wells with measurable concentrations and the percentage of trichloroethylene, which is the principal constituent in most cases. Several other compounds were detected at greater than trace concentrations (G&M 1983; GE, unpub. data). Trans-1,2-dichloroethylene, which was present in high concentrations at several stations, is a breakdown product of TCE and may be attributable to TCE degradation.

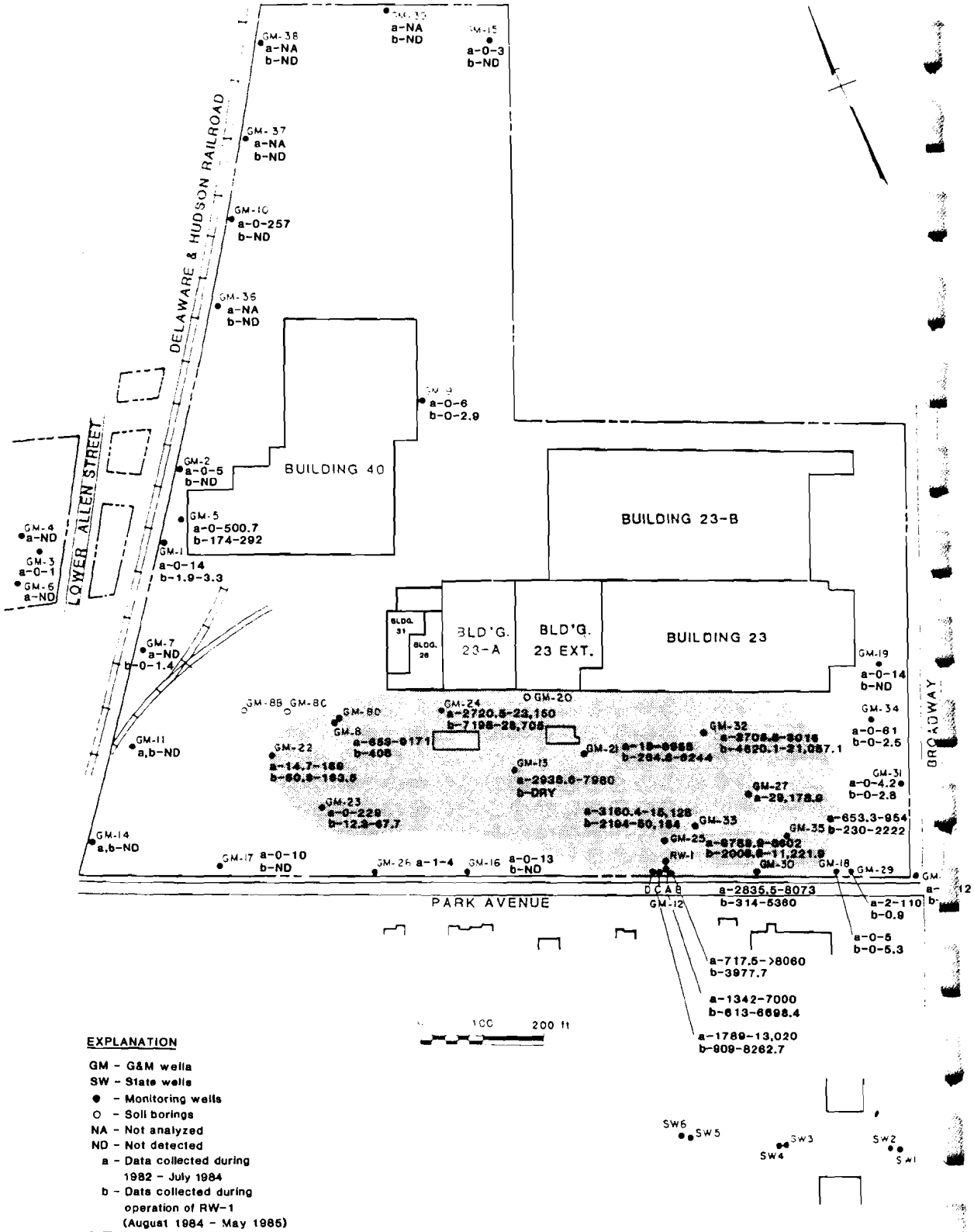
Highest concentrations of volatile organic compounds were found in the vicinity of GM-12, GM-24, GM-27, and GM-33. While TCE was the principal volatile at GM-12, GM-27, and GM-33, trans-1,2-dichloroethylene was the most concentrated volatile at GM-24. Studies conducted in 1984-1985 defined the distribution of volatile organics more precisely because a greater number of wells, particularly in the southeast portion of the property, were available for sampling. Results from the October 1984-1985 sampling are summarized in Figure 3-3 and Table 3-7.

In general, these data confirm the earlier results. Groundwater in the northwest corner of the site is relatively free of volatile organic contamination. Volatiles were detected along the western border at wells GM-5 and GM-1 to the southwest. Nothing was detected at GM-2. The specific compounds detected were chloroethane, 1,1-dichloroethane, and 1,1,1-trichloroethane. As will be seen later, this mixture is different from the mixture present in

FIGURE 3-3

CONCENTRATIONS OF TOTAL VOLATILE ORGANIC COMPOUNDS MEASURED IN SHALLOW MONITORING WELLS AT THE FORT EDWARD PLANT*

General Electric, Fort Edward Plant



EXPLANATION

GM - G&M wells
SW - State wells
● - Monitoring wells
○ - Soil borings
NA - Not analyzed
ND - Not detected
a - Data collected during 1982 - July 1984
b - Data collected during operation of RW-1 (August 1984 - May 1985)
▭ - Region of contamination

*Values are ranges in µg/l

LAWLER, MATUSKY & SKELLY ENGINEERS

TABLE 3-6 (Page 1 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-1		
07-15-82	ND	
03-00-83[b]	14	57
04-06-83	ND	
11-08-83	ND	
03-27-84	ND	
07-13-84	ND	
GM-2		
07-12-82	5	0
03-00-83[b]	ND	
04-06-83	ND	
08-00-83[b]	ND	
10-28-83	ND	
03-27-84	ND	
07-13-84	ND	
GM-3		
07-16-82	ND	
03-00-83[b]	ND	
05-09-83	1	100
10-28-83	ND	
04-02-84	ND	
07-12-84	ND	
GM-5		
09-13-82	13	0
03-00-83[b]	ND	
04-06-83	ND	
11-08-83	ND	
03-27-84	76	0
07-14-84	500.7	1
GM-8		
09-13-82	5918.4	<1
03-00-83[b]	7753	<1

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-6 (Page 2 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-8 (cont.)		
04-06-83	9171	0
06-23-83	3629/3380	<1/0
10-31-83	3463	2
04-02-84	2515.9	<1
07-12-84	653	4
GM-9		
09-13-82	Tr	100
03-00-83[b]	6	50
04-05-83	ND	
08-00-83[b]	ND	
10-27-83	ND	
03-27-84	ND	
07-13-84	11	100
GM-12A		
07-15-82	6560	38
09-09-82	>3975	>23
03-00-83[b]	1342	52
04-05-83	1890	74
10-27-83	7000	77
03-26-84	2914	75
07-13-84	1473.8	43
GM-12B		
09-30-82	5466.3	64
03-00-83[b]	1490	55
04-05-83	2230	72
06-23-83	4920/3792	71/84
10-27-83	>8060	>72
03-26-84	7881	77
07-13-84	717.5	60

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.
/ = Duplicate analyses.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-6 (Page 3 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-12C		
09-30-82	6133	42
03-00-83[b]	1769	62
04-05-83	3500	80
06-23-83	8007/13020	72/42
10-27-83	>12280	90
03-26-84	3690	81
07-13-84	3977.8	60
GM-13		
06-13-83	7980	40
08-00-83[b]	5956	61
04-02-84	2938.6	51
07-12-84	3907.2	59
GM-16		
10-01-82	ND	
03-00-83[b]	5	0
04-05-83	ND	
06-23-83	6/2	0/0
10-27-83	ND	
03-26-84	ND	
07-13-84	13	0
GM-17		
09-30-82	10	100
03-00-83[b]	ND	
04-05-83	ND	
08-00-83[b]	ND	
10-27-83	ND	
03-26-84	ND	
07-11-84	ND	

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.
/ = Duplicate analyses.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-6 (Page 4 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (µg/l)	% TRICHLOROETHYLENE
GM-18		
09-30-82	6	0
03-00-83[b]	ND	
04-05-83	ND	
06-23-83	5/2	0/0
10-27-83	ND	
03-26-84	ND	
07-13-84	ND	
GM-19		
10-01-82	ND	
03-00-83[b]	14	64
04-05-83	ND	
08-00-83[b]	ND	
10-28-83	ND	
03-27-84	ND	
07-12-84	ND	
GM-21		
10-01-82	4386	68
03-00-83[b]	1593	69
04-05-83	1302	66
06-23-83	2170/19	64
10-28-83	8955	66
03-27-84	764[c]	94[c]
07-11-84	2227.8	81
GM-22		
08-00-83[b]	39	33
10-31-83	169	11
04-02-84	111	32
07-11-84	14.7	35

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.
/ = Duplicate analyses.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-6 (Page 5 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-23		
08-00-83[b]	229	74
10-31-83	183	93
04-02-84	ND	
07-11-84	ND	
GM-24		
08-00-83[b]	23050	13
10-31-83	13490	33
04-28-84	4992	32
07-11-84	2720.5	32
GM-25		
10-27-83	6870	98
03-26-84	8602	66
07-11-84	6789.9	69
GM-26		
03-28-84	1	100
07-13-84	4	0
GM-27		
07-17-84	29178.9	99
GM-28		
03-28-84	ND	
07-16-84	120	100
GM-29		
03-28-84	2	50
07-16-84	110	100
GM-30		
03-28-84	8073	99
07-16-84	2823.5	99

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-6 (Page 6 of 6)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER
FROM ON-SITE MONITORING WELLS DURING 1982-JULY 1984[a]

General Electric Company

WELL No.	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-31		
03-28-84	ND	
07-17-84	4.2	100
GM-32		
03-28-84	3016	99
07-16-84	2705.8	99.8
GM-33		
03-28-84	15128	99
07-13-84	3160.4	98
GM-34		
03-28-84	ND	
07-16-84	61	100
GM-35		
03-29-84	954	99.6
07-17-84	653.3	99.5

[a]Only wells listed had detectable concentrations; data for wells GM-10 and GM-15 are on Table 3-5.
[b]Exact date of sampling unavailable.
[c]Data questionable; this was only sample date when no trans-1,2-dichloroethylene was detected.
ND = Not detected.
Tr = Trace.

Source: G&M 1983; GE unpub. data; NYSDOH unpub. data.

TABLE 3-7 (Page 1 of 4)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING OPERATION OF RW-1 (AUGUST 1984 - MAY 1985)[a]

General Electric Company

	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-1		
12-20-84	1.9	0
3-07-85	3.3	0
GM-5		
12-20-84	174.2	0
3-07-85	292.0	0
GM-7		
12-20-84	1.4	100
3-06-85	ND	
5-08-85	ND	
GM-8		
10-11-84	408	0
GM-8D		
3-02-85	24.8	20
5-08-85	3.5	0
GM-9		
11-04-84	2.9	100
3-06-85	ND	
5-08-85	ND	
GM-12A		
12-18-84	6698.4	70
3-07-85	613	78
GM-12B		
1-04-85	3977.7	99.7
GM-12C		
12-18-84	8252.7	66
3-06-85	909	79
GM-18		
10-08-84	ND	
11-15-84	4.2	0
12-14-84	5.3	0
2-06-85	1.2	0
3-05-85	ND	

[a]Only wells listed had detectable concentrations; wells GM-36 to GM-39 on the northwest corner of the property are included on Table 3-5.

ND - Not detected.

Source: G&M 1985a; GE, unpublished data.

TABLE 3-7 (Page 2 of 4)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING OPERATION OF RW-1 (AUGUST 1984 - MAY 1985)[a]

General Electric Company

	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-21		
10-08-84	3021	79
11-15-84	6244.1	84
12-20-84	2304.2	87
2-06-85	702.8	91
3-07-85	264.8	86
GM-22		
10-08-84	50.3	32
11-14-84	116.5	3
1-04-85	183.5	14
2-06-85	124.4	15
3-08-85	69.3	10
5-07-85	150.7	17
GM-23		
10-18-84	40	28
11-14-84	23.1	34
12-20-84	67.7	36
2-06-85	12.3	40
5-07-85	10.3	38
GM-24		
10-08-84	8752	27
11-14-84	9964	47
12-20-84	7189	51
2-11-85	28705	30
3-07-85	8338	12
5-08-85	3997	27
GM-25		
10-10-84	3778	98
11-07-84	4488.1	98
12-14-84	4434.9	99.6
2-06-85	2009.6	98
3-06-85	11221.9	99.5

[a]Only wells listed had detectable concentrations; wells GM-36 to GM-39 on the northwest corner of the property are included on Table 3-5.

ND - Not detected.

Source: G&M 1985a; GE, unpublished data.

TABLE 3-7 (Page 3 of 4)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING OPERATION OF RW-1 (AUGUST 1984 - MAY 1985)[a]

General Electric Company

	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-29		
10-10-84	9	40
11-07-84	6.2	45
12-14-84	2.5	0
2-08-85	ND	
3-05-85	ND	
GM-30		
10-10-84	5360	97
11-07-84	3499.7	99.5
12-14-84	1352.1	99.9
2-08-85	2205	100
3-07-85	314	100
5-07-85	203	100
GM-31		
10-10-84	ND	
11-06-84	2.8	68
12-13-84	1.1	100
2-11-85	ND	
3-05-85	ND	
5-07-85	ND	
GM-32		
10-10-84	21057.1	99.7
11-07-84	8352.2	99
12-13-84	4620.1	99
2-11-85	10484.9	99.5
3-05-85	8884.9	99.5
5-07-85	19407.1	99.8
GM-33		
10-10-84	50154	99.7
11-07-84	5923.4	99
12-14-84	3602	99.7
2-08-85	14847	100
3-06-85	2194	99.9
5-07-85	825	100

[a]Only wells listed had detectable concentrations; wells GM-36 to GM-39 on the northwest corner of the property are included on Table 3-5.

ND - Not detected.

Source: G&M 1985a; GE, unpublished data.

TABLE 3-7 (Page 4 of 4)

VOLATILE ORGANIC COMPOUNDS MEASURED IN GROUNDWATER FROM ON-SITE MONITORING WELLS DURING OPERATION OF RW-1 (AUGUST 1984 - MAY 1985)[a]

General Electric Company

	TOTAL VOC (μg/l)	% TRICHLOROETHYLENE
GM-34		
10-10-84	ND	
11-06-84	ND	
12-13-84	2.5	100
2-11-85	ND	
3-06-85	ND	
GM-35		
10-11-84	230	100
11-07-84	567.3	99.8
12-14-84	630	100
2-08-85	2222	100
3-06-85	363	100
5-08-85	608	100

[a]Only wells listed had detectable concentrations; wells GM-36 to GM-39 on the northwest corner of the property are included on Table 3-5.

ND - Not detected.

Source: G&M 1985a; GE, unpublished data.

the southeastern portion of the property, so the sources or times of contamination probably differ between the two areas.

The data indicate a volatile organic plume under much of the southeastern portion of the site. The approximate lateral extent can be seen in Figure 3-3. The mixture of specific compounds varies among locations. The percentage of TCE in wells GM-8, GM-13, GM-22, and GM-24 in the vicinity of the leach field was generally less than 50%, and compounds indicative of TCE degradation were present. Further east of the leach field (wells GM-12, GM-21, GM-25, GM-27, GM-30, GM-32, GM-33, and GM-35) the principal constituent was trichloroethylene (Tables 3-6 and 3-7). At GM-23, which is near the border of the plume, the percentage of TCE varied. The difference in volatile compounds may reflect differing sources or times of contaminant discharge.

As shown in Figure 2-11, south of the water table divide, between wells GM-9 and GM-15, groundwater flow is to the southeast and then south. As a result, volatile organic chemicals have migrated off-site between wells GM-16 and GM-18, with highest concentrations at GM-12 and GM-30. An assessment of off-site shallow aquifer quality as a result of past discharges is presented in Chapter 5. GE initiated remedial steps in 1983 to eliminate off-site migration of contaminated groundwater in the shallow sand aquifer by installing a recovery well, RW-1, near GM-12. According to water table measurements, pumping of groundwater from RW-1 has been effective in reversing the off-site migration of contaminated groundwater (see Chapter 6).

3.5 NON-AQUEOUS PHASE PLUME

In November 1983 a layer of PCBs was discovered at the bottom of the sand aquifer in the southeastern portion of the property. This section details the discovery of free PCBs in well GM-27, and the

investigation to define the extent of subsurface contamination; remedial activities to contain and remove the product are discussed in Chapter 6.

G&M (1984) installed monitoring well GM-27 along with well GM-26 on 21-22 November 1983 to monitor water level changes caused by pumping the recovery well, RW-1. Construction details and geologic logs are provided in Appendix A.

During well construction, no oil or chemical odor was detected in any of five split-spoon samples taken; however, no sample could be taken in the sand at the bottom of GM-27. Clays on the lead auger had a strong odor, but no oil was observed. On 22 November about 360 gal of water was pumped from well GM-27 to a drain in the GE parking lot. A brown oil was discovered in the bottom of the well, at which time pumping stopped and the well was locked until a preliminary assessment could be made (G&M 1984; McGlincy 1985).

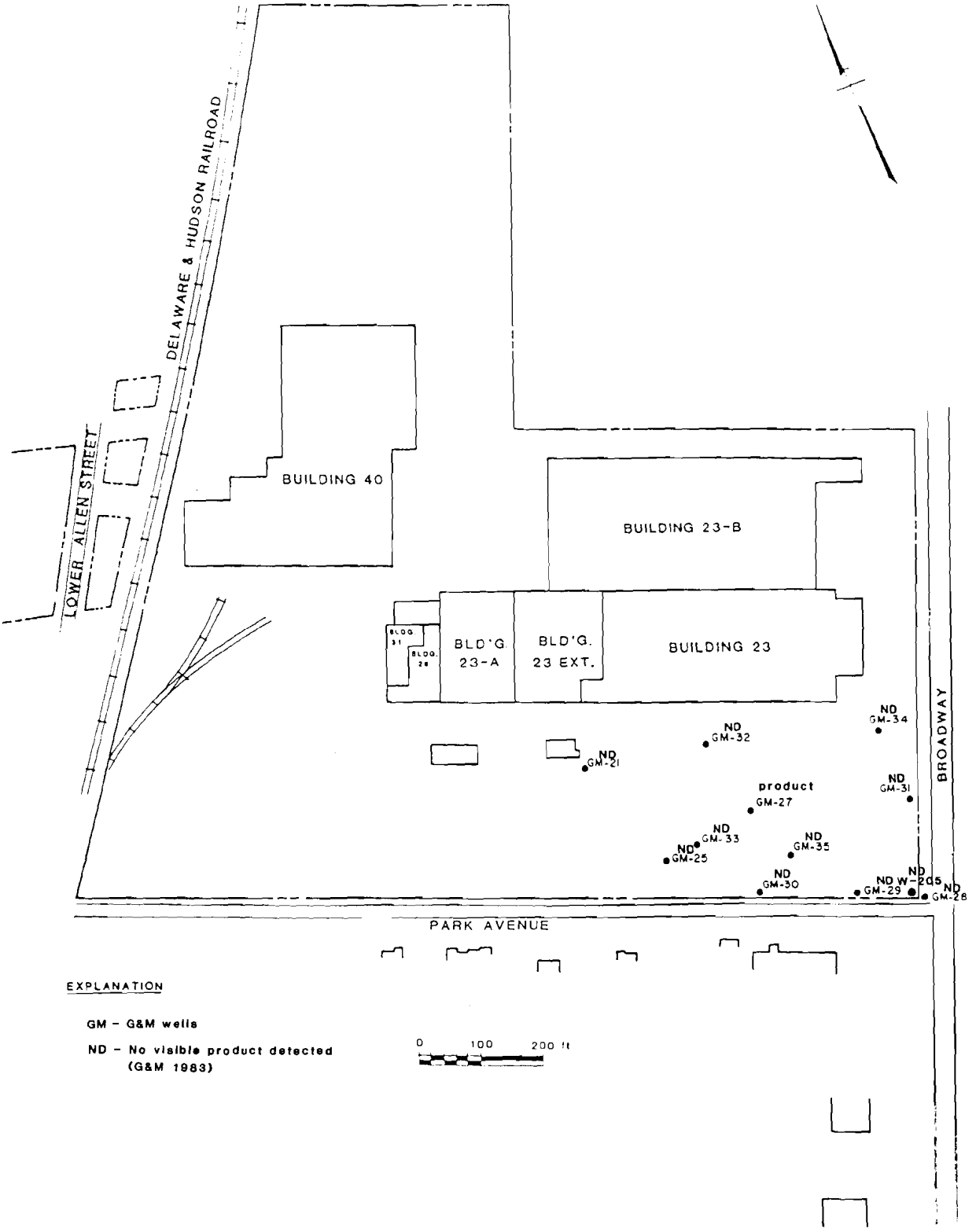
On 1 December 1983 four wells (GM-21, GM-25, GM-27, and W-205) were sampled for oil using a clear plastic Oil Recovery Systems bailer. At well GM-27, samples were taken at the top of the water table (9.7-10.7 ft below grade), at about 18 ft below grade, and at the bottom of the well (27-28 ft below grade). The other three wells were sampled at the top of the water table and bottom of the well. Approximately 1 ft of a thick brown oil was measured at the bottom in well GM-27; no visible oil was found in the other wells (Figure 3-4). The material recovered from well GM-27 was confirmed to be PCBs by the GE Research & Development Laboratory (G&M 1984; McGlincy 1985).

To determine the lateral extent of the product discovered in well GM-27, eight additional monitoring wells (GM-28 through GM-35) were installed during 5-8 December 1983. Figure 3-4 shows the location of these wells; Appendix A gives well construction details and geo-

FIGURE 3-4

WELLS SAMPLED DURING INVESTIGATION OF NON-AQUEOUS PHASE PCBs NEAR GM-27

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

logic logs. No product was found during installation or on 12 January 1984. In addition, wells GM-33 and RW-1 were monitored during the 30-day pilot pumping test (G&M 1984) and no product was detected. Between sampling on 1 December 1983 and 12 January 1984 the product thickness in well GM-27 decreased from approximately 1 ft to a thin layer. The results are summarized in Table 3-8.

Because none of the monitoring wells surrounding well GM-27 or recovery well RW-1 showed even traces of free product, it was hypothesized that the product was confined by a depression in low permeability clay deposits underlying the sand aquifer near GM-27.

To investigate this possibility, elevations of the low permeability deposits were mapped using data from the boring logs. The results, shown in Figure 3-5, confirm the hypothesis that well GM-27 is located in a depression in the clay. Because the data are accurate only to about 0.5 ft and the actual contours may vary from those shown in Figure 3-5, the degree of confinement of the oil around well GM-27 is uncertain. For example, the reason why no product has been observed in wells GM-34 and GM-35, where elevations of the low permeability deposits appear to be slightly lower than at well GM-27, may be that the elevation is actually slightly higher.

Remedial action in the form of pumping product from GM-27 has been taken by GE. The results, including pumping rates and product recovery, are discussed in Chapter 6.

TABLE 3-8 (Page 1 of 2)

OIL DETECTION PROGRAM RESULTS
1 DECEMBER 1983 TO 12 JANUARY 1984

General Electric Company

WELL No.	DATE	TOP[a]	BOTTOM[b]	ADDITIONAL COMMENTS
GM-21	12-01-83	None	None	Strong odor; warm temperature
GM-25	12-01-83	None	None	-
GM-27	12-01-83	Slight sheen	Approx. 1 ft of dark brown oil at base of well	Could not measure oil on top; oil at base had strong chemical odor
	01-12-84	None	Trace	Strong chemical odor
GM-28	12-09-83	None	None	-
	01-12-84	None	None	Top sample had rust-colored sediment on water table; sediment at base
GM-29	12-09-83	None	None	-
	01-12-84	None	None	Bottom sample had rust-colored water
GM-30	12-09-83	None	None	-
	01-12-84	None	None	Sediment at base
GM-31	12-09-83	None	None	-
	01-12-84	None	None	Sediment at base
GM-32	12-09-83	None	None	-
	01-12-84	None	None	Sediment at base
GM-33	12-09-83	None	None	-
	12-14-83 through 01-12-84	None	None	Sediment at base

[a]Top = Top 2 ft of the water table.
[b]Bottom = Bottom 2 ft of the well.

Source: G&M 1984.

TABLE 3-8 (Page 2 of 2)

OIL DETECTION PROGRAM RESULTS
1 DECEMBER 1983 TO 12 JANUARY 1984

General Electric Company

WELL No.	DATE	TOP[a]	BOTTOM[b]	ADDITIONAL COMMENTS
GM-34	12-09-83	None	None	-
	01-12-84	None	None	Sediment at base
GM-35	12-09-83	None	None	-
	01-12-84	N/A	N/A	Not sampled
W-205	12-01-83	None	None	Sediment at base

[a]Top = Top 2 ft of the water table.
[b]Bottom = Bottom 2 ft of the well.

Source: G&M 1984.

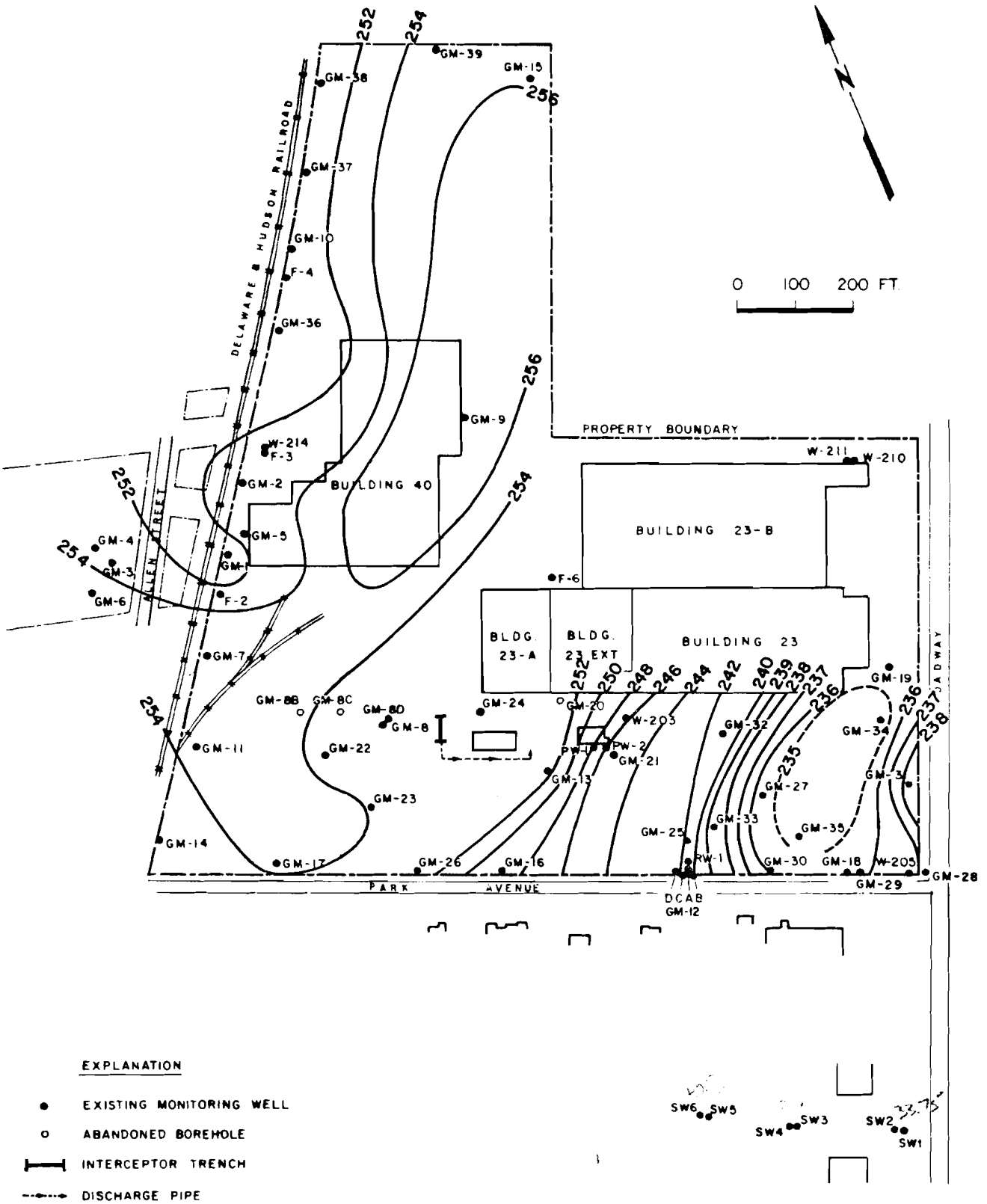


FIGURE 3-5

ELEVATION OF THE TOP OF THE LOW PERMEABILITY DEPOSITS UNDERLYING THE SHALLOW AQUIFER

GENERAL ELECTRIC COMPANY
FORT EDWARD, NEW YORK

LAWLER, MATUSKY & SKELLY ENGINEERS

Source: G&M

CHAPTER 4

ASSESSMENT OF INTERMEDIATE AND DEEP AQUIFERS

This chapter provides a review of hydrogeologic and water quality results for the bedrock aquifers as required by item II.E.2b of the consent order. It includes new data collected in 1984-1985. PCBs and volatiles were detected in on-site deep wells PW-1 and PW-2 and volatiles were detected in three domestic rock wells in the intermediate aquifer south of the site. The intermediate and deep aquifers are described in the hydrogeologic review in Section 2.4.

In summary, the intermediate aquifer is Snake Hill shale of varying surface elevations rising to within 10 ft of grade elevation at some locations on the site and sloping downward to the west (D&M 1976b) and to the southeast (G&M 1983). Figure 2-10 illustrates the bedrock surface along a section through the site. The shale is generally competent, with approximately horizontal bedding planes. Occasional limestone strata are encountered with increasing depth. Many residential wells in the area tap the intermediate aquifer; their locations are shown on Figure 2-4. The deep limestone aquifer is tapped on-site by two wells that are now sealed. No residential wells near the site tap the deep aquifer. The intermediate and deep aquifers are protected from shallow contaminants by the clay and till that underlie the shallow sandy aquifer.

Piezometric heads in the intermediate (shale) aquifer have been measured in the monitoring wells penetrating the top of the shale (GM-8D and GM-12D). Data for the deep (limestone) aquifer are available from the drilling logs and piezometric head measurements in the on-site PW-1 and PW-2 wells. These data indicate that the head declines with increasing depth in the bedrock aquifers (D&M 1976b; G&M 1983). The overall regional flow direction is described by Dames & Moore as being toward the river (westward from the

site). Although there are several residential wells that tap the intermediate aquifer, a more precise evaluation of the flow direction in the aquifer is not possible because some of these wells may be in use.

4.1 Intermediate Aquifer

Water quality data from the intermediate aquifer are available from a number of residential wells near the site and from well GM-12D and well GM-8D screened in the top of the shale aquifer. Well GM-8D indicates only low levels of VOCs; well GM-12D had a trace of volatiles on one occasion. On-site data are included on Tables 4-1 and 4-2.

Results from the residential wells in the intermediate aquifer are shown on Figures 4-1 and 4-2 for total VOCs and PCBs, respectively. The data include those collected in 1982-1983 and in 1984-1985. No PCBs were detected south of the plant. The only off-site rock wells showing volatiles are those immediately south of the site, where shallow contamination is known to exist, and at the Decora well far to the south. The 1982-1983 data show volatiles in several (but not all) wells south of the plant site where the shallow plume of contaminants exists, and just to its west. Since no special precautions were normally taken in installing supply wells until recently, contaminants from the shallow zone have most likely been drawn down the casing or leaked into the corroded or leaky casing at shallow depths. One rock well along Park Avenue was replaced several years ago and sealed from the shallow aquifer. The new well has no contamination. Another well on Stevens Lane taps the bedrock aquifer below the shallow contaminated zone but has remained unaffected, apparently due to the well installation. Appendix C lists residential well data from the intermediate aquifer.

TABLE 4-1

CONCENTRATIONS OF TOTAL VOLATILE ORGANIC COMPOUNDS IN ON-SITE ROCK WELLS[a]

General Electric Company

VOLATILE ORGANIC COMPOUNDS

WELL No.	TOTAL VOLATILE ORGANICS	VINYL CHLORIDE	1,1-DICHLORO-ETHYLENE	1,1-DICHLORO-ETHANE	TRANS-1,2-DICHLORO-ETHYLENE	CHLOROFORM	BROMODI-CHLORO-METHANE	TRICHLORO-ETHYLENE	BENZENE	DIBROMO-CHLORO-METHANE	TOLUENE
GM-8D											
3-02-85	24.8	ND	ND	19.8	ND	ND	ND	5	ND	ND	ND
5-06-85	3.5	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND
GM-12D											
9-30-82	Tr	ND	ND	ND	ND	ND	ND	ND	Tr	ND	ND
8-08-83[b]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-02-85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-30-85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PW-1											
9-10-82	497.6	Tr	Tr	Tr	75	34	14	370	ND	4.6	Tr
10-07-82											
Pumped											
30 min	4000	ND	ND	ND	700	ND	ND	3300	ND	ND	ND
≥146 min[c]	1783	ND	Tr	Tr	510	ND	ND	1273	ND	ND	ND

BASE/NEUTRAL EXTRACTABLE

WELL No.	TOTAL BASE EXTRACTABLE COMPOUNDS	BIS(2-ETHYL-HEXYL) PHTHALATE	DI-N-BUTYL PHTHALATE
GM-12D			
10-07-82	Tr	Tr	Tr
PW-1			
9-10-82	NA	21	ND

[a]Only those compounds detected are listed; all concentrations are in μg/l.
[b]Sampled week of 8-8-83.
[c]Mean of samples taken after 146, 218, and 293 min.
Tr - Trace.
ND - None detected above minimum detection limit.

Source: D&M 1976a; G&M 1983, 1985a; and GE, unpublished data.

TABLE 4-2

CONCENTRATIONS OF PCBs IN ON-SITE ROCK WELLS[a]

General Electric Company

PCBs

WELL No.	PCBs (REPORTED AS AROCLOR) 1016	1242 UNFILTERED	1242 FILTERED	1248	1254
GM-8D					
4-02-85		<0.5			
5-06-85		1.4			
GM-12D					
10-07-82	2.8	2.5		ND	
4-02-85		ND			
5-08-85		ND			
PW-1					
4-20-76 to 5-01-76	26.0				1.7
09-10-82		920			
10-07-82[b]					
Pumped					
0-30 min		5200			
		1000			
After 293 min		540			
		370			
		340			
10-13-82[b]					
0 hrs pumping			60		
1 hr pumping		390	75		
11-08-82					
0 hrs pumping		160			
1 hr pumping		44			
2 hrs pumping		29			
4 hrs pumping		21			
6 hrs pumping		44			
8 hrs pumping		25			
10 hrs pumping		19			
12 hrs pumping		22			
14 hrs pumping		17			
16 hrs pumping		22			
18 hrs pumping		16			
20 hrs pumping		7			
22 hrs pumping		15			
24 hrs pumping		2			
11-11-82					
0 hrs pumping		160			
1 hr pumping		45			
2 hrs pumping		29			
11 hrs pumping		23			
24 hrs pumping		20			
12-09-82 to 12-10-82					
0 hrs pumping		33000			
3 hrs pumping		330			
pump off		33000			
pump off		12000			
PW-2					
4-20-76 to 5-01-76	8.7				0.6

ND - None detected.

[a]Concentrations are µg/l.
[b]Sequential samples.

Source: D&M 1976a: G&M 1983, 1985a, and GE, unpublished data.

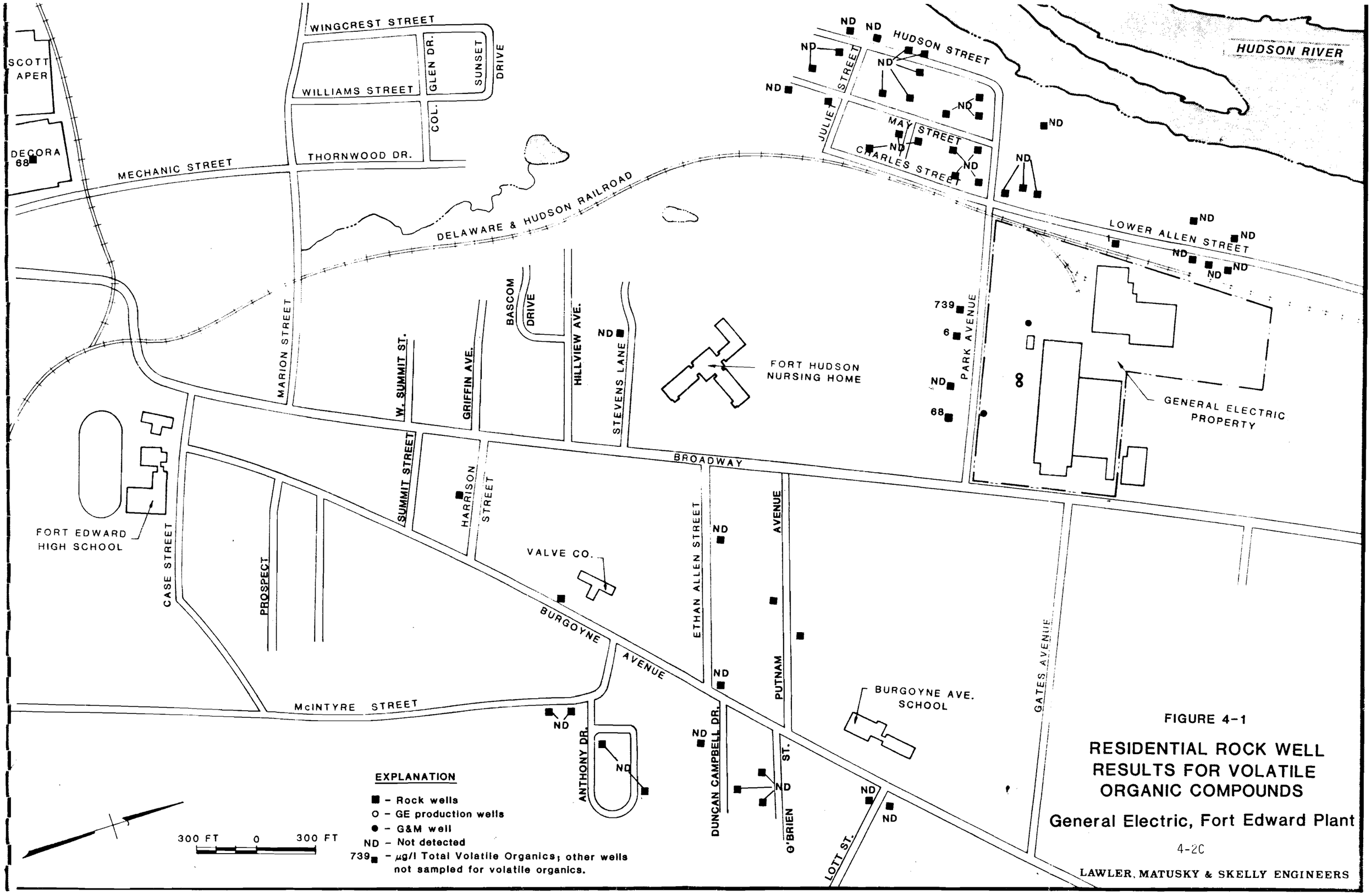


FIGURE 4-1

RESIDENTIAL ROCK WELL RESULTS FOR VOLATILE ORGANIC COMPOUNDS

General Electric, Fort Edward Plant

4-2C

LAWLER, MATUSKY & SKELLY ENGINEERS

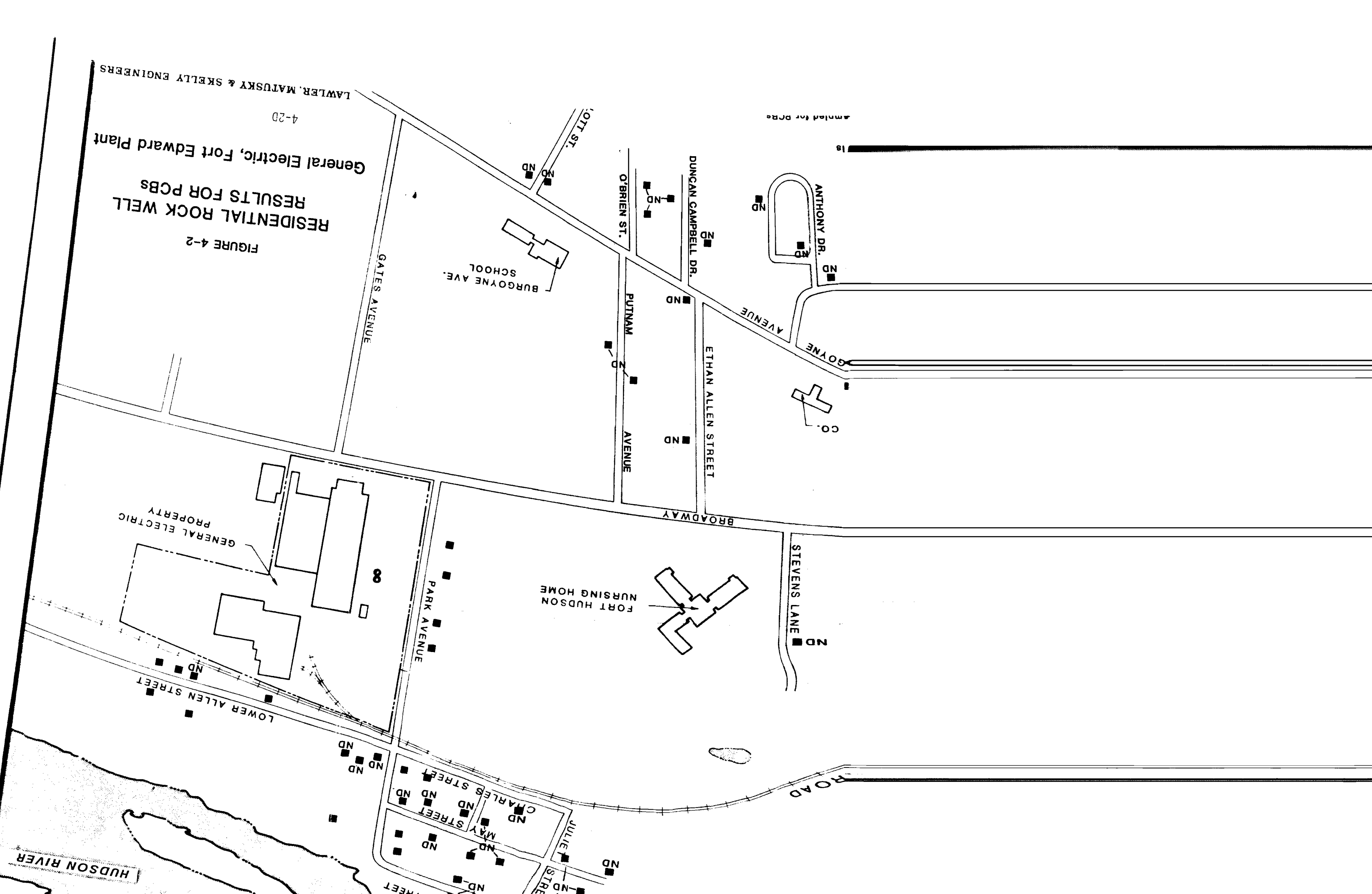
LAWLER, MATUSKY & SKELLY ENGINEERS

4-2D

General Electric, Fort Edward Plant

RESIDENTIAL ROCK WELL
RESULTS FOR PCBs

FIGURE 4-2



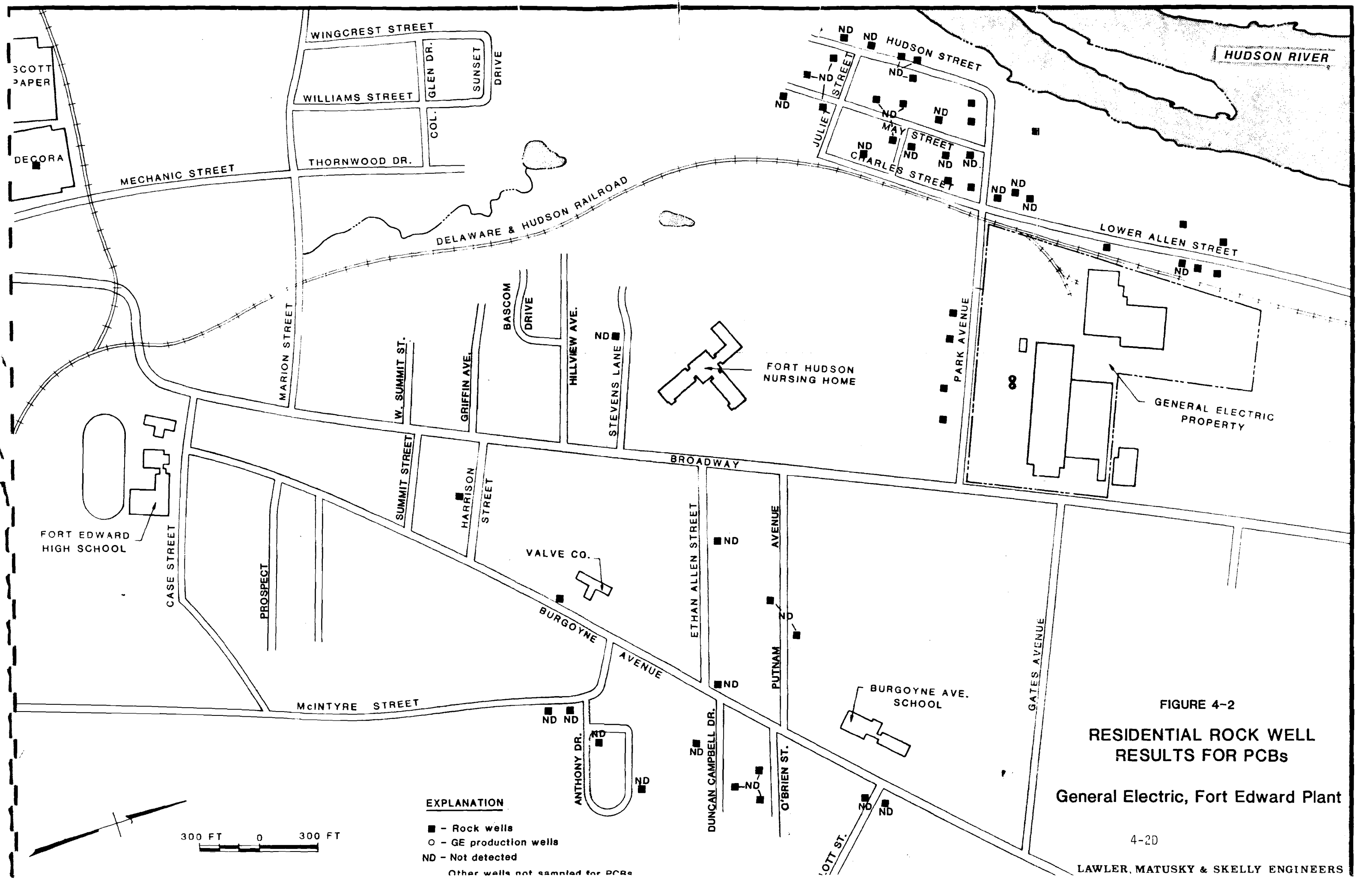


FIGURE 4-2

RESIDENTIAL ROCK WELL RESULTS FOR PCBs

General Electric, Fort Edward Plant

LAWLER, MATUSKY & SKELLY ENGINEERS

An industrial well that is farther south than the shallow aquifer plume had detectable levels of one volatile, toluene. As this chemical is only a minor constituent of volatiles in groundwater at the GE plant, and none of the major constituents of the shallow contamination were detected in this well, toluene is attributed to a source other than GE.

