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REMEDIAL INVESTIGATION DATA REPORT

VOLUME 1: TEXT

WESTINGHOUSE ELECTRIC CORPORATION SITE

WORK ASSIGNMENT NO. D002520-23

TOWN OF CHEEKTOWAGA, ERIE COUNTY

NEW YORK STATE

3/94

Prepared for:
Division of Hazardous Waste Remediation
New York State
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Prepared by:
Dunn Engineering Company
Albany, New York

INTERIM FINAL
PHASE I REMEDIAL INVESTIGATION DATA REPORT

VOLUME I: REMEDIAL INVESTIGATION DATA REPORT
WESTINGHOUSE ELECTRIC CORPORATION SITE
SITE NO. 915066
WORK ASSIGNMENT NO. D002520-23

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DATA REPORT
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1.0 INTRODUCTION

1.1 General

This Remedial Investigation (RI) Data Report for the Westinghouse Electric Corporation Site (New York State Site No. 9-15-066) has been prepared by Dunn Engineering Company (DUNN) under the State Superfund Standby Contract (Work Assignment No. D002520-23) with the New York State Department of Environmental Conservation (NYSDEC). This report has been prepared to summarize the recently completed RI programs as specified in the Work Plan. The report describes the project site, the investigative activities completed and the findings and conclusions resulting from the RI program.

1.2 Purpose and Scope of Remedial Investigation

In May of 1993, DUNN was assigned by the NYSDEC under the State Superfund Standby Program Contract to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Westinghouse Electric Corporation Site. The purpose of the RI is to characterize and identify the nature, extent, and migration of contaminants in various environmental media across the site.

In order to accomplish the purpose stated above, the project was divided into five tasks which included specific activities associated with each task. The scope is presented below in an outline format, including a brief description of project activities associated with each task.

Task 1 - Scoping and Budgeting

Scoping Plan
Scoping Session
Update Site Map

Task 2 - Work Plan Development

Prepare Work Plan Documents
NYSDEC Review of Work Plan
Submission of Final Work Plan

Task 3 - Field Remedial Investigation

Background Search/Interviews
Well Survey
Soil Gas Program
Initial Environmental Sampling
Test Pit Program
Boring Program/Piezometer/Monitoring Well Installation
Monitoring Well Sampling
Aquifer Testing
Groundwater Level Monitoring
Program Management
Surveying

Data Interpretation/Evaluation
Data Validation

Task 4 - RI Data Report

Prepare/Submit RI Data Report
NYSDEC Review of Reports
Finalize RI Reports
Scoping Plan Phase II/IRM

Task 5 - Citizen Participation

Attend Public Meetings 1-3

The majority of the field work involved the sampling of surface and subsurface soils as well as investigating the site's hydrogeology. The hydrogeologic investigation involved the installation of 7 bedrock monitoring wells, 4 overburden wells, and 12 piezometers. Activities associated with the hydrogeologic investigation included the measurement of groundwater levels; the measurement of permeability (aquifer testing); and the collection of groundwater samples for chemical analysis. These activities were completed in order to better define the extent of site contamination; to predict the possible movement of site contamination; and to assist in the determination of future actions at the site.

For a more detailed breakdown of the field work refer to Section 2.0.

1.3 Site Location and Description

The Westinghouse Electric Corporation site is located in the western portion of Erie County, New York, at 4454 Genesee Street in the Town of Cheektowaga (refer to Figure 1-1). The site is situated at 78° 43' 24" west longitude and 42° 56' 04" north latitude.

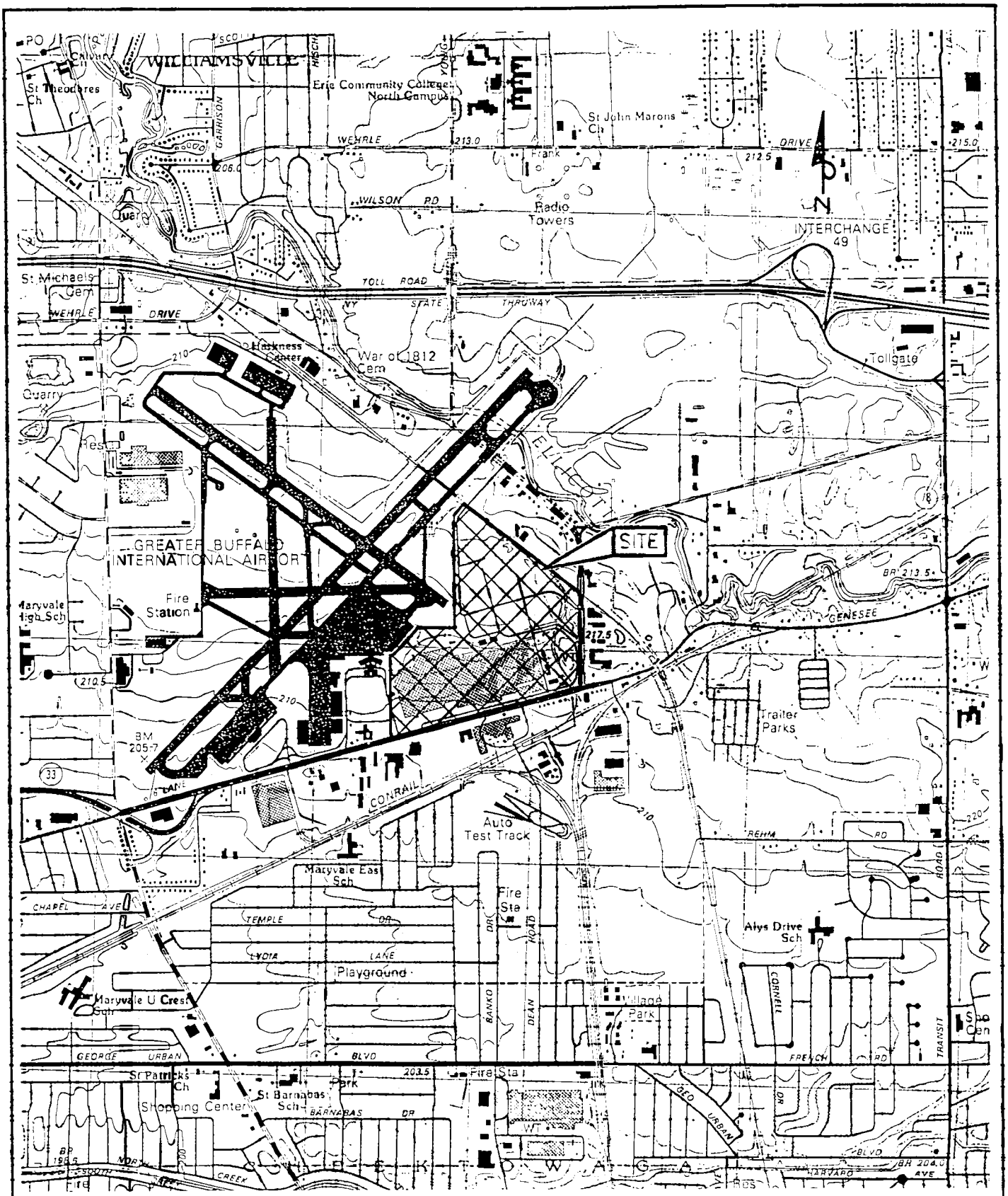
The site is bordered to the north and west by the Greater Buffalo International Airport, to the east by Holtz Drive (formerly Sugg Road) and to the south by Genesee Street.

The site itself is approximately one hundred and forty three (± 143) acres in size. A large plant building structure, approximately 2.5 million square feet in size, and several smaller buildings occupy a significant portion of the site. The remaining portion of the site consists of paved areas, roadways, railroads, and open grass/vegetated areas. A map depicting the present layout of the site is shown on Plate Map No. 1.