In summary, although contaminants have been found in three off-site rock wells and two on-site wells (GM-8D and GM-12D), the concentrations are substantially lower than they are in the shallow aquifer. They are not attributed to contamination of the intermediate shale aquifer, but rather to local leakage into that aquifer along well casings or through wells that penetrate both zones. Because shale aquifers characteristically have low vertical permeability, there is little probability that contaminants have penetrated the clay and till strata and entered the shale to the depths found in the residential well monitoring program.

4.2 Deep Aquifer

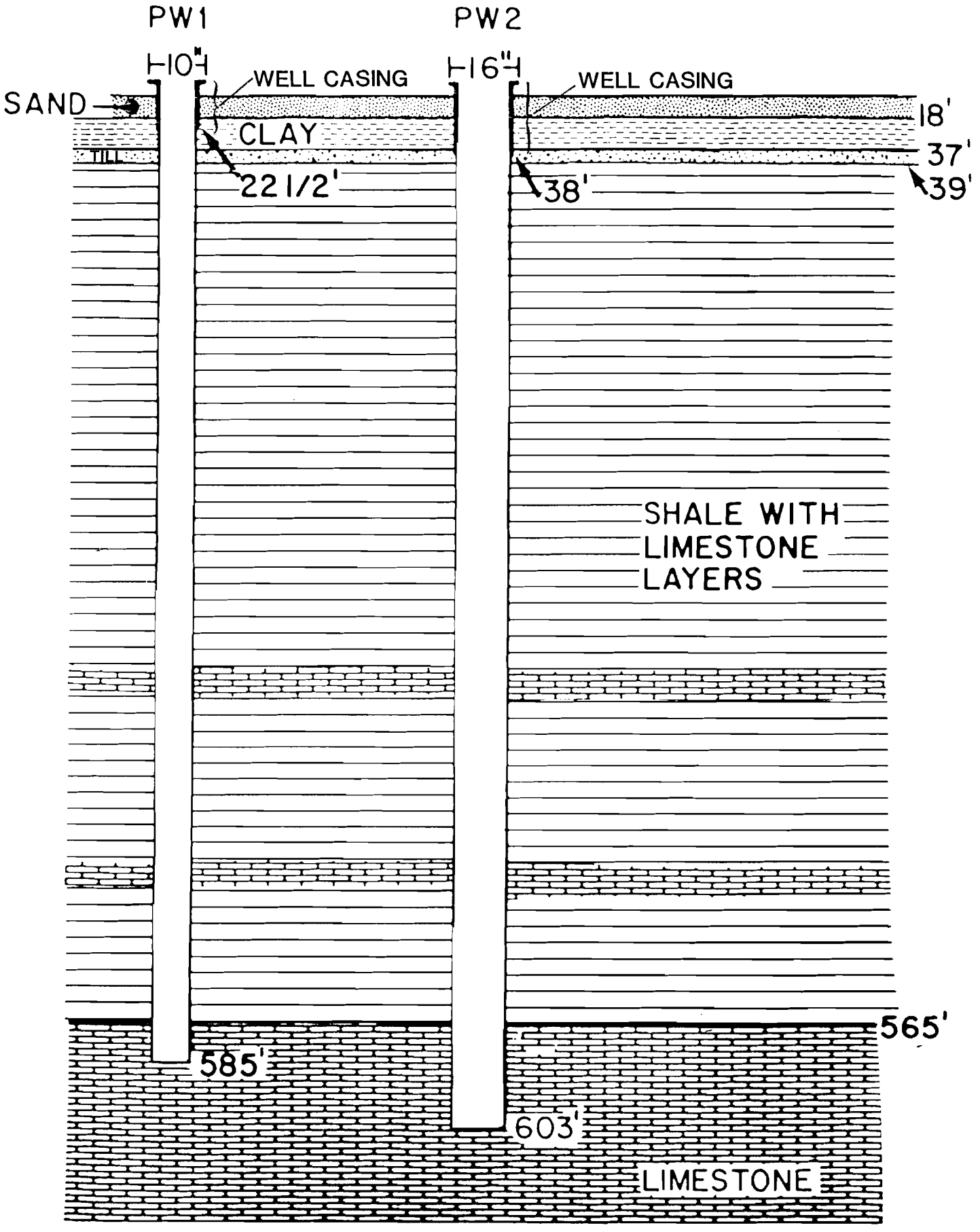
The only wells within a mile of the site that penetrate the limestone aquifer are the two on-site, PW-1 and PW-2 (Figure 4-3). Although VOCs and PCBs have been detected in these wells (see Tables 4-1 and 4-2), no residential wells are at risk since none penetrate the limestone in this area.

During pumping tests in 1982, PCB concentrations decreased in sequential samples, indicating that the contaminants may be associated with sediment in the well or with local contaminant concentrations. When pumping ceased, levels increased. The solubility of PCB Aroclor 1242 in water is about 250 μg/l (Appendix B); therefore, the concentrations measured could not be attributed to dissolved PCBs. In support of the hypothesis that high PCB concentrations measured in PW-1 are related to suspended solids, a test was

FIGURE 4-3

DIAGRAM OF G.E PRODUCTION WELLS SHOWING STRATIGRAPHY

General Electric, Fort Edward Plant



LAWLER, MATUSKY & SKELLY ENGINEERS

conducted on 13 October 1982 in which one sample was filtered and and a second was not filtered. There was five times the amount of PCBs in the unfiltered sample as in the filtered sample. Filtered samples had concentrations of 60 and 70 μg/l. The November 1982 sampling during continuous pumping revealed PCB concentrations of 2 to 45 μg/l (unfiltered) after initial pumping of PW-1.

The VOCs detected in PW-1 above trace levels are TCE and trans-1,2-dichloroethylene. Subsequent, less quantitative, analyses (GC only) confirmed the TCE concentrations reported in Table 4-1.

For the reasons stated above for the intermediate aquifer, the contaminants detected in the well are believed to be a result of leakage in the immediate vicinity of the wells. The wells are now sealed to prevent migration of contaminants.

CHAPTER 5

ASSESSMENT OF OFF-SITE CHEMICAL DISTRIBUTION IN THE SHALLOW AQUIFER

5.1 BACKGROUND

In Chapter 3 it was concluded that a plume of organic compounds, primarily TCE, had migrated off-site along the southern boundary of the plant between monitoring wells GM-16 and GM-18 and that this plume, which has been intercepted by RW-1, is now being removed and treated on-site. This chapter describes the plume south of the plant, using data from studies conducted by NYSDEC, New York State Department of Health (NYSDOH), and GE from 1975 to 1985. Residential wells south, east, and west of the site and springs to the southeast were sampled during these studies. These data show that the southerly flowing groundwater plume is narrow, occurs west of Broadway, and terminates southwest of the plant at a series of springs that discharge to a brook that eventually enters the Hudson River. Recently, PCBs were detected in some residential wells east of Broadway. However, as will be shown in this chapter, this appears to be a separate occurrence. The possibility of an off-site plume emanating from the northwest corner of the site was also investigated. Studies related to that area were discussed in Chapter 3, where it was concluded that no volatile organic compounds are now leaving the site.

NYSDOH began sampling residential wells in the fall of 1975, continuing through 1979. Approximately 30 well water samples in the Fort Edward area were analyzed for PCBs. Concentrations were all below NYSDOH's guideline of 1 μg/l (NYSDOH 1982). More intensive sampling for PCBs, herbicides, and volatile organic compounds (VOC) was conducted from 1982 to 1985. The resulting data are employed in subsequent sections of Chapter 5 to define chemical distribution

in the shallow aquifer. The plume of volatile organic compounds (and the occurrence of PCBs at a few wells) south of the plant site and west of Broadway and the occurrence of PCBs and herbicides east of Broadway are discussed separately. Remedial actions taken by GE are described.

5.2 VOLATILE ORGANIC COMPOUNDS

VOCs, principally trichloroethylene, were detected in shallow wells and springs south of the plant and west of Broadway by NYSDOH from July 1982 through July 1983 and by GE in 1983. The ranges of concentrations at off-site wells are shown on Figure 5-1. Data collected by NYSDOH during December 1982 - January 1983 were questioned during the 1983 hearings (Transcripts of the Proceedings of April 15, 1983 [Vol. 10] and of April 18, 1983 [Vol. 11]). These results are not included; those locations are asterisked on the figure. Results of all residential well sampling are listed in Appendix C.

Samples collected from shallow wells east of Broadway were generally free of volatile organics or had levels below the 50 g/l NYSDOH guideline for individual volatile compounds. Only two wells had concentrations of total volatiles above 50 μg/l, but the results were not consistently above that guideline. In addition, the volatiles detected at one of the two residences did not contain TCE, which is the principal constituent of the shallow aquifer plume. The absence of TCE and the fact that only two wells had measurable levels of VOCs suggest another source of contamination for this well. To better define the extent of the shallow plume south of the site,additional testing of residential wells and several springs was conducted in 1984 and 1985. Appendix C lists the residential wells sampled with VOC and PCB concentrations. Fifteen of the residential wells tested in 1982-1983 were retested during

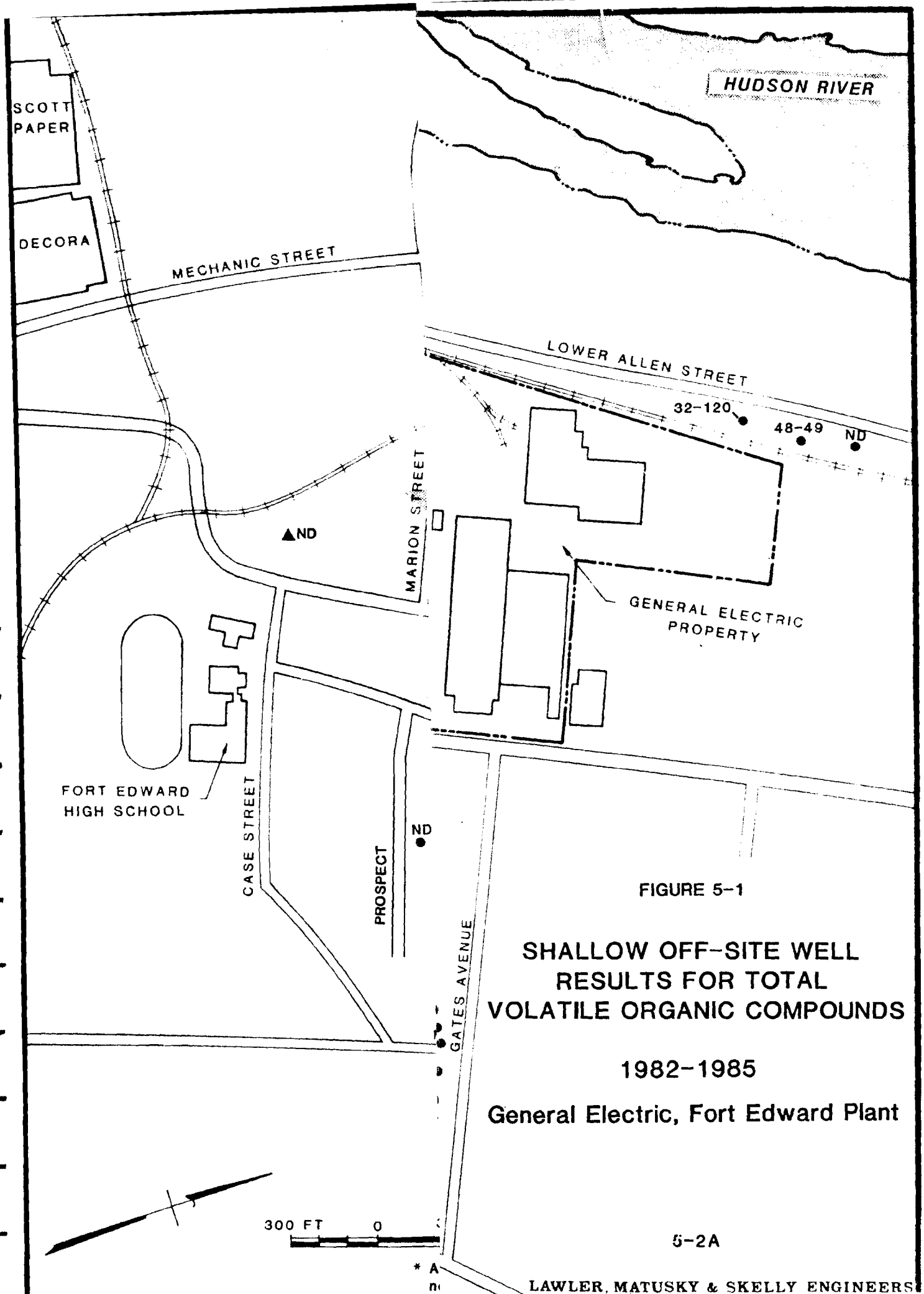


FIGURE 5-1

SHALLOW OFF-SITE WELL RESULTS FOR TOTAL VOLATILE ORGANIC COMPOUNDS

1982-1985

General Electric, Fort Edward Plant

5-2A

LAWLER, MATUSKY & SKELLY ENGINEERS

1984-1985 to confirm the absence of volatile organics. Some of these wells are the ones tested by NYSDOH during December 1982 - January 1983. Wells on Park Avenue and Stevens Lane were not re-sampled because those residences were provided with municipal water in 1983.

The additional testing confirmed results of the 1982-1983 sampling. The shaded organic plume south of the plant includes those wells with a concentration over the 100 μg/l NYSDOH guideline for total volatile organics. The plume appears to be narrow, bounded on the east by Broadway. Residential wells east of Broadway are generally free of volatile organic chemicals, with only 8 of 89 wells showing intermittent low concentrations of volatiles. Therefore, volatiles detected in wells east of Broadway may be due to local contamination. In support of a local source, the percentage of TCE in the plume west of Broadway is generally >75%, whereas two of the eight wells east of Broadway contain no TCE. The single well above NYSDOH's 100 μg/l guideline has only chlorobenzene contamination.

The water table configuration south of the plant supports the plume boundaries as determined from chemical data. Based on water level data from the wells that could be measured, G&M (pers. commun.) showed that groundwater generally travels in a southerly direction, paralleling Broadway, to the vicinity of Hillview Avenue where it moves southwesterly (Figure 5-2).

The southerly and westerly movement of the shallow organic plume is limited by the unique geology of the area. As discussed in Section 2.1.3, the Fort Edward plant sits on a plateau that is one of the largest deltaic deposits in the region. This sandy plateau is underlain by low permeable silts and clays that form the bottom of the shallow aquifer. Southwest of the plant site, the contact

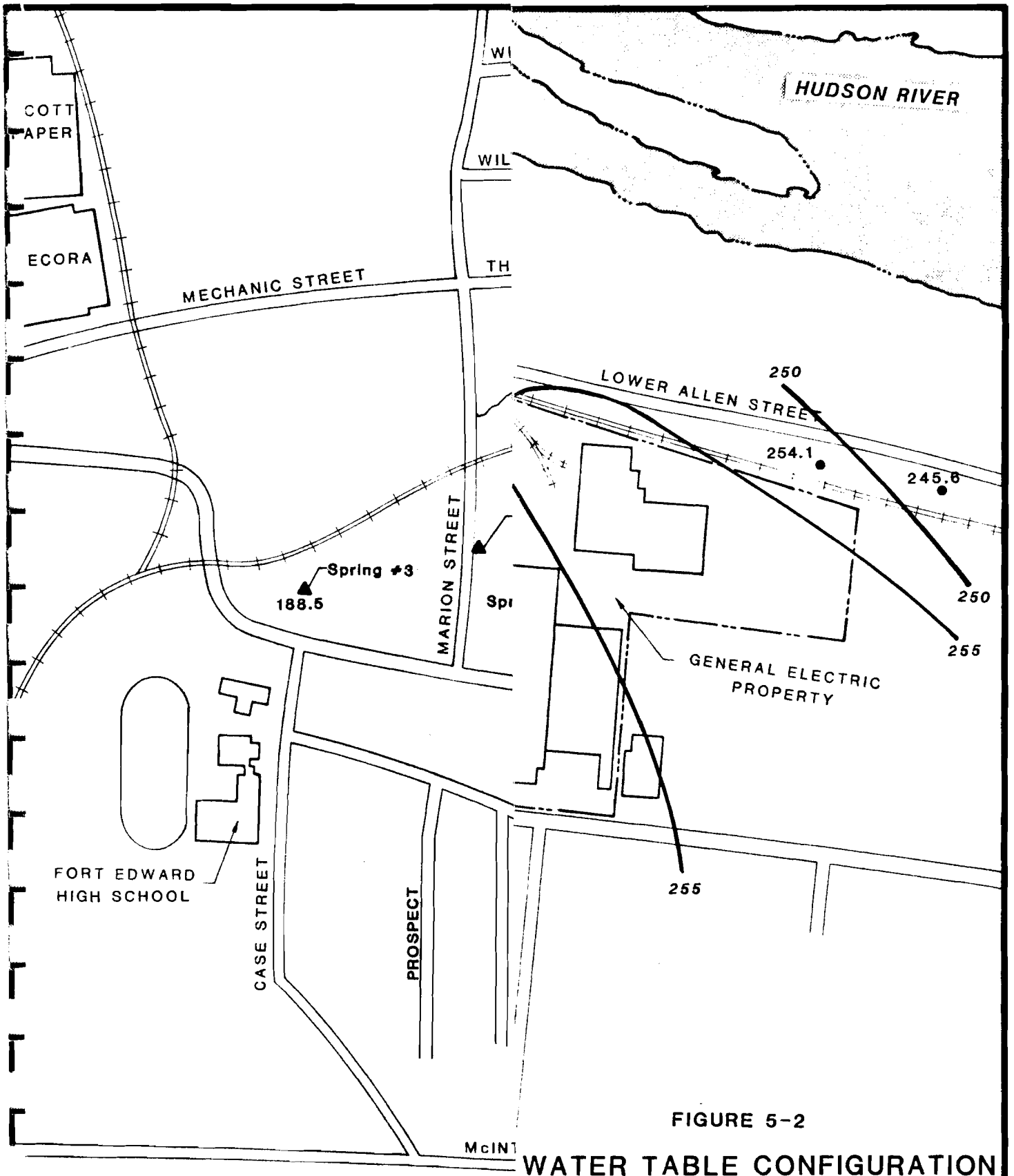


FIGURE 5-2

WATER TABLE CONFIGURATION FORT EDWARD AREA

General Electric, Fort Edward Plant

between the clay and sand layers is at the surface and a series of springs are present (Figure 2-3). These springs and the brook into which they flow form the terminus of the shallow groundwater plume. The brook flows into a culvert at Marion Street; the culvert discharges storm water and sanitary sewage to the Hudson River at the foot of Mechanic Street.

Although the additional data on well contamination and the water table allow definition of the plume west of Broadway, they do not permit exclusion of contributions by off-site sources. Other sources may account for some of the variations in TCE concentrations within the plume as defined by Geraghty & Miller. Literature available on TCE uses indicates that it was a common degreaser to clean machinery, engines, and septic systems, all of which existed within the boundaries of the defined plume.

Seven springs, the unnamed brook at Marion Street, and ponds on the Williams Farm have been sampled for volatile organics and PCBs. Table 5-1 shows concentrations of TCE and total volatile organics; no PCBs were detected. These data indicate <10 μg/l of volatile organics in Williams Spring, which defines the northern border of the plume (Figure 5-1). Highest concentrations were measured in Griffin Spring, Spring No. 2, and Spring No. 1; French Spring to the south had relatively low levels. (These four springs are within the plume as defined in Figure 5-1.) No VOCs were detected in Spring No. 3, which, along with the Williams Spring, is outside the plume boundaries. The brook, which was sampled west of French Spring, also had low levels of volatile organics.

Soil borings taken on the Williams Farm and the Fort Edward Victorian, Inc. properties indicate the low permeability clay layer is at or near the surface (see Appendix A for boring logs) in the vicinity of the springs. The direction of groundwater flow is south to

TABLE 5-1

CONCENTRATIONS OF TRICHLOROETHYLENE AND TOTAL VOLATILE ORGANIC COMPOUNDS MEASURED IN SPRING, BROOK, AND POND SAMPLES[a]

LOCATION	DATE SAMPLED	TRICHLOROETHYLENE NYSDEC/ NYSDOH	TRICHLOROETHYLENE ERCO	TRICHLOROETHYLENE MEAN	TOTAL VOCS NYSDEC/ NYSDOH	TOTAL VOCS ERCO	TOTAL VOCS MEAN
Williams Spring	1-06-83	ND	-	-	-	-	-
	1-26-83[b]	4	10	7	4	10	7
Williams Upper Pond	1-06-83	ND	-	-	-	-	-
Williams Railroad	1-06-83	ND	-	-	-	-	-
Hillview Avenue Spring	1-06-83	840	-	-	-	-	-
	1-26-83[b]	820	800	810	892	852	872
Griffin Avenue Spring	1-26-83[b]	3500	1100	2300	3611	1232	2422
	3-03-83	1140	-	-	1140	-	-
	2-11-85	-	1792	-	-	1961	-
Spring No. 2	2-11-85	-	2555	-	-	2766.5	-
Spring No. 1	2-11-85	-	1661	-	-	1669.9	-
French Spring	3-27-85	-	77	-	-	77	-
Spring No. 3	3-27-85	-	ND	-	-	ND	-
Brook at Marion Street	3-27-85	-	38	-	-	38	-

- = Not analyzed.
[a]Concentrations in $\mu g/l$.
[b]Results of samples split between ERCO and NYSDEC.

southwest (Figure 5-2); therefore, the springs between the plume boundaries on Figure 5-1 appear to be the terminus of the off-site plume. Section 5.4 provides a quantitative assessment of probable flow rates and fate of the organic plume.

5.3 OFF-SITE SHALLOW AQUIFER PCBS AND HERBICIDES

During a joint residential well sampling program conducted by NYSDOH and GE in 1984-1985, PCBs and several herbicides were detected in residential wells southeast of the GE property. PCB concentrations greater than 0.1 μg/l were measured in seven shallow wells (Figure 5-3): three each on Putnam Avenue and Ethan Allen Street, and one on Burgoyne Avenue. Herbicides were detected in three of the seven wells containing PCBs and in 12 other wells in the area (Figure 5-4). The three herbicides are used for pre-emergence weed control and may be used for both farm and residential applications. The shading on Figures 5-3 and 5-4 delineates the area where PCBs and/or herbicides have been detected.

The source of PCBs in these residential wells is not known. As indicated on Figure 5-4, many wells tested, including several homes on Putnam Avenue closest to the plant, contained no PCBs; the higher PCB concentrations were generally farther from the plant than those with trace levels. PCBs have been found on-site at GM-27, but the clay topography east of GM-27 is flat, with a tendency toward higher elevations near the site boundaries. No PCB product was reported from borings surrounding GM-27 (Section 3.5; Figure 3-4). Dissolved product from this area flows toward RW-1, not off-site. Prior to operation of RW-1, the groundwater flow from the site (and from GM-27) was generally southward, not southeastward (Figure 2-11). Off-site groundwater flow is to the south (Figure 5-2).

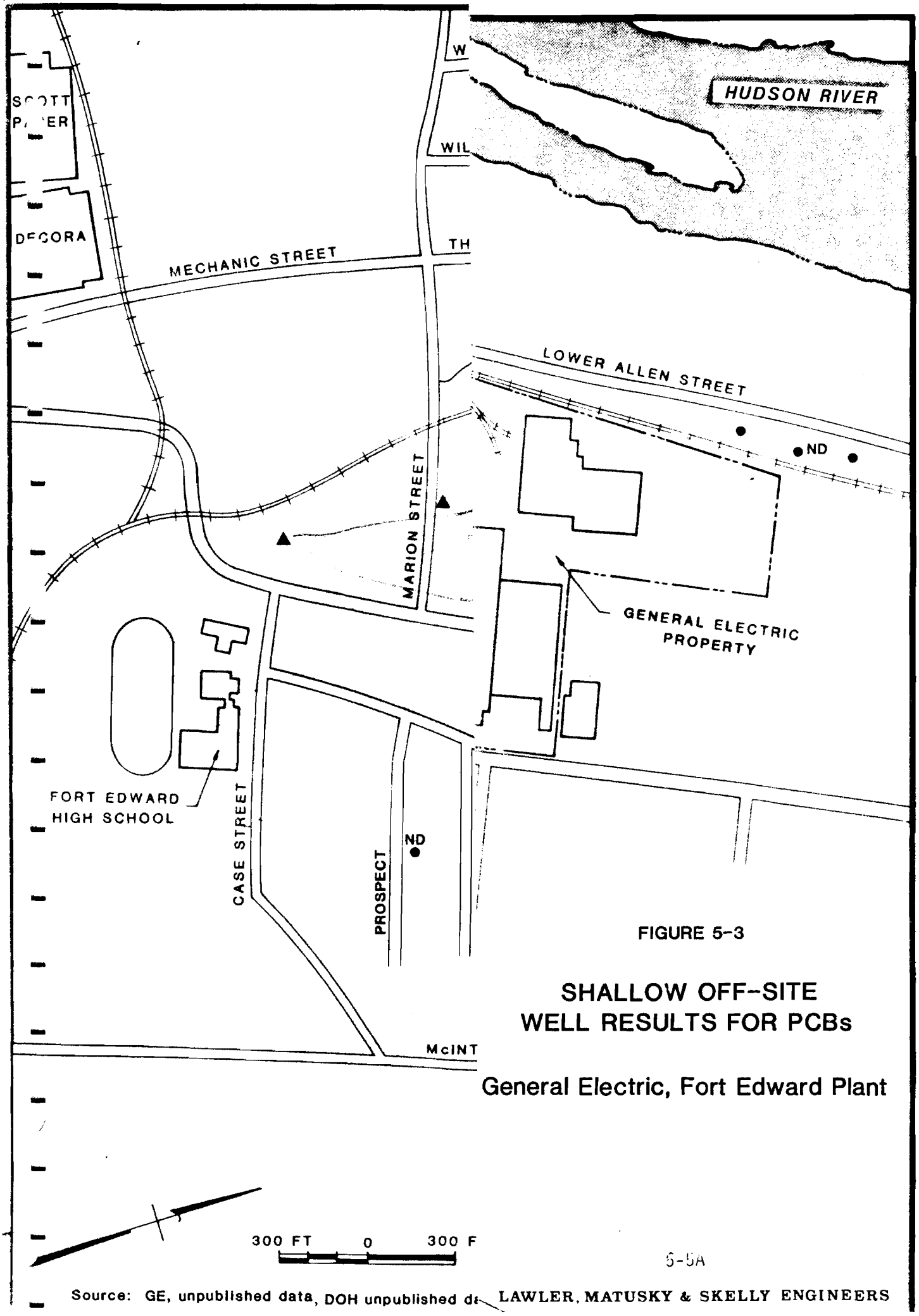


FIGURE 5-3

SHALLOW OFF-SITE WELL RESULTS FOR PCBs

General Electric, Fort Edward Plant

5-5A

Source: GE, unpublished data, DOH unpublished da

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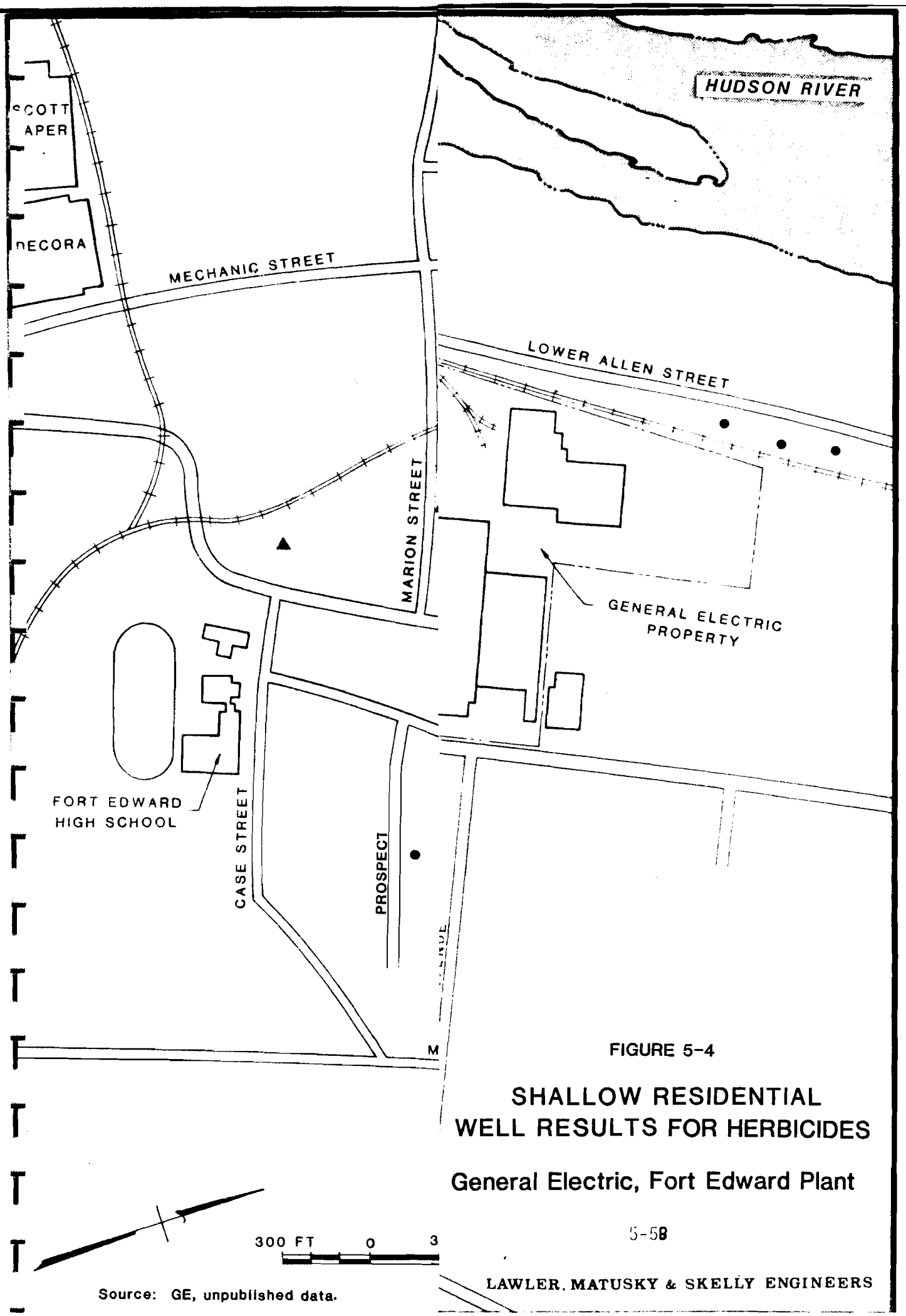


FIGURE 5-4

SHALLOW RESIDENTIAL WELL RESULTS FOR HERBICIDES

General Electric, Fort Edward Plant

5-5B

Source: GE, unpublished data.

LAWLER, MATUSKY & SKELLY ENGINEERS

The GE Research & Development Center in Schenectady, New York, analyzed PCBs from well GM-27 and a water sample collected from one of the affected residences to determine whether the Aroclors were the same at both locations. It was not possible to determine whether they were from the same source due, in part, to the degraded nature of the PCBs from the residential well. These factors all suggest the possibility of an off-site source for the PCBs east of Broadway.

5.4 QUANTITATIVE PLUME ASSESSMENT

This section provides a quantitative discussion of the contaminant plume extending south from the site to its discharge at the springs along the railroad track and discusses its subsequent fate. The plume south of the plant site is no longer being supplied from the plant site since the operation of RW-1 has prevented contaminant migration off-site. The residual plume south of the site continues to flow principally southward toward the springs.

Although a precise estimate cannot be made of the plume's rate of movement, G&M (1983) estimated a rate of up to 10 ft/day in the aquifer on-site. A quantitative estimate of movement south of the site has been derived from data collected by RECRA Research Inc. (1983). They conducted a subsurface investigation for NYSDEC south of the plant site at the location of the state wells (SW-1 - SW-6). Based on laboratory tests on four sandy soil samples, they concluded that the average hydraulic conductivity (permeability) of the sand materials is 7.3×10^{-3} cm/sec (20 ft/day). The horizontal conductivity is normally higher than the vertical conductivity; the horizontal value is estimated as greater than 30 ft/day. The porosity is approximately 0.35, but the effective porosity is less. It is typically 0.2 for sandy soils (Freeze and Cherry 1979). Figure 5-2 shows the present hydraulic gradient south of the plant

site, approximately 1.0%. From these data, Darcy's law (Freeze and Cherry 1979) would indicate groundwater movement at 1.5 ft/day.

The permeable nature of the shallow aquifer suggests that natural infiltration and ambient groundwater flow will flush contaminants from this area. The low organic content of the soil matrix will tend to minimize long-term adsorption of the organics.

The estimated total flow rate from the springs showing highest contaminant concentrations is less than 100 gpm (20,000 ft^3 per day), with a typical TCE concentration of 2000 g/l. Using these estimates, the discharge with the springs is 2.4 lb/day. Discharges from the springs cascade down grassy slopes, then through culverts under the railroad tracks to the brook. The elevation drop, which is approximately 10 ft, allows volatilization of some TCE before it enters the brook. Based on a set of flow measurements conducted in the dry spring of 1985, minimal dilution was provided by the brook. In March, the concentration of TCE measured where the brook enters the culvert was 38 g/l (0.038 ppm). Therefore, these data indicate that dilution and volatilization reduced TCE concentration of the spring water 50-fold before it entered the culvert at Marion Street.

South of Marion Street the culvert receives storm water and sanitary sewage from Fort Edward and discharges to the Hudson River. Since the total drainage basin served by this culvert is approximately four times the drainage area of the brook upstream of the culvert, 4 to 1 dilution is anticipated in the sewer. The water level drop from the head of the culvert to its discharge to the Hudson River is approximately 50 ft. This vertical drop is expected to permit volatilization of virtually all the TCE entering the culvert. Using reaeration coefficients to estimate volatilization rates (LMS 1982), the discharge to the Hudson River will be less than 10% of the TCE entering the upstream end of the culvert.

Combining the 4 to 1 dilution and the 90% (or more) volatilization anticipated, the 38 μg/l TCE entering the culvert would be reduced to 1 μg/l at the point of discharge to the Hudson River. This discharge concentration is further diluted by sanitary sewage. In summary, the discharge from the contaminated springs is diluted in the brook, and volatilization further reduces the discharge of TCE to the Hudson River. While these estimates of fate are approximate, they will be subject to verification during the Feasibility Study.

CHAPTER 6

REMEDIATION

This chapter summarizes remedial activities completed (Section 6.1) and in progress (Section 6.2). Proposed on-site monitoring and the scope of the feasibility study are provided in separate documents.

6.1 COMPLETED REMEDIATION

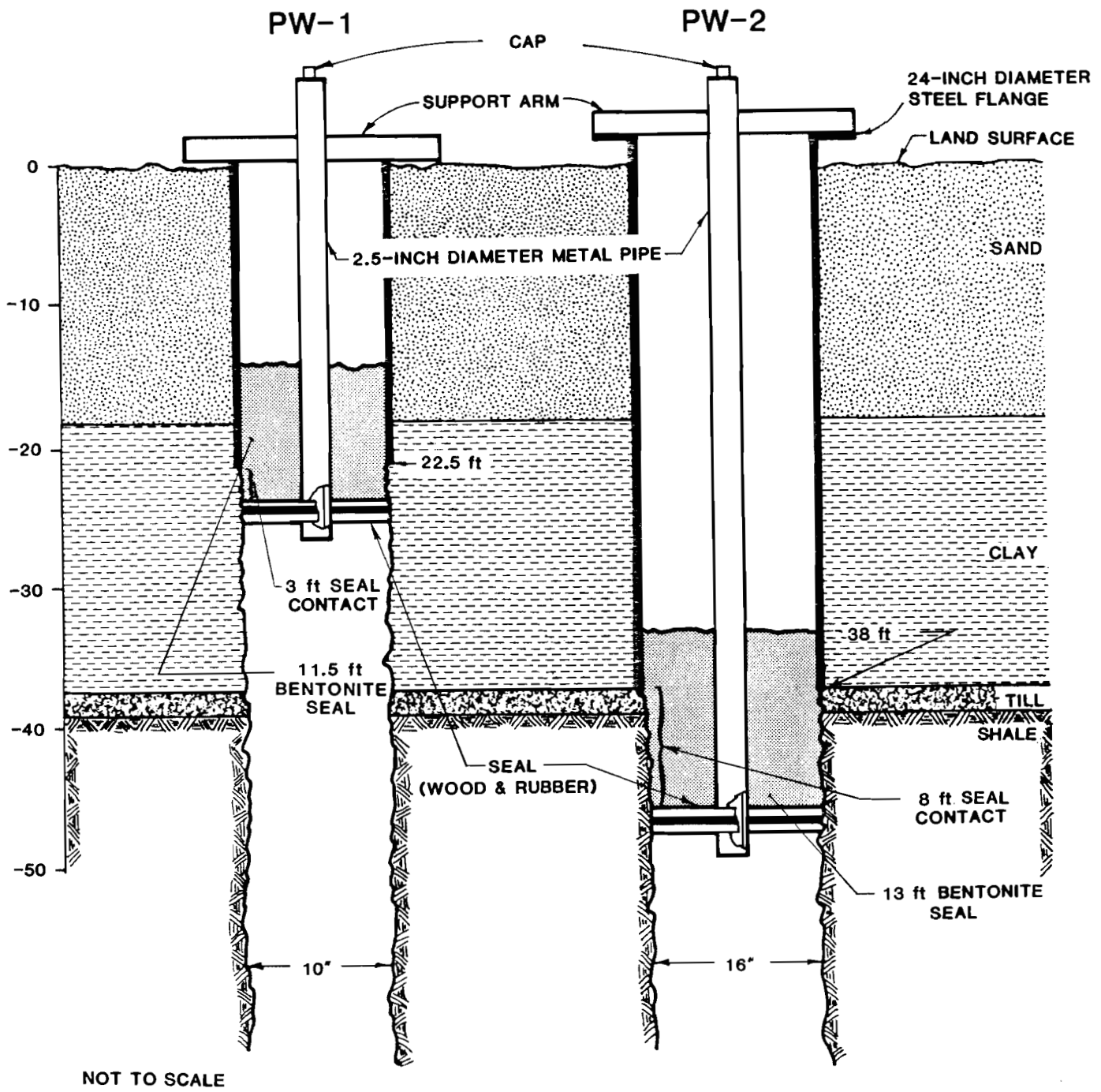
Beginning in 1976, improvements were made at the site to reduce discharge of contaminated wastewater from the site and to clean up areas where contamination had occurred. Past and present wastewater collection and treatment practices at the Fort Edward site have been described in Sections 2.2 and 2.3. The changes made have resulted in substantial reductions in discharge of contaminants from the site. All facilities that contributed to groundwater contamination have been repaired or replaced. At present, all storm water is routed through the wastewater treatment system before it is discharged to the Hudson River. Sewer lines suspected of leaking were replaced with ductile iron pipes with mechanical sealed joints. Since 1980 all drums containing hazardous wastes have been stored in an enclosed facility that meets all RCRA requirements. Any drainage from the drum storage area goes to the treatment system. Kerosene found in monitoring wells has been bailed and the abandoned sewer line west of Lower Allen Street where kerosene was found has been removed (Section 3.1). The two on-site production wells are sealed to prevent contaminants from entering the deep aquifer (Figure 6-1).

South of the plant site, town water is available and has been supplied at GE's expense to residences where contamination of domestic wells was found.

FIGURE 6-1

CONSTRUCTION DIAGRAM OF PW-1 AND PW-2 SEALS

General Electric, Fort Edward Plant



6.2 REMEDIATION IN PROGRESS

Two remedial activities - removal of product from GM-27 and pumping of contaminated groundwater from the recovery well RW-1 - are on-going. These activities are described in the following subsections along with estimates of recovery and efficiency of the treatment systems used.

6.2.1 Product Recovery From GM-27

As discussed in Section 3.5, a brown oil subsequently identified as PCBs was discovered on 22 November 1983 at the bottom of monitoring well GM-27. The underlying clay prevents vertical movement into the intermediate aquifer. Additional borings around GM-27 found no PCBs and established that the low permeability clay slopes down toward GM-27, which is in a slight depression of the clay surface. In support of the hypothesis that product is contained in a depression in the clay surface, the wells surrounding GM-27 were bailed on 25 July 1984 and no free product was detected.

In April 1984 a preliminary recovery program initiated at GM-27 showed that regular pumping was feasible. The present automated pumping system, which was installed in September 1984, starts and stops the pump according to the product level in the well. A small utility shed, which is kept locked when not in use, encloses the pumping system. Recovered product is removed from the site for disposal.

6.2.2 Groundwater Collection at RW-1

In October 1983 a recovery well (RW-1) was installed to intercept the shallow aquifer contaminant plume moving off-site at the south-eastern border of the GE property. Groundwater from RW-1 is

pumped through a NYSDEC permitted air stripper to remove volatile organics, and is then treated at the wastewater treatment facility. The well's location is shown in Figure 2-9, the boring log is in Appendix A, and details of well construction and the pumping apparatus are described in G&M (1984).

Three pump tests were conducted to evaluate the effectiveness of RW-1. A 22-hr pumping test was conducted on 10 October 1983; a 30-day test ran from 8 December 1983 to 6 January 1984; and a 6-month evaluation was completed on 27 February 1985. Under the Interim Monitoring Program (Paragraph I, p. 2, of the 1985 Consent Order), operation of RW-1 is continuing until implementation of the final remediation program. The following section describes the effectiveness of RW-1 in preventing off-site migration of contaminated groundwater and analyzes the efficiency of the air stripper for removal of volatile organics.

6.2.2.1 Evaluation of Pump Test Data. On 10 October 1983 a 22-hr pump test was conducted on well RW-1 to provide data for calculating aquifer coefficients and estimating the average pumping rate needed to prevent off-site movement of the plume of contaminated groundwater. From this study G&M (1984) concluded that:

1. Well RW-1 was capable of intercepting contaminated groundwater leaving the site at the southern boundary.

2. A recovery trench should be installed to intercept the groundwater plume closer to the suspected contaminant source.

3. Two additional monitoring wells should be installed to measure changes in water table elevations due to operation of well RW-1.

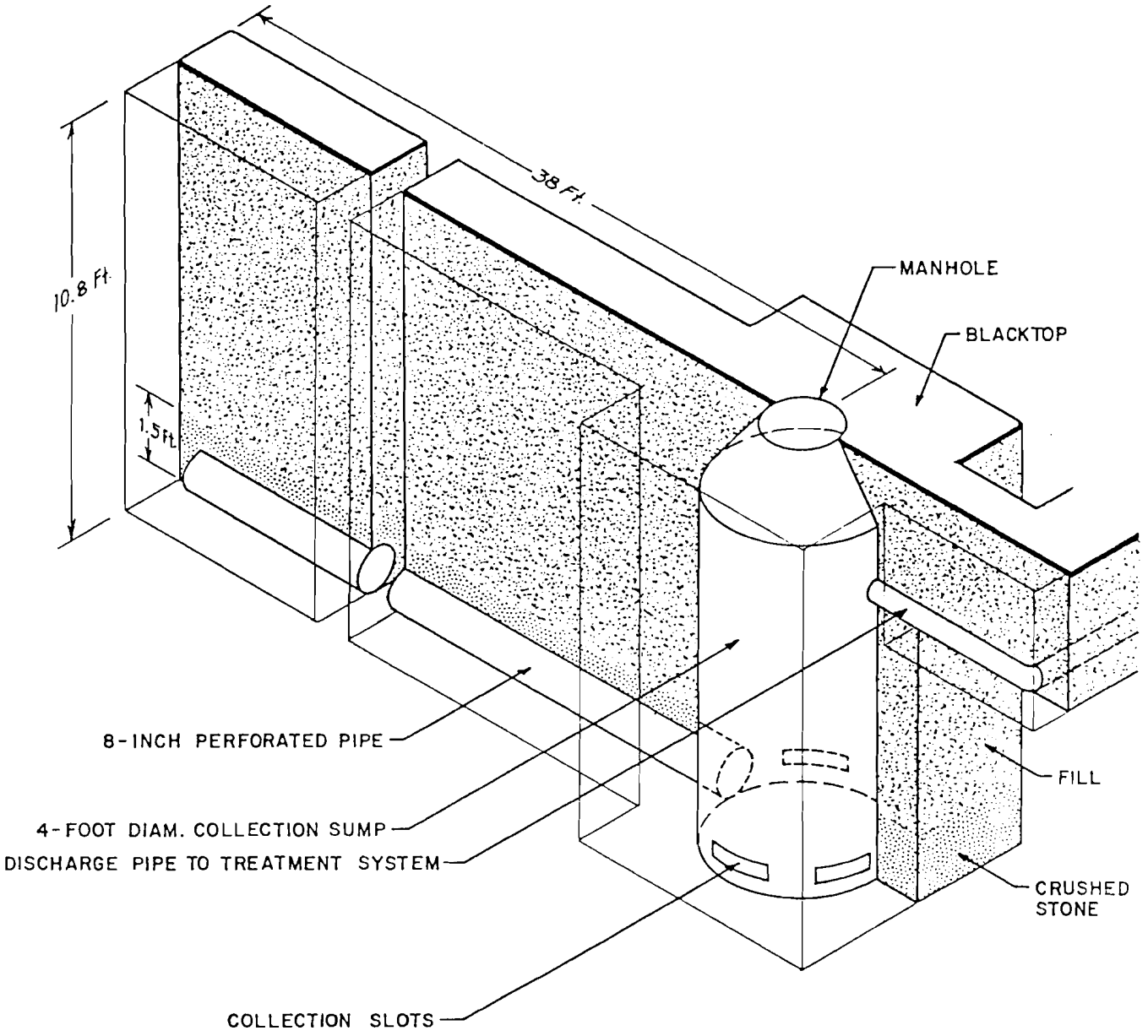
4. A 30-day pilot study should be conducted.

The recovery trench was installed during 14-15 Noember 1983. Two alternative sites, both east of well GM-8, were investigated (Figure 2-9). The recovery trench depicted in Figure 6-2 is approximately 10.5 ft deep and 40 ft long and reaches the top of the clay unit underlying the shallow aquifer. Construction details can be found in G&M (1984). A sump pump is used to remove water from the trench to the plant sanitary system and from there to the wastewater treatment system. Volumes pumped are measured automatically by an in-line cumulative volume flowmeter.

Before the 30-day pump test was initiated, the two additional monitoring wells (GM-26 and GM-27) were installed. During the 30-day test, the average pumping rate was 152.7 gpm. Using water table elevations measured before the test began and on 5 January 1984, G&M (1984) estimated that a long-term pumping rate of 75 gpm would prevent contaminated groundwater from leaving the site. Figure 6-3 shows the predicted water table elevations for a constant pumping rate of 75 gpm with rainfall similar to that observed during the 30-day test. The predicted cone of depression extends south of the southern border of the site.

The two sets of pump test data were used to design a 6-month pump test as an interim remedial program to abate migration of groundwater contaminants off-site in the shallow aquifer. With NYSDEC approval, the test was initiated on 27 August 1984 at a rate of 75 gpm. The 6-month period ended on 27 February 1985, but the pumping will continue until (or unless) an alternative abatement plan is proposed and approved.

Figure 6-4 shows the decline in water level at RW-1; the level has dropped steadily, as have water levels in the vicinity of RW-1. Figure 6-5 shows the water table as of 26 September, after pumping



Source: G&M

LAWLER, MATUSKY & SKELLY ENGINEERS

FIGURE 6-2

DIAGRAM OF RECOVERY SYSTEM INSTALLED NOVEMBER 15, 1983,
General Electric Company, Fort Edward, New York.

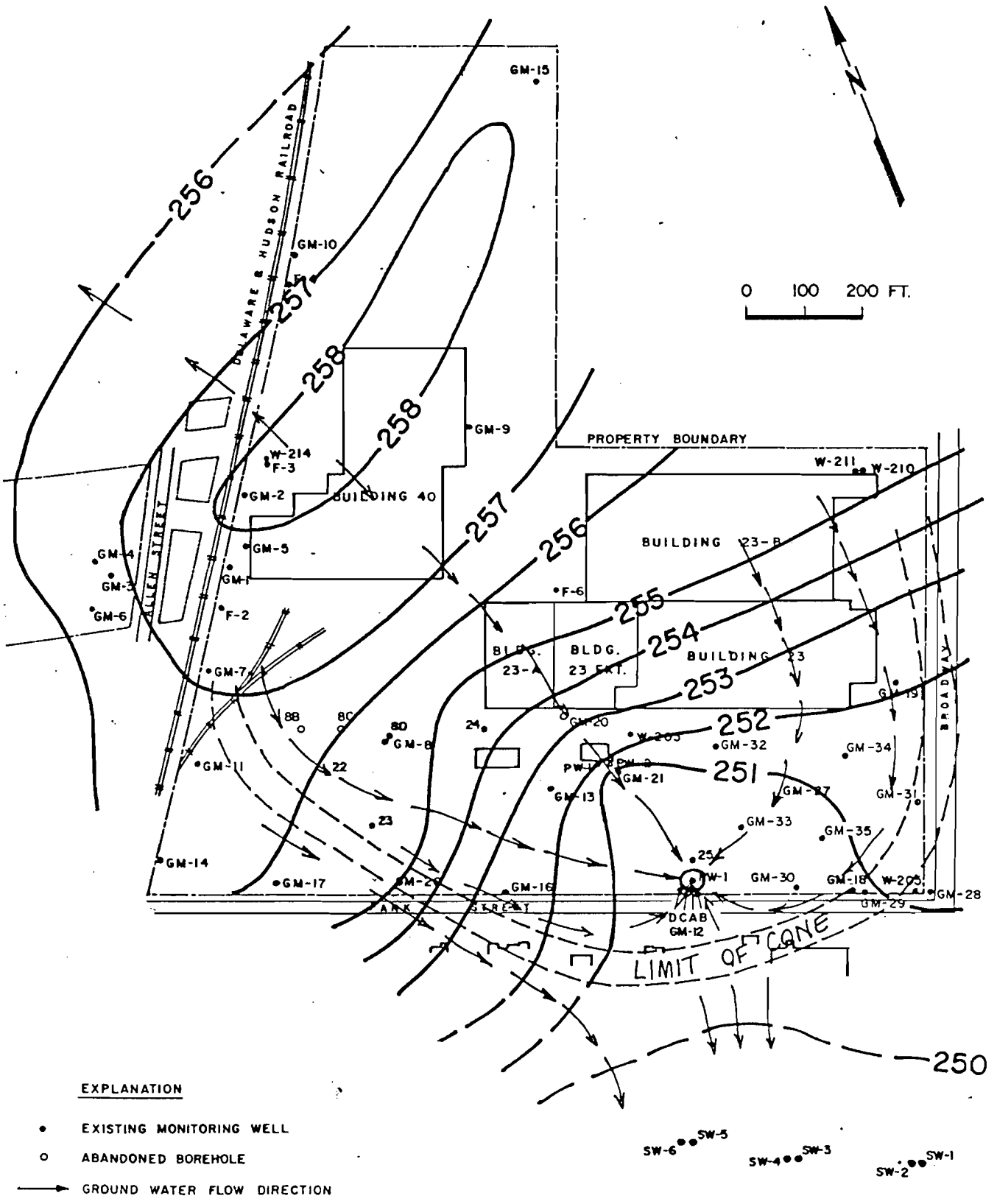


FIGURE 6-3

PREDICTED WATER-TABLE ELEVATION

ASSUMING CONSTANT PUMPAGE OF 75 GPM FOR 29 DAYS
WITH RAINFALL COMPARABLE TO
THAT OBSERVED DURING ACTUAL 30 DAY TEST

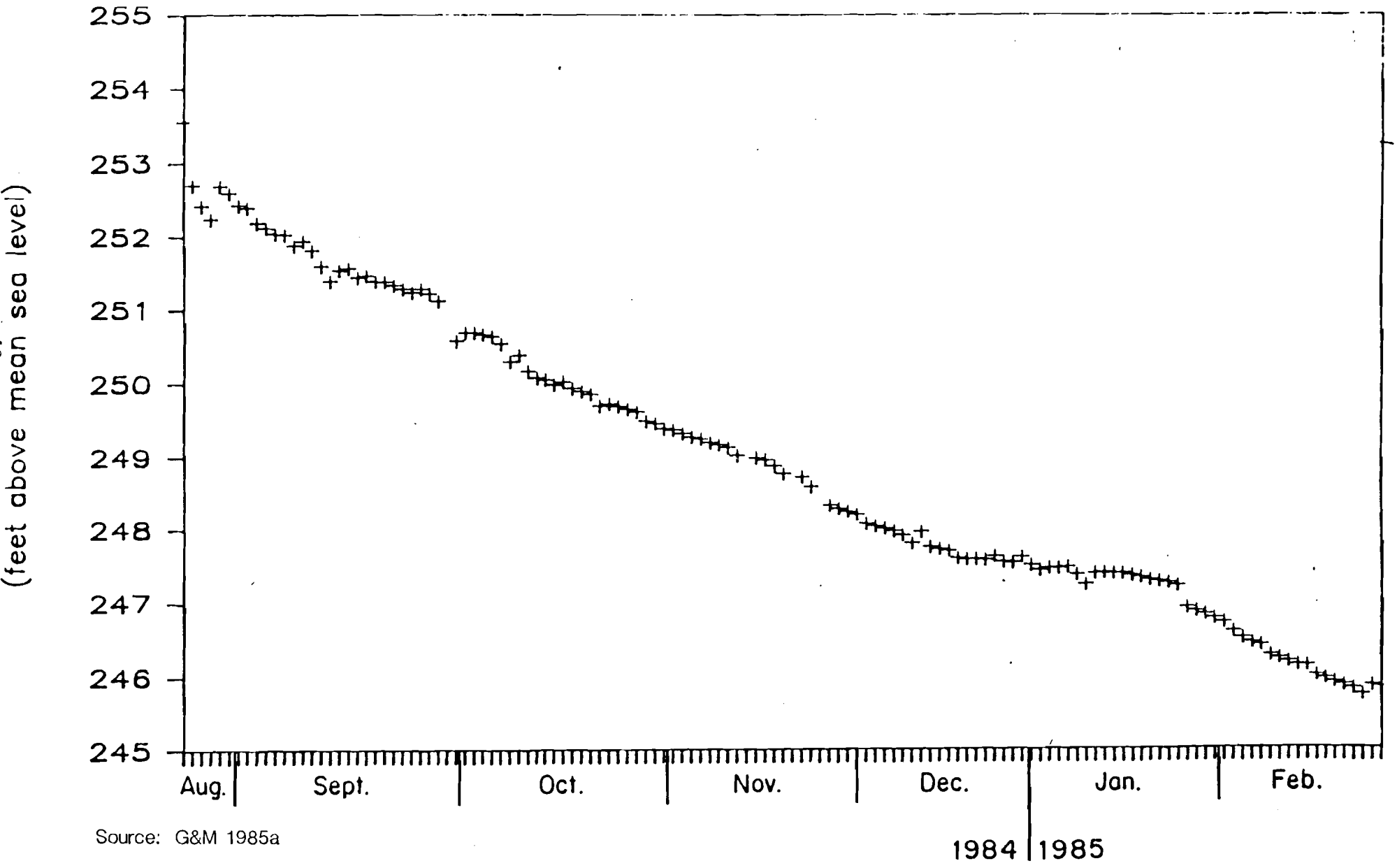
Source: G&M 1984

LAWLER, MATUSKY & SKELLY ENGINEERS

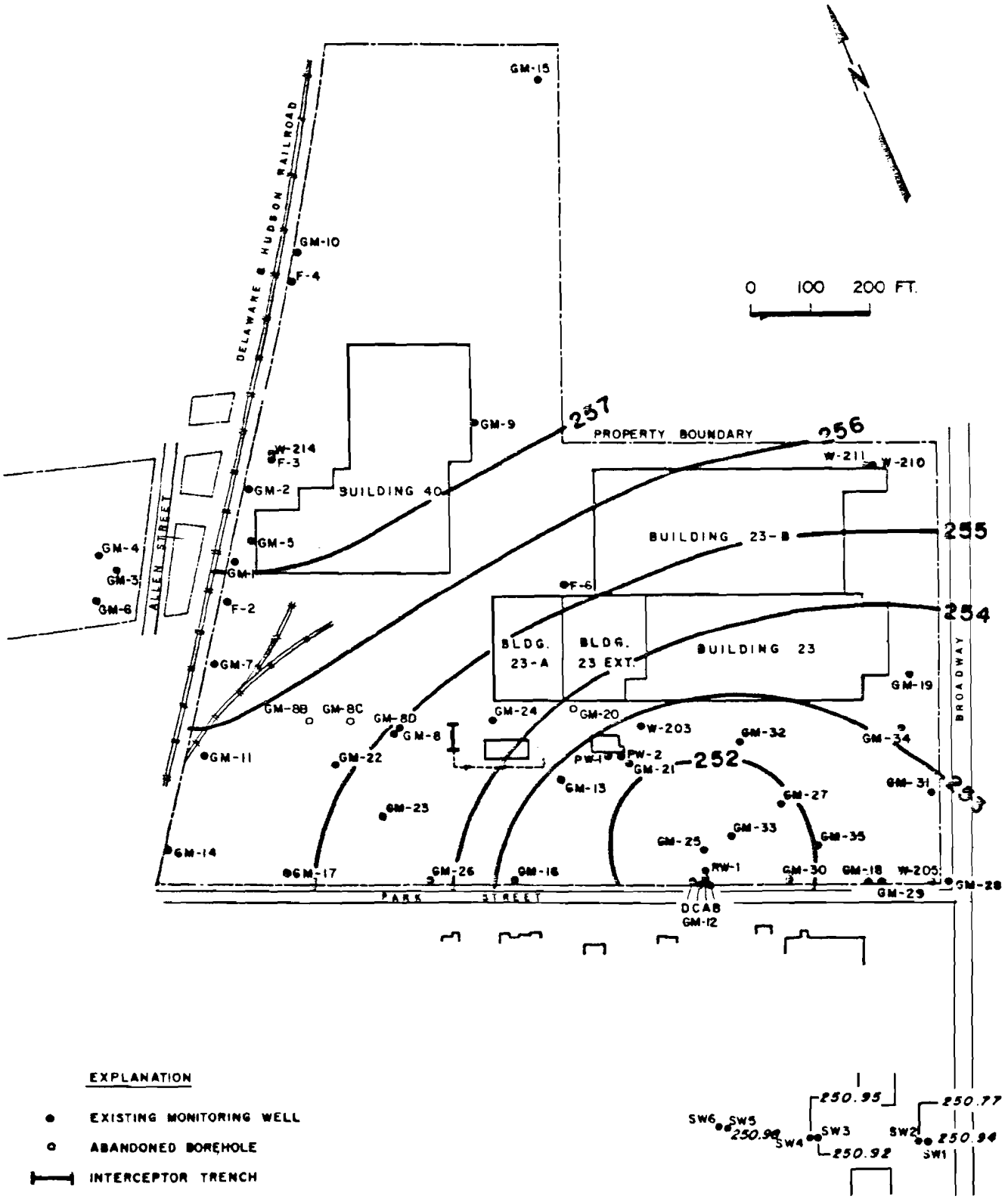
FIGURE 6-4

STATIC WATER LEVEL ELEVATIONS

RW-1



Source: G&M 1985a



EXPLANATION

- ● EXISTING MONITORING WELL
- ○ ABANDONED BOREHOLE
- INTERCEPTOR TRENCH
- DISCHARGE PIPE
- 254 LINE OF EQUAL WATER-TABLE ELEVATION, IN FEET ABOVE MSL

FIGURE 6-5

CONFIGURATION OF THE WATER TABLE IN THE UPPER SAND AQUIFER SEPTEMBER 28, 1984

GENERAL ELECTRIC COMPANY
FORT EDWARD, NEW YORK

LAWLER, MATUSKY & SKELLY ENGINEERS

for over one month at 75 gpm, and verifies the prediction shown on Figure 6-3.

During the first six months of RW-1 operation, precipitation (and hence infiltration) was below normal; for the latter half of the test the ground was frozen.

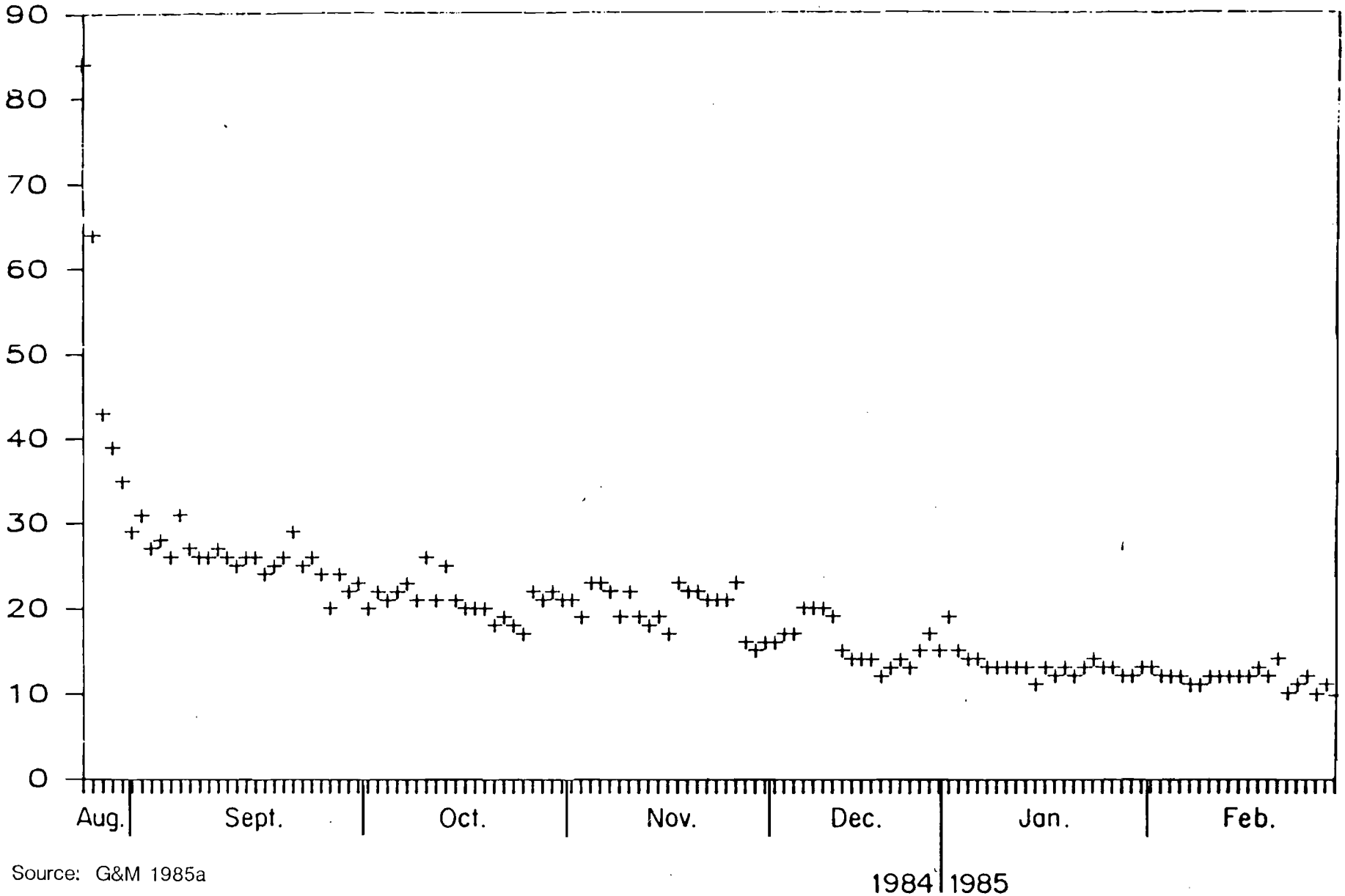
During the 6-month pump test, concentrations of PCBs and volatile organic compounds were measured in RW-1, the recovery trench, and the on-site and state monitoring wells. PCBs in RW-1 declined rapidly during the first few days of the test and more slowly thereafter to the current level of 10-15 μg/l (Figure 6-6). PCB concentrations in the recovery trench are extremely variable, with a trend toward higher concentrations. The concentration varied from 15 to 120 μg/l (Figure 6-7). However, only about 1100 gal of contaminated groundwater (plus some unrecorded pumpage) was removed from the trench over the entire 6-month study. Due to the low flow rate, the recovery of PCBs via the trench was minimal. The average PCB concentration of 60 μg/l (Figure 6-7) translates to about 2.5 g of PCBs removed over six months. This quantity is low compared to that in RW-1, which removes on the order of 4-6 g/day or 0.7-1.1 kg over six months (100,000 gal [378,500 liters] of contaminated groundwater per day at an average PCB concentration of 10-15 μg/l).

PCB concentrations in groundwater from on-site monitoring wells have been presented in Table 3-3. Except for well GM-8, which went dry, wells with highest initial concentrations exhibited consistent declines throughout the pump test. Wells GM-16, GM-32, and GM-33 had low (<2 μg/l) concentrations that fluctuated throughout the period. For the state wells, PCBs were detected only in wells SW-1 (at 1.6 μg/l in December 1984 only) and SW-4. Concentrations in SW-4 declined consistently from October 1984 (at 24 μg/l) through March 1985 (at 6.9 μg/l) (G&M 1985a).

FIGURE 6-6

PCBs

RW-1



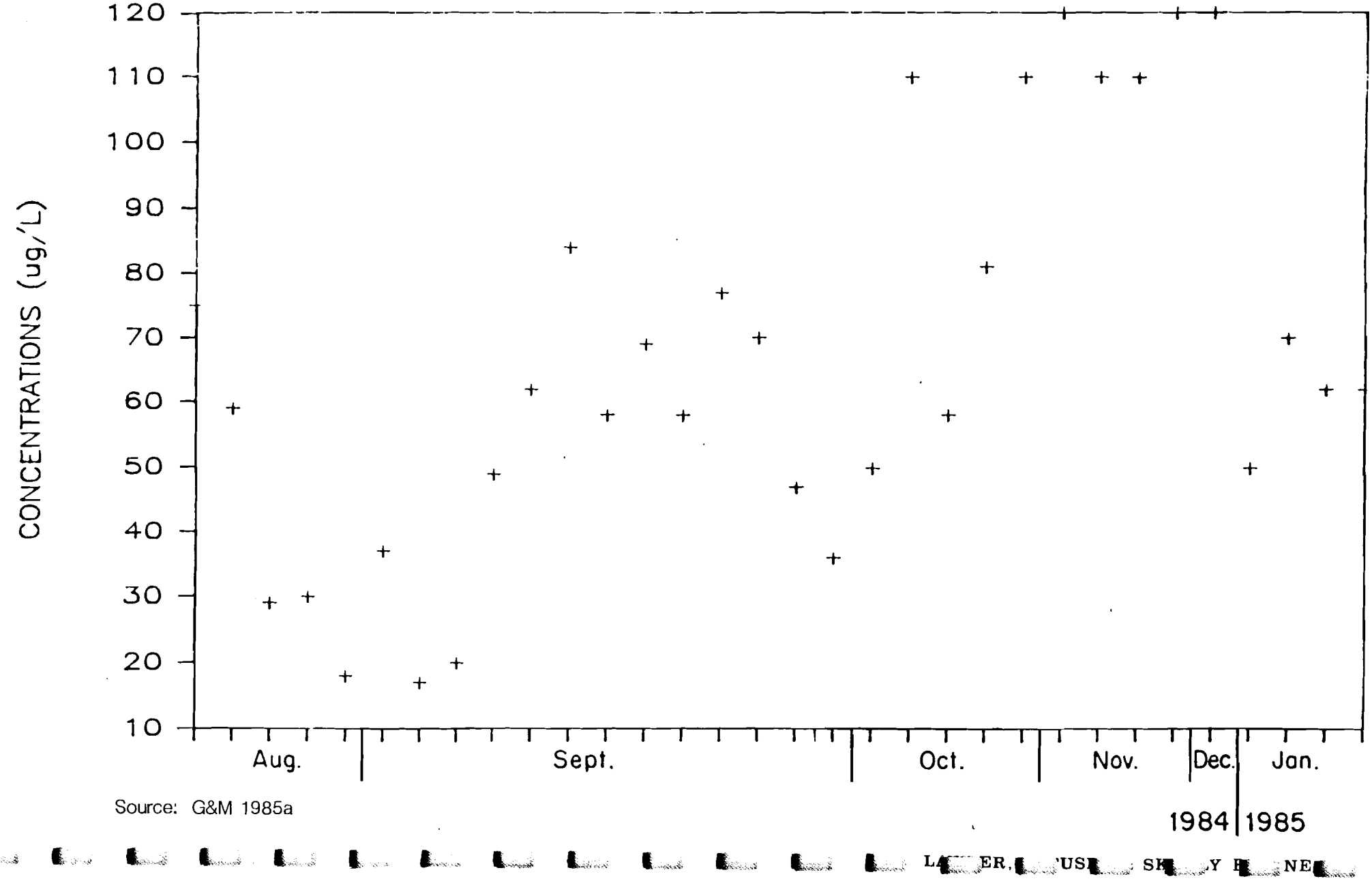
Source: G&M 1985a

LAWLER MATUSKY & SKELLY ENGINEERS

FIGURE 6-7

PCBs

RECOVERY TRENCH



Source: G&M 1985a

Concentrations of total volatile organics have been reduced in RW-1 and most monitoring wells in the vicinity of RW-1. Four anomalously high concentrations of volatiles occurred in RW-1; some on-site and state monitoring wells (Figures 6-8 to 6-11) also had high concentrations. These readings may be related to long-term precipitation and infiltration patterns, or to spacial variability in groundwater concentrations of volatile compounds flowing into the system.

Total volatile organic concentrations were relatively low in the recovery trench (Figure 6-12) compared to RW-1. Considering the low volumes of contaminated groundwater recovered from the trench, volatilization may reduce the VOC concentration, or when the water table is lowered naturally or by RW-1, the recovery trench may not be an efficient groundwater collection system.

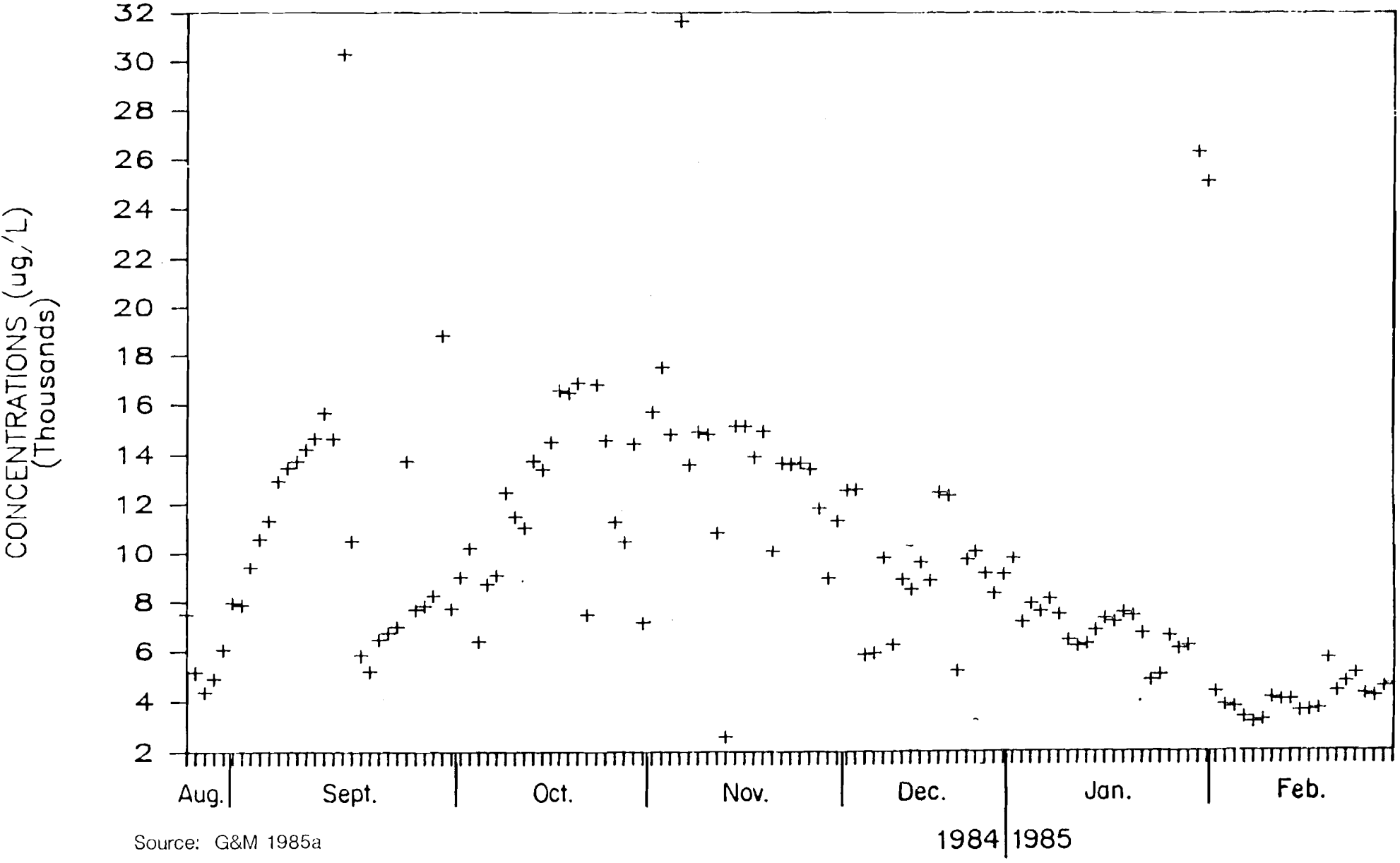
As discussed in Section 3.4, the mixture of volatile organic constituents appears to differ with location. Data from the monitoring wells and the recovery well and trench indicate that the recovery trench and well GM-24 differ in their volatile constituents from those found to the southeast near wells GM-21, GM-25, and GM-30 to GM-34, and in RW-1.

The quality of groundwater at RW-1 confirms that the well is effectively abating the shallow contaminant plume. The concentrations of TVOC and PCBs in RW-1 and surrounding monitoring wells trend lower over the period of record. The flow vectors on Figure 6-5 at the end of the 6-month pump test show that groundwater containing dissolved solvents is being collected and removed by RW-1 and prevented from moving off-site. The present pumping rate of 75 gpm will be maintained unless an alternative rate is established to improve the system's effectiveness or efficiency.

FIGURE 6-8

TOTAL VOLATILE ORGANIC COMPOUNDS

RW—1

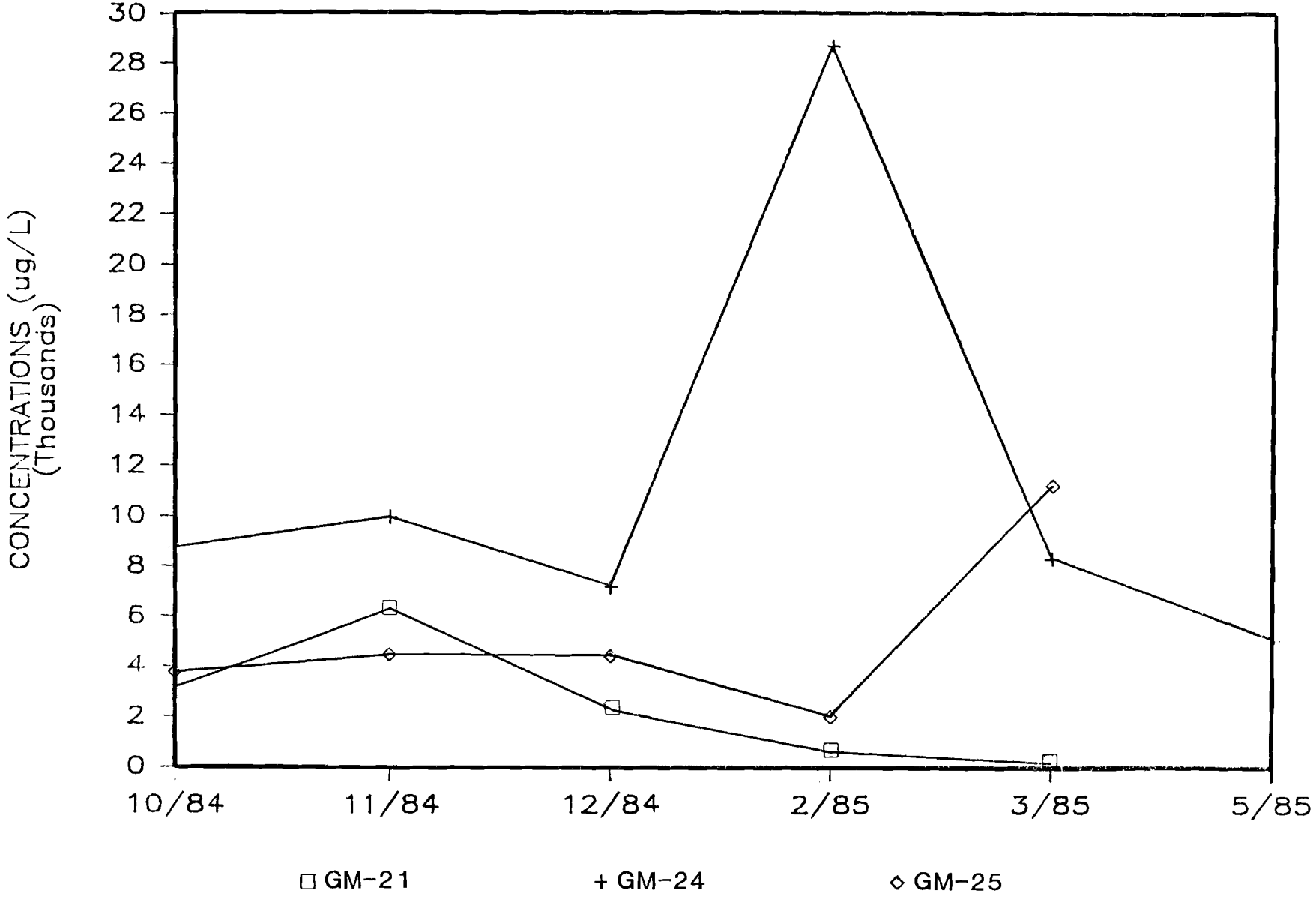


Source: G&M 1985a

LAWLER, MATUSKY & SKELLY ENGINEERS

FIGURE 6-9

TOTAL VOLATILE ORGANIC COMPOUNDS



LAWLER, MATUSKY & SKELLY ENGINEERS

FIGURE 6-10

TOTAL VOLATILE ORGANIC COMPOUNDS

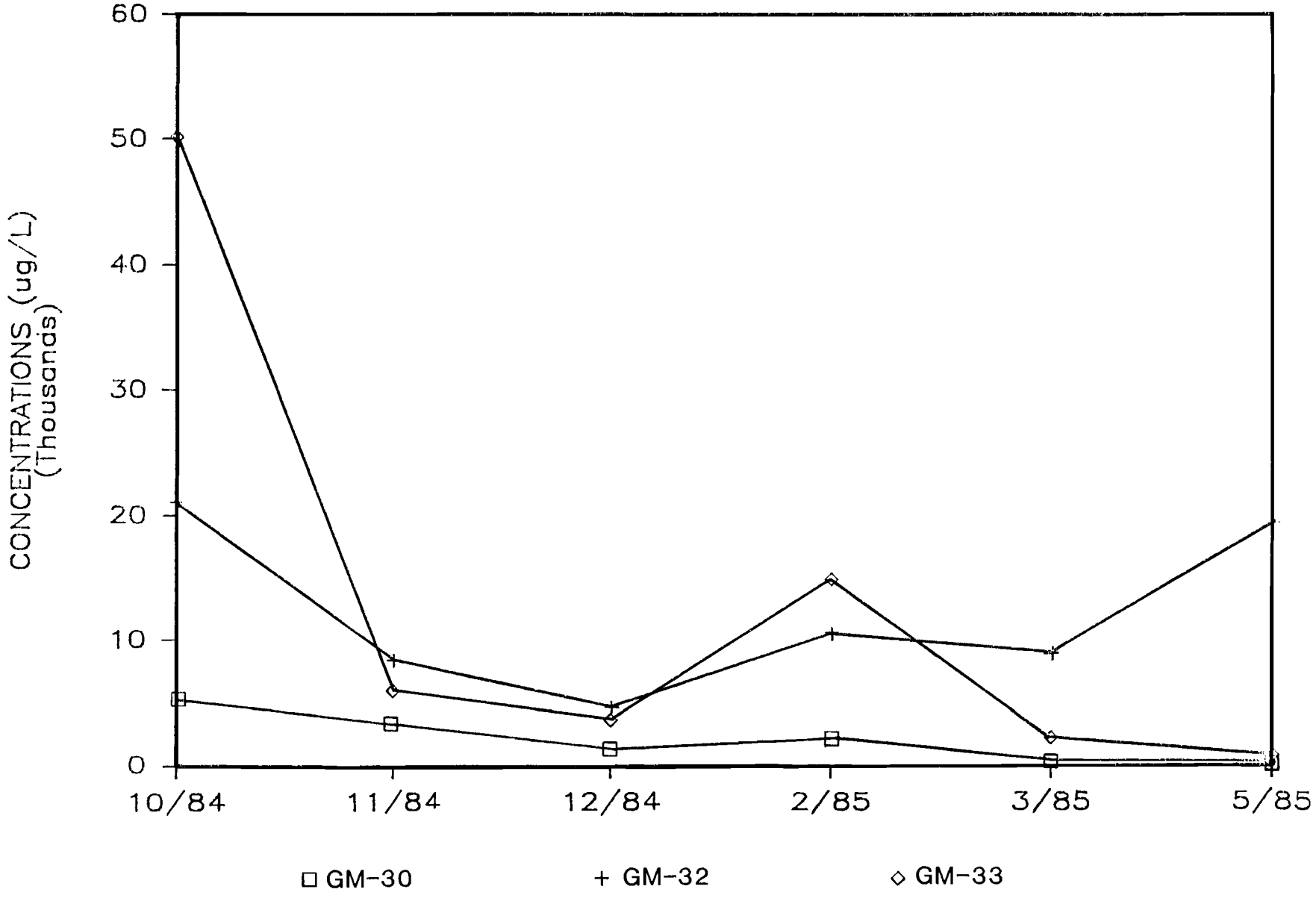
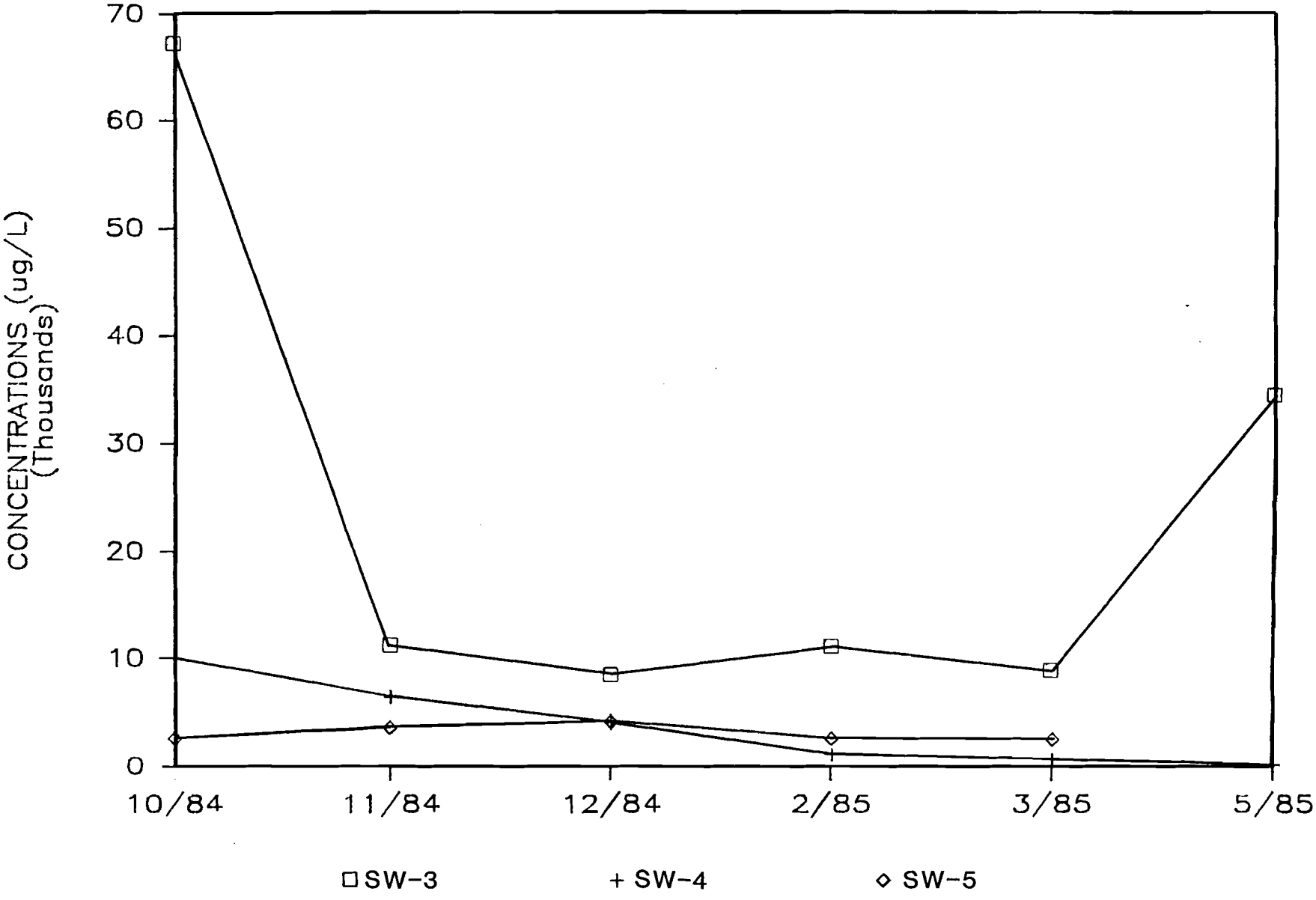


FIGURE 6-11

TOTAL VOLATILE ORGANIC COMPOUNDS

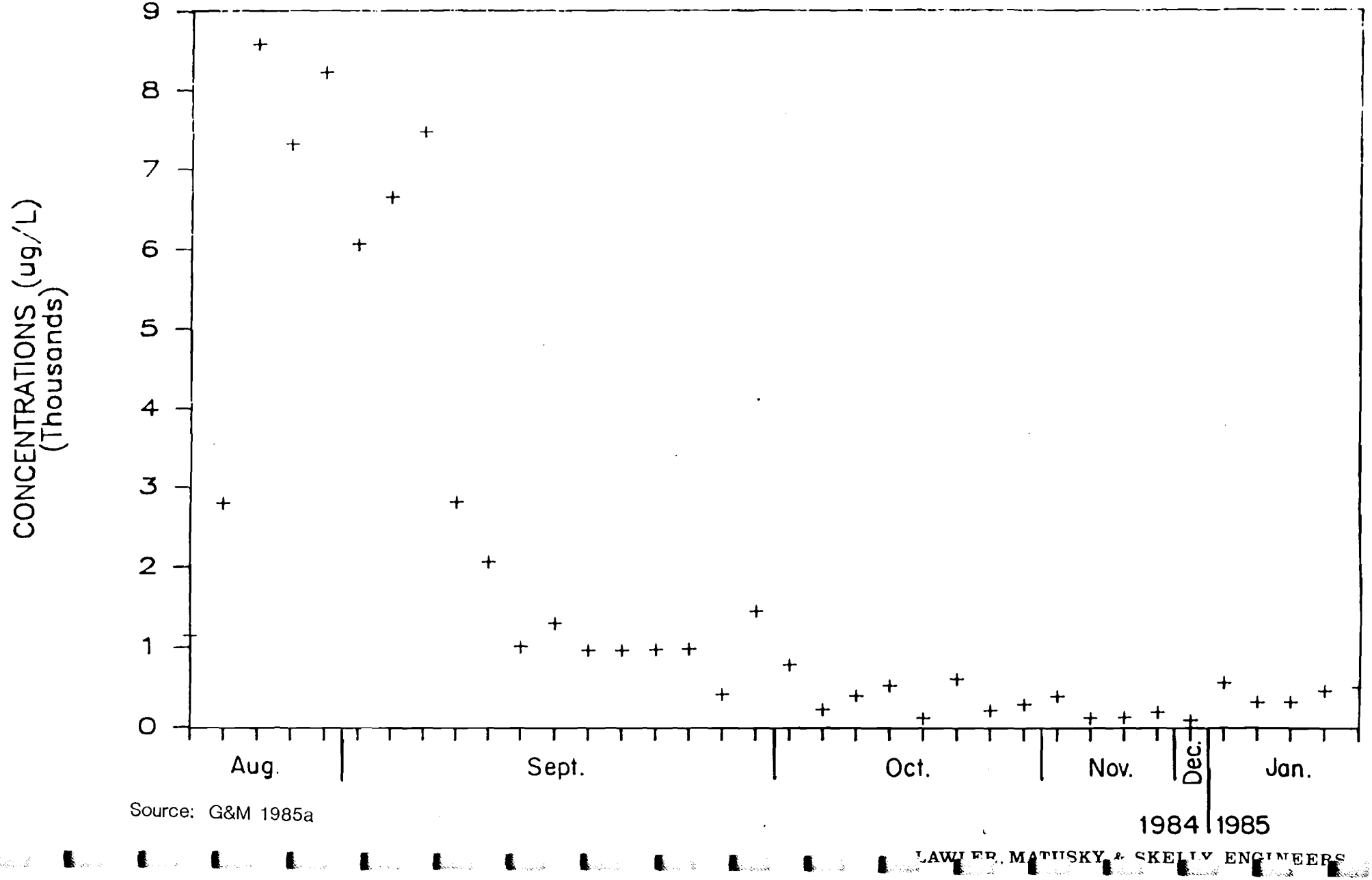


LAWLER, MATUSKY & SKELLY ENGINEERS

FIGURE 6-12

TOTAL VOLATILE ORGANIC COMPOUNDS

RECOVERY TRENCH



Source: G&M 1985a

The feasibility study will include evaluation of alternative pumping rates. PCBs and volatile concentrations will continue to be monitored.