The nearest buildings to the site include a small weather station located on the Buffalo Airport property, the Flying Tiger's restaurant, the Buffalo Airport terminal, and several businesses south of Genesee Street, including Calspan Research (refer to Plate Map No. 1).

1.4 Site Ownership

Prior to 1940, the 143 acre study area was undeveloped and consisted mainly of open fields. The existing facility was constructed in 1940 by owner/operator Curtis-Wright Corporation and utilzied for aircraft production.



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

SITE LOCATION MAP

WESTINGHOUSE REMIDIAL INVESTIGATION

PROJECT NO. 35673	DATE Mar., 1994	DWG. NO. 4A0087SD	SCALE 1"=2000'	FIGURE NO. 1-1

In 1946, the site was sold to the Westinghouse Electric Corporation who operated the facility from 1946 to December 1984. During that period, they manufactured the following products:

- AC and DC industrial motor controls;
- Custom built industrial controls;
- Large rectifier and inverters;
- Military and defense controls;
- Selenium rectifiers and surge compressors;
- Gears;
- Copper and aluminum bare wire;
- Copper and aluminum insulated wire;
- AC and DC electric motors and generators;
- ARC welding power supplies;
- Gas engine driven welders;
- Welding torches and guns; and
- Welding wire drives.

Principal manufacturing processes at the Westingouse facility included wire production, copper and aluminum casting, as well as metal machining, fabrication, plating and finishing.

In 1964, Westinghouse sold approximately 0.7 acres of the northern tip portion of the property to the Niagara Frontier Transportation Authority (NFTA). During 1984, Westinghouse sold an additional 11.4 acres of the northern tip of the subject property to the NFTA.

In December 1984, Westinghouse entered into an agreement to sell the plant building and remaining property to Mr. Barry M. Weinstein.

In 1985, Mr. Weinstein assigned all his rights and interest in the facility to the Erie County Industrial Development Agency (ECIDA), who in turn, amended and signed the purchase agreement. In August of the same year, the ECIDA entered into a lease with an option to purchase the facility with the Buffalo Airport Center Associates (BACA).

The BACA subleased portions of the building until 1991 for a variety of uses, including general office, warehousing and distribution operations. Presently, the site is vacant and all utilities to the site have been terminated.

Property tax identification numbers for the project site were obtained from the Town of Cheektowaga Assessor's office. The main portion of the site is divided into two parcels; tax identification numbers 92.02-1-16.1 and 92.02-1-16.1-A. The northern portion of the project site, owned by the NFTA, is referenced as tax identification number 92.02-1-16.2-A.

1.5 Waste Generation and Disposal Practices

The following section discusses the generation of waste and disposal practices associated with manufacturing activities conducted at the plant site.

No information could be found pertaining to waste generation and disposal practices associated with Curtis-Wright's manufacturing activities at the plant site.

As discussed in Section 1.4, between 1946 to 1984, Westinghouse Electric Corporation utilized the plant site to manufacture electric motors and controls which involved metal casting and plating operations. In 1979, the Interagency Task Force on Hazardous Wastes in Erie and Niagara Counties, a coalition of the NYSDEC, New York State Department of Health (NYSDOH) and Region II EPA personnel, identified Westinghouse as a significant generator of hazardous waste. However, it could not identify where wastes generated at the facility were disposed prior to 1971. According to the Task Force Report, the following waste materials were generated in varying quantities by Westinghouse's manufacturing processes:

- General refuse;
- Waste oil;
- Non-ferrous scrap;
- Ferrous scrap;
- Waste mineral oil;
- Ultra filter rinse oil;
- Iron phosphate solution;
- Deionized resin solution; and
- Chemical wastes.

Table 1-1 lists the known chemical wastes generated by Westinghouse.