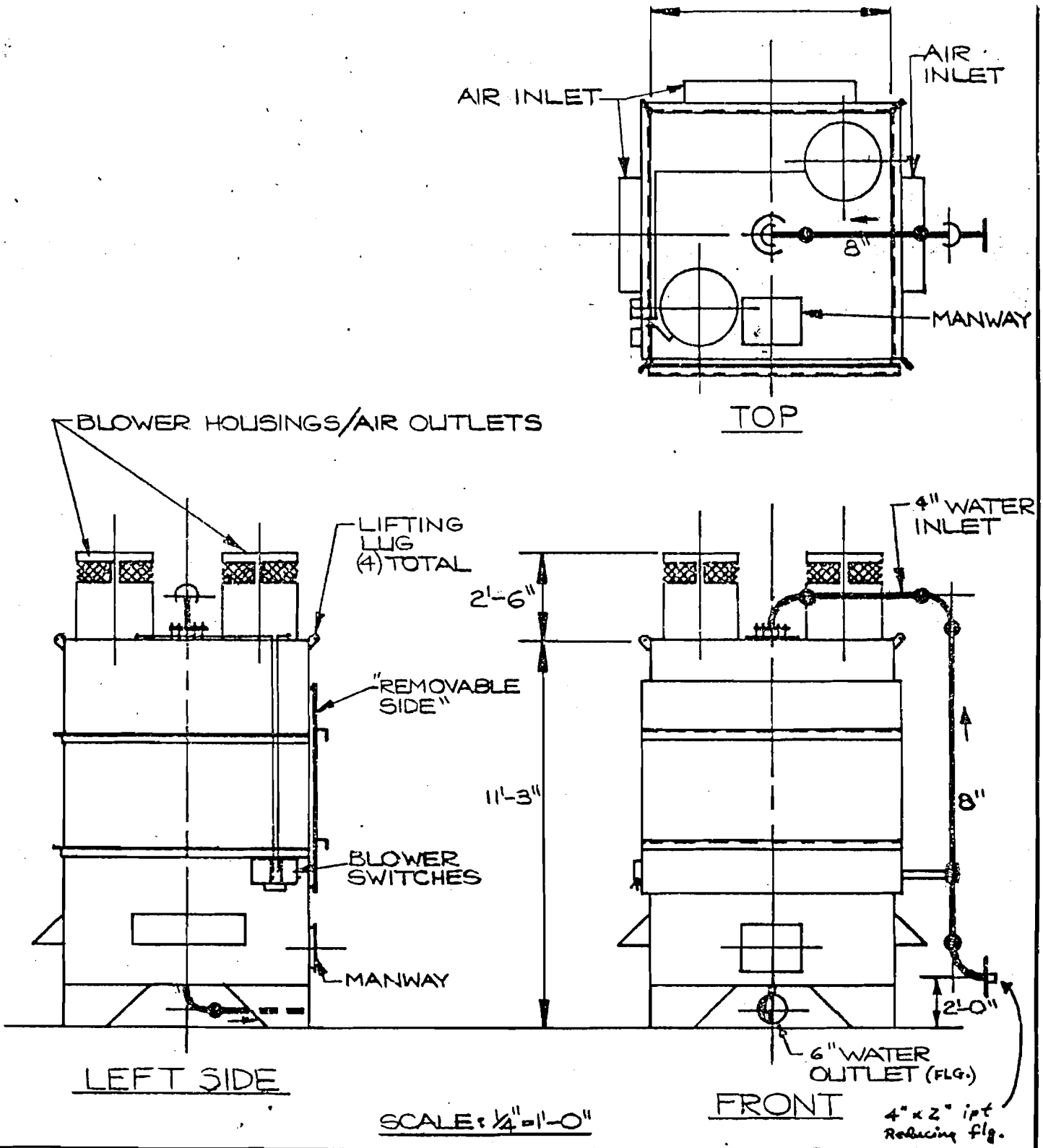
6.2.2.2 Evaluation of the Air Stripper. As discussed in Section 2.3, contaminated groundwater from RW-1 is pumped through the air stripper (Figure 6-13) before going to the impounding basin for treatment through the carbon adsorption unit. The air stripper is designed to remove volatile organics.

An investigation was conducted from 8 October 1984 to 12 March 1985 to assess the efficiency of the air stripper. Samples of influent and effluent were collected and analyzed for volatile organic compounds. During testing, the air stripper was operated with air flow of 3000 cfm and a water flow rate of 75 gpm. Data for the principal components are shown in Table 6-1. For the volatiles, removal efficiency was consistently greater than 90% for all volatiles and all study periods; the average efficiency was greater than 95%. Average removal efficiency has declined slightly for each volatile constituent tested as influent concentrations have decreased. These results demonstrate that the air stripper is effective at removing volatiles from the contaminated groundwater prior to carbon adsorption.

6.3 CONCLUSIONS

Remediation at the Fort Edward site began in 1976 and will continue until a Final Remedial Program is adopted pursuant to Paragraph II.Q.S of the 1985 Consent Order. The completed and ongoing programs have resulted in the following:

- All known sources of groundwater contamination have been eliminated.
- Product is being removed from well GM-27.



SCALE: 1/4"=1'-0"

REVISIONS	BY	DATE

HYDRO GROUP
ENVIRONMENTAL PRODUCTS DIVISION
50 WEST ELIZABETH AVENUE/LINDEN, NEW JERSEY 07036

TEMPORARY STRIPPER (7 FT. SQ.)

GENERAL ARRANGEMENT

Wt - 2500 #

each blower - 3000CFM - 1½HP motor

FIGURE 6-13

LAWLER, MATUSKY & SKELLY ENGINEERS

DRN: VFL 10/28/83

CKD:

DRAWING NUMBER 16A1497

TABLE 6-1

AIR STRIPPER PERFORMANCE EVALUATION

General Electric Company

COMPOUND	INFLUENT CONC. MEAN (µg/l)	INFLUENT CONC. RANGE (µg/l)	MEAN REMOVAL EFFICIENCY (%)	RANGE OF EFFICIENCIES (%)	MEAN EFFLUENT CONC. (µg/l)	NUMBER OF SAMPLES
Trans-1,2-Dichloroethylene						
10/08/84 - 11/12/84	442	225 - 669	98.1	96.5 - 99.0	7.6	10
11/26/84 - 01/14/85	194	142 - 251	97.3	95.8 - 98.1	5.0	7
01/28/85 - 03/12/85	133	110 - 169	95.9	92.4 - 97.1	6.1	6
1,1,1-Trichloroethane						
10/08/84 - 11/12/84	88.0	56 - 118	98.9	97.3 - 100	0.9	10
11/26/84 - 01/14/85	54.0	35 - 76	98.5	97.8 - 99.2	0.8	7
01/28/85 - 03/12/85	34.6	30 - 37	98.6	95.9 - 100	0.5	6
Trichloroethylene						
10/08/84 - 11/12/84	12,973	10,208 - 15,534	98.6	98.1 - 99.0	173	10
11/26/84 - 01/14/85	8,835	6,021 - 13,441	98.3	97.9 - 98.9	143	7
01/28/85 - 03/12/85	4,063	3,340 - 5,915	97.1	95.9 - 98.3	116	6

- The chemical concentrations for most of the monitoring wells that contained greater than 100 μg/l total volatiles and/or 2 μg/l PCBs prior to the initiation of the remedial program have been reduced.

- Total volatiles and PCB concentrations for well RW-1 have steadily declined.

- The cone of depression created by pumping well RW-1 at 75 gpm has prevented contaminated groundwater from leaving the GE property along Park Avenue between wells GM-16 and GM-18. That pumping rate should be used unless an alternative rate and/or schedule can be shown to be effective.

- With the exception of one well in May 1985, the total volatile concentration in the groundwater along the Park Avenue boundary has decreased, suggesting that continued operation of RW-1 will further improve groundwater quality by removing dissolved volatiles within its cone of influence.

- The air stripper is 95% effective at removing volatiles from the RW-1 pumpage prior to its discharge to the wastewater treatment facility.

Until the Final Remediation Program is developed, well RW-1 will continue to operate at 75 gpm until the water table drops to 20 ft below grade at which time the rate of groundwater recovery will be reduced. Recovered groundwater will be treated by air stripping and carbon adsorption. Monitoring of the system is continuing.

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APPENDIX A

BORING LOGS

APPENDIX B

ENGINEERING-SCIENCE REPORT

APPENDIX C

RESIDENTAL WELL SAMPLING AND ANALYSES

APPENDIX

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APPENDIX A.1

BORING LOGS OF WELLS (1976)
CONSTRUCTED BY DAMES & MOORE

BORING W-5

GROUND ELEVATION 261.39

TOP OF CASING 262.24

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		7	SP/SM	BROWN, LOOSE FINE SAND, TRACE SILT, TRACE ROOTS	3" Ø PVC PIPE
	2		14	SP	RED BROWN, MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	VOLCLAY
5	3		15		GRADING TRACE FINE GRAVEL	SCREEN
				CL	MOTTLED GRAY BROWN, VERY STIFF SILTY CLAY, TRACE COARSE TO FINE SAND	
	4		56			PEA GRAVEL
	5		96/6"	GP/GM	DARK GRAY, VERY DENSE DECOMPOSED LIMESTONE	
10					BORING COMPLETED AT 8.5 FEET ON 3/10/76 NO DRILLING FLUID USED DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS WATER LEVEL AT 4.18 FEET BELOW GROUND SURFACE ON 3/19/76	
15						
20						
25						
30						
35						
40						

BORING W-6

GROUND ELEVATION 261.51

TOP OF CASING 262.51

SAMPLE Depth Feet	No.	SYM	Blows/Ft.	SYM.	Description	OBSERVATION WELL AS INSTALLED
	1		16	SP/SM	BROWN, MEDIUM DENSE FINE SAND, TRACE SILT, TRACE COARSE TO FINE GRAVEL, TRACE ROOTS	3" Ø PVC PIPE
	2		13	SP	RED BROWN, MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
5	3		13	CL	GRADING TRACE FINE GRAVEL	
	4		100/½"		MOTTLED GRAY AND BROWN, STIFF SILTY CLAY, TRACE COARSE TO FINE SAND, TRACE COARSE TO FINE GRAVEL (VERY HARD QUARTZ BOULDER)	VOLCLAY
				GP/GM	DARK GRAY, VERY DENSE DECOMPOSED LIMESTONE WITH OCCASIONAL CLAY LENSES	
10	5		100/2"		DARK GRAY SOUND LIMESTONE	
					AT 13.3', 1/8" THICK CARBONATE CEMENTED, NEAR HORIZONTAL FRACTURE	PEA GRAVEL
			99			SCREEN
15			94		AT 16.8', HORIZONTAL FRACTURE COATED WITH FINE CARBONATE MINERALIZATION	
					BORING COMPLETED AT 17 FEET ON 3/10/76	
20					FRESH WATER USED FOR ROCK CORING	
					DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS	
					WATER LEVEL AT 4.2 FEET BELOW GROUND SURFACE ON 3/19/76	
25						
30						
35						
40						

% RECOVERY — R.Q.D. — LENGTH OF CORE RUN

RANEY & MOORE

BORING W-7

GROUND ELEVATION 260.58

TOP OF CASING 262.61

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		5	SP / SM	DARK BROWN, LOOSE MEDIUM TO FINE SAND, TRACE SILT, TRACE ROOTS	3" Ø PVC PIPE
	2		4	SP	RED BROWN, LOOSE COARSE TO FINE SAND, TRACE SILT	VOLCLAY
5				CL	BROWN, STIFF SILTY CLAY, TRACE FINE SAND,	PEA GRAVEL
	3		110	GP / GM	DARK GRAY, VERY DENSE DECOMPOSED LIMESTONE	SCREEN
10					BORING COMPLETED AT 6 FEET ON 3/11/76 NO DRILLING FLUID USED DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS WATER LEVEL 3.13 FEET BELOW GROUND SURFACE ON 3/19/76	

BORING W-8

GROUND ELEVATION 261.05

TOP OF CASING 262.65

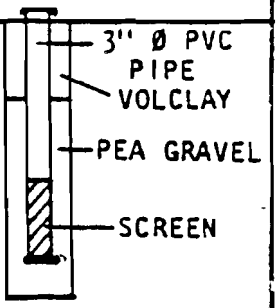
SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM	Description	
	1		4	SP/SM	BROWN, LOOSE TO FINE SAND, TRACE SILT, TRACE ROOTS	3" Ø PVC PIPE
	2		15	SP	RED BROWN, MEDIUM DENSE, FINE SAND, TRACE SILT	
5	3		15		GRADING LOOSE, COARSE TO FINE SAND, TRACE FINE GRAVEL	
				CL	GRAY BROWN, STIFF SILTY CLAY, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL	VOLCLAY
	4		100/3"	GP/GM	DARK GRAY DECOMPOSED LIMESTONE	
					DARK GRAY SOUND LIMESTONE	
10					AT 10', 45° FRACTURE COATED WITH FINE CARBONATE MINERALIZATION	
			99			PEA GRAVEL
			84		AT 14.3', HORIZONTAL FRACTURE, SLICKENSIDES, COATED WITH CARBONATE AND SULFITE MINERALIZATION	SCREEN
15						
					BORING COMPLETED AT 16.4 FEET ON 3/10/76	
					SOIL DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS	
20					FRESH WATER USED FOR ROCK CORING	
					WATER LEVEL AT 3.8 FEET BELOW GROUND SURFACE ON 3/19/76	

% RECOVERY — R.Q.D. — LENGTH OF CORE RUN

BORING W-9

GROUND ELEVATION 260.5

TOP OF CASING 261.94

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		6	SP / SM	BROWN, LOOSE TO FINE SAND, TRACE SILT, TRACE ROOTS	
	2		9	SP	RED BROWN, LOOSE FINE SAND, TRACE SILT	
5	3		9	SP	BROWN LOOSE COARSE TO FINE SAND, TRACE FINE	
				CL	GRAVEL, TRACE SILT	
	4		4	SM	BROWN, STIFF SILTY CLAY, SOME MEDIUM SAND	
	5		100/2"	GP / GM	BROWN, VERY LOOSE COARSE TO FINE SAND, SOME SILT DARK GRAY VERY DENSE DECOMPOSED LIMESTONE	
10					BORING COMPLETED AT 7.3 FEET ON 3/10/76 NO DRILLING MUD USED DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS WATER LEVEL 2.67 FEET BELOW GROUND SURFACE ON 3/19/76	

BORING W-10

GROUND ELEVATION 261.21

SAMPLE				UNIFIED SOIL CLASSIFICATION		
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	Lab Test
	1	■	5	SP/SM	BROWN, LOOSE FINE SAND, TRACE SILT, TRACE ROOTS	
	2	■	9	SP	RED BROWN, MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
5				CL	SOFT BROWN SILTY CLAY, TRACE FINE SAND	
	3	■	44	GP/GM	DARK GRAY VERY DENSE DECOMPOSED LIMESTONE	
	4	■	80/2"		BORING COMPLETED AT 7.2 FEET ON 3/10/76 NO DRILLING FLUID USED DRILLED WITH COMPRESSED AIR TO REMOVE CUTTINGS WATER LEVEL 3.4 FEET BELOW GROUND SURFACE ON 3/11/76	
10						

BORING W-11

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 259.55

TOP OF CASING 260.20

SAMPLE Depth Feet	No.	SYM	Blows/Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	Lab Test
				SP-SM	DARK BROWN, MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	3" Ø PVC PIPE, CEMENT, SCREEN, SILICA SAND, VOLCLAY
	1		17	SP	RED BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
	2		11			
5	3		14	CL	LIGHT GRAY MOTTLED BROWN STIFF SILTY CLAY - VARVED	
					GRADING MEDIUM STIFF	
10	4		4			
	5				DARK GRAY SLIGHTLY DECOMPOSED LIMESTONE	
15					DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 15' ON 4/14/76	
					FRESH WATER USED AS DRILLING FLUID	
					WATER LEVEL AT 3.5 FEET BELOW GROUND SURFACE ON 4/30/76	
20						

BORING W-12

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 260.44

TOP OF CASING 261.37

SAMPLE				UNIFIED SOIL CLASSIFICATION		Lab Test
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	3" Ø PVC PIPE, CEMENT, VOLCLAY, SILICA SAND, SCREEN, VOLCLAY
	1	◪	10	SP	RED BROWN MEDIUM DENSE MEDIUM TO FINE SAND, TRACE SILT	
	2	◪	9		GRADING GRAY	
5	3	◪	20			
	4	◪	10	CL	LIGHT GRAY AND BROWN ($\frac{1}{4}$" TO $\frac{1}{2}$" THICK LAYERS) STIFF SLITY CLAY, VARVED	
10					GRADING MEDIUM STIFF	
	5	◪	6			
15					GRADING SOFT	
	6	◪	1			
20						
	7	◪	24	SC	DARK GRAY MEDIUM DENSE COARSE TO FINE SAND, SOME SILTY CLAY, TRACE GRAVEL - TILL	
					DARK GRAY SLIGHT DECOMPOSED LIMESTONE	
25	8	⊠	—		DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 25' ON 4/14/76 FRESH WATER USED AS DRILLING FLUID NO WATER OBSERVED IN PIEZOMETER	
30						

BORING W-13

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 259.91

TOP OF CASING 261.17

SAMPLE				UNIFIED SOIL CLASSIFICATION		Lab Test
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	
	1		16		RED BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
	2		8	SP	GRADING GRAY BROWN, LOOSE	3" Ø PVC PIPE
5	3		20		BROWN STIFF SILTY CLAY - VARVED	
					GRADING GRAY	
10					GRADING MEDIUM STIFF	CEMENT
	4		3	CL		
15					GRADING SOFT	
	5		1			VOLCLAY
				SC	DARK GRAY MEDIUM DENSE, COARSE TO FINE SAND, SOME SILTY CLAY - TRACE GRAVEL - TILL	SILICA SAND
20					DARK GRAY SLIGHTLY DECOMPOSED LIMESTONE	SCREEN
	6				DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 22' ON 4/14/76	
					FRESH WATER USED AS DRILLING FLUID	
					WATER LEVEL AT 6.6 FEET BELOW GROUND SURFACE ON 4/30/76	
25						

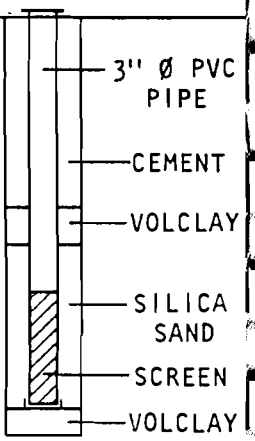
BORING W-14

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 260.13

TOP OF CASING 260.68

SAMPLE				UNIFIED SOIL CLASSIFICATION		Lab Test
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	
	1	◪	11		RED BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
	2	◪	6		GRADING GRAY, LOOSE	
5	3	◪	16	SP		
10	4	◪	7	CL	BROWN STIFF SILTY CLAY - VARVED	
15	5	◪	3		GRADING MEDIUM STIFF	
20	6	◪	26	SC	DARK GRAY MEDIUM DENSE, COARSE TO FINE SAND, SOME SILTY CLAY, TRACE GRAVEL - TILL	
					DARK GRAY SLIGHTLY DECOMPOSED LIMESTONE	
					DARK GRAY SOUND LIMESTONE	
25	7	⊠			BORING COMPLETED AT 25' ON 4/14/76 FRESH WATER USED AS DRILLING FLUID NO WATER OBSERVED IN PIEZOMETER	
30						



DAMES & MOORE

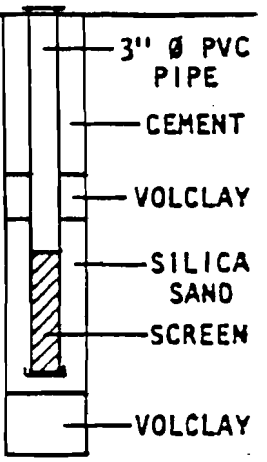
BORING W-15

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 260.37

TOP OF CASING 261.89

SAMPLE				UNIFIED SOIL CLASSIFICATION		Lab Test
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	
	1		14		RED BROWN MEDIUM DENSE MEDIUM TO FINE SAND, TRACE SILT	
	2		8		GRADING GRAY	
5	3		27	SP		
					GRAY STIFF SILTY CLAY - VARVED	
10	4		P			
15	5		P	CL	GRADING MEDIUM STIFF	
20						
	6		P	SC	DARK GRAY MEDIUM DENSE COARSER TO FINE SAND, SOME SILTY CLAY, TRACE GRAVEL - TILL	
					DARK GRAY SLIGHTLY DECOMPOSED LIMESTONE	
25	7				DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 25' ON 4/15/76	
					FRESH WATER USED AS DRILLING FLUID	
					WATER LEVEL AT 8.6 FEET BELOW GROUND SURFACE 4/30/76	
30						



BORING W-16

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 261.05

TOP OF CASING 262.36

SAMPLE				UNIFIED SOIL CLASSIFICATION		Lab Test
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	
	1		10		RED BROWN LOOSE MEDIUM ..TO FINE SAND, TRACE SILT	
	2		5	SP	GRADING GRAY	
5	3		14			
					BROWN STIFF SILTY CLAY - VARVED	3" ø PV PIPE
10						
	4		3		GRADING GRAY, MEDIUM STIFF	CEMENT
				CL		
15					GRADING SOFT	
	5		2			
20					GRADING VERY SOFT	VOLCLAY
	6		1			
				SC	DARK GRAY MEDIUM DENSE, COARSE TO FINE SAND, SOME SILTY CLAY, TRACE GRAVEL - TILL	SILICA SAND
					DARK GRAY SLIGHTLY DECOMPOSED LIMESTONE	SCREEN
25	7				DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 26' ON 4/15/76	
					FRESH WATER USED AS DRILLING FLUID	
					WATER LEVEL AT 7.2 FEET BELOW GROUND SURFACE ON 4/30/76	
30						

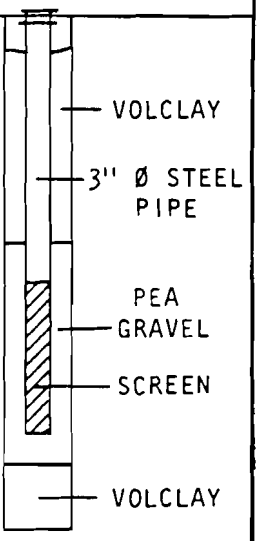
BORING W-201

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 261.32

TOP OF CASING: 261.02

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		19	GP	3" BITUMINOUS MACADAM (TOP COURSE)	
					3" GRAY MEDIUM DENSE TO CRUSHED STONE (SUBBASE)	
				SP	TAN, LOOSE TO MEDIUM DENSE, FINE SAND, TRACE SILT - FILL	
	2		8	SM	DARK BROWN MEDIUM DENSE FINE SAND, LITTLE SILT	
5	3		19		TAN, MEDIUM DENSE, MEDIUM TO FINE SAND TRACE SILT	
	4		15		GRADING COARSE TO FINE	
10				SP		
	5		16			
15						
					BROWN, MEDIUM DENSE, FINE SAND, LITTLE SILT	
20						
	6		18		GRADING OCCASIONAL CLAY LENSES	
25				SM		
	7		18		GRADING DARK GRAY VERY FINE SAND, LITTLE TO SOME SILT	
	8		18			
30						
					DARK GRAY MEDIUM STIFF SILTY CLAY, LITTLE TO SOME FINE SAND - VARVED	
35						
	9		16	CL		
					GRADING SILTY CLAY, NO SAND, EXCEPT IN VERY THIN LENSES	
40						



DAMES & MOORE

BORING W-201
(CONTINUED)

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
40	10		8		
45	11		5		
50	12		3		GRADING SOFT TO MEDIUM STIFF
55	13		5	CL	
60	14		12		
65	15		5		
70	16		10		
75	17		6		
80					DARK GRAY VERY DENSE COARSE TO FINE SAND, SOME COARSE TO FINE GRAVEL, LITTLE SILT

BORING W-201
(CONTINUED)

SAMPLE				UNIFIED SOIL CLASSIFICATION		
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
80	18	◪	96	SM	GRADING LOOSE	
85					DARK GRAY SOUND LIMESTONE	
					BORING COMPLETED AT 85' ON 3/12/76 NO CASING WAS USED DRILLER'S MUD WAS USED WATER LEVEL WAS 7.55 FEET ON 3/17/76	

BORING W-202

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 265.70

TOP OF CASING: 265.42

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				GP	1" BLACK CRACKED BITUMINOUS MACADAM (TOP COURSE) 1" GRAY MEDIUM DENSE CRUSHED STONE (SUBBASE) BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT - FILL	VOLCLAY 3" Ø STEEL PIPE
	1		21			
	2		15			
5	3		20	SP		
	4		20			PEA GRAVEL SCREEN
10	5		16		BROWN MEDIUM DENSE, FINE SAND, LITTLE SILT	
	6		18			VOLCLAY
15				SM		
	7		18			
					GRAY MEDIUM STIFF SILTY CLAY - VARVED	
20						
	8		3			
25						
	9		P			
30				CL		
	10		4			
35						
	11		P			
40					GRADING SOFT	

BORING W-202
(CONTINUED)

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
40	12	◥	2	CL	
45	13	◥	108/6"		DECOMPOSED LIMESTONE DARK GRAY SOUND LIMESTONE
	14	⊠			
50					BORING COMPLETED AT 48' ON 3/13/76 NO CASING USED DRILLER'S MUD USED WATER LEVEL AT 9.38 FEET ON 3/18/76

BORING W-203

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 263.24

TOP OF CASING: 264.71

SAMPLE Depth Feet	No.	SYM	Blows / Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	OBSERVATION WELL AS INSTALLED
	1	■	** 16	ML	TAN STIFF CLAYEY SILT, LITTLE SAND, TRACE GRAVEL - TOPSOIL - FILL	CEMENT
					TAN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
	2	■	** 14			3" Ø STEEL PIPE
5						VOLCLAY
	3	■	* 23	SP	GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	
	4	■	* 24			SCREEN
		▼	**			
10					COMPLETE SATURATION WITH BLACK VISCOUS CRUDE OIL LIKE SUBSTANCE	SILICA SAND
	5	■	* 35			
15					BORING COMPLETED AT 12½' ON 4/21/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 7.3 FEET BELOW GROUND ON 4/30/76	

* SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING

** SOIL SAMPLES ON WHICH P.C.B.'S CONTENT DETERMINATION HAVE BEEN PERFORMED

▼ ** WATER SAMPLE ON WHICH P.C.B.'S CONTENT HAS BEEN PERFORMED

BORING W-203A

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION 262.72

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
				ML	TAN STIFF CLAYEY SILT, LITTLE SAND, TRACE GRAVEL - TOPSOIL - FILL
					TAN MEDIUM DENSE MEDIUM TO FINE SAND, TRACE SILT
5					GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL
				SP	
10					COMPLETE SATURATION WITH BLACK VISCOUS CRUDE OIL LIKE SUBSTANCE
15					
	1	⊠			GRAY STIFF TO MEDIUM STIFF SILTY CLAY - VARVED
20					
25				CL	
30					
					GRADING SOFT
35					
				SC / GC	DARK GRAY VERY DENSE SAND AND GRAVEL, LITTLE TO SOME SILTY CLAY - TILL
40					DARK GRAY SOUND LIMESTONE

BORING W-203A
(CONTINUED)

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
40					
	2	⊠			
45					PROBE COMPLETED AT 45 FEET ON 4/24/76 DRILLER'S MUD USED AS DRILLING FLUID NO WATER LEVEL RECORDED
50					

BORING W-204

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 261.30

TOP OF CASING: 262.48

SAMPLE Depth Feet	No.	SYM	Blows / Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	OBSERVATION WELL AS INSTALLED
	1	■	**20	SP-SM	BROWN AND GRAY LOOSE MEDIUM TO FINE SAND, LITTLE FINE GRAVEL, TRACE SILT - FILL	CEMENT
					REDDISH BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	
					GRADING LOOSE	3" Ø STEEL PIPE
5				SP		
	2	■	* 6		GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	VOLCLAY
		▼	**			SCREEN
						SILICA SAND
10					BORING COMPLETED AT 9½' ON 4/21/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
					WATER LEVEL AT 8.0 FEET BELOW GROUND ON 5/1/76	
15						

* SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING

** SOIL SAMPLE ON WHICH P.C.B.'S CONTENT HAS BEEN PERFORMED

▼** WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-205

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 261.30

TOP OF CASING: 262.32

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1	■	24	SP-SM	BROWN AND GRAY MEDIUM DENSE, COARSE TO FINE SAND LITTLE FINE GRAVEL, TRACE SILT - FILL	CEMENT
					REDDISH BROWN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	SAND BACKFILL
5					GRADING LOOSE	
	2	■	11		GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	3" Ø STEEL PIPE
		▼		SP		CEMENT
10						
	3	■	* 10			VOLCLAY
15						
	4	■	* 7			SCREEN
						SILICA SAND
20					BORING COMPLETED AT 18' ON 4/21/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
					WATER LEVEL AT 8.0 FEET BELOW GROUND ON 5/1/76	

* SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING

▼ WATER SAMPLE SUITABLE FOR P.C.B.'S TESTING

BORING W-206

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 262.96

TOP OF CASING: 264.25

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		**7	SP-SM	BROWN LOOSE MEDIUM TO FINE SAND, TRACE TO LITTLE SILT - TOPSOIL	CEMENT
	2		* 2	SP	TAN LOOSE MEDIUM TO FINE SAND, TRACE SILT	VOLCLAY
5	3		* 4 ▽ **		GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	3" Ø STEEL PIPE
						SCREEN
						SILICA SAND
10					BORING COMPLETED AT 6' ON 4/22/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 5.7 FEET BELOW GROUND ON 4/30/76	

* SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING

** SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

▽ **WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-207

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 262.84

TOP OF CASING: 264.38

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		4	SP-SM	DARK BROWN LOOSE, MEDIUM TO FINE SAND, TRACE TO LITTLE SILT - TOPSOIL	CEMENT
				SP	TAN LOOSE, MEDIUM TO FINE SAND, TRACE SILT	
5					GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	3" Ø STEEL PIPE
	2		6		BROWN SOFT SILTY CLAY AND FINE SAND, TRACE FINE	
	3		* 8	CL/SC	GRAVEL	SAND BACKFILL
					DARK GRAY STIFF CLAYEY SILT, LITTLE FINE SAND,	
10	4		* 10		TRACE COARSE TO FINE GRAVEL - TILL	
	5		16	ML		VOLCLAY
	6		* 29			
15			▼ **		GRADING SOME COARSE TO FINE GRAVEL	SCREEN
	7		76			SILICA SAND
	8		* 39			
20					BORING COMPLETED AT 18½' ON 4/22/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
					WATER LEVEL AT 6.1 FEET BELOW GROUND ON 4/30/76	
					* SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING	
					▼ ** WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED	

BORING W-208

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 258.72

TOP OF CASING 260.39

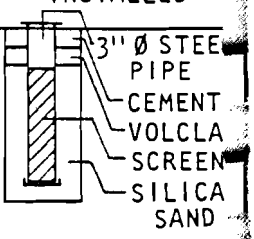
SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	3" Ø STEEL PIPE
	1	■	* 4	SP	RED BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT	CEMENT
	2	■	* 2		BROWN MEDIUM STIFF SILTY CLAY - VARVED	VOLCLAY
5				CL	GRADING GRAY	SCREEN
	3	■	* 2			SILICA SAND
					BORING COMPLETED AT 7 FEET ON 4/22/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
10					WATER LEVEL AT 2.7 FEET BELOW GROUND SURFACE ON 4/30/76	
					*SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING	
					▼ WATER SAMPLE SUITABLE FOR P.C.B.'S TESTING	

BORING W-209

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 258.87

TOP OF CASING 260.22

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP-SM	DARK BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	
	1		5	SP	RED BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT	
5				CL	BROWN MEDIUM STIFF SILTY CLAY - VARVED	
					BORING COMPLETED AT 4.5 FEET ON 4/22/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 2.95 FEET BELOW GROUND SURFACE ON 4/30/76	
10					WATER SAMPLE SUITABLE FOR P.C.B.'S TESTING DUPLICATE SAMPLE SUBMITTED TO GENERAL ELECTRIC, 4/28/76, FOR P.C.B.'S DETERMINATION	

BORING W-210

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 263.29

TOP OF CASING: 264.98

SAMPLE Depth Feet	No.	SYM	Blows/Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	OBSERVATION WELL AS INSTALLED
	1		**12	SP-SM	DARK BROWN LOOSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	CEMENT
					TAN MEDIUM DENSE, MEDIUM TO FINE SAND, TRACE SILT	3" Ø STEEL PIPE
				SP		VOLCLAY
5					GRADING COARSE TO FINE SAND	SCREEN
	2		* 7			SILICA SAND
			**			
					BORING COMPLETED AT 7½' ON 4/23/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
10					WATER LEVEL AT 6.6 FEET BELOW GROUND ON 5/1/76	

*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING

**SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

**WATER SAMPLER ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-211

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 263.23

TOP OF CASING: 264.61

SAMPLE Depth Feet	SAMPLE No.	SAMPLE SYM	SAMPLE Blows/Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	OBSERVATION WELL AS INSTALLED
				SP-SM	DARK BROWN LOOSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	CEMENT
	1		11		TAN LOOSE TO MEDIUM DENSE, MEDIUM TO FINE SAND TRACE SILT	3" Ø STEEL PIPE
5				SP	GRADING COARSE TO FINE SAND, TRACE FINE GRAVEL	SAND BACKFILL
	2		8			
					GRADING LITTLE COARSE TO FINE GRAVEL	VOLCLAY
10	3		* 3	CL	BROWN SOFT SILTY CLAY - VARVED GRADING GRAY	SCREEN
						SILICA SAND
15					BORING COMPLETED AT 14' ON 4/23/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 6.9 FEET BELOW GROUND ON 5/1/76	
20					*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING	
					▼ WATER SAMPLE SUITABLE FOR P.C.B.'S TESTING	

BORING W-212

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 260.58

TOP OF CASING: 262.20

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1	**	8	GP	1" BITUMINOUS MACADAM (TOP COURSE) 1" GRAY CRUSHED STONE (SUBBASE) TAN LOOSE MEDIUM TO FINE SAND, TRACE SILT	CEMENT 3" Ø STEEL PIPE VOLCLAY SCREEN SILICA SAND
5	2	*	6	SP		
		**				
10					BORING COMPLETED AT 8' ON 4/23/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 7.4 FEET BELOW GROUND ON 5/1/76	

*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING

**SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

**WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-213

Location: FT. EDWARD, N.Y.

GROUND ELEVATION 260.67

TOP OF CASING 262.37

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
				SP	TAN LOOSE MEDIUM TO FINE SAND, TRACE SILT - FILL	3"Ø STEEL PIPE, CEMENT, VOLCLAY, SCREEN, SILICA SAND
	1		* 4	SP	BROWN AND GRAY LOOSE MEDIUM TO FINE SAND, LITTLE CLAY LUMPS-PIPE BACKFILL	
	2		* 6			
5						
	3		* 3	CL	BROWN AND GRAY MEDIUM STIFF SILTY CLAY - VARVED	
					BORING COMPLETED AT 7.5 FEET ON 4/23/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS NO WATER ENCOUNTERED IN PIEZOMETER	
10					*SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING	

BORING W-214

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 262.13

TOP OF CASING: 263.75

SAMPLE Depth Feet	No.	SYM	Blows / Ft.	UNIFIED SOIL CLASSIFICATION SYM.	Description	OBSERVATION WELL AS INSTALLED
	1		**5	SP-SM	DARK BROWN LOOSE, MEDIUM TO FINE SAND, TRACE SILT	CEMENT
					RED BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT	3" Ø STEEL PIPE
				SP	STRONG KEROSENE SMELL	VOLCLAY
5			**			SCREEN
	2		* 14			SILICA SAND
					BORING COMPLETED AT 7' ON 4/23/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
10					WATER LEVEL AT 4.3 FEET BELOW GROUND ON 5/1/76	
					*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING	
					**SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED	
					**WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED	

BORING W-215

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 262.10

TOP OF CASING: 264.00

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1	■	** 8	SP-SM	DARK BROWN LOOSE TO MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	CEMENT
					RED BROWN LOOSE MEDIUM TO FINE SAND, TRACE SILT	3" Ø STEEL PIPE
				SP	GRADING COARSE TO FINE SAND	VOLCLAY
5		▼	**			SCREEN
	2	■	* 8			SILICA SAND
					BORING COMPLETED AT 7' ON 4/24/76	
					NO DRILLING FLUID USED	
					COMPRESSED AIR USED TO REMOVE CUTTINGS	
10					WATER LEVEL AT 5.3 FEET BELOW GROUND ON 5/1/76	

*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING

**SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

▼ **WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-215A

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 261.81

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
				SP-SM	DARK BROWN MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL
					RED BROWN MEDIUM TO FINE SAND, TRACE SILT
5				SP	GRADING COARSE TO FINE SAND, TRACE OIL
10	1	⊠			DARK GRAY DENSE, COARE TO FINE SAND AND GRAVEL, SOME SILTY CLAY-TILL
15				SC/GC	
20					
	2	⊠			DARK GRAY SOUND LIMESTONE
25					PROBE COMPLETED AT 24' ON 4/24/76 FRESH WATER USED AS DRILLING FLUID NO WATER LEVEL RECORDED

BORING W-216

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 261.14

TOP OF CASING: 262.82

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		**2	SP-SM	DARK BROWN LOOSE, MEDIUM TO FINE SAND, TRACE SILT - TOPSOIL	CEMENT
				SP	RED BROWN LOOSE, MEDIUM TO FINE SAND, TRACE SILT	3" Ø STEEL PIPE
						VOLCLAY
			**			
5				CL	BROWN STIFF SILTY CLAY, SOME MEDIUM SAND	SCREEN
	2		*1	SC	BROWN VERY LOOSE COARSE TO FINE SAND, SOME SILTY CLAY	SILICA SAND
					BORING COMPLETED AT 7' ON 4/24/76	
					NO DRILLING FLUID USED	
10					COMPRESSED AIR USED TO REMOVE CUTTINGS	
					WATER LEVEL AT 4.2 FEET BELOW GROUND ON 4/30/76	

*SOIL SAMPLE SUITABLE FOR P.C.B.'S TESTING

**SOIL SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

▼ **WATER SAMPLE ON WHICH P.C.B.'S CONTENT DETERMINATION HAS BEEN PERFORMED

BORING W-217

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 260.52

TOP OF CASING: 262.42

SAMPLE				UNIFIED SOIL CLASSIFICATION		OBSERVATION WELL AS INSTALLED
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description	
	1		6	GP	1" BITUMINOUS MACADAM (TOP COURSE) 1" GRAY CRUSHED STONE (SUBBASE) TAN LOOSE MEDIUM TO FINE SAND, TRACE SILT	CEMENT
5	2		5			3" Ø STEEL PIPE
				SP	GRADING COARSE TO FINE SAND, LITTLE COARSE TO FINE GRAVEL	VOLCLAY
10	3		* 8			
15						SILICA SAND
	4		* 7			SCREEN
20					BORING COMPLETED AT 18' ON 4/24/76 NO DRILLING FLUID USED COMPRESSED AIR USED TO REMOVE CUTTINGS WATER LEVEL AT 7.3 FEET BELOW GROUND ON 5/1/76	

*SOIL SAMPLES SUITABLE FOR P.C.B.'S TESTING

▼ WATER SAMPLE SUITABLE FOR P.C.B.'S TESTING

BORING W-217A

LOCATION: FT. EDWARD, N.Y.

GROUND ELEVATION: 260.38

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
					1" BITUMINOUS MACADAM (TOP COURSE)
					1" GRAY CRUSHED STONE (SUBBASE)
					TAN LOOSE MEDIUM TO FINE SAND, TRACE SILT
5					
10				SP	GRADING COARSE TO FINE SAND, LITTLE COARSE TO FINE GRAVEL
15					
20	1	☒			GRAY SOFT TO MEDIUM STIFF SILTY CLAY - VARVED
25					
30				CL	
35					
40					

BORING W-217A
(CONTINUED)

SAMPLE				UNIFIED SOIL CLASSIFICATION	
Depth Feet	No.	SYM	Blows / Ft.	SYM.	Description
40					
45					
				CL	
50					
55					GRADING SOFT
60	2	⊠		SC-GC	GRAY VERY DENSE SAND AND GRAVEL, LITTLE TO SOME SILTY CLAY - TILL
	3	⊠			DARK GRAY SOUND LIMESTONE
65					PROBE COMPLETED AT 63' ON 4/24/76 DRILLER'S MUD USED AS DRILLING FLUID NO WATER LEVEL RECORDED

APPENDIX A.2

BORING LOGS OF WELLS (1983)
CONSTRUCTED BY RECRA RESEARCH, INC.
FOR THE STATE OF NEW YORK

DATE STARTED 4-18-83
FINISHED 4-20-83
SHEET 1 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB 1
SURFACE ELEV. 260.25
G.W. DEPTH 249.83

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Eastern section of investigated area

DEPTH FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	DESCRIPTION	NOTES
		SB	1	1	1	3		Moist brownish black (5 YR. 2/1) organic SILTY-SAND, very loose, non-stratified, earthy odor. Sand is predominately (F-M) textured, fines are non-plastic, no reaction to HCl, (SM).	Boring advanced with 3 3/4 in. HSA, trailer mounted ACKER drill rig.
5			2	5	7	5		---grades downward to--- Moist light olive gray (5Y 5/2) partly organic SILTY-SAND, very loose, non-stratified. Sand is predominately (F-M) textured, fines are non-plastic, no reaction to HCl, (SM).	0.25'
	2"		3	5	5	7			5.0'
10			4	7	10	12		Moist light olive gray (5Y 5/2) clean (F-C) SAND, well graded, non-stratified medium dense, predominately sub-angular to sub-rounded quartz sand (SW). at 10.0': 2-5% subangular to subrounded quartz (F) GRAVEL at 15.0': saturated, light olive gray to olive gray (5Y 4/2). Sand is predominately (M-C) textured, no reaction to HCl, (SP).	- sand flowing into augers at 15.0 ft.; augers were cleaned with SB sampler prior to SPT sampling
15			5	2	5	6			
			6	7	5			sharp transition	26.0'
			7	19				Saturated olive gray (5Y 3/2) SILTY-SAND, well graded, non-stratified, dense. Sand is (f) textured, fines are non-plastic, no reaction to HCl, (SM-ML).	1) W.L. @ 16'4" from ground surface @ 15:46, 4-18-83 2) W.L. @ 11'0" from ground surface @ 10:00, 4-19-83 3) W.L. @ 11'5" from top of protective casing @ 14:30, 4-20-83

CLASSIFICATION Visual

METHOD OF INVESTIGATION ASTM Specifications

STARTED 4-18-83
FINISHED 4-20-83
SHEET 2 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-1
SURFACE ELEV 260.25
G.W. DEPTH 249.83

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Eastern section of investigated area

DEPTH IN FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6	BLOWS ON SAMPLER 6/12	BLOWS ON SAMPLER 12/18	BLOWS ON SAMPLER 18/24	DESCRIPTION	NOTES
									30.0'
30		SB	8	WOR	2	6		Saturated olive gray to light olive gray (5Y 4/2) (M-C) SAND, poorly graded with about 5-10% subangular to subrounded quartz gravel, stratified (interbedded) with olive gray (5Y 3/2) SILTY-SAND, well graded, fines are slightly plastic, sand is (f) textured. Formation is loose, weak reaction to HCl, (SP-SM).	
35			9						
			10	4	5			transition to	36.0'
			11						
			12	4	6				
				3	4			Saturated olive gray (5Y 3/2) SILTY-CLAY, soft, medium plasticity, stratified (interbedded) with occasional SILT layer (<0.25 in.), weak reaction to HCl, (ML-CL).	
									38.0'
								Boring completed at 38.0 ft.	

Geologic Stratigraphy

Organic silt and sand to approximately 1.0 ft. over alluvial sand to approximately 36.0 ft. over alluvial/lacustrine? clay to completion at 38.0 ft.

CLASSIFICATION Visual

METHOD OF INVESTIGATION ASTM Specifications

DATE STARTED 4-20-83
FINISHED 4-21-83
SHEET 1 OF 1

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-2
SURFACE ELEV 260.57
G.W. DEPTH 249.99

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Eastern section of investigated area, 10.5 ft. west of SB-1.

DEPTH - FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	DESCRIPTION	NOTES
5	2"				Moist brownish gray to olive gray (F-M) SAND, well graded with 2-5% subangular to subrounded quartz gravel	Boring advanced with 3 3/4 in. HSA, trailer mounted ACKER drill rig.
						- no split barrel samples taken, geology as noted from auger cuttings and adjacent boring SB-1.
10						
15						1) W.L. @ 14'8" from ground surface @ 15:15, 4-20-83
						2) W.L. @ 12'5" from top of protective casing at 13:00, 4-21-83
20						22.0'
25					Boring completed at 22.0 ft.	

CLASSIFICATION Visual

METHOD OF INVESTIGATION Auger boring

DATE
STARTED 4-22-83
FINISHED 4-22-83
SHEET 1 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-3
SURFACE ELEV 260.57
G.W. DEPTH 250.15

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Center of investigated area

DEPTH - FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	DESCRIPTION	NOTES
0		SB	1	1, 2, 2	Moist brownish black (5 YR 2/1) organic SILTY-SAND, very loose, nonstratified, earthy odor. Sand is predominately (F-M) textured, fines are non-plastic, no reaction to HCl, (SM).	Boring advanced with 3 3/4 in. HSA, trailer mounted ACKER drill rig.
5			2	2, 2, 3	----grades downward to----	0.5'
					Moist light olive gray (5Y 5/2) SILTY-SAND, very loose, well graded, non-stratified. Sand is predominately (F-M) textured, fines are non-plastic, no reaction to HCl, (SM).	
10	2"		3	11, 11, 12		5.0'
					Moist light olive gray to olive gray (5Y 4/2) clean (F-C) SAND, well graded, non-stratified, loose, predominately subrounded to sub-angular quartz sand, no reaction to HCl, (SW).	
15			4	2, 6, 12	at 10.0 ft.; saturated with 2-5% subrounded quartz GRAVEL, formation is medium dense (SW).	
20			5	4, 3, 3		
25			6	6, 3, 3	sharp transition	26.0'
					Saturated light olive gray (5Y 5/2) SILTY-SAND, well graded, non-stratified, loose. Sand is (F) textured, fines are non-plastic, no reaction to HCl, (SM).	
					at 28-29.0 ft.; with 2-5% sub-angular quartz GRAVEL	

CLASSIFICATION Visual

METHOD OF INVESTIGATION ASTM Specifications

DATE STARTED 4/22/83
FINISHED 4/22/83
SHEET 2 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-3
SURFACE ELEV 260.57
G W DEPTH 250.15

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Center of investigated area

DEPTH-FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	DESCRIPTION	NOTES
								transition to	29.0'
			7	4	5			Saturated light olive gray to olive gray (5Y 4/2) SANDY-SILT, well graded, loose, stratified (interbedded) with two (2) laminated grayish red/olive black (5R 4/2 / 5Y 2/1) SILTY-CLAY layers 0.25 in. and 0.50 in. thick respectively (@ approx. 29'-29'2"), medium plasticity. Sand is (f) textured and fines are nonplastic within SANDY-SILT strata, no reaction to HCl, (SM & CL).	
30			8	5					
				4	3				
				4	4				
35								transition to	31.0'
								Saturated olive gray (5Y 3/2) SILTY-CLAY, soft medium plasticity, non stratified, weak reaction to HCl, (CL).	
									33.0'
								Boring completed at 33.0 ft.	Geologic Stratigraphy Organic silt and sand to 0.5 ft., over alluvial sand to 29.0 ft., over alluvial/lacustrine? sand and silt to 31.0 ft., over alluvial/ lacustrine? clay to completion at 33.0 ft.

CLASSIFICATION Visual

METHOD OF INVESTIGATION ASTM Specifications

DATE STARTED 4/21/83
FINISHED 4/21/83
SHEET 1 OF 1

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-4
SURFACE ELEV. 260.42
G.W. DEPTH 250.08

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Center of investigated area, approx. 10 ft. west of SB-3

DEPTH-FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	DESCRIPTION	NOTES
					Moist brownish black organic SANDY-SILT	Boring advanced with 3 ¼ in. HSA, truck mounted CME - 55 drill rig.
1.0'					Moist brownish gray to olive gray (M-C) SAND, trace SILT	
5	2"					- no split barrel samples taken, geology as noted from auger cuttings and adjacent boring SB-3.
10						
15						
20						
22.0'					Boring completed at 22.0 ft.	
25						

CLASSIFICATION Visual

METHOD OF INVESTIGATION Auger boring

DATE STARTED 4/21/83
FINISHED 4/21/83
SHEET 1 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-5
SURFACE ELEV 261.13
G.W. DEPTH 250.22

PROJECT NYSDEC - Ft. Edward, NY #3C280053
LOCATION Western section of investigated area

DEPTH-FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6	BLOWS ON SAMPLER 6/12	BLOWS ON SAMPLER 12/18	BLOWS ON SAMPLER 18/24	DESCRIPTION	NOTES
0		SB	1	1	3	4		Moist brownish black (5 YR 2/1) organic SILTY-SAND, well graded, loose, non-stratified, earthy odor. SAND is (F-M) textured, fines are non-plastic, no reaction to HCl, (SM)	Boring advanced with 3 3/4 in. HSA, trailer mounted ACKER drill rig.
2.0'									
5			2	8	12	10		Moist light olive gray to olive gray (5Y 4/2) clean SAND, well graded, non-stratified, medium dense. 5% subangular to subrounded quartz GRAVEL. SAND is (F-C) textured, no reaction to HCl, (SW)	
10	2"		3	6	4	4		at 10.0 ft.; saturated, loose	
15			4	5	8	8		at 15.0 ft.; SAND is (M-C) textured, 15% subangular to subrounded GRAVEL, medium dense, lithology is predominately quartz, no reaction to HCl, (SW)	
20			5	2	3	6		transition to	
21.0'								Saturated light olive gray to olive gray (5Y 4/2) SANDY-SILT, well graded, medium dense, stratified (interbedded) with one (1) grayish red (5 R 4/2) SILTY-CLAY layer 0.25 in. thick at approx. 21'2", clayey fines are medium plastic. SAND is (f) textured, fines are non-plastic, no reaction to HCl, (ML)	

CLASSIFICATION Visual
METHOD OF INVESTIGATION ASTM Specifications

DATE
STARTED 4/21/83
FINISHED 4/21/83
SHEET 2 OF 2

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-5
SURFACE ELEV 261.13
G.W. DEPTH 250.22

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Western section of investigated area

DEPTH - FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	DESCRIPTION	NOTES
						25.0'
					Saturated olive gray (5 Y 3/2) CLAYEY-SILT, non-stratified, firm, slightly plastic, weak reaction to HCl, (ML)	
25		SB	6	3 5 4		
						30.0'
30			7	2 3 2	Saturated olive gray (5 Y 3/2) SILTY-CLAY, stratified with seven (7) SILT layers varying from 0.5 in. to 0.25 in. in thickness. Formation is soft, sticky (medium to high plasticity), weak reaction to HCl, (CL)	
						31.5'
					Boring completed at 31.5 ft.	

Geologic Stratigraphy
Organic silt and sand to approximately 2.0 ft., over alluvial sand to 21.0 ft., over alluvial sand and silt to approx. 25.0 ft., over alluvia/ lacustrine? silt and clay to completion at 31.5 ft.

CLASSIFICATION Visual

METHOD OF INVESTIGATION ASTM Specifications

DATE STARTED 4/21/83
FINISHED 4/21/83
SHEET 1 OF 1

RECRA RESEARCH, INC.

SUBSURFACE LOG

HOLE NO. SB-6
SURFACE ELEV 261.10
G.W. DEPTH 250.27

PROJECT NYSDEC - Ft. Edward, NY #3C280053

LOCATION Western section of investigated area, approx. 10 ft. west of SB-5

DEPTH-FT	LOG, WELL INSTALLATION	SAMPLE TYPE	SAMPLE NO	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	DESCRIPTION	NOTES
5	2"				Moist light olive gray SILTY-SAND, well graded, fines are non-plastic	Boring advanced with 3 ¼ in. HSA, truck mounted CME-55 drill rig.
10						- no split barrel samples taken, geology as noted from auger cuttings and adjacent boring SB-5
15						
20						
					22.0' Boring completed at 22.0 ft.	
25						

CLASSIFICATION Visual

METHOD OF INVESTIGATION Auger boring

APPENDIX A.3

GERAGHTY & MILLER, INC.
BORING LOGS (1982-1985)

A.3.1 Monitoring Wells and RW-1

Appendix B. Geologic Logs of Monitor Wells Installed at General Electric Plant, Fort Edward

Description	Depth (ft)
Well GM-1	
Loam, sandy; gray to brown; loose, dry.	0 - 2
Sand, fine to coarse; trace gravel; dark brown; very loose, wet at 4 feet; silt lens (3 inches thick) at 13 feet.	2 - 14
Silt, sandy; gray to gray-brown; soft, wet.	14 - 15.5
Till-silt matrix with rounded gravel, trace of sand; gray to black; compact, dry.	15.5 - 18
Shale, black, platy; slightly calcareous.	18 - 18.5
Well GM-2	
Gravel fill, subangular, with some sand and silt; gray; dry.	0 - 1
Sand, fine to coarse, with some silt, trace gravel; tan to yellow brown; loose, wet at 8 feet.	1 - 10
Clay, silty; gray; non-plastic, very soft, moist to wet.	10 - 14
Residuum - clay with weathered shale fragments; gray-black: slightly sticky, moist.	14 - 15.8
Shale, black; dense.	15.8 - 16
Well GM-3	
Loam, sandy; fine-grained; brown; loose, with thin seams of organic matter.	0 - 1
Sand, fine to coarse-grained, trace gravel, minor silt; orange-brown; loose, moist at base.	1 - 5.5
Clay, silty; brown to gray; plastic, sticky, soft; moist.	5.5 - 10.9
Shale, blue-black; weathered; dry.	10.9 - 11
Well GM-4	
Sand, medium- to coarse-grained, some silt; tan to brown; loose, wet at 3 feet.	0 - 5
Clay, silty; gray; sticky, soft; moist to wet.	5 - 8

Appendix B. Continued

Description	Depth (ft)
Well GM-5	
Fill - crushed rock, angular; gray.	0 - 0.5
Sand, fine- to coarse-grained, trace gravel, minor silt; brown to gray-brown; loose; wet at 8 feet.	0.5 - 9.8
Clay, silty; gray; sticky, moist.	9.8 - 10
Well GM-6	
Sand, fine- to coarse-grained, trace gravel; tan to orange-brown; loose, moist at 2 feet, wet at 6 feet; lens of silty, woody, organic matter, black, at 2 feet.	0 - 6.5
Clay, gray-brown; stiff, plastic, slightly moist; some woody plant debris.	6.5 - 8
Well GM-7	
Artificial fill; fine- to coarse- grained, brown to black; coal and charred wood fragments, brick shards; loose, moist at 2 feet.	0 - 6
Sand, medium- to coarse-grained; dark brown to gray-brown; wet.	6 - 6.5
Clay, sandy to silty, trace of gravel; sticky, moist.	6.5 - 10
Well GM-8	
Sand, fine- to medium-grained; brown to black; clayey at 3.8 feet.	0 - 4
Gravel fill, fine to coarse, angular, with coarse sand; gray to black; wet, loose.	4 - 10.8
Clay, silty; gray; smooth, stiff, wet.	10.8 - 11.5

Appendix B. Continued

Description	Depth (ft)
Well GM-9	
Sand, medium- to coarse-grained; trace gravel; tan-orange brown; loose, wet at 5.5 feet; lens of clayey silty sand, dark brown at 3 feet; 3-inch lens of gravel, wet, 3-inch lens of clay, brown, soft, at 6 feet.	0 - 6.5
Till - gravelly clay to clayey gravel; yellow-brown to orange-brown; tight, wet at top, dry below 7.5 feet; sorted gravel 7.5 to 8 feet.	6.5 - 8.5
Weathered shale - silty gravel, black to dark gray; tight, dense, dry; grading to shale, dense, blue-black, at base.	8.5 - 10
Well GM-10	
Sand, medium- to very coarse-grained, trace fine sand; trace fine gravel; tan to brown; loose, wet at 5 feet; some fine to medium gravel at base.	0 - 11.5
Clay, silty, sandy; brown; sticky, wet to moist.odor.	11.5 - 13.8
Clay till, silty, sandy; gray, with medium gravel.	13.8 - 14
Weathered bedrock - sandy gravel with weathered shale; gray-black.	14 - 16
Well GM-11	
Fill - gravel, gray, angular; crushed rock; sandy clay, brown friable; dry; loose to compact.	0 - 4
Sand, fine- to coarse-grained; trace gravel; loose, wet.	4 - 6.8
Till - clay with rounded gravel; brown to gray-black; dense, dry.	6.8 - 8

Appendix B. Continued

Description	Depth (ft)
Well GM-12 (composite log for 12-A, 12-B, 12C, and 12-D)	
Gravel fill, with sand, dark brown; loose, dry.	0 - 0.8
Sand, fine- to very coarse-grained, some fine to medium gravel; gray to brown; well sorted, rounded; wet at 8 feet, loose.	0.8 - 22.5
Clay, silty, varved; alternating brown and gray; very sticky, cohesive; moist.	22.5 - 58
Till - rounded gravel and cobbles, some clay.	58 - 60
Shale, platy; black, dense.	60 - 78
Well GM-13	
Sand, fine- to medium-grained, trace gravel; tan to light brown; loose; moist at 8 feet.	0 - 10
Clay, silty; layered to mottled; gray and brown; sticky to slippery; moist.	10 - 13.5
Weathered shale with silty clay; black; dry.	13.5 - 14
Well GM-14	
Fill - crushed rock with silt and sand; brown; dry.	0 - 1.5
Sand, fine-grained, silty, trace clay, minor gravel; trace coal fragments; dark brown to black; wet at 3 feet.	1.5 - 8
Shale, fractured; black to rust-brown; dense, dry.	8 - 9
Well GM-15	
Sand, fine- to coarse-grained, minor silt, trace rounded gravel; brown, dark brown, orange-brown; loose, wet below 4 feet.	0 - 5.5
Till - sandy silt to clayey gravelly silt to clayey silty gravel; weathered shale fragments, fine to coarse rounded gravel; wet 5.5 to 6.5 feet, dry below 6.5 feet.	5.5 - 8

Appendix B. Continued

Description	Depth (ft)
Well GM-16	
Sand, fine to coarse, trace rounded gravel; tan to light brown; loose, wet at 12 feet.	0 - 15
Clay, silty; brown and gray; stiff, moist.	15 - 17
Well GM-17	
Sand, medium- to coarse-grained; light brown; loose, wet at 6 feet.	0 - 6
Clay, silty; gray and brown; plastic, sticky, stiff; moist.	6 - 11
Shale, weathered, calcareous, with silty sand; black, dry.	11 - 12
Well GM-18	
Sand, fine- to coarse-grained, trace fine black gravel; orange-brown to brown; loose, wet at 10 feet.	0 - 22
Well GM-19	
Sand, fine- to coarse-grained, tan to orange to white; sub-angular, well sorted; trace to some subrounded gravel; loose, wet below 10 feet.	0 - 26.9
Silt, clayey, with sand; gray; sticky.	26.9 - 27
Well GM-20	
Sand, fine- to medium-grained, brown to white; loose, dry; (hole abandoned-pipes encountered).	0 - 7.3
Well GM-21	
Sand, fine- to coarse-grained; trace to some rounded gravel; clear to white to brown; loose, well sorted; wet at 10 feet.	0 - 17.5
Clay, silty; gray; plastic, cohesive, moist.	17.5 - 22

GEOLOGIC LOGS OF MONITOR WELLS, OBSERVATION WELL
AND RECOVERY WELL INSTALLED AT
GENERAL ELECTRIC PLANT, FT. EDWARD, N.Y.

MONITOR WELLS:

Description	Depth (feet)
Well GM-22	
Sand, coarse-grained, some fine- to medium-grained; brown to multicolored; subrounded quartz.	0-8
Silt, clayey, slightly sandy at 9.5-10 ft.; light brown (8-9.5 ft.) to grey (9.5-10 ft.); pliable; moist to wet; with a 2-inch grey, rounded gravel at 10 ft.	8-10
Till, silty, sandy, gravelly; black to grey; moist at top to dense and dry at base.	10-12.5
Water Level 8/9/83 at 6.69 ft. below land surface.	
Well GM-23	
Macadam and gravel foundation.	0-1
Sand, fine- to medium-grained (1-5 ft.), medium- to coarse-grained (5-9 ft.); trace of gravel at 5-9 ft.; heavy mineral content increasing with depth; light brown to "salt and pepper"; loose and dry from 1-8 ft., wet at 8-9 ft. [Driller noted odor at 4 ft.]	1-9
Clay, silty; grey-brown; varved; stiff to sticky at base; moist to very moist at base	9-14
Water Level 8/9/83 at 8.24 ft. from land surface.	
Well GM-24	
Concrete roadway	0-1

Description	Depth (feet)
Well GM 24 Cont'd.	
Sand, slightly silty at 1-3 ft., fine- to medium-grained; trace of heavy minerals; well sorted; tan to brown; dry. [Odor noted 3-6 ft.]	1-6
Sand, coarse grained, some medium-grained, trace of fine, rounded gravel; brown; heavy minerals; moist to wet at 8-9.5 ft.	6-9.5
Clay, silty to very silty; varved; grey-brown to grey swirls; stiff to sticky; slightly moist.	9.5-13.5
Till, sandy, silty, trace of gravel; dark grey; soft; moist to wet.	13.5-14
Water Level 8/9/83 at 7.19 ft. from land surface.	
Boring 8B (Abandoned)	
Sand, fine-grained; brown, dry 0-5 ft., wet 5-9 ft.	0-9
Clay, silty; grey; soft; wet.	9-10
Till, sandy, silty, gravelly; black to dark grey; wet at top to moist at base.	10-12
[No odors present. Boring abandoned on 8/10/83 to land surface with cuttings and bentonite]	
Boring 8C (Abandoned)	
Sand, fine-grained at top to coarse-grained at base; brown; strong chemical odor present at approximately 5-9 ft.; dry at 0-5 ft. to wet at 5-9 ft.	0-9
Clay, grey-brown.	9-10
Till, sandy, gravelly, slightly silty; black; very wet at top to moist at base; chemical odor present at top.	10-11
[Boring abandoned on 8/10/83 to land surface with cuttings and bentonite].	

Description	Depth (feet)
Well GM-8D	
Sand, loamy; rootlets; moist.	0-3.5
Fill, gravel; angular; grey; dry at 4-6 ft., wet with strong odor and black liquid at 6-8 ft.	3.5-8
Sand, coarse- to very coarse-grained; black; angular; very wet; very strong odor.	8-11
Clay, silty; brown to grey-brown; possibly disturbed at top grading to dense, grey sticky clay at 12 ft.; moist. [Shelby Tube taken at 12-14 ft.]	11-14
Till, silty, sandy, gravelly to occasionally cobbly; dark grey; multisized well-rounded to subangular gravel and cobbles; generally dry with occasional moist and very moist zones. [Black oily ring on split spoon at 19 ft.]	14-25
Sample lost [driller thinks it drills like weathered rock]	25-30
Shale, fine-grained, black, dense.	30-40

OBSERVATION WELL:

Description	Depth (feet)
GM-25	
Macadam and parking lot ~~and gravel~~ foundation	0-1
Sand, fine-grained at top to very coarse-grained at base; trace of heavy minerals; occasional fine, well-rounded gravel; light brown to multicolored.	1-18
Gravel, very sandy; fine to coarse, well-rounded gravel with very coarse-grained subangular to rounded sand; multicolored to light brown.	18-19.5
Clay, very silty; brown to grey-brown; soft at top. [Shelby Tube taken at 20-22 ft.]	19.5-22

GEOLOGIC LOGS FOR MONITORING WELLS GM-26 THROUGH GM-35
GENERAL ELECTRIC COMPANY, FORT EDWARD, NEW YORK

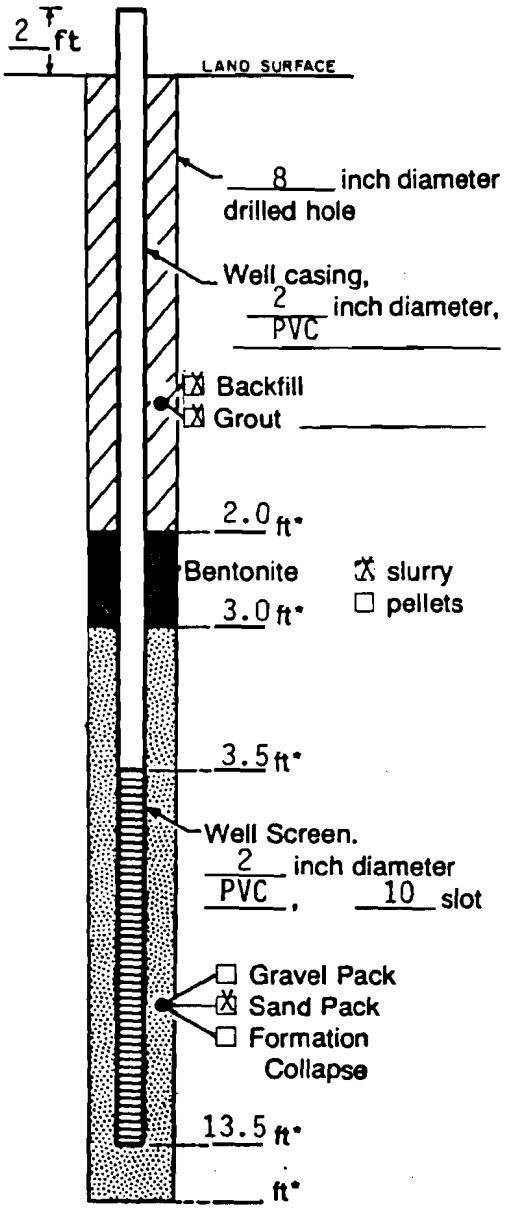
Description	Depth (feet)
Well GM-26	
Macadam and gravel foundation	0 - 1.5
Sand, generally fine- to medium-grained at top to coarse-grained at base, brown to multi-colored, subangular to angular quartz; some heavy minerals and trace of fine rounded gravel near base; loose, dry to moist at 10 feet	1.5 - 10
Clay, slightly silty, brown, slightly moist	10 - 10.5
Clay, gray, sticky, plastic, slightly moist	10.5 - 12
Well GM-27	
Macadam and gravel foundation	0 - 1
Sand, fine- to medium-grained at 1 to 8 feet, medium- to coarse-grained at 8 to 26 feet, brown to multicolored, angular to subangular quartz; with some heavy minerals and fine black, rounded gravel; wet at 12 feet	1 - 26
Clay, very silty, slightly sandy, brown, non-plastic, loose, soft, moist	26 - 27
Clay, slightly silty, plastic, sticky, moist	27 - 29
Well GM-28	
Loam, sandy, medium- to coarse-grained, brown, dry	0 - 0.5
Fill (crushed rock), black, loose, dry	0.5 - 2
Sand, fine- to medium-grained, brown to multicolored, some heavy minerals	2 - 12
Sand, fine-,medium-, and coarse-grained, brown to multi-colored, some fine to medium gravel, water at 11.5 feet	12 - 24
Silt, sandy, gray	24 - 28
Silt, clayey alternating with sandy layers (varved)	28 - 36
Well GM-29	
Sand, fine- to coarse-grained, trace fine black gravel; orange brown to brown; loose, wet at 10 feet	0 - 15
Sand, medium to coarse-grained, trace of fine-grained,brown, angular, with heavy minerals	15 - 19
Sand, silty, brown to gray with occasional clay and silt layers,	19 - 25
Silt, sandy, brown and gray, soft, moist, some clay layers	25 - 29

Description	Depth (feet)
Well GM-30	
Loam, sandy, brown, trace of gravel	0 - 4
Sand, fine- to coarse-grained with black heavy minerals, trace of gravel wet at 10 feet	4 - 25
Well GM-31	
Macadam and gravel foundation, gray to black	0 - 1.5
Fill, sandy, brown, loose	1.5 - 2.5
Loam, silty, sandy, dark brown, some natural organic matter, trace of gravel fill at 3 feet	2.5 - 5
Sand, fine- to medium-grained, some coarse-grained, orange-brown grading to "salt and pepper," lenses of sand containing heavy minerals, trace of gravel in layers, wet at 10 feet	5 - 23
Silt, sandy, clayey at base, gray-brown, varved, moist	23 - 29
Well GM-32	
Macadam and gravel foundation, gray to black	0 - 1
Fill, gravel, sand, natural organic matter	1 - 3.5
Sand, fine-, medium-, and coarse-grained, brown, some fine rounded gravel, heavy minerals present throughout, wet at 9 feet	3.5 - 20
Clay, silty, gray, plastic	20 - 23
Well GM-33	
Macadam and gravel foundation	0 - 1
Fill, gravel, sand, natural organic matter	1 - 3
Sand, fine-, medium-, and coarse-grained,orange-brown, heavy minerals present, trace of gravel, wet at 9 ft	3 - 21
Silt, sandy, some clay, brown, varved, moist	21 - 23
Clay, silty, gray, plastic	23 - 25
Well GM-34	
Macadam and gravel foundation	0 - 2
Sand, fine- to medium-grained, brown-black, some natural organic matter, trace of heavy minerals	2 - 10
Sand, medium- to coarse-grained, tan, moist, trace of heavy minerals, some coarse gravel between 14 and 18 feet, wet at 10 feet	10 - 27
Silt, sandy, brown	27 - 29

Description	Depth (feet)
Well GM-35	
Macadam and gravel foundation	0 - 1
Sand, fine- to medium-grained, brown, some rock fragments	1 - 3
Loam, sandy, silty, black, natural organic matter, dry	3 - 5
Sand, fine-, medium-, and coarse-grained, orange-brown, some heavy minerals, trace of gravel, wet at 10 feet	5 - 26
Silt, gray-brown, varved with sand and clay, moist	26 - 29

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N360FS1 Well GM-36

Town/City Fort Edward

County Washington State New York

Permit No. _____

Land-Surface Elevation

and Datum _____ feet ☐ surveyed

_____ ☐ estimated

Installation Dates(s) 3-18-85

Drilling Method Auger

Drilling Contractor Parrat Wolff

Drilling Fluid _____

Development Techniques(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitoring

Remarks

Prepared by Brian A. Blum

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well GM-37 Project/No. N360FS1 Page 1 of 1

Site Location G.E. Fort Edwards Drilling Started _____ Drilling Completed _____

Total Depth Drilled 9.7 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval 5 feet

Drilling Fluid Used None Drilling Method auger

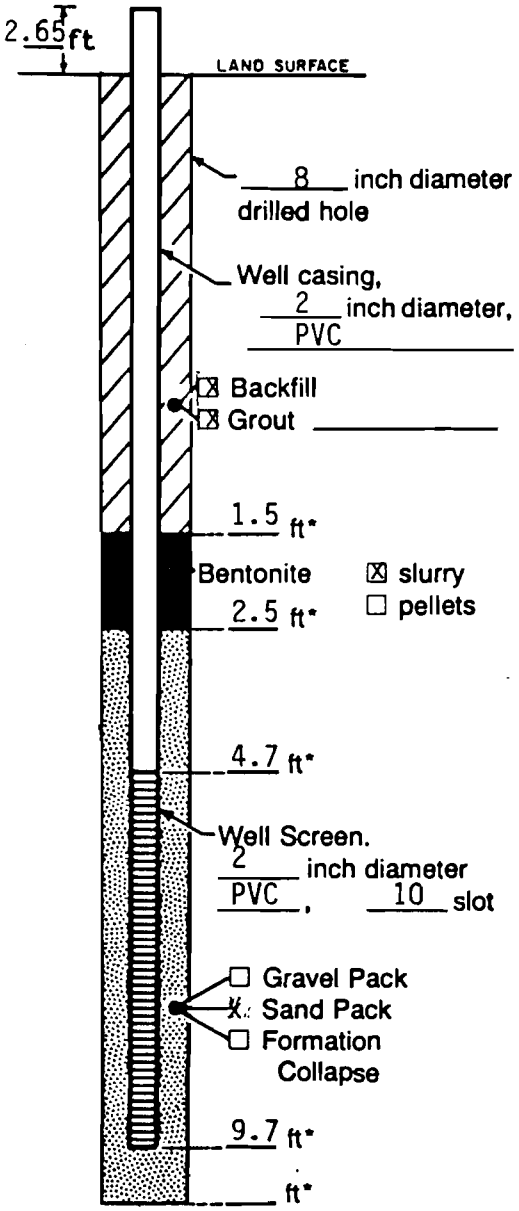
Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
1	3	1.5	4-5 5-4	Sand, medium to coarse; brown, well sorted
5	7	1.5	5-7 12-12	Sand, medium to coarse; brown, well sorted, moist, compact
10	12	1.5	9-7 4-4	Sand, medium to coarse; brown well sorted Clay, gray tightly compact

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N360FS1 Well GM-37

Town/City Fort Edward

County Washington State New York

Permit No. _____

Land-Surface Elevation

and Datum _____ feet ☐ surveyed ☐ estimated

Installation Dates(s) 3-19-85

Drilling Method auger

Drilling Contractor Parrat Wolff

Drilling Fluid _____

Development Techniques(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitoring

Remarks

Prepared by Brian A. Blum

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well GM-38 Project/No. N380FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started _____ Drilling Completed _____

Total Depth Drilled 11 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval 5 feet

Drilling Fluid Used None Drilling Method auger

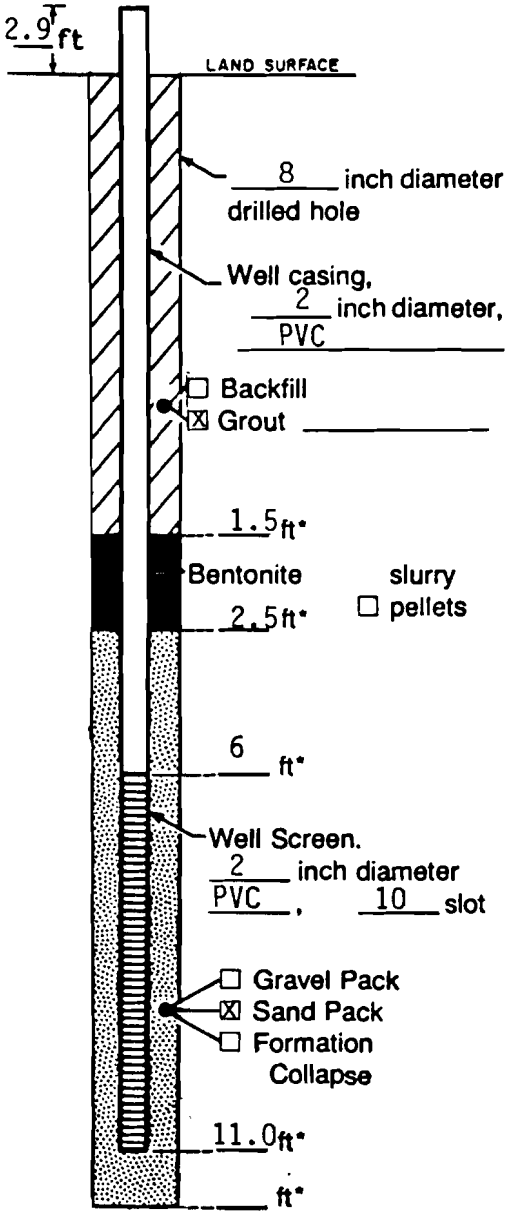
Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
1	3	2	3-3 5-3	Sand, medium, silty on top, well sorted Sand, medium; brown, well sorted
5	7	2	3-4 6-5	Sand, medium to coarse; brown, well sorted
10	12	2	1-2 3-4	Thin lense of sand at top Clay; gray and compact

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Ground-Water Consultants

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N360FS1 Well GM-38

Town/City Fort Edward

County Washington State New York

Permit No. _____

Land-Surface Elevation

and Datum _____ feet ☐ surveyed

_____ ☐ estimated

Installation Dates(s) 3-19-85

Drilling Method auger

Drilling Contractor Parrat Wolff

Drilling Fluid _____

Development Techniques(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitoring

Remarks

Prepared by Brian A. Blum

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-20-85

SAMPLE/CORE LOG

Boring/Well GM-39 Project/No. N360FS1: Page 1 of 1

Site Location G.E. Fort Edward Drilling Started 9:00 Drilling Completed 9:30

Total Depth Drilled 8.5 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval 5 feet

Drilling Fluid Used None Drilling Method auger

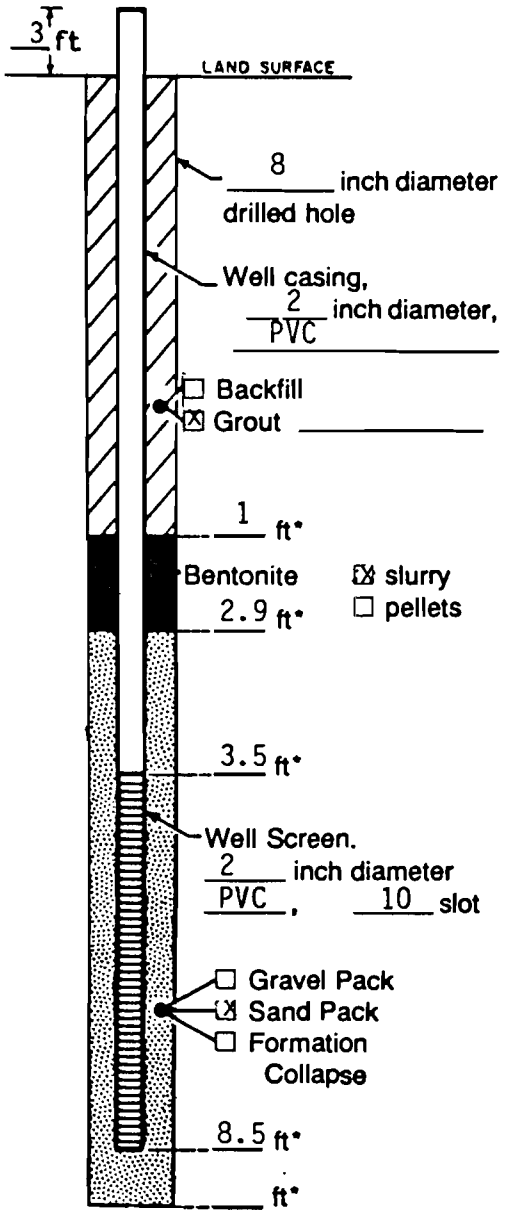
Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
1	3	2	3-3 5-8	Sand, medium to coarse; brown, well sorted
5	7	2	2-5 4-4	Sand, medium to coarse; brown, well sorted Silt or gritty weathered shale, gray com-
				pact

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project N360FS1 Well GM-39

Town/City Fort Edward

County Washington State New York

Permit No. _____

Land-Surface Elevation and Datum _____ feet ☐ surveyed ☐ estimated

Installation Dates(s) 3-20-85

Drilling Method auger

Drilling Contractor Parrat Wolff

Drilling Fluid _____

Development Techniques(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitoring

Remarks

Prepared by Brian A. Blum

Description	Depth (feet)
RECOVERY WELL:	
RW-1	
Macadam and parking lot foundation	0-1
Sand, fine- to medium-grained grading coarser with depth, medium- to very coarse-grained at 10 ft.; with multisized rounded to subangular gravel and cobbles from 15 to 21 ft; light brown to multicolored, loose, dry at top to wet at base.	1-21
Clay, silty; varved; brown to grey-brown.	21-26.6

A.3.2 Off-site Soil Borings

Table 2. Boring Log (off-site), General Electric, Fort Edward, New York.

Boring Location	Core Recovery (feet)	Sample Description	Comments
Adj. Spring #3	0 - 1	Clay, light brown	
	1 - 2	Clay, light brown	
	2 - 5	Clay, light brown	Water at 3 feet.
	5 - 6	Clay, light brown - gray	
	6 - 7	Clay, light brown - gray	
	7 - 9	Clay, gray	
	9 - 12	Clay, gray	Maximum extent of hand auger
Adj. Brook at Marion Street	0 - 4	Clay, silty, gray	Water at 3 feet
	4 - 7.5	Clay, silty, gray	
	7.5 - 12	Clay, silty	
Adj. Spring #1 as it passes under RR tracks	0 - 1	Sand, fine and silty, brown	
	1 - 2	Sand, fine and silty, brown	
	2 - 3	Sand, fine and silty, brown, pieces of weathered shale	Unable to increase penetration
Adj. ~~Stevens Lane~~ Hillview and RR tracks	0 - 2	Sand, medium to coarse, loamy	
	2 - 7.5	Sand, medium to coarse; brown, well sorted	Moist at 7 feet
Adj. to Pickett and Beverly Streets	0 - 4.5	Sand, silty clay, and weathered shale, compact and dense	

GEOLOGIC LOGS FOR SOIL BORING LOCATIONS
ALONG WILLIAMS BROOK

Description	Depth
Location No. 1 (east side of pond)	
Sand, fine to medium, silty, gray	0 - 2.5
Clay, gray; some sand	2.5 - 3
Clay, gray	3 - 9
Refusal	9
Location No. 2 (east side of brook - opposite Griffin Avenue Spring)	
Clay	0 -10.5
Refusal	10.5
Location No. 3 (east side of brook - opposite Spring No. 2)	
Clay	0 -12

A.3.3 Soil Borings From Northwest Corner

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well B-1 Project/No. N360FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started 12:30 Drilling Completed 1:30

Total Depth Drilled 10 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval continuous feet

Drilling Fluid Used None Drilling Method auger

Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	2	4-6 13-20	Sand, medium; brown, well sorted Shale, weathered and crushed, gray-black
2	4	2	18-10 20-15	Shale, weathered and crushed, gray-black Sand, coarse; brown, well sorted
4	6	.5	5-5 5-2	Shale, weathered gray to black
6	8	1	5-3 4-9	Sand, coarse, brown, well sorted Shale and clay, gray
8	10	2	10-12 16-16	Sand, coarse; brown, well sorted

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Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well GM B-2 Project/No. N360FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started 1:50 Drilling Completed 2:50

Total Depth Drilled 12 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval continuous feet

Drilling Fluid Used None Drilling Method auger

Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	1	2-6 14-18	Sand, coarse; silty brown Sand and crushed shale
2	4	1	14-14 15-14	Sand, coarse, silty, iron stained, mixed sorting with weathered shale
4	6	1	9-14 17-10	Sand, medium; silty brown, mixed with weathered shale
6	8	4	17 90 1.4 ft	Sand, medium, mixed with silty brown clay
8	10	0	19-13 11-10	Nothing in spoon but competent piece of quartose
10	12	2	12-11 10-12	Mixed rock, brick, aggregated sand, coarse; brown, well sorted

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well GM B-3 Project/No. N360ES1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started _____ Drilling Completed _____

Total Depth Drilled 4.5 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval continuous feet

Drilling Fluid Used none Drilling Method auger

Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	2	20-14 14-12	Sand, medium, silt, clay and crushed rock Crushed rock, shale
2	3	.5	22-50	Sand and silt with crushed rock, shale
4	4.5	.5	46	Refusal at 5 ft with auger shale

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-19-85

SAMPLE/CORE LOG

Boring/Well GM B-4 Project/No. N360FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started _____ Drilling Completed _____

Total Depth Drilled 8 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval continuous feet

Drilling Fluid Used None Drilling Method auger

Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	2	13-10 7-8	Fine sand, silt and weathered rock; brown-gray
2	4	1.5	6-6 9-8	Medium sand - silt and clay, brown-gray
4	6	.5	4-4 5-4	Medium sand and silt - coarse
6	8	1.5	4-10 13-13	Medium to coarse sand; brown, well sorted

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-18-85

SAMPLE/CORE LOG

Boring/Well GM-36 Project/No. N360FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started 3:00 Drilling Completed 4:30

Total Depth Drilled 13.5 - 14 (feet) *Hole may have filled back 6 inches.