In June 1980, Westinghouse was listed in the Registry of Inactive Hazardous Waste Disposal Sites as "suspected" of disposing cyanide salts on site at an unknown location as a result of an internal Westinghouse memorandum concerning a conference between Westinghouse and D.B. Stevens of the New York State Wate Pollution Control Board. This January 10, 1955 memorandum makes reference to cyanide waste from the heat treating room: *"The spent solid cyanide is collected and disposed of by burial on the property."* In that same memorandum are references to off-site disposal of sludges, as well as plating solutions that are *"...diluted and*

TABLE 1-1

LIST OF CHEMICAL WASTES GENERATED BY
WESTINGHOUSE ELECTRIC CORPORATION

- Trichloroethylene;
- Aqueous Waste (Containing Sodium Phospate, Borate, Nitrate and Other Materials);
- Paint Waste (Containing Toluene and Xylene);
- Metal Hydroxide Sludge (Containing Heavy Hydrated Oxides or Hydroxides);
- Chloride and Cyanide Salts (Containing Sodium Chloride, Barium and Sodium Cyanide);
- Solidified Varnish;
- Waste Copper Brite;
- Mercury Sweeping and Pallets Contaminated with Mercury;
- Carbonate and Chromic Acid;
- Nitric Acid;
- Liquid PCBS;
- Solid PCB Waste;
- Varnish Water Waste;
- Houghto-Safe 620 (Containing Alcohols and Water);
- Fine Still Waste;
- Chlorinated Solvents, Varnishes Resins;
- Sodium Sulfide in Water;
- Waste Methylene Chloride; and
- Freon.

Source: Interagency Task Force on Hazardous Wastes-Draft Report, March 1979

flushed down the drain."

Based on the review of aerial photograph coverage of the Westinghouse Site (Dames and Moore, 1986), the alleged dumping of solid cyanide, waste oil and lubricants may have taken place in the portion of the property north of the paved parking lot areas.

Allegations have subsequently been made by the NFTA that there are other areas of the property, both inside and outside the building, where additional environmental concerns may exist as a result of past disposal practices or site operations.

No information could be found pertaining to subsequent waste disposal practices at the site after 1985.

1.6 Previous Investigations

There have been several environmental investigations conducted at the Westinghouse site in recent years. A majority of these investigations have been conducted to determine and evaluate the potential hazard to public health and the environment caused by the present condition of the site and to identify and assess the source of organic solvents in the storm water system. These investigations include:

- "Study of Water Effluents," prepared by the New York State Water Pollution Control Board and the Buffalo I. J. C., January 1955;

- Site Inspection Report, prepared by the Erie County Department of Environment and Planning, August 1979;

- Phase I Investigation, prepared for the NYSDEC by Engineering-Science in association with Dames & Moore, January 1986;

- Environmental Study for the Speciality Restaurant Site, prepared by Empire-Thomsen for the Niagara Frontier Transportation Authority (NFTA), March 1987;

- Field Investigation Report, prepared by Malcolm Pirnie for the Westinghouse Electric Corporation, April 1987;

- Environmental Review of the Former Westinghouse Electric Plant, prepared by Thomsen Associates (Empire Soils Investigations) for Moot & Sprague-Legal Counsel for the NFTA, December 1987;

- Site Inspection Report-Final Draft, prepared by NUS Corporation for the United States Environmental Protection Agency (USEPA), August 1989;

- Hazard Ranking System Report-Final Draft, prepared by NUS Corporation for the USEPA, August 1989;

•Site Characterization and Recommended Remedial Measure Outfalls 001,002 and 003-Summary Report, prepared by ERM-Northeast for the Westinhouse Electric Corporation, January 1991; and

•Data Records Search and Assessment Study, prepared for the NYSDEC by Dunn Geoscience Engineering Company, P.C., January 1991.

•Preliminary Site Assessment Report, prepared for NYSDEC by Dunn Geoscience Engineering Company, P.C., August 1991.