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval 5 feet

Drilling Fluid Used none Drilling Method auger

Drilling Contractor Parrat Wolff Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 lb Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
1.5	3	1.5	3-4 4-5	Medium sand well sorted, moist, compact
5	-7	2	4-4 6-8	Medium sand well sorted, moist, compact
10	12	-	5-8 9-10	Lost sample
12	13.5	1.5		Very fine sand - silt, moist, compact charcoal gray

GERAGHTY & MILLER, INC.
Ground-Water Consultants

3-20-85

SAMPLE/CORE LOG

Boring/Well B-5 Project/No. N360FS1 Page 1 of 1

Site Location G.E., Fort Edward Drilling Started _____ Drilling Completed _____

Total Depth Drilled 10 (feet)

Hole Diameter 8 (inches) Type of Sample/ Coring Device split spoon

Length and Diameter of Coring Device 2-inch diameter 2 ft split spoon Sampling Interval continuous feet

Drilling Fluid Used None Drilling Method auger

Drilling Contractor Parrat Wolf Driller Al Beck Helper Holly

Prepared By Brian A. Blum Hammer Weight 140 Hammer Drop 30 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	2	3-6 7-5	Sand, medium to coarse; brown, well sorted mixed with broken shale, sediment has a resin
2	4	2	5-6 10-6	Sand, medium to coarse, mixed with silt and resin, crushed shale, compacted.
4	6	2	6-6 6-6	Sand, medium mixed with silt and resin. Weathered crushed shale
6	8	2	5-6 6-8	Original soil formation, sandy silt loam
8	10	2	6-5 7-7	Sand, coarse; brown, well sorted

APPENDIX B

ENGINEERING-SCIENCE REPORT

ENGINEERING-SCIENCE

57 EXECUTIVE PARK SOUTH, N.E., SUITE 590 • ATLANTA, GEORGIA 30329 • 404/325-0770

TELEX: 54-2882

56034/851J80

February 11, 1985

RECEIVED

FEB 19 1985

ENVIRONMENTAL DEPT.

Dr. Ruth K. Arisman
Manager - Environment and
Safety Operations
General Electric Company
Capacitor Products Department
Hudson Falls, New York 12839

Dear Dr. Arisman:

Engineering-Science (ES) is pleased to submit this final summary report of results for carbon efficiency studies for polychlorinated biphenyl (PCB) removal in the presence of trichloroethylene (TCE). This letter report is presented in four sections which include project objectives, conclusions, experimental procedures, and results and discussions.

PROJECT OBJECTIVES

General Electric (GE) Company Capacitor Products Department operates manufacturing facilities in Fort Edward and Hudson Falls, New York. Wastewaters generated by both plants are treated at the Fort Edward plant in a wastewater treatment system which consists of equalization, multimedia filtration, and granular activated carbon adsorption. GE has undertaken a program of laboratory studies to determine effective treatment methods for improved removal of soluble and emulsified di(2-ethyl hexyl) phthalate (DEHP) and PCB (Aroclor 1242) from the wastewaters. As part of this study, GE wishes to determine the effect which TCE has on the efficiency of removal of PCB exhibited by activated carbon. In accordance with a letter proposal dated June 11, 1984, ES has performed the following experiments:

- Solubility studies of PCB.
- Concentration of PCB in activated carbon.
- Carbon isotherm for PCB.
- Determination of maximum effect of carbon adsorption for PCB in the presence of TCE under given conditions.
- Determination of carbon adsorption isotherm of PCB in presence of TCE on TCE-exhausted carbon.

CONCLUSIONS

The data collected and evaluated during the carbon adsorption isotherm study for PCB in the presence of TCE form the basis for the following conclusions:

1. No significant reduction was seen in the adsorption capacity of the virgin and presaturated carbons for PCB in presence of TCE compared to the adsorption capacity of the virgin carbon for PCB only. This result was anticipated since PCB has a strong adsorption potential on activated carbon.

2. The solubility of PCB in water is 244 $\pm$ 31 ug/L. This result supports our earlier studies and literature reported values. Therefore, approximate initial solution concentrations for carbon isotherm studies of PCB were 250 ug/L and 185 ug/L for PCB only and mixtures of PCB and TCE, respectively.

3. The sample of Nuchar® WV-G Activated Carbon used in our laboratory evaluations contained a concentration of PCB in the range of 0.25 to 0.46 ug/g carbon.

4. The Freundlich isotherm equation has been developed as follows from our laboratory studies:

$$q_e = 9.38\ C_e^{0.223}$$

where C_e is the solution phase concentration (mg/L) and q_e is the amount absorbed on carbon (mg/g-carbon). The capacity of the carbon for Aroclor 1242 was estimated to be 4.3 mg/g-carbon at the PCB solution phase concentration of 30 ug/L.

EXPERIMENTAL PROCEDURES

Adsorbates

One commercial PCB mixture was selected; namely, Aroclor 1242. The choice of Aroclor 1242 was based on the identification of Aroclor 1242 in capacitor fluid (Griffin & Chian, 1980). The Aroclor 1242 was obtained from GE. Table 1 tabulates a summary of isomer composition of Aroclor 1242 and capacitor fluid. It may be observed that the major components of Aroclor 1242 as Capacitor Fluid are mono, di, tri, tetrachlorobiphenyls. The trichloroethylene was obtained from Fischer Chemical Company (Pittsburgh, PA), as reagent-grade chemical.

Synthetic PCB solution was prepared using the following procedure. A 2.5 mL solution containing 0.5 mL of PCB dissolved in 2.0 mL of hexane was added to a 1 liter volumetric flask, and was coated onto the walls

of the flask by rotating and tilting the flask. The solvent was evaporated and an air purge was used to remove the last of the solvent vapors. Deionized water was added to fill the flask, a magnetic stirring bar was added, and the flask was covered. The mixture was stirred at constant temperature for 48 hours, after which it was centrifuged at 1800 rpm for 15 to 30 minutes and the aqueous phase removed for aliquots.

A synthetic mixture of PCB and TCE was prepared for adsorption isotherm studies. Adsorption isotherm studies with virgin and TCE-exhausted activated carbons were run with two different initial concentrations of TCE, namely, 20 g/L and 30 g/L. PCB concentrations of 185 ug/L were used in this study. All experiments were conducted at room temperature (19° to 22°C).

Adsorbents

Two activated carbons were used in this study. One is Nuchar® WV-G Activated Carbon (WV-G) which is produced by Westvaco (Covington, VA). This carbon is presently in use at the plant and is recommended by plant personnel for this study. The other carbon investigated was Filtrasorb 400 Activated Carbon (F-400), produced by the Calgon Corporation (Pittsburgh, PA). Both activated carbons are bituminous coal and come in irregularly-shaped granules. The general physical properties of the adsorbents are shown in Table 2. Both carbons were finely ground in a mortar and pestle, washed with distilled water to remove the fine particles, dried for one day at 103° to 105°C and stored in desiccated containers.

Nuchar® WV-G Activated Carbon was also used as trichloroethylene-exhausted carbon which was stirred with pure trichloroethylene for 30 minutes, then allowed to dry overnight.

Analytical Procedures

A Hewlett-Packard 5830A gas chromatograph equipped with electron capture detector was used for analysis of PCB. The column used was a capillary 30 meter SPB-5 with 1.0 um film thickness. The analysis was performed using a temperature program as follows. The analysis was begun at 185°C for 3 minutes. After 3 minutes the temperature was increased 1.5°C/minute to a final temperature of 215°C with a final hold of 10 minutes. The extracts were compared to an Aroclor 1242 reference material and calculation was made accordingly.

In addition, extracted TCE samples were diluted and also injected onto the same capillary column used for PCBs.

A Tracor 540 gas chromatograph equipped with a Hall detector was used for analysis of unextracted TCE samples. These samples were diluted in methanol before analysis and compared to TCE standard dissolved in methanol. The procedure used is described in EPA Method 601. The column was packed with 1 percent SP-1000 on Carbopack B (60/80 mesh). This procedure consists of a temperature program as follows. Column temperature was held at 450°C for 3 minutes then programmed at 8°C/minute to 220°C and held for 20 minutes.

Solubility Studies

Solubility studies were conducted by stirring an excess of PCB sample suspended in water for 24 hours, separation of the aqueous phase and analysis for PCB using gas chromatography.

Samples were made by adding 0.15, 0.075, 0.015, and 0.0075 mL of PCB oil into 300 mL of water. This solution was stirred for 24 hours. Approximately 200 mL of this solution was centrifuged at 1800 rpm for 15 to 30 minutes and the aqueous phase removed. Then, a 200 mL of the aqueous sample was added to a separatory funnel and extracted with two 25 mL portions of hexane.

PCB Concentration in Carbon

Every effort should be made in a study of this type to avoid interferences from experimental contamination. A major concern of contamination in this study is the potential for a measurable concentration of PCB in virgin carbon. Carefully measured 5 grams of Nuchar® WV-G Activated Carbon were mixed with 50 mL hexane for 2 hours. Then, this sample was briefly settled and filtered immediately through a 1.5 micron prewashed glass fiber filter paper (Whatman 934-AH) to remove any residue suspended carbon. The supernatant was analyzed for PCB using gas chromatography.

Isotherm Studies

Adsorption isotherms were determined by a technique in which each point on the adsorption isotherm is obtained in a separate completely mixed batch reactor (CMBR) experiment. A measured volume (500 mL) of the synthetic waste sample was added to each of six 1-liter beakers. Varying, carefully determined, amounts of adsorbent (virgin carbon or TCE-exhausted carbon) were added to five of the six beakers. The sixth beaker acted as a control and no carbon was added. The beakers were placed on a gang stirrer and mixed at 80 to 100 rpm for two hours. After two hours, each sample was briefly settled and filtered immediately through a 1.5 micron prewashed glass fiber filter paper (Whatman 934-AH) to remove any residual suspended carbon on control as well as carbon samples. A 200 mL aliquot of the supernatant was added to a

separatory funnel and extracted using two 25 mL portions of hexane. The samples were analyzed for PCB using gas chromatography. The supernatant was analyzed for TCE.

RESULTS AND DISCUSSIONS

Solubility Studies

The solubility of the PCB is summarized in Table 3. It should be noted that the data of earlier workers (Nisbert and Sarofin, 1972; MacKay and Wolkoff, 1973; Tucker, Litschgi, and Mees, 1975; Paris, Steen, and Baughman, 1978) are also included. As can be seen from Table 3, the solubility of Aroclor 1242 reported in this study appears very similar to that reported by other investigators.

PCB Concentration in Carbon

It was determined that the carbon contained a concentration of PCB in a range of 0.25 to 0.46 ug/g-carbon. The amount of PCB existing in virgin carbon, which was used in this study, is negligible.

Isotherm Studies

Isotherm data for experiments performed to characterize the adsorption behavior of Aroclor 1242 are presented in Table 4. The statistically best-fit representation of the data using the Freundlich isotherm equation by a least-square procedure is shown in Figure 1. Several different isotherm models were investigated for description of the equilibria of adsorption of PCB by activated carbons and the Freundlich equation was found to provide the most straightforward description of the experimental isotherm data. The parameters for the Freundlich equation,

$$q_e = K_F C_e^{1/n} \qquad (1)$$

are given in Table 5.

It should be noted that both F-400 and WV-G activated carbons run with PCB were taken into account to correlate the parameters for the Freundlich equation, since the general physical properties of F-400 and WV-G activated carbons are similar.

Competitive Adsorption Isotherm Studies

Table 6 lists the results of competitive adsorption isotherm studies of PCB in the presence of TCE using both virgin and TCE-exhausted WV-G activated carbons. These competitive adsorption isotherm results are also presented in Figure 1. As can be seen from Figure 1,

most competitive adsorption isotherm data fall into a 95 percent confidence interval. In other words, no significant reduction in the capacity of the virgin and presaturated carbons was observed. This result may be highly significant with respect to the ability of a carbon which is saturated with TCE to continue to remove trace quantities of materials with strong adsorption potential, such as PCB. It may also suggest that adsorption of PCB on carbon may be predominantly "chemisorption" (Pirbazari and Weber, 1981).

ES hopes that the conclusions developed from this study will provide General Electric Company with the necessary information to assist in the determination of effective treatment methods for improving the existing wastewater treatment facility. Should you have any questions or comments about this study or our report, please call us for a prompt reply.

Sincerely,

ENGINEERING-SCIENCE

Eric H. Snider, Ph.D., P.E.
Manager of Industrial Waste
Department

Thomas R. Harper
Environmental Scientist

Sun Liang, Ph.D.
Project Engineer

EHS:TRH:SL:al
Attachments

TABLE 1

SUMMARY OF ISOMER COMPOSITION OF AROCLOR 1242
AND CAPACITOR FLUID

Number of Chlorines	Aroclor 1242 (%)	Capacitor Fluid (%)
1	19	18
2	35	32
3	31	36
4	14	13
5	1	1
6	0	0
7	0	0

TABLE 2

GENERAL PHYSICAL PROPERTIES OF ADSORBENTS

Adsorbent	WV-G Carbon	F-400 Carbon
B.E.T. Surface Area (m^2/g)	1100	1050 - 1200
Effective Size (mm)	0.55 - 0.75	0.55 - 0.65
Particle Density, Wetted in Water (g/cm^3)	1.30 - 1.40	1.30 - 1.40
Mean Particle Diameter (mm)	0.90 - 1.20	0.90 - 1.10
Iodine Number (mg/g)	1050 min	1050 min
Moisture, as Packed (%)	2.0 max	2.0 max
Abrasion Number	75 min	75 min
Bulk Density (lb/ft^3)	27 - 29	25

TABLE 3

SUMMARY OF SOLUBILITY OF PCB (AROCLOR 1242)

Aroclor 1242 Solubility (ug/L)	Temperature	Authors
244 ± 31	Room (19°C 22°C)	This study.
340 ± 60	Room (25 ± 1°C)	Paris et al. (1978)
200	Room	Tucker et al. (1975)
240	25°C	Mackay and Wolkoff (1973)
200	20°C	Nisbet and Sarofin (1972)

TABLE 4

ISOTHERM DATA FOR PCB

Sample No.	Adsorbent	C_e (mg/L)	q_e (mg/g-carbon)
1	F-400	0.133	20.14
2	F-400	0.110	6.20
3	F-400	0.0125	2.28
4	WV-G	0.220	7.72
5	WV-G	0.125	13.42
6	WV-G	0.110	5.81
7	WV-G	0.210	6.94
8	WV-G	0.235	4.19
9	WV-G	0.240	2.02
10	WV-G	0.190	5.33

FIGURE 1

Isotherms for PCB only and PCB in Presence of TCE using both Virgin and TCE-Exhausted Carbons

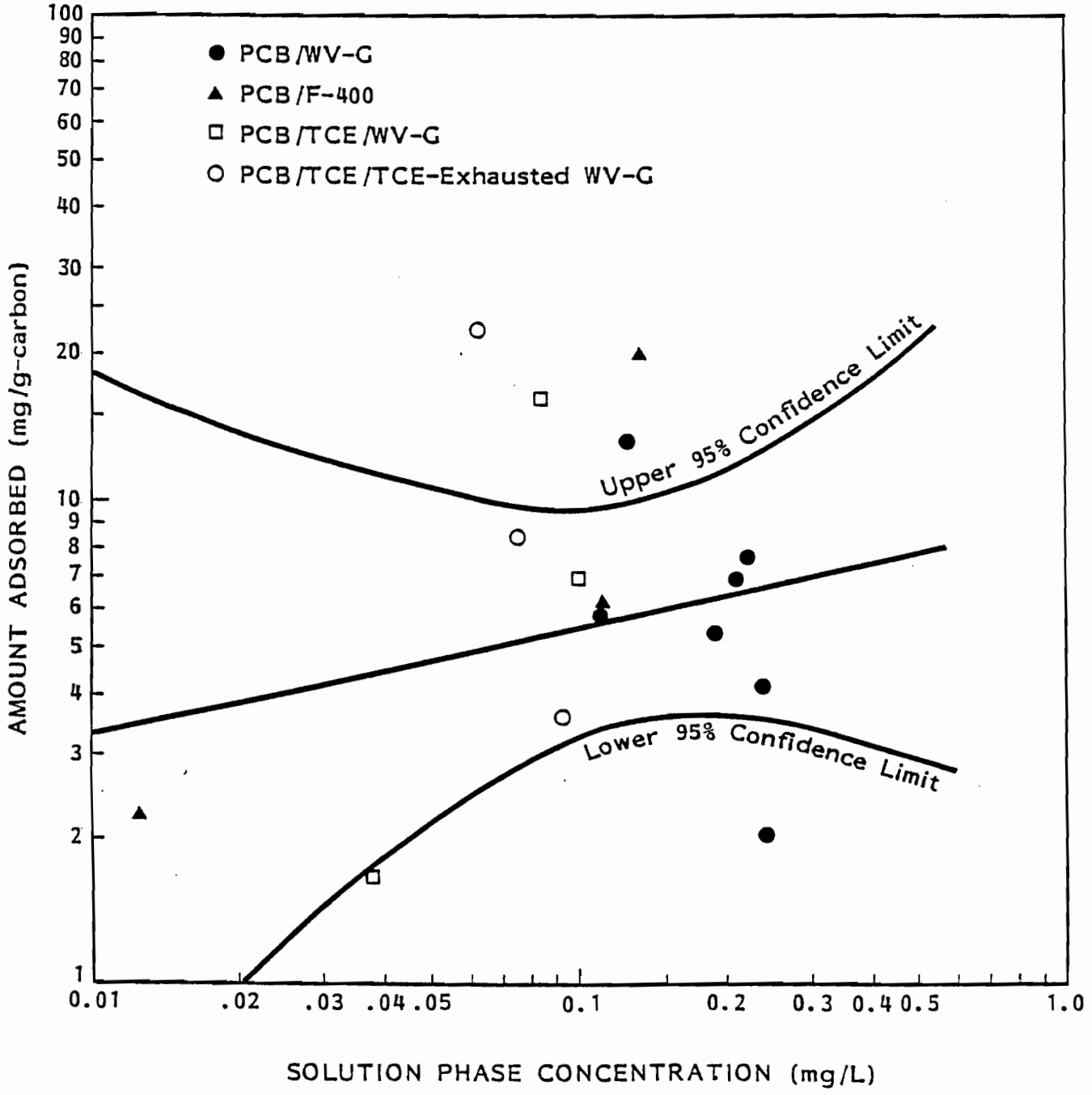


TABLE 5

SUMMARY OF FREUNDLICH ISOTHERM PARAMETERS*
FOR AROCLOR 1242

Compound	C_o (mg/L)	K_F	1/n
Aroclor 1242	0.250	9.38	0.223

* Values based on C_e as q_e expressed in mg/L and mg/g-carbon, respectively.

TABLE 6

COMPETITIVE ISOTHERM DATA FOR PCB
IN PRESENCE OF TCE

Adsorbent	C_e (mg/L)	q_e (mg/g-carbon)
WV-G	0.085	16.45
WV-G	0.10	7.02
WV-G	0.038	1.67
WV-G Saturated with TCE	0.063	23.14
WV-G Saturated with TCE	0.075	8.56
WV-G Saturated with TCE	0.093	3.635

REFERENCES

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Tucker, E.S., W.J. Litschgi, and W.M. Mees, "Migration of Polychlorinated Biphenyls in Soil Induced by Percolating Water," Bulletin of Enviro. Contamination and Toxicology, 13, 86-93 (1975).

APPENDIX C

RESIDENTIAL WELL SAMPLING AND ANALYSES

RESIDENTIAL WELL SAMPLING RESULTS THROUGH 1984

NAME	ADDRESS	CITY, STATE, ZIP	SAMPLE DATE	SAMPLING AGENCY & LABORATORY	PCB RESULTS	TOTAL VOC RESULTS	HERBICIDE RESULTS			WELL DEPTH (FT)
							ATRA	LASSO	DUAL	
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	27-Dec-82	DOH	NA	53300	NA	NA	NA	Shallow
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	4613	NA	NA	NA	Shallow
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	12-Jan-83	DOH	NA	8000 +	NA	NA	NA	Shallow
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	4690	NA	NA	NA	Shallow
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	5777	NA	NA	NA	Shallow
Abbenante, Terry	8 Stevens Lane	Fort Edward NY 12839	22-Jun-83	DOH	1.0	3620	NA	NA	NA	Shallow
Alden/Powers, A	13 Stevens Lane	Fort Edward NY 12839	27-Dec-82	DOH	NA	46180	NA	NA	NA	Shallow
Alden/Powers, A	13 Stevens Lane	Fort Edward NY 12839	06-Jan-83	DOH	NA	44400	NA	NA	NA	Shallow
Alden/Powers, A	13 Stevens Lane	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	5445	NA	NA	NA	Shallow
Alden/Powers, A	13 Stevens Lane	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	2716	NA	NA	NA	Shallow
Alden/Powers, A	13 Stevens Lane	Fort Edward NY 12839	22-Jun-83	DOH	ND	1200	NA	NA	NA	Shallow
Archaumbault, Mary	61 Lower Allen	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	65
Archaumbeault, Mary	61 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	65
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	09-Dec-82	DOH	NA	11000 +	NA	NA	NA	Shallow
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	27-Dec-82	DOH	NA	21100	NA	NA	NA	Shallow
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	06-Jan-83	DOH	NA	34000	NA	NA	NA	Shallow
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	7098	NA	NA	NA	Shallow
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	27-Jan-83	G&M/ERCO	NA	3872	NA	NA	NA	Shallow
Arlington, M.R.	14 Stevens Lane	Fort Edward NY 12839	22-Jun-83	DOH	ND	12000	NA	NA	NA	Shallow
Bacon, Francis	844 Gates Ave.	Fort Edward NY 12839	14-May-84	DOH	ND	ND	ND	ND	ND	35
Bacon, Francis	844 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	35
Bacon, Robert	7275 Charles Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	172
Bacon, Robert	7275 Charles Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	172
Bacon, Robert	7275 Charles Street	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	172
Bacon, Robert Jr.	Hudson Street	Hudson Hgts NY 12839	08-Sep-82	DOH	NA	ND	NA	NA	NA	99
Bacon, Robert Jr.	Hudson Street	Hudson Hgts NY 12839	12-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	99
Bacon, Robert Jr.	Hudson Street	Hudson Hgts NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	Shallow
Bacon, Robert Jr.	Hudson Street	Hudson Hgts NY 12839	13-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	99
Bertok, Cy	71 Burgoyne Avenue	Fort Edward NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	20
Bertok, Cy	71 Burgoyne Avenue	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	3	NA	NA	NA	20
Bertok, Cy	71 Burgoyne Avenue	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	20
Bertok, Cy	71 Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	DOH	NA	69	NA	NA	NA	20
Bertok, Cy	71 Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	110	NA	NA	NA	20
Bertok, Cy	71 Burgoyne Ave.	Fort Edward NY 12839	04-Apr-84	GE/ERCO	ND	ND	NA	NA	NA	20

RESIDENTIAL WELL SAMPLING RESULTS THROUGH 1984

NAME	ADDRESS	CITY, STATE, ZIP	SAMPLE DATE	SAMPLING AGENCY & LABORATORY	PCB RESULTS	TOTAL VOC RESULTS	HERBICIDE RESULTS			WELL DEPTH (FT)
							ATRA	LASSO	DUAL	
Bertok, Cy	71 Burgoyne Ave.	Fort Edward NY 12839	04-Apr-84	DOH	ND	ND	170.00	210.00	3.60	20
Bickford, M.R.	822 Ethan Allen	Fort Edward NY 12839	21-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	23
Bickford, M.R.	822 Ethan Allen	Fort Edward NY 12839	26-Mar-84	GE/ERCO	5.6	NA	NA	NA	NA	23
Bickford, M.R.	822 Ethan Allen	Fort Edward NY 12839	26-Mar-84	DOH	11.0	ND	0.70	ND	ND	23
Bigelow, Gladys	18 Putnam Ave.	Fort Edward NY 12839	23-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	Shallow
Bigelow, Gladys	18 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	ND	ND	ND	Shallow
Bigelow, Gladys	18 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	Shallow
Blake, Patricia	7277 Hudson St.	Fort Edward NY 12839	23-Feb-84	DOH	ND	ND	ND	ND	ND	Deep
Blake, Patricia	7277 Hudson St.	Fort Edward NY 12839	23-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Deep
Blanchard, Victor	35 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	20
Bowe, Edward	807 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	150	NA	NA	NA	25
Bowe, Edward	807 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	25
Bowe, Edward	807 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	25
Bowe, Edward	807 Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	DOH	NA	3	NA	NA	NA	25
Bowe, Edward	807 Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	3	NA	NA	NA	25
Bowe, Edward	807 Ethan Allen	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	25
Bowe, John	2 Anthony Dr.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	Deep
Bowe, Mark	3 Putnam Ave.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Brock, Herbert	13 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	DOH	ND	ND	8.70	10.00	1.80	Shallow
Brock, Herbert	13 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Brown, Debra	1 May Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	175
Brown, John	862 Gates Avenue	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	23
Brown, John	862 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	23
Brown, John	862 Gates Ave.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	23
Brown,John	862 Gates Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	23
Brown,John	862 Gates Avenue	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	3	NA	NA	NA	23
Brown, William	May Street	Fort Edward NY 12839	17-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	150
Bruce, Thad	22 Putnam Avenue	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	20
Bruce, Thad	925 Smith St.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	168
Butto, Paul	746 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	6 (1)	NA	NA	NA	115
Butto,Paul	746 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	115
Cantiello, Anthony	1 Anthony Dr.	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	1.60	0.78	ND	28
Cantiello, Joseph	9 Anthony Dr.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	215
Cantiello, Mike	11 Anthony Dr.	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	215

RESIDENTIAL WELL SAMPLING RESULTS THROUGH 1984

NAME	ADDRESS	CITY, STATE, ZIP	SAMPLE DATE	SAMPLING AGENCY & LABORATORY	PCB RESULTS	TOTAL VOC RESULTS	HERBICIDE RESULTS			WELL DEPTH (FT)
							ATRA	LASSO	DUAL	
Cantrell, J.A.	5 Anthony Dr.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	380
Caputo, John	760 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	300
Caputo, John	760 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	300
Carey, Peter	806 Ethan Allen	Fort Edward NY 12839	23-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Carpenter, Chas.	7238 Burgoyne Ave.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Clark, Henry F.	7285 May St.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Deep
Cleveland, N.A.	874 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	28
Collins, J.M.	1 Putnam Ave	Fort Edward NY 12839	15-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	35
Colvin, H.	84 Burgoyne Ave.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	180
Cooper, Anda	83 Burgoyne Ave.	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	37
Counter (tenant)	52 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	150
Creaser, Howard	858 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	20
Creaser, Howard	858 Gates Ave.	Fort Edward NY 12839	14-May-84	DOH	ND	ND	ND	ND	ND	20
Cronin, C.P.	23 Putnam Ave.	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	27
D'angelico, Gary	885 Duncan Campbell	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	200
D'Angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	37	NA	NA	NA	25
D'Angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	25
D'Angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	25
D'Angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	25
D'Angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	DOH	NA	3	NA	NA	NA	25
D'angelico, Guy	841 Ethan Allen Street	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	1.10	ND	ND	25
Delocco, Charles	7298 May St.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Deep
Delsignore, Alfred	8 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	16
Delsignore, Alfred	8 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	16
Delsignore, Alfred	8 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	DOH	ND	ND	ND	ND	ND	16
Delucca, Jack	692 Juliet St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	60
Desjadon, Robert	7295 May St.	Fort Edward NY 12839	23-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	78
Dickinson, A.	896 O'Brien Ave	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	60
Dickinson, Fred	909 O'Brien Ave.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	45
Doriski	May Street	Fort Edward NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	45
Doriski	May Street	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	45
Doriski	May Street	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	10	NA	NA	NA	45
Doriski, Harry	7282 May Street	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	Shallow
Doty Machine Works	7218 Burgoyne Ave.	Fort Edward NY 12839	08-May-84	DOH	ND	ND	ND	ND	ND	Deep

RESIDENTIAL WELL SAMPLING RESULTS THROUGH 1984

NAME	ADDRESS	CITY, STATE, ZIP	SAMPLE DATE	SAMPLING AGENCY & LABORATORY	PCB RESULTS	TOTAL VOC RESULTS	HERBICIDE RESULTS			WELL DEPTH (FT)
							ATRA	LASSO	DUAL	
Doty, Donald	80 Burgoyne Ave.	Fort Edward NY 12839	08-May-84	DOH	ND	ND	ND	ND	ND	Shallow
Edgerly, Clayton	7265 Hudson St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	100
Edgerly, Kenneth	680 Juliet St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	300
Fane Residence	70 Burgoyne Ave.	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	30.00	7.90	ND	Shallow
Farrell, Jason	870 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	20
Gaulin, Donald	31 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	7
Gibbons, Donald	915 Smith St.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	19
Glens Falls National	Broadway	Fort Edward NY 12839	26-Jan-83	G&M/ERCO	NA	5898	NA	NA	NA	Shallow
Glens Falls National	Broadway	Fort Edward NY 12839	26-Jan-83	DEC	NA	40070	NA	NA	NA	Shallow
Glens Falls National	Broadway	Fort Edward NY 12839	03-Mar-83	DEC	NA	8600 +	NA	NA	NA	Shallow
Glens Falls National	Broadway	Fort Edward NY 12839	05-Jul-83	DOH	19.0	5100	NA	NA	NA	Shallow
Gonyea, Richard	57 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	110
Gonyea, Richard	57 Lower Allen	Fort Edward NY 12839	16-Jul-84	GE/ERCO	ND	ND	NA	NA	NA	110
Gregory, Flora	931 Smith St.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	170
Gregory, Russ	696 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	197
Guyette, Kenneth	879 Duncan Campbell	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	240
Haas, Daniel	7 Anthony Dr.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	200
Haas, Lester	19 Putnam Avenue	Fort Edward NY 12839	09-Dec-82	DOH	NA	ND	NA	NA	NA	20
Haas, Lester	19 Putnam Avenue	Fort Edward NY 12839	27-Feb-83	DOH	NA	ND	NA	NA	NA	20
Haas, Lester	19 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	ND	NA	NA	NA	20
Haas, Lester	19 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	ND	ND	ND	20
Harrington, Esther	5 Smith St.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	170
Harrington, Jo Ann	5 Putnam Ave.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Havens, Curtis	7280 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	21
Heed, Edward	853 Ethan Allen	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	215
Heed, Edward	853 Ethan Allen	Fort Edward NY 12839	08-May-84	DOH	ND	ND	ND	ND	ND	215
Hillman	Broadway	Fort Edward NY 12839	05-Jul-83	DOH	ND	2	NA	NA	NA	Shallow
Hilton, John	24 Putnam Avenue	Fort Edward NY 12839	09-Dec-82	DOH	NA	2 +	NA	NA	NA	15
Hilton, John	24 Putnam Avenue	Fort Edward NY 12839	27-Dec-82	DOH	NA	ND	NA	NA	NA	15
Hilton, John	24 Putnam Ave.	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	15
Hinchliffe, John	4 Anthony Dr.	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	ND	ND	ND	150
Hoag, Mary Jane	7317 Lower Allen	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	89
Hoag, Robert	7325 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	85
Hoag, Robert D.	7325 Lower Allen	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	85

RESIDENTIAL WELL SAMPLING RESULTS THROUGH 1984

NAME	ADDRESS	CITY, STATE, ZIP	SAMPLE DATE	SAMPLING AGENCY & LABORATORY	PCB RESULTS	TOTAL VOC RESULTS	HERBICIDE RESULTS			WELL DEPTH (FT)
							ATRA	LASSO	DUAL	
Hoag, William	701 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	85
Hoag, William	701 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	85
Hogan, Andy	842 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	25
Holmes, William	850 Gates Avenue	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	ND	NA	NA	NA	Shallow
Holmes, William	850 Gates Avenue	Fort Edward NY 12839	12-Jan-83	DOH	NA	ND	NA	NA	NA	Shallow
Holmes, William	850 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	Tr. - TCE	NA	NA	NA	Shallow
Holmes, William	850 Gates Ave.	Fort Edward NY 12839	03-Jul-84	GE/ERCO	NA	GE-ND, ERCO-N	NA	NA	NA	Shallow
Houser, Stefen	840 Ethan Allen	Fort Edward NY 12839	22-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	13
Houser, Stefen	840 Ethan Allen	Fort Edward NY 12839	04-Apr-84	GE/ERCO	ND	NA	NA	NA	NA	13
Houser, Stefen	840 Ethan Allen	Fort Edward NY 12839	04-Apr-84	DOH	ND	ND	NA	NA	NA	13
Hughes, Elaine	25 putnam Ave.	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	16
Husek, Paul	832 Ethan Allen	Fort Edward NY 12839	04-Apr-84	DOH	ND	ND	ND	ND	ND	Shallow
Husek, Paul	832 Ethan Allen	Fort Edward NY 12839	04-Apr-84	GE/ERCO	ND	NA	NA	NA	NA	Shallow
Hyatt, Richard	866 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	22
Irwin, Gerald	14 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Irwin, Gerald	14 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	DOH	ND	ND	ND	ND	ND	Shallow
Irwin, Gerald	14 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Ives, Richard H.	7254 May St.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	57
Jones, Lyod	17 Putnam Ave.	Fort Edward NY 12839	08-May-84	DOH	ND	ND	ND	ND	ND	Rock
Kamyr	Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	1 +	NA	NA	NA	NA
Kamyr	Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	NA
Kamyr	73 Burgoyne Ave	Fort Edward NY 12839	17-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	NA
Ketchum, H.I.	7237 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
LaCross, Lester	54 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	100
LaCross, Lester	54 Lower Allen	Fort Edward NY 12839	17-Aug-84	GE/ERCO	ND	ND	ND	ND	ND	100
LaFountaine, Ozzie	20 Putnam Avenue	Fort Edward NY 12839	09-Dec-82	DOH	NA	ND	NA	NA	NA	273
LaFountaine, Ozzie	20 Putnam Avenue	Fort Edward NY 12839	27-Feb-83	DOH	NA	ND	NA	NA	NA	273
LaFountaine, Ozzie	20 Putnam Ave.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	273
Lapan, Ema	7288 Burgoyne Ave.	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	20
Lape, Richard	740 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	739	NA	NA	NA	86
Lapelle, J.D.	2 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	DOH	ND	ND	ND	ND	ND	20
Lapelle, J.D.	2 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	20
Lattereil, Jesse	7260 Burgoyne Ave.	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	28
Latterell, Hubert	3 Lott St.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	35

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							ATRA	LASSO	DUAL	
Leroux, Aurore	7290 Hudson St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	84
Lewis, Walter	58 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	170
Lewis, Walter	58 Lower Allen	Fort Edward NY 12839	17-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	170
Liberty, Bernice	49 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	82
Lynch, Ross	1 Lott St.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	225
MacDonald, Newell	846 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	24
Mammone, L.T.	814 Ethan Allen	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	Shallow
Mammone, L.T.	814 Ethan Allen	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	Shallow
Mammone, L.T.	814 Ethan Allen	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	ND	ND	ND	Shallow
Marcantonio, Ellen	836 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	20
McClusky, James	77 Burgoyne Ave.	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	ND	ND	ND	Shallow
McDonald, Merl	821 Ethan Allen	Fort Edward NY 12839	23-Feb-84	GE/ERCO	16.0	ND	NA	NA	NA	15
McDonald, Merl	821 Ethan Allen	Fort Edward NY 12839	23-Feb-84	DOH	36.0	ND	ND	ND	ND	15
McDonald, Merl	821 Ethan Allen	Fort Edward NY 12839	06-Mar-84	DOH	40.0	ND	ND	ND	ND	15
McDonald, Merl	821 Ethan Allen	Fort Edward NY 12839	06-Mar-84	GE/ERCO	17.0	ND	NA	NA	NA	15
McKinney,Richard	883 Duncan Campbell	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	200
Mcfadden, John	7170 McIntyre	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	ND	ND	ND	265
Merrill, Ted	11 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	15
Merrill, Ted	11 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	DOH	14.0	ND	ND	ND	ND	15
Merrill, Ted	11 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	8.6	ND	NA	NA	NA	15
Mischko, John	21 Putnam Ave.	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	ND	ND	ND	Shallow
Mischko, Mary Anne	7169 McIntyre	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	100.00	53.00	5.20	Shallow
Mischko, Michael	76 Burgoyne Ave.	Fort Edward NY 12839	05-Jul-84	GE/ERCO	NA	2.0 ppb,1,1,1	NA	NA	NA	Shallow
Mischko, Michael	76 Burgoyne Ave.	Fort Edward NY 12839	17-Apr-84	DOH	ND	12 ppb, 1,1,1	ND	ND	ND	Shallow
Moulton, John	104 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	250
Moulton, John	104 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	22
Murphy, Gary	782 May STreet	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	60
Murrane, John	9 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	DOH	ND	ND	ND	ND	ND	23
Murrane, John	9 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	23
Murrane,John	9 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	23
Murray, Fenton	25 Hillview Avenue	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	1205	NA	NA	NA	Shallow
Murray, Fenton	25 Hillview Avenue	Fort Edward NY 12839	12-Jan-83	DOH	NA	6200 +	NA	NA	NA	Shallow
Murray, Adlor	McIntyre	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	ND	ND	ND	Deep
Nickols, Daniel	72 Burgoyne Ave.	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	94.00	33.00	1.10	Shallow

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							ATRA	LASSO	DUAL	
Pellino, Louis	829 Ethan Allen	Fort Edward NY 12839	23-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	23
Pellino, Louis	829 Ethan Allen	Fort Edward NY 12839	06-Mar-84	DOH	ND	ND	ND	1.00	ND	23
Pellino, Louis	829 Ethan Allen	Fort Edward NY 12839	06-Mar-84	GE/ERCO	ND-GE, ND-ERCO	ND	NA	NA	NA	23
Pellino, Louis	829 Ethan Allen	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	12.00	0.80	ND	23
Perkins, Robert	7263 May St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	70
Petty, Wallace	7271 Hudson St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	97
Phelps, Authur	73 Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	10	NA	NA	NA	Shallow
Phelps, Authur	73 Burgoyne Avenue	Fort Edward NY 12839	10-Feb-83	DOH	NA	6	NA	NA	NA	Shallow
Phelps, Authur	73 Burgoyne Ave.	Fort Edward NY 12839	08-May-84	DOH	ND	ND	ND	ND	ND	Shallow
Potter, Richard	66 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	1 (1)	NA	NA	NA	172
Potter, Richard	66 Lower Allen Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	172
Powers, Agnes	818 Ethan Allen	Fort Edward NY 12839	21-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	20
Powers, Agnes	818 Ethan Allen	Fort Edward NY 12839	26-Mar-84	DOH	0.26	ND	ND	ND	ND	20
Powers, Agnes	818 Ethan Allen	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	20
Powers, Agnes	818 Ethan Allen	Fort Edward NY 12839	25-Apr-84	DOH	0.34	ND	ND	ND	ND	20
Powers, Robert	706 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	80
Powhida, M	4 Stevens Lane	Fort Edward NY 12839	27-Dec-82	DOH	NA	14000 +	NA	NA	NA	Shallow
Powhida, M	4 Stevens Lane	Fort Edward NY 12839	12-Jan-83	G&M/ERCO	NA	1947	NA	NA	NA	Shallow
Powhida, M	4 Stevens Lane	Fort Edward NY 12839	12-Jan-83	DOH	NA	24000 +	NA	NA	NA	Shallow
Powhida, M	4 Stevens Lane	Fort Edward NY 12839	13-Jan-83	G&M/ERCO	NA	1645	NA	NA	NA	Shallow
Powhida, M	4 Stevens Lane	Fort Edward NY 12839	22-Jun-83	DOH	ND	1200	NA	NA	NA	Shallow
Rathbun, Hazel	828 Ethan Allen	Fort Edward NY 12839	21-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	20
Rathbun, Hazel	828 Ethan Allen	Fort Edward NY 12839	04-Apr-84	DOH	ND	ND	ND	ND	ND	20
Rathbun, Hazel	828 Ethan Allen	Fort Edward NY 12839	04-Apr-84	GE/ERCO	ND	NA	NA	NA	NA	20
Riley, Thomas	16 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	Shallow
Riley, Thomas	16 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	ND	ND	ND	Shallow
Riley, Thomas	16 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	Shallow
Rock, Ross	7292 May St.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	42
Root, Rita	873 Duncan Campbell	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	20
Ross, Stanley	7287 Hudson St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	200
Rourke, Louis	6 Putnam Ave.	Fort Edward NY 12839	15-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Salisbury, Marjorie	687 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	200
Scott, June	Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	65
Scott, June	Ethan Allen Street	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	65

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							ATRA	LASSO	DUAL	
Scott, June	811 Ethan Allen	Fort Edward NY 12839	06-Mar-84	DOH	ND	ND	ND	ND	ND	65
Scott, June	811 Ethan Allen	Fort Edward NY 12839	06-Mar-84	GE/ERCO	ND-GE, ND-ERCO	ND	NA	NA	NA	65
Scott, June	811 Ethan Allen	Fort Edward NY 12839	15-Mar-84	DOH	ND	ND	ND	ND	ND	65
Scott, June	811 Ethan Allen	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	ND	NA	NA	NA	65
Shivka, Michael	7172 McIntyre	Fort Edward NY 12839	25-Apr-84	DOH	ND	ND	51.00	13.00	ND	18
Signor, Roland	682 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	20
Smith, Charles	7295 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	14
Smith, Claude	7281 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	14
Smythe, Edward	15 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	ND	NA	NA	NA	22
Smythe, Edward	15 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	21.00	0.40	ND	22
Sottile, Louis	12 Putnam Ave.	Fort Edward NY 12839	21-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Sottile, Louis	12 Putnam Ave.	Fort Edward NY 12839	21-Feb-84	DOH	ND	ND	ND	ND	ND	Shallow
Sottile, Louis	12 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	DOH	ND	ND	30.00	11.00	0.70	Shallow
Sottile, Louis	12 Putnam Ave.	Fort Edward NY 12839	15-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	Shallow
Spirowski, Chester	686 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	68
Sprague, Jim	7264 May Street	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	66
Spring	Hillview Avenue	Fort Edward NY 12839	06-Jan-83	DOH	NA	880	NA	NA	NA	Surface
Spring	Hillview Avenue	Fort Edward NY 12839	26-Jan-83	G&M/ERCO	NA	852	NA	NA	NA	Surface
Spring	Griffin Avenue	Fort Edward NY 12839	26-Jan-83	G&M/ERCO	NA	1232	NA	NA	NA	Surface
Spring	Griffin Avenue	Fort Edward NY 12839	26-Jan-83	DEC	NA	3611	NA	NA	NA	Surface
Spring	Hillview Avenue	Fort Edward NY 12839	26-Jan-83	DEC	NA	892	NA	NA	NA	Surface
Spring	Griffin Avenue	Fort Edward NY 12839	03-Mar-83	DEC	NA	1140 +	NA	NA	NA	Surface
Stanton, Robert	10 Smith St.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	36
Stevens	876 Gates Avenue	Fort Edward NY 12839	10-Feb-83	GE/ERCO	NA	ND	NA	NA	NA	25
Stevens	876 Gates Avenue	Fort Edward NY 12839	10-Feb-83	DOH	NA	ND	NA	NA	NA	25
Stevens, Robert	876 Gates Ave.	Fort Edward NY 12839	14-May-84	GE/ERCO	ND	ND	NA	NA	NA	25
Sumner, Roland	10 Putnam Ave.	Fort Edward NY 12839	22-Feb-84	GE/ERCO	NA	ND	NA	NA	NA	28
Sumner, Roland	10 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	GE/ERCO	ND	NA	NA	NA	NA	28
Sumner, Roland	10 Putnam Ave.	Fort Edward NY 12839	26-Mar-84	DOH	ND	ND	ND	ND	ND	28
Sumner, Roland	86 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	300
Sumner, Sterling	884 O'Brien Ave.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	280
Suprenant, Michael	4 Putnam Avenue	Fort Edward NY 12839	09-Dec-82	DOH	NA	ND	NA	NA	NA	18
Suprenant, Michael	4 Putnam Avenue	Fort Edward NY 12839	27-Feb-83	DOH	NA	ND	NA	NA	NA	18
Suprenant, Michael	4 Putnam Ave.	Fort Edward NY 12839	16-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	18

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							ATRA	LASSO	DUAL	
Sutherland, Stanley	7286 May St.	Fort Edward NY 12839	20-Feb-84	GE/ERCO	ND	ND	NA	NA	NA	50
Terrio, Paul	754 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	115	NA	NA	NA	20
Terrio, Paul	754 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	20
Therrien, Eugene	885 O'Brien Ave.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	Shallow
Toomey, J	271 Broadway	Fort Edward NY 12839	26-Jan-83	G&M/ERCO	NA	1645	NA	NA	NA	21
Toomey, J	271 Broadway	Fort Edward NY 12839	26-Jan-83	DEC	NA	4022	NA	NA	NA	21
Toomey, J	271 Broadway	Fort Edward NY 12839	05-Jul-83	DOH	ND	5800	NA	NA	NA	21
Tripp, Michael	7287 Charles Street	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (1)	NA	NA	NA	Deep
Tripp, Michael	7287 Charles STreet	Fort Edward NY 12839	17-Aug-84	GE/ERCO	ND	ND	NA	NA	NA	Dep
Valentine, Roger	878 O'Brien Ave.	Fort Edward NY 12839	11-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	250
Vaylor (Mullen)	40 Lower Allen Street	Fort Edward NY 12839	05-Jul-83	DOH	ND	49	NA	NA	NA	Shallow
Vecchio, Frank	770 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	68 (1)	NA	NA	NA	175
Vecchio, Frank	770 Park Avenue	Fort Edward NY 12839	08-Sep-82	DOH	NA	ND (2)	NA	NA	NA	175
Waite, Leonard	3 Anthony Dr.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	160
Walsh, G.M.	7287 Burgoyne Ave	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	12
Walsh, Garland Jr.	7285 Burgoyne Ave.	Fort Edward NY 12839	20-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	18
Whitford, Elyn	7230 Burgoyne Ave.	Fort Edward NY 12839	25-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	28
Williams' spring	Stevens Lane	Fort Edward NY 12839	06-Jan-83	DOH	NA	ND	NA	NA	NA	Surface
Williams' spring	Stevens Lane	Fort Edward NY 12839	26-Jan-83	DEC	NA	4 +	NA	NA	NA	Surface
Williams' spring	Stevens Lane	Fort Edward NY 12839	26-Jan-83	G&M/ERCO	NA	10	NA	NA	NA	Surface
Williams' spring	Stevens Lane	Fort Edward NY 12839	23-Jun-83	DOH	ND	4	NA	NA	NA	Surface
Winch, Marie	7169 Burgoyne Ave.	Fort Edward NY 12839	17-Apr-84	DOH	ND	ND	4.00	0.20	ND	Shallow
Wolfe, Gorden	7225 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	11
Wood, Betty	106 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	300
Wood, David	108 Burgoyne Ave.	Fort Edward NY 12839	14-Jun-84	GE/ERCO	ND	ND	NA	NA	NA	350

(1) Purgeable halocarbon analysis

(2) Purgeable aromatic analysis

(+) Trichloroethylene results only

558004

November 28, 1983

New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12232

Attention: Mr. Norman H. Nosenchuck, P.E.
Director - Division of Solid Waste

RE: PHASE I - PRELIMINARY INVESTIGATION OF THE GENERAL ELECTRIC FORT EDWARD PLANT

Dear Mr. Nosenchuck:

Attached, please find our Phase I - Preliminary Investigation of the above referenced site. These activities have been carried out under the New York State "Superfund" legislation.