A report entitled *"Study of Waste Effluents-Buffalo Motor Control Division Plan-Westinghouse Electric Corporation"* prepared by the New York State Water Pollution Control Board and the Buffalo I.J.C. Field Unit in January 1955 indicates that spent solid cyanide, waste oil and lubricants were disposed by burial on the subject property. The exact location of the alleged disposal site(s) as well as the quantity of waste material disposed on-site could not be determined. In addition, the exact quantity of waste material disposed on the property is unknown.

At the request of the Interagency Task Force on Hazardous Waste, Westinghouse interviewed past and present employees who may have had knowledge of hazardous waste disposal on the Westinghouse property. Westinghouse was unable to locate an employee with any personal knowledge of on-site disposal of cyanide wastes (NYSDEC 1978).

During August 1979, the Erie County Department of Environment and Planning (ECDEP) conducted an investigation of the Westinghouse Electric site. The investigation concluded that there was no evidence of any landfilling of hazardous wastes at the site (ECDEP 1979).

In December 1981, the NYSDEC conducted a limited sampling program at the plant site. The NYSDEC collected one surface water sample and one soil sample from the site. The samples were taken from a ditch behind the plant, downstream from the confluence of two storm water drainage pipes which collect runoff from the Westinghouse parking lot. The samples were analyzed for heavy metals, cyanides, halogenated organics and PCBs. Analyses of the soil sample detected concentrations of lead and zinc (56 and 69 ug/g, respectively). No detectable concentrations of cyanide, halogenated organics and PCBs were obtained from the soil samples. The water sample contained concentrations of priority pollutants near or below detection limits, with the exception of halogenated organics which were found at a concentration of 0.33 ug/l as chlordane (Lindane Standard).

In 1985, a Phase I study of the northern portion of the site was conducted by Engineering-Science (ES) and Dames & Moore (D&M) for the NYSDEC. The field inspection associated with the study indicated no measurable volatile organic gases (HNu) or evidence of on-site hazardous waste disposal. Prior to performing the field inspection, ES and D&M personnel inspected aerial photographs of the site for area of suspected landfilling. These photographs indicated debris and surface distrubances on the north end of the site, portions of which had been sold to the NFTA in 1963, 1964 and 1984.

In March 1985, Westinghouse Electric Corporation hired Malcolm-Pirnie to conduct a study to investigate the presence of trichloroethane (TCA) and trichloroethylene (TCE) detected in Storm Water Outfall 003. The elevated concentrations of TCA and TCE were first detected in

December of 1980 while the NYSDEC was conducting surveillance monitoring of Outfall 003 which took place during the demolition of the enamel mixing room. During the demolition process, a sump pump in the mixing room was activated causing a discharge of phenolic material into the storm sewer system. As a result of the phenol detected by the NYSDEC, surveillance monitoring of Outfall 003 continued to March 1981, during which time elevated concentrations of TCA and TCE were identified. The Malcolm-Pirnie study conducted between October 1986 to April 1987, primarily investigated storm sewer line 003 and its associated subsurface conditions. The study consisted of the following:

- Installation of six groundwater monitoring wells;
- Sampling of the storm sewer system associated with Outfall 003;
- Drilling of three test borings;
- Excavation of one test pit;
- Soil gas survey;
- Televised storm sewer survey; and
- Sampling and testing of groundwater, soil, sediment and surface water.

The report concludes that *"... while contamination of the storm sewers and associated sewer sediments is indicated as a primary source of contamination reaching Outfall 003, the contamination of MW-3 indicates that the contamination has likely exfiltrated from the sewers through cracks and joints and contaminated the surrounding native soils. While the permeability of the soils is in general low; desiccation cracks or lenses of silts and sands through the clays could enable localized contaminant migration.*

However, additional evidence of contamination in the groundwater at MW-2 and in the surficial soils in the area of electrical manhole 5A, indicate a source of contamination unrelated to the contamination found within the sewers. The contamination at electrical manhole 5A indicates a surface spill of volatile organics, while the contamination at MW-2 could be through a surface spill or even from off-site migration in the groundwater".