Pertinent information regarding this site is summarized below.

The General Electric Fort Edward Plant (site I.D. 558004) is a facility which manufactures small industrial capacitors. The site is located less than 1,000 feet east of the Hudson River, north of Fort Edward, Washington County, New York. Although the facility has been listed as a hazardous waste disposal site by the New York State Department of Environmental Conservation, background information indicates that site contamination occurred through poor hazardous material transfer, storage and maintenance practices rather than actual waste disposal.

The entire plant area as well as a large portion of the surrounding off-site area have been found to be contaminated with polychlorinated biphenyls (PCBs) and trichloroethane (TCE). Groundwater monitoring wells are in place at various locations throughout the plant property as well as in areas adjacent to the plant. Groundwater sampling has revealed significant contamination by hazardous materials including: PCBs, tetrachloroethane, trichloroethane, 1,1,1-trichloroethane, 1,1-dichloroethane, trans-1,2-dichloroethane and vinyl chloride. Residents using contaminated groundwater wells were advised to seek other sources of drinking, cooking and washing water.

Springs located approximately 2,000 feet south of the site were found to be contaminated with levels of trichloroethane, 1,1,1-trichloroethane and trans-1,2-dichloroethane.

A Summary Abatement Order and Hearing Notice was issued by the Commissioner of the Department of Environmental Conservation in March 1983. The order was vacated in July 1983 after General Electric entered into a contract with the Village of Fort Edward to provide a permanent source of potable water to the affected residents. It does not appear that current manufacturing operations are contributing to groundwater contamination, although ground surface contamination persists.

In compiling the Hazard Ranking Score, the General Electric Fort Edward Plant was found to have a score for S_m equal to 36.0. However, because some route rating factors, due to data inadequancies, involve a certain degree of subjectivity, a range for the S_m was developed and found to be 30.0 to 50.0.

Should you have any questions or require additional information, please feel free to contact me directly.

Sincerely,

RECRA RESEARCH, INC.

Richard L. Crouch

Richard L. Crouch
Project Manager

GENERAL ELECTRIC CORPORATION
FORT EDWARD

NEW YORK STATE SUPERFUND
PHASE I SUMMARY REPORT

FINAL

November 28, 1983

Prepared By:

Recra Research, Inc.
4248 Ridge Lea Road
Amherst, New York 14226

For:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

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GENERAL ELECTRIC COMPANY
FORT EDWARD SITE

NEW YORK STATE SUPERFUND

PHASE I SUMMARY REPORT

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1.0 Executive Summary

The General Electric Fort Edward Plant is a facility which manufactures small industrial capacitors. The site is located less than 1,000 feet east of the Hudson River, in the Village of Fort Edward, Washington County, New York. Although the facility has been listed as a hazardous waste disposal site by the New York State Department of Environmental Conservation, background information indicates that site contamination occurred through poor hazardous material transfer, storage and maintenance practices rather than actual waste disposal.

Portions of the plant area as well as a large portion of the surrounding off-site area have been found to be contaminated with polychlorinated biphenyls (PCBs) and trichloroethane (TCE). Groundwater monitoring wells are in place at various locations throughout the plant property as well as in areas adjacent to the plant. Groundwater sampling has revealed significant contamination by hazardous materials including: PCBs, tetrachloroethane, trichloroethane, 1,1,1-trichloroethane, 1,1-dichloroethane, trans-1,2-dichloroethane and vinyl chloride. Residents using contaminated groundwater wells were advised to seek other sources of drinking, cooking and washing water.

Springs located approximately 2,000 feet south of the site were found to be contaminated with levels of trichloroethane, 1,1,1-trichloroethane and trans-1,2-dichloroethane.

A Summary Abatement Order and Hearing Notice was issued by the Commissioner of the Department of Environmental Conservation in March 1983.

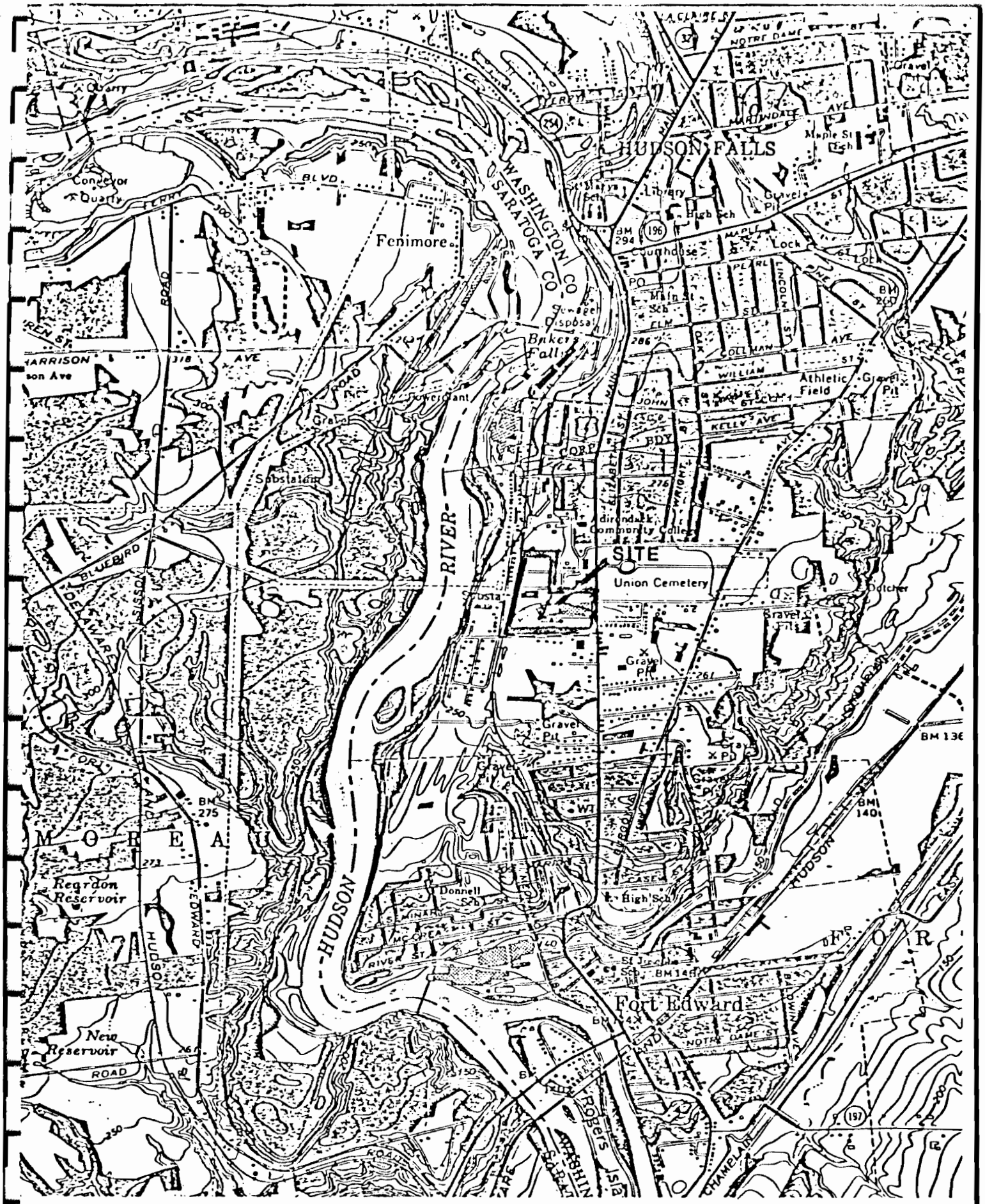
The order was vacated in July 1983 after General Electric entered into a contract with the Village of Fort Edward to provide a permanent source of potable water to the affected residents.

2.0 Site Description

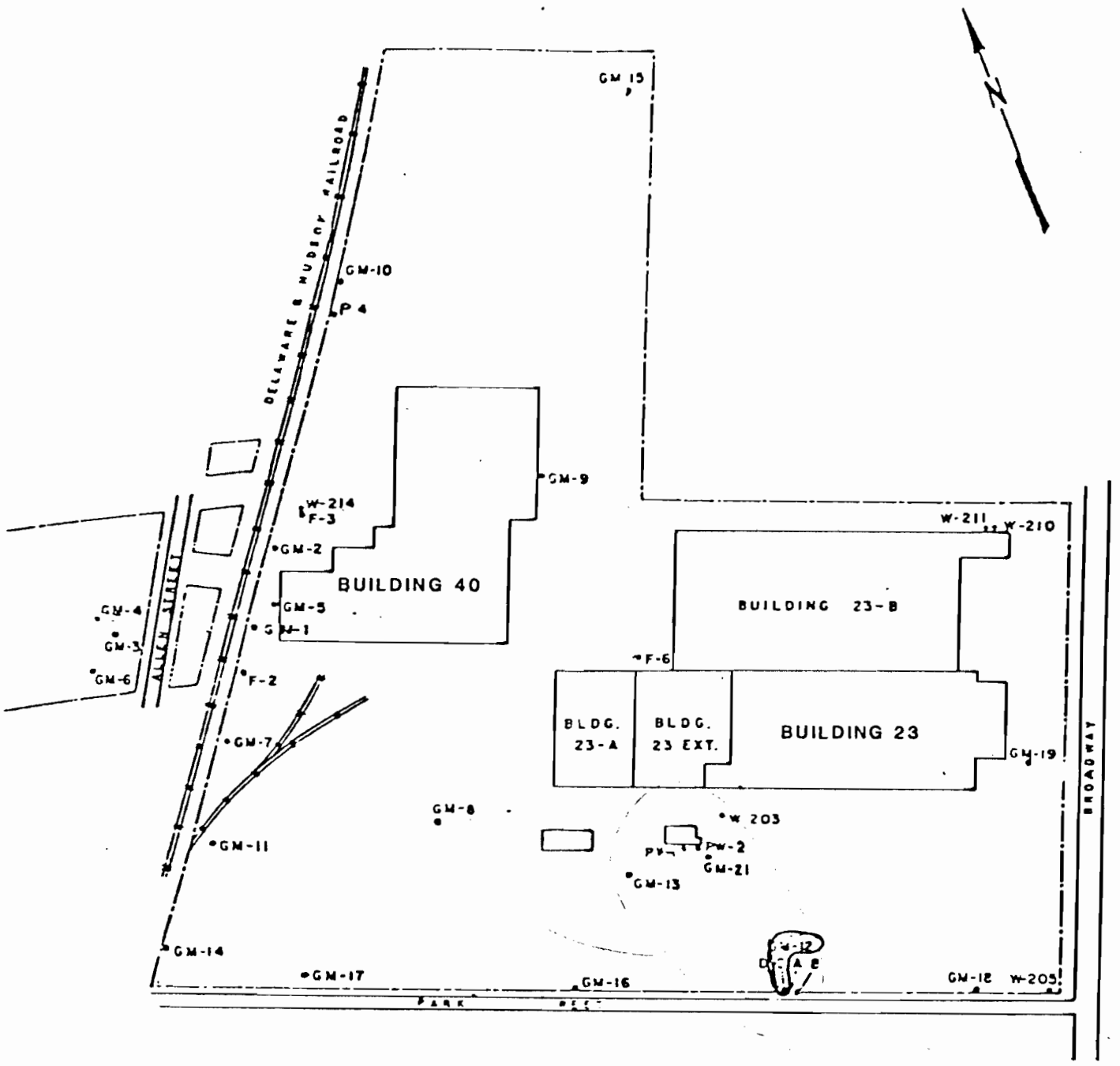
The General Electric Corporation plant occupies approximately ten (10) acres of land in a moderately populated section of the Village of Fort Edward, New York. The plant is located on the west side of U.S. Route 4 between the Village of Fort Edward and the Village of Hudson Falls (See Figure 1). Private residences border the plant property on the south, east and west with the northern border occupied by commercial businesses and the Washington County Offices. Access to the facility is limited by a chain link fence and guard (Reference 1).

Topography of the area is basically flat and gently slopes south directing surface run-off toward the Village of Fort Edward. The areas west and east of the facility are bounded by steep escarpments to the Hudson River and Old Champlain Canal respectively (Reference 2).

Portions of the plant area as well as a large portion of the surrounding area has been found to be contaminated with polychlorinated bipheyls (PCBs) and trichloroethane (TCE). These contaminants reportedly entered the ground as a result of plant operations and spillage. PCBs and TCE have been found in groundwater wells. A parking lot has been constructed over the area where the majority of the contaminants were believed to have been spilled. Also an abandoned leach field appears to be a significant source of groundwater contamination. Groundwater monitoring wells are in place at various locations throughout the plant property as well as in areas adjacent to the plant.



USGS Topographical Map 7.5' Hudson Falls, N.Y. Quad. 1966	VICINITY MAP G.E. FORT EDWARD	Figure 1



EXPLANATION

0 250 500 FT

- GM-1 MONITORING WELL INSTALLED IN THIS STUDY
- W-203 MONITORING WELL INSTALLED DAMES & MOORE, INC.
- F-6 MONITORING WELL INSTALLED PRIOR TO THIS STUDY
- PW-1 DEEP PRODUCTION WELL

Scale as shown	SITE MAP G.E. FORT EDWARD	Figure 2

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 (45)	1	45	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2]					
[2] Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 3	1		3	3.3
[4] Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 (15) 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 (6) 7 8	1	6	8	
Total Waste Characteristics Score			21	26	
[5] Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 [20] / 24 30 32 35 40	1	20	40	
Total Targets Score			29	49	
[6] If line [1] is 45, multiply [1] x [4] x [5]. If line [1] is 0, multiply [2] x [3] x [4] x [5]			2745	57,330	
[7] Divide line [6] by 57,330 and multiply by 100			S_{gw} = 47.8		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

3.0 Preliminary Hazard Ranking System Score

Facility name: General Electric Corporation Capacitor Products Dept.

Location: Route 4, Ft. Edward, NY 12828

EPA Region: 2

Person(s) in charge of the facility: General Electric Corporation

Name of Reviewer: Recra Research, Inc. Date:

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Active capacitor manufacturing plant. Site contamination occurred through poor hazardous material transfer, storage and maintenance practices rather than actual waste disposal. Significant contamination of domestic groundwater supplies with hazardous materials such as PCB's, trichloroethane and trichlorobenzene.

Scores: $S_M = 36.0$ ($S_{gw} = 47.8$ $S_{sw} = 26.9$ $S_a = 29.5$)

$S_{FE} = 5.4$

$S_{DC} = 25.0$ Range: 30.0 to 50.0

FIGURE 1
HRS COVER SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Rel. (Section)
[1] Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line [4]. If observed release is given a value of 0, proceed to line [2]					
[2] Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 3	1		3	4.3
[4] Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 (15) 18	1	15	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			16	26	
[5] Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 (18) 20 24 30 32 35 40	1	18	40	
Total Targets Score			24	55	
[6] If line [1] is 45, multiply [1] x [4] x [5]. If line [1] is 0, multiply [2] x [3] x [4] x [5]			17,280	64,350	
[7] Divide line [6] by 64,350 and multiply by 100			S_{sw} = 26.85		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 (45)	1	45	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	0 1 2 (3)	3	9	9	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			10	20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 (21) 24 27 30	1	21	30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 (2) 3	1	2	3	
Total Targets Score			23	39	
[4] Multiply [1] x [2] x [3]			10,350	35,100	
[5] Divide line [4] by 35,100 and multiply by 100			S_a = 29.48		

FIGURE 9
AIR ROUTE WORK SHEET

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 (3)	1	3	3	7.1
2 Waste Characteristics					7.2
Direct Evidence	(0) 3	1	0	3	
Ignitability	(0) 1 2 3	1	0	3	
Reactivity	(0) 1 2 3	1	0	3	
Incompatibility	(0) 1 2 3	1	0	3	
Hazardous Waste Quantity	0 1 [2] 3 4 5 6 7 8	1	2	8	
Total Waste Characteristics Score			2	20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 (3) 4 5	1	3	5	
Distance to Nearest Building	0 (1) 2 3	1	1	3	
Distance to Sensitive Environment	(0) 1 2 3	1	0	3	
Land Use	0 1 2 (3)	1	3	3	
Population Within 2-Mile Radius	0 1 2 (3) 4 5	1	3	5	
Buildings Within 2-Mile Radius	0 1 2 (3) 4 5	1	3	5	
Total Targets Score			13	24	
4 Multiply [1] x [2] x [3]			78	1,440	
5 Divide line [4] by 1,440 and multiply by 100			S_{FE} = 5.4		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	47.8	2,285.05
Surface Water Route Score (S_{sw})	26.85	721.09
Air Route Score (S_a)	29.48	869.49
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3875.63
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		62.25
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		35.99

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 (45)	1	45	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	.5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			5,400	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} =	25.0	

FIGURE 12
DIRECT CONTACT WORK SHEET

3.1 Documentation Records for Hazard Ranking System

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: General Electric Corporation Capacitor Products Dept.

LOCATION: Route 4, Ft. Edward, NY 12828

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

PCB's
TRICHLOROETHYLENE
TRICHLOROETHANE
TRICHLOROBENZENE
CHLOROFORM (REF 5)

Rationale for attributing the contaminants to the facility:

ANALYSIS OF SAMPLES FROM GROUNDWATER MONITORING WELLS (REF 5)

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

SHALLOW WATER TABLE AQUIFER AND
SHALE BEDROCK AQUIFER OF THE SNAKE HILL FORMATION (REF 5)

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

APPROXIMATELY 10' FOR SHALLOW AQUIFER
APPROXIMATELY 60' FOR SHALE BEDROCK AQUIFER
REF 5

Depth from the ground surface to the lowest point of waste disposal/ storage:

WASTE MATERIALS DISPOSED OF AND
SPILLED DIRECTLY ONTO GROUND SURFACE
(REF 7)

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

40 INCHES (REF 14)

Mean annual lake or seasonal evaporation (list months for seasonal):

28 INCHES (REF 14)

Net precipitation (subtract the above figures):

12 INCHES

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

OAKVILLE LOAMY FINE SAND (REF 12)

Permeability associated with soil type:

$10^{-3} - 10^{-5}$ cm/sec (Ref 14)

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

LIQUID (REF 4)

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

NO CONTAINMENT AT TIME OF DISPOSAL (REF 4)

Method with highest score:

UNCONTAINED WASTE

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

PCB'S
TRICHLOROETHANE
TRICHLORO BENZENE (REF 7)

Compound with highest score:

DCB
TRICHLOROBENZENE (REF 14)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

4160 DRUMS (REF 15)

Basis of estimating and/or computing waste quantity:

100 gal OR 2 DRUMS/WK x 52 WEEKS = 104 drums/year x 40 yr = 4160

* * *

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

DRINKING WATER SUPPLIES AND OTHER DOMESTIC USES (REF 6)

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

∠ 100 FEET FROM PLANT PROPERTY

Distance to above well or building:

∠ 100 FEET

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

ESTIMATED TO BE BETWEEN 100 - 400 WELLS FOR 3 MILE RADIUS

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

NA

Total population served by ground water within a 3-mile radius:

ESTIMATED TO BE BETWEEN 380 AND 1520 PEOPLE

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

NO OBSERVED SURFACE WATER RELEASE AT SITE

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

0% REF 2

Name/description of nearest downslope surface water:

HUDSON RIVER APPROXIMATELY 1100' WEST

Average slope of terrain between facility and above-cited surface water body in percent:

$\frac{10}{1100} = .00909 \times 100 = .9\%$ (REF 2)

Is the facility located either totally or partially in surface water?

NO

Is the facility completely surrounded by areas of higher elevation?

NO

1-Year 24-Hour Rainfall in Inches

2.5 INCHES

Distance to Nearest Downslope Surface Water

1100 FEET

Physical State of Waste

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

UNCONTAINED

Method with highest score:

UNCONTAINED WASTE

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

TRICHLOROETHANE
1,11 - TRICHLORETHANE

Compound with highest score:

TRICHLORDETHANE

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

UNKNOWN

Basis of estimating and/or computing waste quantity:

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

HUDSON RIVER AT FORT EDWARD IS CLASSIFYED AS "D" - SUITABLE FOR SECONDARY CONTACT RECREATION (REF 3)

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

NA

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

NA

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

NA

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

NO WATER INTAKES WITHIN 3 MILES

REF 2

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

NA

Total population served:

NA

Name/description of nearest of above water bodies:

HUDSON RIVER CLASS "D" WATER RESOURCE

Distance to above-cited intakes, measured in stream miles.

NA

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

PCB MONITOR ON WASHINGTON COUNTY OFFICE BUILDING

Date and location of detection of contaminants

1977, 1978, 1979 AIR DATA BY NYSDEC

Methods used to detect the contaminants:

FLORDSIL CARTRIDGE - 24 HR. SAMPLING

Rationale for attributing the contaminants to the site:

GE IS THE PROBABLE SOURCE
WINDS BLOWING TO NORTH GIVE HIGHER READING

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

NA

Most incompatible pair of compounds:

NA

Toxicity

Most toxic compound:

PCB - 100-300 ng/m3

Hazardous Waste Quantity

Total quantity of hazardous waste:

UNKNOWN

Basis of estimating and/or computing waste quantity:

NA

* * *

3 TARGETS

Population Within 4-Mile Radius

ied:

Circle radius used, give population, and indicate how det

mi

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to

7101 PEOPLE WITHIN 1/2 MILE

Distance to a Sensitive Environment

ess:

Distance to 5-acre (minimum) coastal wetland, if 2 miles

NA

less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mi

NA

Distance to critical habitat of an endangered species, if 1 mile or less:

NA

Land Use

Distance to commercial/industrial area, if 1 mile or less:

½ MILE

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

NA

Distance to residential area, if 2 miles or less:

NA

Distance to agricultural land in production within past 5 years, if 1 mile or less:

NA

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

NA

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

NA

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	558004

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
GENERAL ELECTRIC COMPANY CAPACITOR PRODUCTS DEPARTMENT	ROUTE 4				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
FORT EDWARD	NY	12828	WASHINGTON		
09 COORDINATES LATITUDE	LONGITUDE				
43 16 40.0	073 35 13.0				

10 DIRECTIONS TO SITE (Starting from nearest public road)

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
GENERAL ELECTRIC COMPANY				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
			( )	
07 OPERATOR (If known and different from owner)	**08 STREET** (Business, mailing, residential)			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
			( )	

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: ___ / ___ / ___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___ / ___ / ___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☐ YES DATE ___ / ___ / ___ (MONTH DAY YEAR)
☒ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

BEGINNING YEAR	ENDING YEAR	☐ UNKNOWN
1940's	—	

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

PCB's, TRICHLOROETHANE, TRICHLOR ETHYLENE, TRICHLOROBENZENE, CHLOROFORM

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

AREA RESIDENCES ON GROUNDWATER FOR DOMESTIC SUPPLY.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspection on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
RICHARD L CROUCH	RECRA RESEARCH, INC.		(716) 838-6200
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
ANDRE J. LAPRES	—	RECRA	(716) 838-6200	___ / ___ / ___ (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 558004

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A SOLID
- ☐ B POWDER, FINES
- ☐ C SLUDGE
- ☐ D OTHER _____ (Specify)
- ☐ E SLURRY
- ☒ F. LIQUID
- ☐ G GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS UNKNOWN

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A TOXIC
- ☐ B CORROSIVE
- ☐ C RADIOACTIVE
- ☒ D. PERSISTENT
- ☒ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G FLAMMABLE
- ☐ H IGNITABLE
- ☒ I. HIGHLY VOLATILE
- ☐ J EXPLOSIVE
- ☐ K REACTIVE
- ☐ L INCOMPATIBLE
- ☐ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OLW	PCB	1336-36-3		16	ug/l
SOL	TRICHLOROETHANE	25323-89-1		2,000	ug/l
SOL	TRICHLOROETHYLENE	79-01-6		40,000	ug/l
SOL	TRICHLOROBENZENE	12002-48-1		1100	ug/l
IOC	CHLOROFORM	67-66-3		34	ug/l

V. FEEDSTOCKS (See Appendix for CAS Numbers) N/A

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 558004

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE 1982) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
PCB CONTAMINATION CONFIRMED BY ANALYTICAL TESTING OF RESIDENTIAL WELLS IN THE SITE VICINITY.

01 [X] B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
POTENTIAL DUE TO SURFACE RUNOFF

01 [X] C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
POTENTIAL FOR VOLATILIZATION OF TOXIC MATERIALS

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
UNKNOWN

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
NO RECORD

01 [X] F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION
TOXIC MATERIALS WERE SPILLED DIRECTLY ONTO GROUND SURFACE

01 [X] G. DRINKING WATER CONTAMINATION — 02 [X] OBSERVED (DATE: 12/82, 1/83) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
CONTAMINATION OF PRIVATE SHALLOW AND DEEP WELLS HAS BEEN CONFIRMED BY ANALYTICAL TESTING CONDUCTED BY N.Y.S. DEPT OF HEALTH.

01 [X] H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
POSSIBLE LONG TERM CONTACT WITH TOXIC MATERIALS

01 [X] I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
EXPOSURE POSSIBLE THROUGH PRIVATE WATER SUPPLIES

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 558004

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 [X] J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
POTENTIAL EXIST, SINCE, CONTAMINANTS HAVE BEEN IDENTIFIED IN AREA WATER WELLS & NEAR BY SPRING.

01 [X] K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
POTENTIAL EXIST, AREA ANIMALS MAY COME IN CONTACT WITH SPRINGS WHICH HAVE BEEN IDENTIFIED AS CONTAMINATED W/ TRICHLOROETHANE, ETC.

01 [X] L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — [X] POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
CONTAMINATION MAY BE PASSED INTO FOOD CHAIN. HOWEVER NO DATA COMFIRMS THIS.

01 [X] M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff standing liquids, leaking drums) — 02 [X] OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
WASTE WERE SPILLED ON GROUND SURFACE

01 [X] N. DAMAGE TO OFFSITE PROPERTY — 02 [X] OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
CONTAMINATION OF PRIVATE WATER SUPPLIES

01 [X] O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
SPILLED MATERIALS ENTERED SEWERS AND DRAINS

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

REF-7

3.3 EPA Site Inspection Report (Form 2070-13)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 558004

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
GENERAL ELECTRIC COMPANY. CAPACITOR PRODUCTS DEPARTMENT	ROUTE 4				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST.
FT. EDWARD	N.Y.	12828	WASHINGTON		

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
43 16 40.0	073 35 13.0	[X] A. PRIVATE [ ] B. FEDERAL [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL [ ] F. OTHER [ ] G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
___/___/___ MONTH DAY YEAR	[ ] ACTIVE [ ] INACTIVE	___ BEGINNING YEAR ___ ENDING YEAR ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
[ ] A. EPA [ ] B. EPA CONTRACTOR (Name of firm) [ ] C. MUNICIPAL [ ] D. MUNICIPAL CONTRACTOR (Name of firm)
[ ] E. STATE [X] F. STATE CONTRACTOR RECRA RESEARCH, INC. (Name of firm) [ ] G. OTHER (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
DUE TO THE EXTENSIVE INSPECTIONS			( )

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
AND INVESTIGATIONS PREVIOUSLY CONDUCTED			( )
AT THE SITE AND THE COMPANY'S INVOLVEMENT			( )
IN LEGAL PROCEEDINGS, GENERAL ELECTRIC			( )
WOULD NOT GRANT PERMISSION FOR RECRA			( )
RESEARCH INC. TO CONDUCT AN INVESTIGATION			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
OF THE SITE.			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
[ ] PERMISSION [ ] WARRANT		

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
RICHARD L CROUCH	RECRA RESEARCH, INC.	(716) 838-6200

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
ANDRE J. LAPRES	—	RECRA	(716) 838-6200	8/1/83 MONTH DAY YEAR

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	558004

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

☐ A SOLID ☐ E SLURRY
☐ B POWDER, FINES ☐ F LIQUID
☐ C SLUDGE ☐ G GAS
☐ D OTHER _____ (Specify)

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS _____
NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

☐ A TOXIC ☐ E SOLUBLE ☐ I HIGHLY VOLATILE
☐ B CORROSIVE ☐ F INFECTIOUS ☐ J EXPLOSIVE
☐ C RADIOACTIVE ☐ G FLAMMABLE ☐ K REACTIVE
☐ D PERSISTENT ☐ H IGNITABLE ☐ L INCOMPATIBLE
☐ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	558004

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	8 558004

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include names(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids/Leaking drums) — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	558004

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

- ☐ A. BUILDINGS ON SITE

06 AREA OF SITE

_____ (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☐ NO

02 COMMENTS

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 80004

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as appropriate)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☐	B. ☐	A. ☐	B. ☐	C. ☐	A. _____ (mi)
NON-COMMUNITY	C. ☐	D. ☐	D. ☐	E. ☐	F. ☐	B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER _____ 03 DISTANCE TO NEAREST DRINKING WATER WELL _____ (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
_____ (ft)	_____	_____ (ft)	_____ (gpd)	☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☐ NO	COMMENTS	☐ YES ☐ NO	COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
_____	☐	_____ (mi)
_____	☐	_____ (mi)
_____	☐	_____ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE: A. _____ NO. OF PERSONS

TWO (2) MILES OF SITE: B. _____ NO. OF PERSONS

THREE (3) MILES OF SITE: C. _____ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION _____ (mi)

NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE _____

04 DISTANCE TO NEAREST OFF-SITE BUILDING _____ (mi)

POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 558004

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. 10^{-6} – 10^{-8} cm/sec ☐ B. 10^{-4} – 10^{-6} cm/sec ☐ C. 10^{-4} – 10^{-3} cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE (10^{-4} – 10^{-6} cm/sec) ☐ C. RELATIVELY PERMEABLE (10^{-2} – 10^{-4} cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
_____ (ft)	_____ (ft)	_____	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
_____ (in)	_____ (in)	_____ %		_____ %

09 FLOOD POTENTIAL	10
SITE IS IN _____ YEAR FLOODPLAIN	☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)		12 DISTANCE TO CRITICAL HABITAT (of endangered species)
ESTUARINE	OTHER	_____ (mi)
A. _____ (mi)	B. _____ (mi)	ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS	
		PRIME AG LAND	AG LAND
A. _____ (mi)	B. _____ (mi)	C. _____ (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	558004

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF _____
(Name of organization or individual)

03 MAPS
☐ YES
☐ NO

04 LOCATION OF MAPS _____

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	558004

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sampling analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART B - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	550004

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	14 CITY	15 STATE / 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER		

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	14 CITY	15 STATE / 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		
01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	14 CITY	15 STATE / 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		
01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	14 CITY	15 STATE / 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	558004

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 558004

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 558004

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	558004

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

4.0 Site History

The Fort Edward facility has been manufacturing small industrial capacitors since the early 1940's. In its manufacturing activities the facility has used large quantities of toxic chemicals including: trichloroethane, 1,1,1-trichloroethane, toluene, trichlorobenzene, bis (2-ethyl hexyl) phthalate, di-n-butyl phthalate, xylene, polychlorinated biphenyls (PCBs) and kerosene (Reference 7).

Background information indicates that site contamination occurred through poor hazardous material transfer, storage and maintenance practices rather than actual waste disposal. PCBs had been received by railroad tank cars. The PCBs were unloaded to the storage facility resulting in contamination of the unloading area when material leaked or spilled. PCBs were also lost through incidental leaks and spills during a filtration process, as well as during transfer following filtration to storage tanks (Reference 3).

The impregnation process of the capacitors involved flood filling of PCBs. This process resulted in extensive exterior contamination of the capacitors. Process water from the exterior washing operation were normally contract incinerated; however, leaks and spills which were not recovered were intercepted by trenches and drains discharging to the Hudson River (Reference 3).

Process waters from other miscellaneous operations were also discharged to the Hudson River (Reference 3). Trichloroethane (TCE) was used as a degreaser of the capacitor cans. A former employee reported that the waste TCE was put into drums and disposed of by punching holes in the drums and

allowing the contents to drain into the ground surface. TCE was also used to clean floors, and subsequently flowed into a floor drain (Reference 4).

Investigation of the sanitary septic tank/leach field combination by consultant to General Electric revealed significant oil and kerosene contamination. An apparent overflow connection between the sewer and the leach field cess pool was discovered. In addition, excavation in the west expansion to the aluminum rolling mill revealed kerosene accumulation on the surface of the water table. Overflows from the kerosene return trench were discharged to a non-operative oil/water separator which subsequently overflowed to the sanitary pump station (Reference 3).

Area residents became concerned when PCBs were identified as toxic substances. The State Health Department collected approximately thirty (30) samples during the mid to late 1970's. Although no PCB contamination was discovered at that time, subsequent sampling has revealed significant contamination by hazardous materials including: tetrachloroethane, trichloroethane, 1,1,1-trichloroethane, 1,1-dichloroethane, trans-1,2-dichloroethane and vinyl chloride (Reference 6). Residents using contaminated groundwater wells were advised to seek other sources of drinking, cooking and washing water.

Springs located approximately 2,000 feet south of the site were found to be contaminated with levels of trichloroethane, 1,1,1-trichloroethane and trans-1,2-dichloroethane (Reference 7).

A Summary Abatement Order and Hearing Notice was issued by the Commissioner of the Department of Environmental Conservation March 1983, due

to the imminent danger posed by the site to the health and welfare of persons using these contaminated wells (Reference 7). The abatement order was vacated in July 1983 after General Electric entered into a contract with the Village of Fort Edward to provide a permanent source of potable water to the affected residents.

The DEC Divison of Hazardous Waste Enforcement is currently in the process of developing a consent order with General Electric (Reference 9, 10).

5.0 Site Data

5.1 Site Area Surface Features

5.1.1 Topography and Drainage - Topography of the area is basically flat and gently slopes southward. The areas west and east of the facility are bounded by steep escarpments to the Hudson River and Old Champlain Canal, respectively. The site is located less than 1,000 feet east of the Hudson River.

Surface drainage generally flows southerly toward the Village of Fort Edward. There are no surface water features on or flowing through the site.

5.1.2 Environmental Setting - The General Electric site is located midway between the Village of Fort Edward, to the south, and Hudson Falls, to the north. The facility is located in a moderately populated area with private residences bordering the plant property on the southern, eastern and western borders. There are no critical habitats of endangered species, or wildlife refuges in the vicinity. Woodlands border the steep sides of the Hudson River escarpment west of the site. The Hudson River at Fort Edward is classified as a Class D waters (Reference 3).

5.2 Hydrogeology

5.2.1 Geology - The subsurface at the Fort Edward Plant site can be divided into two major geologic units.

A. Consolidated Deposits

The shallowest bedrock unit underlying the Fort Edward area is shale of the Snake Hill Formation which is approximately 600 feet thick. Beds in the shale unit are vitually horizontal in the area between Fort Edward and Glens Falls. The Snake Hill shales have a low permeability, and ground water in the formation is transmitted through fractures, joints, bedding and cleavage planes. Ordovician age limestones underlie the Snake Hill shale. Groundwater flow in the limestone is also controlled by fractures, joints and bedding planes, some of which have been enlarged by solution (Reference 5).

B. Unconsolidated Deposits

A sequence of unconsolidated materials was deposited on the eroded surface of the Snake Hill shales during glacial time. A veneer of till, one (1) to twelve (12) feet thick, lies directly on top of the bedrock under most of the plant site. The permeability of this layer is generally low. Varved clay with thin, interbedded silty and sandy lenses overlies the till under most of the Fort

Edward site. The clay is generally absent in the area where the bedrock is closest to the ground surface. The clay deposits thicken to the west and east (Reference 5).

The uppermost geologic unit at the Fort Edward site is an extensive layer of well-sorted sand extending from the top of clay to the ground surface. In the general vicinity of the plant, this layer ranges from 5 to 33 feet in thickness (Reference 5). Appendix C presents the figures used to describe the geology of the site.

5.2.2 Soils - The soil association for most of the Fort Edward site is Oakville loamy fine sand with zero (0) to five (5) percent slope. The Oakville series consists of deep, excessively drained, sandy soils. These soils were formed in water-sorted deposits from shale, slate, sandstone and sandy deposits, and are on deltas and terraces. These are poor agricultural soils due to lack of moisture and low natural fertility (Reference 12).

A small area of Claverack loamy fine sand with a zero (0) to two (2) percent slope is located in the southwest portion of the site. This soil is deep, moderately well drained and coarse-textured. The soil formed in twenty (20) to forty (40) inches of sandy material over lacustrine silt and clay (Reference 12).

5.2.3 Groundwater - Groundwater, in the site vicinity, is transmitted through an upper sand unit and bedrock. The general flow of groundwater has been determined to be in a south-southeast direction, with some flow from the northern section of the site flowing in a northwesterly direction (Reference 5, see Appendix C). Until recently, numerous residents, in the vicinity of the site, relied on groundwater as a sole source of potable water. These wells consist of both shallow well points, generally less than 25 feet in depth and bedrock well points, rangin from 65 to 300 feet in depth. However, since the drought years of the early 1960's the shallow wells are of limited use.

5.3 Previous Sampling and Analysis

5.3.1 Groundwater Quality Data - Groundwater in the vicinity of the General Electric Company Capacitor Plant is highly contaminated. Monitoring well data collected by three different consulting firms, as well as the New York State Departments of Health and Environmental Conservation indicate severe and extensive contamination. It has been determined that the groundwater beneath the site is contaminated with a number of hazardous wastes including: trichloroethane, 1,1,1-trichloroethane, toluene, 1,2,4-trichlorobenzene, bis (2-ethyl hexyl) phthalate, di-n-butyl phthalate, polychlorinated biphenyls, kerosene, 1,1-dichloroethene, 1,1-dichloroethane, trans-1,2-dichloroethene, chloroethane, vinyl chloride, chloroform, ben-

zene, chlorobenzene, ethyl benzene, methylene chloride, 1,1,2-trichloroethane, tetrachloroethene, phenyl ether, naphthalene, NC8 (n-octane), 1,2,4-trimethylbenzene, 1,2,3,4-tetramethylbenzene, 2-methylnaphthalene and 1-methylnaphthalene (Reference 7). Private wells have been closed as a result of contamination and residences on Park Avenue and Stevens Lane were connected to the municipal water supplies. The exact areal extent of contamination has not been determined at this time.

Samples of the groundwater quality data collected for the Fort Edward site are presented on the following pages.

5.3.2 Surface Water Quality Data - Some surface water quality testing has been done. Springs located south of the site have been found to be contaminated with levels of trichloroethane, 1,1,1-trichloroethane and trans 1,2-dichloroethane (Reference 7).

Data tables describing surface water quality are presented in the following section.

5.3.3 Air Quality Data - Air quality studies have been reviewed for the preliminary Fort Edward site assessment.

5.3.4 Other Analytical Data - Soil samples were taken by a consultant to General Electric in 1976. The highest content of PCB's at Fort Edward was 11,100 ppb in a soil sample at one foot depth in the southeastern section of the site. PCB's were found in the soils, shallow aquifer and deep aquifer at the site. PCB content in the soil was 10 times to more than 10,000 times the amount found in groundwater (Reference 13). Soil sample data is presented in the following section.

EXHIBIT A

POSITIVE RESULTS

DATE	RESIDENCE	ADDRESS	CONTAMINANT	CONCENTRATION (micrograms per liter)
January 12, 1983	Powhida	4 Stevens Lane	trichloroethene	24,000
	Abbenante	8 Stevens Lane	trichloroethene	8,000
			trans-1,2-dichloroethene	1,300
	Murray	25 Hillview Avenue	trichloroethene	6,200
			trans-1,2-dichloroethene	450
	Bowe	807 Ethan Allen Street	1,2-dichloroethane	6
	Bertok	71 Burgoyne Avenue	chlorobenzene	80
January 6, 1983	Arlington	14 Stevens Lane	trichloroethene	34,000
	Alden/Powers	13 Stevens Lane	trichloroethene	44,000
			trans-1,2-dichloroethene	400
			benzene	104
December 27, 1982	Arlington	14 Stevens Lane	trichloroethene	21,000
			trans-1,2-dichloroethene	100
	Alden/Powers	13 Stevens Lane	trichloroethene	45,000
			trans-1,2-dichloroethene	970
			1,1,1-trichloroethane	500
	Abbenante	8 Stevens Lane	trichloroethene	>50,000
			trans-1,2-dichloroethene	2,800
			1,1,1-trichloroethane	210
	Powhida	4 Stevens Lane	trichloroethene	14,000
December 9, 1982	Arlington	14 Stevens Lane	tetrachloroethene	2
			trichloroethene	11,000
			trans-1,2-dichloroethene	68
			1,1,1-trichloroethene	9
			1,2-dichloroethane	2
			carbon tetrachloride	2
	Hilton	24 Putnam Avenue	trichloroethene	2

(Continued)
FORT EDWARD SAMPLING
POSITIVE RESULTS

DATE	RESIDENCE	ADDRESS	CONTAMINANT	CONCENTRATION (micrograms per liter)
September 8, 1982	Vecchio	770 Park Avenue	trichloroethene	68
	Butto	746 Park Avenue	trans-1,2-dichloroethene	2
			vinyl chloride	2
			1,1-dichloroethane	2
	Lape	740 Park Avenue	trichloroethene	42
			trans-1,2-dichloroethene	370
			vinyl chloride	260
			1,1,1-trichloroethane	4
			1,1-dichloroethane	60
			1,2-dichlorobenzene	3
	Potter	66 Lower Allen Street	trans-1,2-dichloroethene	1
August 18, 1882	Terrio	754 Park Avenue	tetrachloroethene	2
			trichloroethene	47
			trans-1,2-dichloroethene	1
			1,1,1-trichloroethane	65

Table 4. Volatile Organic Analysis of Water from Monitoring Wells (all results in ug/L).

Well No.	GM-1	GM-2*	GM-2*	GM-2*	GM-2*	GM-3	GM-4	GM-5
Sample Date	7-15-82	7-12-82	7-12-82	7-12-82	7-12-82	7-16-82	7-15-82	9-13-82
Analyzed By	ERCO	ERCO	ERCO	ERCO	ERCO	ERCO	ERCO	ERCO
Volatile Organic Compounds								
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethylene	ND	ND	ND	ND	ND	ND	ND	Tr
1,1-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-dichloroethylene	ND	ND	ND	ND	ND	ND	ND	13
Chloroethane								
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND
Total VOA	ND	ND	ND	ND	ND	ND	ND	13

ND = Not detected
Tr = 1-9 ppb
* = Replicate samples collected at the same time for quality control purposes
Trace = <2 ppb

Table 4. (Continued)

Well No. / Sample Date / Analyzed By	GM-7 9-13-82 GCA	GM-8 9-13-82 GCA	GM-9 9-13-82 GCA	GM-10 9-13-82 GCA	GM-12A 7-15-82 ERCO	Field Blank Near GM-12A 7-15-82 ERCO	GM-12A 9- 9-82 GCA	Field Blank Near GM-12A 9-13-82 GCA
Volatile Organic Compounds								
Trichloroethylene	ND	41	Trace	ND	2,500	ND	950	ND
1,1,1-trichloroethane	ND	2,000	ND	9.0	60	ND	46	Trace
1,1-dichloroethylene	ND	26	ND	ND	ND	ND	4.6	ND
1,1-dichloroethane	ND	900	ND	6.7	ND	ND	72	ND
Trans-1,2-dichloroethylene	ND	2,900	ND	ND	4,000	ND	>1,700	ND
Chloroethane	ND	3.8	ND	3.0	ND	ND	ND	ND
Vinyl chloride	ND	23	ND	ND	ND	ND	Trace	ND
Chloroform	ND	ND	ND	ND	ND	ND	2.7	ND
Benzene	ND	Trace	ND	ND	ND	ND	ND	ND
Toluene	ND	5.1	ND	Trace	ND	ND	ND	ND
Chlorobenzene	ND	7.2	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	3.8	ND	ND	ND	ND
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	Trace
Bromomethane	ND	4.7	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	ND	1.6	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	Trace	ND	ND	ND	ND	Trace	ND
Trichlorofluoromethane	ND	Trace	ND	ND	ND	ND	ND	ND
Total VOA	ND	5,918.4	Trace	22.5	6,560	ND	>4,000	Trace

ND = Not detected
Trace = <2 ppb

Table 4. (Continued)

Well No.	GM-12B*	GM-12B*	GM-12B*	GM-12B*	GM-12C	GM-12D	GM-15	GM-16
Sample Date	9-30-82	9-30-82	9-30-82	9-30-82	9-30-82	9-30-82	9-15-82	10-1-82
Analyzed By	ERCO	ERCO	MSC	Mead	ERCO	ERCO	GCA	ERCO
Volatile Organic Compounds								
Trichloroethylene	4,300	5,100	1,300	5,300	2,600	ND	Trace	ND
1,1,1-trichloroethane	1,300	1,100	735	730	52	ND	ND	ND
1,1-dichloroethylene	53	56	65	56	ND	ND	ND	ND
1,1-dichloroethane	100	100	ND	88	50	ND	ND	ND
Trans-1,2-dichloroethylene	800	780	510	890	3,400	ND	Trace	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	35	67	ND	ND	ND	ND
Chloroform	15	13	7	10	Tr	Tr	ND	ND
Benzene	Tr	Tr	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	Tr	Tr	Tr	ND	31	31	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	35	320	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	Tr	Tr	ND	ND	Tr	Tr	ND	ND
Trichloroflouromethane	ND	ND	ND	ND	ND	ND	ND	ND
Total VOA	6,568	7,149	2,687	7,461	6,133	6,133	Trace	ND

ND = Not detected
Tr = 1-9 ppb
Trace = <2 ppb
* = Replicate samples collected at the same time for quality control

Table 4. (Continued)

Well No.		GM-17	Field Blank Near GM-17	GM-18	GM-19	GM-21	Field Blank Near GM-21
Sample Date		9-30-82	9-30-82	9-30-82	10-1-82	10-1-82	10-1-82
Analyzed By		ERCO	ERCO	ERCO	ERCO	ERCO	ERCO
Volatile Organic Compounds							
Trichloroethylene		10	Tr	ND	ND	3,000	ND
1,1,1-trichloroethane		ND	ND	ND	ND	95	ND
1,1-dichloroethylene		ND	ND	ND	ND	ND	ND
1,1-dichloroethane		ND	ND	ND	ND	21	ND
Trans-1,2-dichloroethylene		Tr	ND	ND	ND	1,200	ND
Chloroethane		ND	ND	ND	ND	ND	ND
Vinyl chloride		ND	ND	ND	ND	ND	ND
Chloroform		ND	26	ND	ND	Tr	ND
Benzene		ND	ND	ND	ND	ND	ND
Toluene		Tr	ND	ND	ND	ND	ND
Chlorobenzene		ND	ND	ND	ND	70	ND
Ethyl benzene		ND	ND	ND	ND	ND	ND
Methylene chloride		ND	ND	ND	ND	ND	ND
Bromomethane		ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane		ND	ND	ND	ND	ND	ND
Tetrachloroethylene		Tr	ND	ND	ND	Tr	ND
Trichlorofluoromethane		ND	ND	ND	ND	ND	ND
Total VOA		10	26	ND	ND	4,386	ND

ND = Not detected
Tr = 1-9 ppb

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LAB ACCESSION NO: 3C021 YR/MO/DAY/HR SAMPLE REC'D: 83/01/06/15

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 650 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: WILLIAMS FARM STEVENS LA TOWN OF FT EDWARD

EXACT SAMPLING POINT: SAMPLE #1D6830A HILLVIEW SPRING
TYPE OF SAMPLE: 21 SURFACE WATER
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/06/12
REPORT SENT TO: CO (1) RO (1) LPHE (2) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
323809	DICHLOROMETHANE	MCG/L	1.	LT
339009	CHLOROFORM	MCG/L	1.	LT
341009	VINYL CHLORIDE	MCG/L	1.	LT
350909	1,1-DICHLOROETHENE	MCG/L	1.	LT
351909	1,1-DICHLOROETHANE	MCG/L	1.	LT
361259	TRANS 1,2-DICHLOROETHENE	MCG/L	32.	
361709	TRICHLOROFLUOROMETHANE	MCG/L	1.	LT
361809	BROMOMETHANE	MCG/L	1.	LT
361909	CHLOROETHANE	MCG/L	1.	LT
362009	CHLOROMETHANE	MCG/L	1.	LT
370209	DICHLORODIFLUOROMETHANE	MCG/L	1.	LT
323609	1,1,1-TRICHLOROETHANE	MCG/L	5.	
336609	CARBON TETRACHLORIDE	MCG/L	1.	LT

DATE PRINTED: 1/30/83

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NYS DEPT. OF ENV. CONS.
P.O. BOX 220
WARRENSBURG, NY 12885

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RESULTS OF EXAMINATION
(PAGE 2 OF 3)

LAB ACCESSION NO: 30021 YR/MO/DAY/HR SAMPLE REC'D: 83/01/06/15

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 650 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: WILLIAMS FARM STEVENS LA TOWN OF FT EDWARD

EXACT SAMPLING POINT: SAMPLE #106830A *HILLVIEW SPRING*
TYPE OF SAMPLE: 21 SURFACE WATER
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/06/12
REPORT SENT TO: CO (1) RC (1) LFHE (2) LHO (0) FED (0) CHEM (1)

	PARAMETER	UNIT	RESULT	NOTATION
338909	BROMODICHLOROMETHANE	MCG/L	3.	
340909	CHLOROBENZENE	MCG/L	1.	LT
341209	TETRACHLOROETHENE	MCG/L	1.	LT
342109	BROMOFORM	MCG/L	1.	LT
344109	1,2-DICHLOROBENZENE	MCG/L	1.	LT
344209	1,4-DICHLOROBENZENE	MCG/L	1.	LT
344909	DIBROMOCHLOROMETHANE	MCG/L	1.	LT
349709	1,3-DICHLOROBENZENE	MCG/L	1.	LT
350809	1,2-DICHLOROETHANE	MCG/L	1.	LT
351709	1,1,2-TRICHLOROETHANE	MCG/L	1.	LT
351809	1,1,2,2-TETRACHLOROETHANE	MCG/L	1.	LT
361109	2-CHLOROETHYLVINYL ETHER	MCG/L	1.	LT
361309	1,2-DICHLOROPROPANE	MCG/L	1.	LT

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LAB ACCESSION NO: 30021 YR/MO/DAY/HR SAMPLE REC'D: 83/01/06/15

REPORTING LAB: 17 EHC ALBANY
PROGRAM: .650 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: WILLIAMS FARM STEVENS LA TOWN OF FT EDWARD

EXACT SAMPLING POINT: SAMPLE #106830A HILLVIEW SPRING
TYPE OF SAMPLE: 21 SURFACE WATER
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/06/12
REPORT SENT TO: CO (1) RO (1) LFHE (2) LHO (0) FED (0) CHEM (1)

	PARAMETER	UNIT	RESULT	NOTATION
361409	CIS 1,3-DICHLOROPROPENE	MCG/L	1.	LT
361509	TRANS 1,3-DICHLOROPROPENE	MCG/L	1.	LT
361609	TRICHLOROETHENE	MCG/L	840.	

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LAB ACCESSION NO: 3C246 YR/MO/DAY/HR SAMPLE RECD: 83/01/27/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 650 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBM'SHED: GRIFFIN SPRING FORT EDWARD

EXACT SAMPLING POINT: SPRING AT GRIFFIN AV #0126230 3
TYPE OF SAMPLE: 21 SURFACE WATER
MO/DAY/HR OF SAMPLING: FROM 01/26/ TO 01/26/12
REPORT SENT TO: CO (1) RO (1) LPHE (2) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
32389	DICHLOROMETHANE	MCG/L	1.	LT
39089	CHLOROFORM	MCG/L	1.	LT
41089	VINYL CHLORIDE	MCG/L	1.	LT
35089	1,1-DICHLOROETHENE	MCG/L	1.	LT
35189	1,1-DICHLOROETHANE	MCG/L	1.	LT
61289	TRANS 1,2-DICHLOROETHENE	MCG/L	10.	
61789	TRICHLOROFLUOROMETHANE	MCG/L	1.	LT
31889	BROMOMETHANE	MCG/L	1.	LT
61989	CHLOROETHANE	MCG/L	1.	LT
62089	CHLOROMETHANE	MCG/L	1.	LT
70289	DICHLORODIFLUOROMETHANE	MCG/L	1.	LT
71089	1,1,1-TRICHLOROETHANE	MCG/L	10.	
33660	CARBON TETRACHLORIDE	MCG/L	1.	LT

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LAB ACCESSION NO: 30240 YR/MO/DAY/HR SAMPLE REC'D: 83/01/27/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 652 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' " , DEG ' "
COMMON NAME INCL SUBWATERSHED: GRIFFIN SPRING FORT EDWARD

EXACT SAMPLING POINT: SPRING AT GRIFFIN AV #01268303
TYPE OF SAMPLE: 21 SURFACE WATER
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/26/12
REPORT SENT TO: CO (1) RC (1) LPHE (2) LHO (0) FED (0) CHEM (1)

	PARAMETER	UNIT	RESULT	NOTATION
338909	BROMODICHLOROMETHANE	MCG/L	1.	LT
345909	CHLOROBENZENE	MCG/L	1.	LT
341209	TETRACHLOROETHENE	MCG/L	1.	
342109	BROMOFORM	MCG/L	10.	LT
344109	1,2-DICHLOROBENZENE	MCG/L	1.	LT
344209	1,4-DICHLOROBENZENE	MCG/L	1.	LT
344909	DIBROMOCHLOROMETHANE	MCG/L	10.	LT
349709	1,3-DICHLOROBENZENE	MCG/L	1.	LT
350809	1,2-DICHLOROETHANE	MCG/L	1.	LT
351709	1,1,2-TRICHLOROETHANE	MCG/L	10.	LT
351809	1,1,2,2-TETRACHLOROETHANE	MCG/L	10.	LT
361109	2-CHLOROETHYLVINYL ETHER	MCG/L	10.	LT
361309	1,2-DICHLOROPROPANE	MCG/L	1.	LT

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LAB ACCESSION NO: 3L241 YR/MO/DAY/HR SAMPLE REC'D: 83/01/27/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 652 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' " , DEG ' " W
COMMON NAME INCL SUBW'SHED: GENRBT FT EDWARD

EXACT SAMPLING POINT: GLENS FALLS NATIONAL BANK WELL #0126804
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 01/20 TO 01/26/14
REPORT SENT TO: CO (1) FO (1) LFHE (2) LHO (0) FED (0) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
323809	DICHLOROMETHANE	MCG/L	1.	LT
339009	CHLOROFORM	MCG/L	10.	
341009	VINYL CHLORIDE	MCG/L	1.	LT
350909	1,1-DICHLOROETHENE	MCG/L	1.	LT
351909	1,1-DICHLOROETHANE	MCG/L	1.	LT
361209	TRANS 1,2-DICHLOROETHENE	MCG/L	32.	
361709	TRICHLOROFLUOROMETHANE	MCG/L	1.	LT
361809	BROMOMETHANE	MCG/L	1.	LT
361909	CHLOROETHANE	MCG/L	1.	LT
362009	CHLOROMETHANE	MCG/L	1.	LT
370209	DICHLORODIFLUOROMETHANE	MCG/L	1.	LT
323609	1,1,1-TRICHLOROETHANE	MCG/L	27.	
336609	CARBON TETRACHLORIDE	MCG/L	3.	

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LAB ACCESSION NO: 30241 YR/MO/DAY/HR SAMPLE RECD: 83/01/27/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 65 SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' " DEG ' "
COMMON NAME INCL SUPPLIED: GENPST FT EDWARD

EXACT SAMPLING POINT: GLENS FALLS NATIONAL BANK WELL #J1268?4
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/26/14
REPORT SENT TO: CO (1) PC (1) LFHE (2) LHO (C) FED (C) CHEM (1)

PARAMETER		UNIT	RESULT	NOTATION
338909	BROMODICHLOROETHANE	MCG/L	1.	LT
340909	CHLOROBENZENE	MCG/L	20.	LT
341209	TETRACHLOROETHENE	MCG/L	20.	LT
342109	BROMOFORM	MCG/L	20.	LT
344109	1,2-DICHLOROBENZENE	MCG/L	20.	LT
344209	1,4-DICHLOROBENZENE	MCG/L	20.	LT
344909	DIBROMOCHLOROETHANE	MCG/L	20.	LT
349709	1,3-DICHLOROBENZENE	MCG/L	20.	LT
350809	1,2-DICHLOROETHANE	MCG/L	1.	LT
351709	1,1,2-TRICHLOROETHANE	MCG/L	20.	LT
351809	1,1,2,2-TETRACHLOROETHANE	MCG/L	20.	LT
361109	2-CHLOROETHYLVINYL ETHER	MCG/L	20.	LT
361309	1,2-DICHLOROPROPANE	MCG/L	1.	LT

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LAB ACCESSION NO: 30241 YR/MO/DAY/HR SAMPLE RECD: 83/01/27/09

REPORTING LAB: 17 EHC ALBANY
PROGRAM: 65C SOLID WASTES
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 5755 COUNTY: WASHINGTON
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUPPLIED: GENERT FT EDWARD

EXACT SAMPLING POINT: GLENS FALLS NATIONAL BANK WELL #C126P74
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 01/26/14
REPORT SENT TO: CO (1) RO (1) LPHE (2) LHO (3) FED (0) CHEM (1)

	PARAMETER	UNIT	RESULT	NOTATION
34699	CIS 1,3-DICHLOROPROPENE	MCG/L	20.	LT
34561	TRANS 1,3-DICHLOROPROPENE	MCG/L	1.	LT
34488	TRICHLOROETHENE	MCG/L	400.	

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TABLE 1

LABORATORY TESTS FOR PCB CONTENT OF SOIL AND GROUND WATER AT FORT EDWARD AND HUDSON FALLS

Sample Designation	Arochlor 1016 By Total Area (1)	Arochlor 1016 By Peak Height (2)	Arochlor 1254 (3)	Depths of Samples (ft.)
	Concentration parts per billion (ppb) Wt/Wt			
Fort Edward				
W 203 (soil) S*	1000.0		310.0	1
W 203 S	82.0		45.0	4
W 203 (water) W*	100.0		46.0	9
W 204 S	43.0		39.0	2
W 204 W	4.6	0.3	0.2	8
W 206 S *	23.0		35.0	1
W 206 W	2.5	1.4	2.2	6
W 207 W	4.4	3.5	6.8	16
W 210 S *	130.0		130.0	1
W 210 W	5.2	0.4	3.0	7
W 212 S	4000.0		7100.0	1
W 212 W	0.9	0.2	0.2	8
W 214 S	5.9		3.1	1
W 214 W	11.0	2.0	2.9	6
W 215 S	15.0		1.2	1
W 215 W	0.8	NDO.1	0.1	6
W 216 S *	170.0		130.0	1
W 216 W	5.0	NDO.1	NDO.1	5
Deep Well (10")	26.0	11.0	1.7	
Deep Well (16")	8.7	2.8	0.6	
Hudson Falls				
W 221 S *	29.0		26.0	
W 221 W	3.4	0.3	0.3	
W 222 S *	10.0		17.0	
W 222 S *	24.0		19.0	
W 223 W	6.5	NDO.1	0.5	
W 224 S *	140.0		39.0	
W 224 W	0.6	NDO.1	NDO.1	
H 1 W	51.0		29.0	
H 2 W	1160.0		470.0	
H 3 W	13.0	0.7	3.8	

ND - None detected, less than

* - Fingerprint resembles Arochlor 1248 more than 1016

(1) - This value was obtained by integrating the area of all the peaks in Arochlor 1016 region.

(2) - This value was obtained by using the peak height of the major constituents in Arochlor 1016 for the calculation. If this constituent was absent in the chromatogram, it was assumed that Arochlor 1016 was not present.

(3) - This value was obtained by integrating the area of the peaks in the Arochlor 1254 region.

6.0 Adequacy of Available Data

In compiling the Hazardous Ranking Score, the General Electric Fort Edward site was found to have a migration potential score (S_m) equal to 36.0. However, due to data inadequancies which involve a certain degree of subjectivity, a range for S_m was developed and found to be 30 to 50.

- Information pertaining to potential volume of waste material spilled/disposed at the site.
- Results of most recent groundwater testing program.
- Further groundwater testing to determine extent of range of contaminated plume.

APPENDIX A

REFERENCES

1.) Site visit to Fort Edward area; August 10, 1983.

2.) U.S. Geological Survey topographic map, Hudson Falls, New York quadrangle; 1966.

3.) Clark, Dietz and Associates, Wastewater Monitoring Program and Evaluation of Control Measures for Polychlorinated Biphyenl Discharges to the Hudson River; June 1975.

4.) Terrio, Paul. Sworn Affidavit to the NYS Department of Environmental Conservation in the matter of the Summary Abatement Order; March 1983.

5.) Geraghty and Miller, Inc. Hydrogeology of the General Electric Company Capacitor Plant; January 1983.

6.) New York State Department of Health. An Assessment of Drinking Water Quality in the Area of the General Electric Fort Edward Inactive Hazardous Waste Site; November 1982.

7.) New York State Department of Environmental Conservation Summary Abatement Order and Notice of Hearing issued to General Electric Company; March 1983.

8.) New York State Department of Environmental Conservation Decision in the Matter of the Summary Abatement Order issued to General Electric Company; July 7, 1983.

9.) Personal communication with Vance Bryant, DEC Office of Hazardous Waste Enforcement; August 29, 1983.

10.) Personal communicatin with Mark Millspaugh, DEC Office of Hazardous Waste Enforcement; September 1, 1983.

11.) New York State Code of Rules and Regulations. Upper Hudson River

Drainage Basin; 1966.

12.) USDA Soil Conservation Service Soil Survey of Washington County, New York; 1971.

13.) Dames and Moore. Investigation of Geohydrologic Conditions Related to Possible Groundwater Contamination by Polychlorinated Biphenyls (PCB's) at the Fort Edward and Hudson Falls Plants of General Electric Company; November 1976.

14.) Mitre Inc., Hazard Ranking System Users Manual; June 10, 1982.

15.) Transcript of Proceedings, Vol. 10, page 10-9; April 15, 1983.

APPENDIX B

HAZARDOUS WASTE DISPOSAL SITE REPORT
REVISED

Code: B

Site Code: 558004

Name of Site: General Electric Capacitor Products Division

Region: 5

County: Washington

Town/City: Fort Edward (T)

Street Address: Route 4, Fort Edward, New York 12828

Status of Site:

- Inactive site of spillage and drainage of toxic materials. Analytical testing of private water supplies has confirmed contamination of groundwater.
- Urban/Industrial moderately populated area.
- Nearest dwelling approximately 100 feet from plant property.
- Nearest Water Body: Hudson River approximately 1,000 feet west of plant property.
- Nearest Water Supply: Groundwater is used throughout the site area.
- High groundwater table within 30 feet of ground surface
- Soil Type: Oakville loamy fine sand.
- Estimated Size: 10 acres.

Type of Site: Structure (Plant Building)

Hazardous Waste Disposed: Spillage has been confirmed

Type and Quantity of Hazardous Wastes: Unknown quantities of trichloroethane, 1,1,1-trichloroethane, toluene, trichlorobenzene, bis (2-ethyl hexyl) phtha-

late, di-n-butyl phthalate, xylene, PCB's and kerosene

Present Owner: General Electric Company

Time Period Site was used: 1940's to 1970's

Types of Samples: Groundwater, Soil

Remedial Action: Municipal water supply has been extended to affect residences

Status of Legal Action: Pending

Permits Issued: SPDES

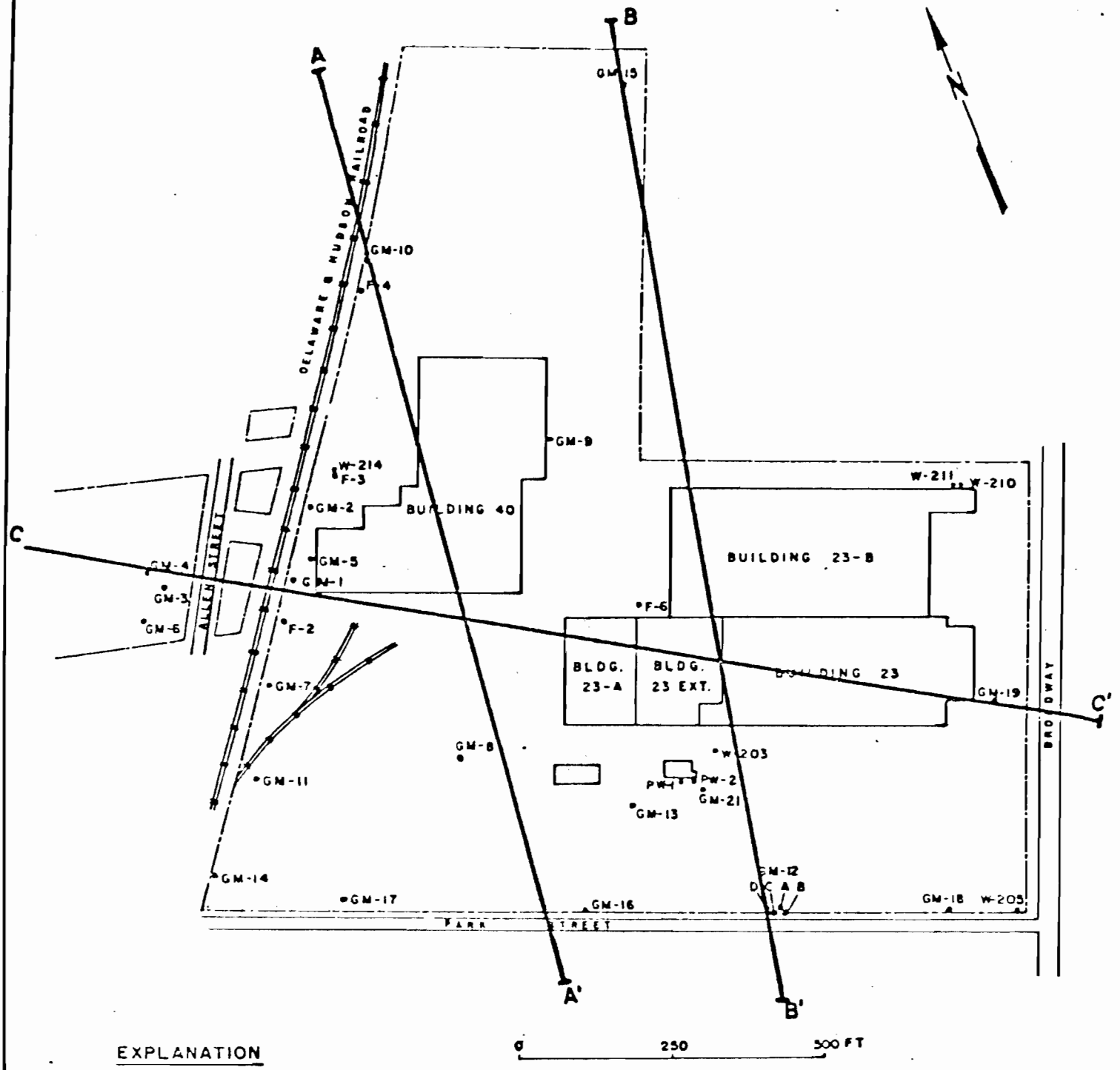
Assessment of Environmental Problems: Contamination of groundwater and soils as well as the Hudson River

Assessment of Health Problems: Unknown

Person completing this form: Andre J. LaPres, Recra Research, Inc.

Date: September 6, 1983

APPENDIX C



EXPLANATION

- GM-1 — MONITORING WELL INSTALLED IN THIS STUDY
- W-203 — MONITORING WELL INSTALLED DAMES & MOORE, INC.
- F-6 — MONITORING WELL INSTALLED PRIOR TO THIS STUDY
- PW-1 — DEEP PRODUCTION WELL
- C C' — LINE OF HYDROGEOLOGIC CROSS SECTION

SUBJECT

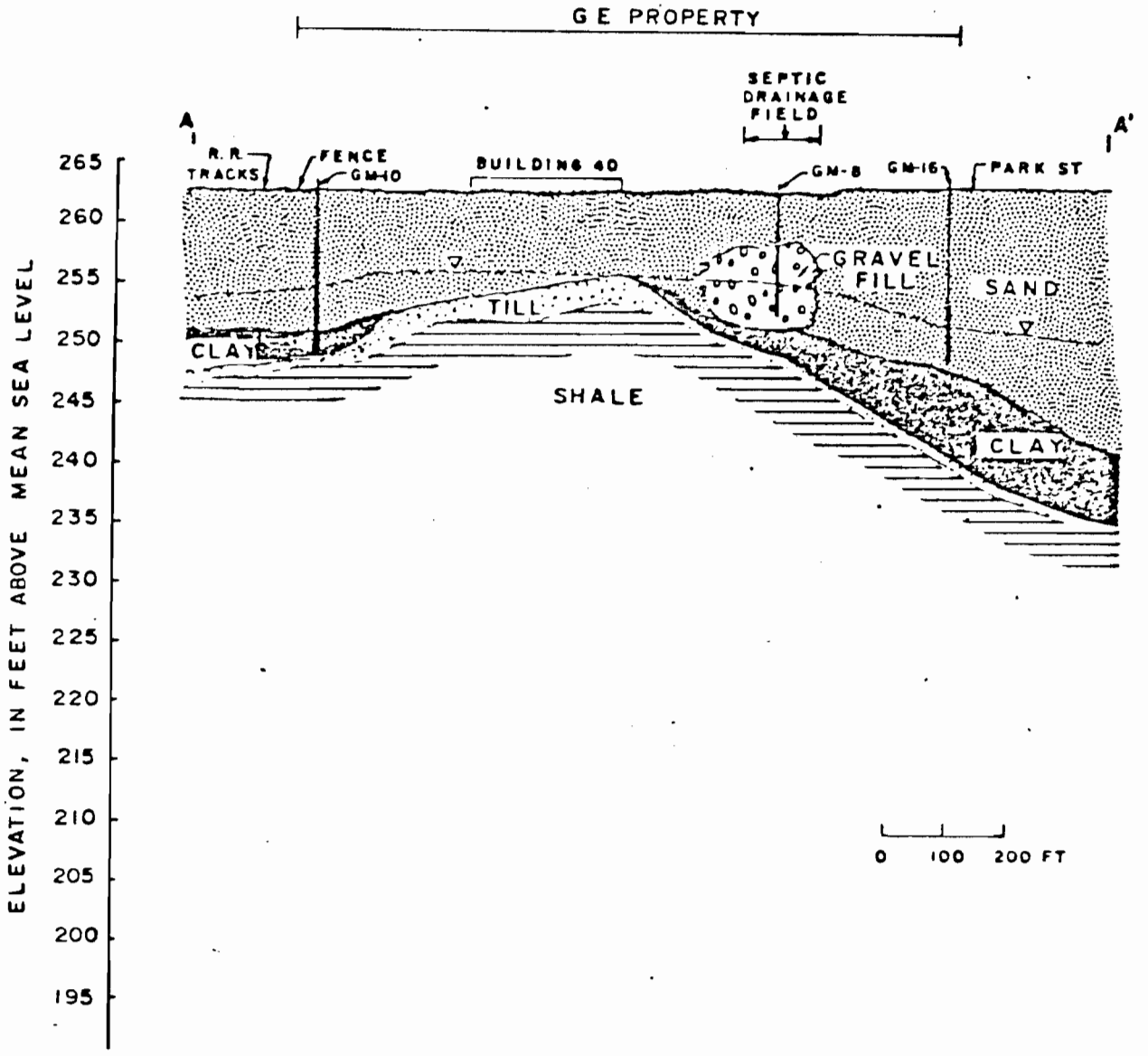
LOCATION OF MONITORING WELLS AND CROSS-SECTIONS

PREPARED FOR

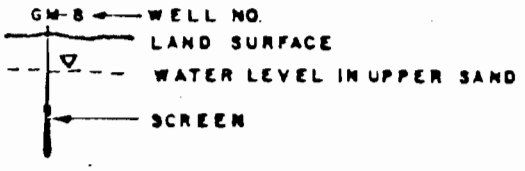
GENERAL ELECTRIC COMPANY

CAPACITOR PLANT - FORT EDWARD, NEW YORK

Geraghty & Miller, Inc.	COMPILED BY DANIEL NACHMAN	SCALE AS SHOWN	FIGURE 1
	PREPARED BY ELEANOR WILSON	DATE NOV. 1982	
	PROJECT MGR ELLIS KOCH		



EXPLANATION



NOTE

LINE OF SECTION SHOWN ON FIGURE 1

SELECTED GEOLOGIC DATA SUPPLIED BY DAMES & MOORE, 1976

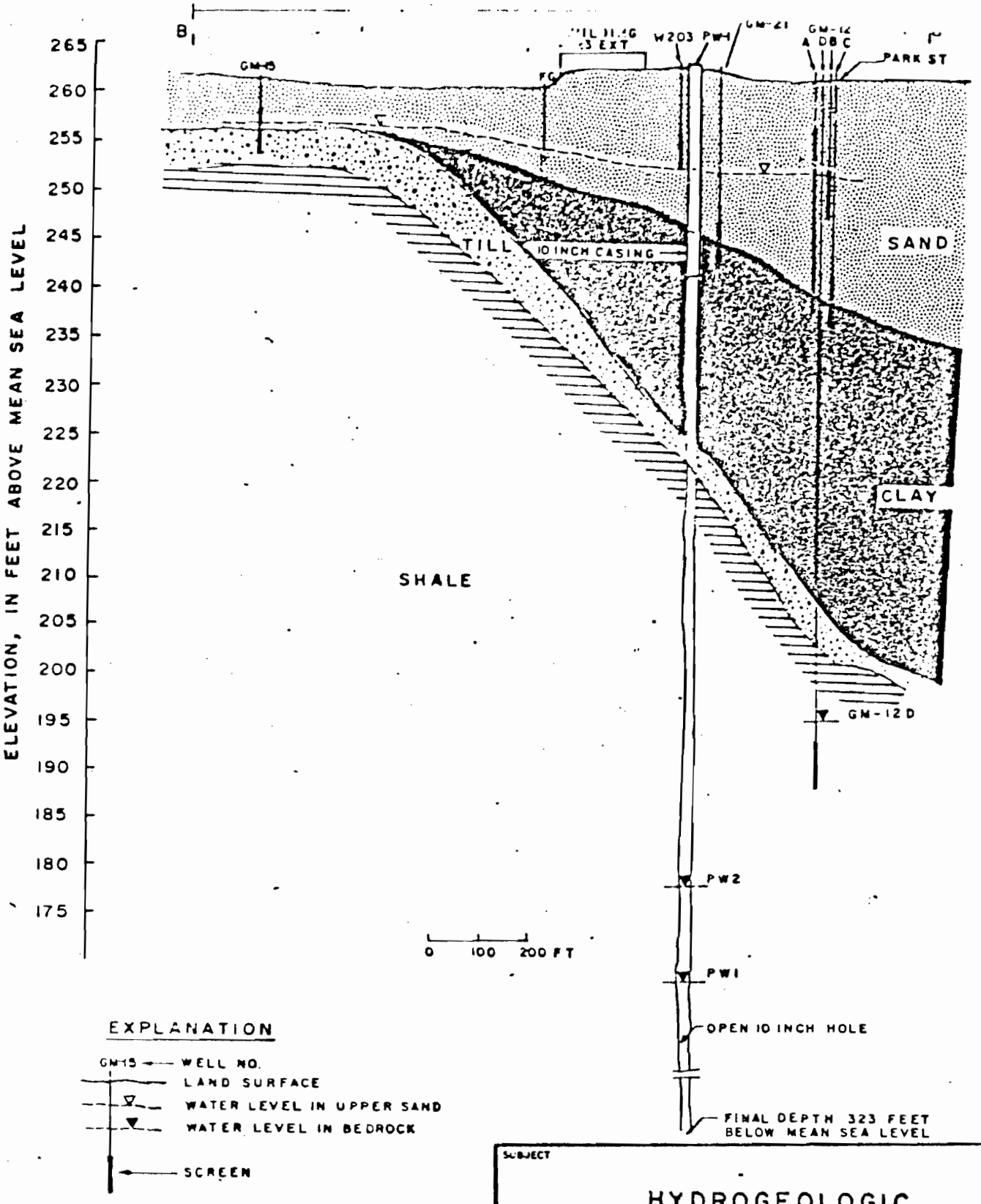
SUBJECT

HYDROGEOLOGIC CROSS SECTION ALONG LINE A-A'

PREPARED FOR

GENERAL ELECTRIC COMPANY
CAPACITOR PLANT - FORT EDWARD, NEW YORK

Geraghty & Miller, Inc.	COMPILED BY DANIEL NACHMAN	SCALE AS SHOWN	FIGURE 2
	PREPARED BY ELEANOR WILSON	DATE NOV. 1982	
	PROJECT MGR ELLIS KOCH		



EXPLANATION

GM-15 — WELL NO.

LAND SURFACE

WATER LEVEL IN UPPER SAND

WATER LEVEL IN BEDROCK

SCREEN

NOTE

WELL F6 INSTALLED IN PREVIOUS STUDY, LOCATED AND SURVEYED

WELL W203 INSTALLED IN PREVIOUS STUDY, NOT SURVEYED

LINE OF SECTION SHOWN ON FIGURE 1

SELECTED GEOLOGIC DATA SUPPLIED BY DAMES & MOORE, 1976

SUBJECT

HYDROGEOLOGIC CROSS SECTION ALONG LINE B-B'

PREPARED FOR

GENERAL ELECTRIC COMPANY

CAPACITOR PLANT - FORT EDWARD, NEW YORK

Geraghty & Miller, Inc.

COMPILED BY DANIEL NACHMAN

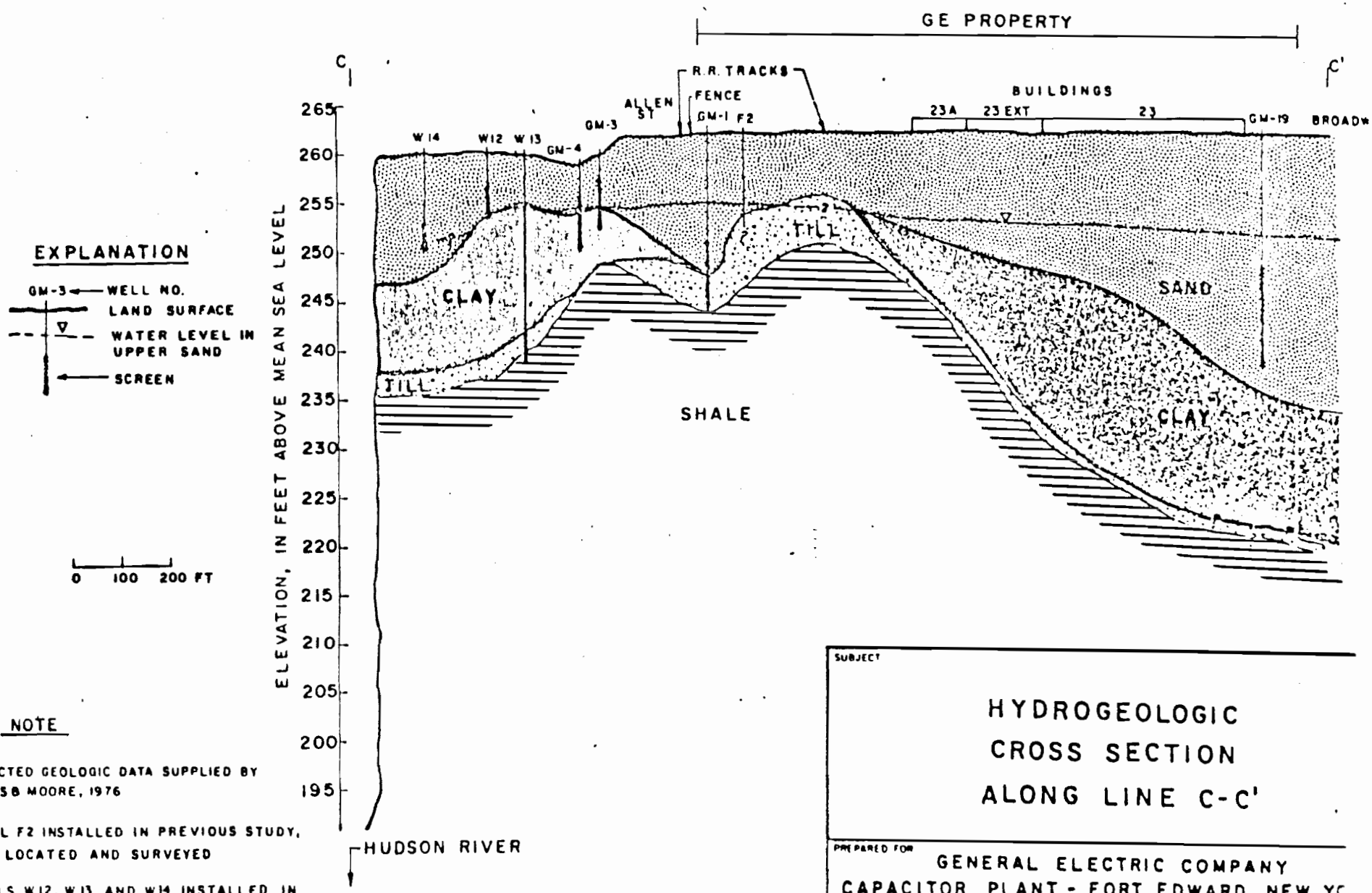
PREPARED BY ELEANOR WILSON

PROJECT MGR ELLIS KOCH

SCALE SHOWN

DATE NOV. 1982

FIGURE 3



NOTE

SELECTED GEOLOGIC DATA SUPPLIED BY DAMES & MOORE, 1976

WELL F2 INSTALLED IN PREVIOUS STUDY, LOCATED AND SURVEYED

WELLS W12, W13, AND W14 INSTALLED IN PREVIOUS STUDY, NOT SURVEYED

LINE OF SECTION SHOWN ON FIGURE 1

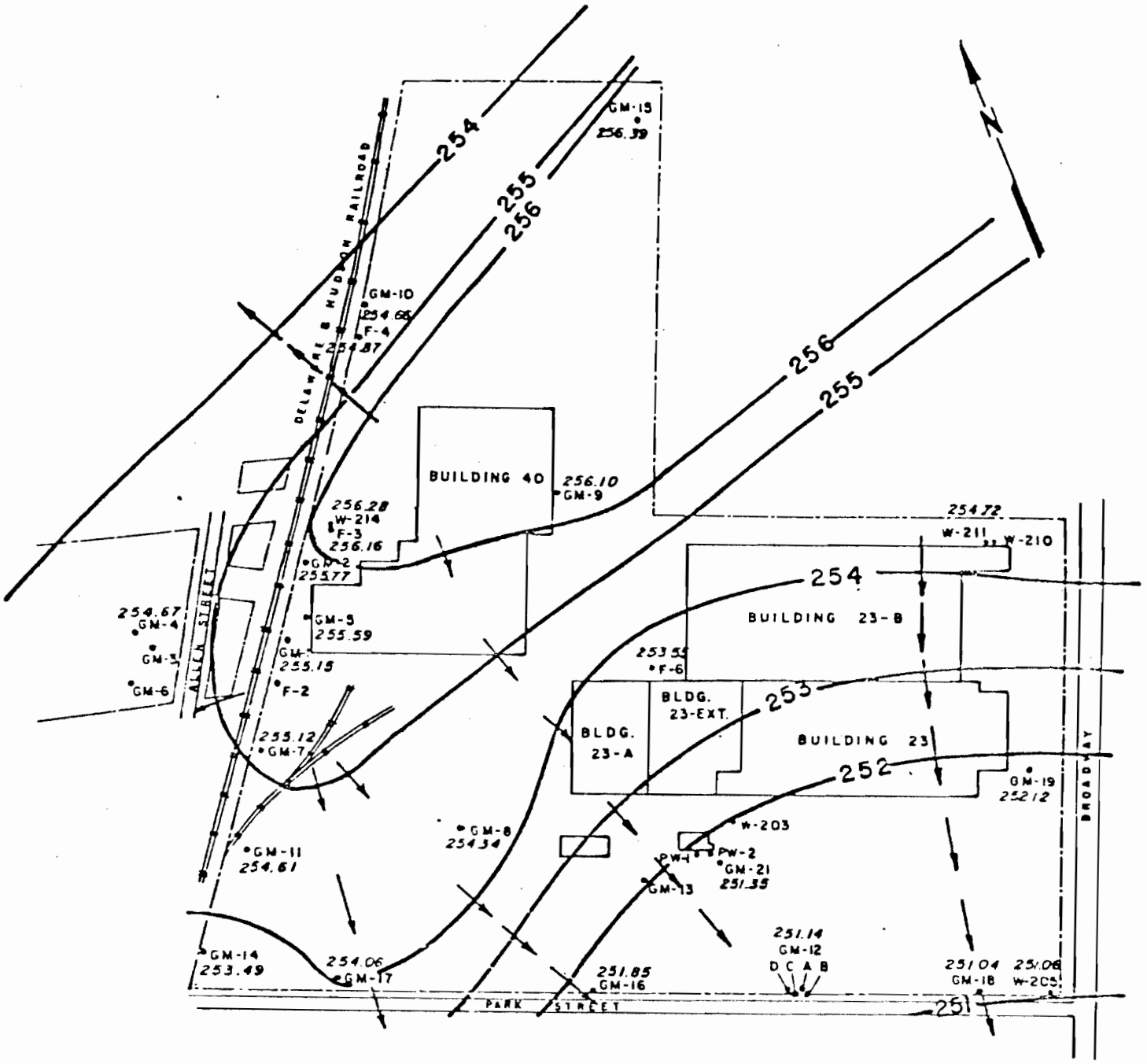
SUBJECT

HYDROGEOLOGIC CROSS SECTION ALONG LINE C-C'

PREPARED FOR

GENERAL ELECTRIC COMPANY
CAPACITOR PLANT - FORT EDWARD, NEW YC

Geraghty & Miller, Inc.	COMPILED BY DANIEL NACHMAN	SCALE	SHOWN
	PREPARED BY ELEANOR WILSON	DATE	NOV. 1982
	PROJECT MGR ELLIS KOCH		



EXPLANATION

251.04 WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL

—251— LINE OF EQUAL WATER-TABLE ELEVATION, IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE INFERRED)

GROUNDWATER FLOW LINE

0 250 500 FT.

SUBJECT

CONFIGURATION OF THE WATER TABLE IN THE UPPER SAND AQUIFER OCTOBER 4-5, 1982

PREPARED FOR

GENERAL ELECTRIC COMPANY
CAPACITOR PLANT - FORT EDWARD, NEW YORK

Geraghty & Miller, Inc.	COMPILED BY DANIEL NACHMAN PREPARED BY ELEANOR WILSON PROJECT MGR ELLIS ROCH	SCALE SHOWN DATE NOV 1982	FIGURE 6