In 1987, an environmental study was conducted by Empire-Thomsen Associates on the 11.4 acre parcel of property obtained by the NFTA in 1984 to construct a restaurant. During the construction of the "Flying Tiger's" specialty restaurant and associated parking lot, it became apparent that possible waste disposal had occurred in this area. The NFTA initiated the study to: (1) assess possible environmental degradation due to previous site activities; (2) to evaluate if site remediation was necessary; and (3) determine the extent of the necessary remediation. A series of four test pits were excavated and sampled in close proximity to the restaurant facility. Analytical results from the test pits indicated the presence of toluene and several heavy metals at elevated levels.

In 1990, an environmental study of the storm sewer system was conducted by ERM-Northeast for Westinghouse Electric Corporation. The study was done in response to the November 1988 Order on Consent between Westinghouse and the NYSDEC. The ERM study involved:

- Collection of sediment and surface water samples from selected storm sewer manholes, sumps and three outfalls at the site;
- Excavation of five test pits;
- Drilling of five test borings;
- Collection of subsurface soils samples from test boring and pit locations;
- Measurement of groundwater levels;
- Elevation and location survey.

ERM utilized the information collected to identify source areas of the elevated volatile organic compoounds (VOCs) and cadmium detected within the storm sewer system. The study concluded that the source of the cadmium and VOCs in the surface water within the storm sewer systems appeared to be the sediments contained within the storm sewer lines.

In 1990 a Preliminary Site Assessment (PSA) was conducted by Dunn Geoscience Engineering Company, P.C. for the NYSDEC for the Westinghouse Electric Corporation site. The study involved:

- Data records search and assessment
- Initial environmental samples program
- Subsurface investigation/sampling program

The results of the study concluded that the entire 143 acre site should be classified as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites. This was based on the levels of contamination detected within various media at numerous locations on the site. The study also recommended that a more intensive investigation of the site be performed in order to better define the extent of the contamination and provide information for possible remedial alternatives. The following is a list of areas which were identified during the PSA as being potential environmental concerns and which require additional investigation (refer to Plate Map No. 1 for locations):

- Area A: Fan Room/Tunnel
- Area B: Storm Sewer Line 003/Bedding Material
- Area C: Electrical Manhole Sump 5a
- Area E: Storm/Sanitary Sewer Systems
- Area F: Transformer Station
- Area G: East Fill/Mound Area
- Area I: Oil Storage Building
- Area J: Solvent Tank Storage Area

- Area K: Hazardous Waste Storage Area
- Area L: Railroad Transfer/Unloading Area
- Area M: Underground Mixing Room
- Area N: Parking Lot/North Storm Sewer System
- Area O: Gunnery Range
- Area P: Flying Tiger's Area
- Area Q: Railroad Track Area
- Area R: Southwest Corner/Storage Tank Area
- Area S: Groundwater

1.7 IRM Activities

Several Interim Remedial Measures (IRMs) were implemented during the RI field program at the direction of the NYSDEC. The IRMs were performed at three areas on the project site which were identified during the PSA as being significant environmental concerns. IRMs were undertaken at these locations in order to prevent or reduce the spread of contaminants or limit the need for more complex and costly future remedial actions.

IRM activities completed included the following: removal of the underground varnish tank located south of the Heat Treatment/Plating Area (Area C); removal of the septic tank in the Gunnery Range (Area O); and pumping out of the Sump No. 4 located adjacent to the Underground Mixing Room (Area M). The work was performed on June 30 and July 1, 1993 by Environmental Products and Services (EPS) under the supervision of the NYSDEC (refer to Plate Map No. 1 for locations).

The contents of the varnish tank, which consisted of a mixture of water and varnish (both solid and liquid) were pumped out by a vac-truck prior to the tank's removal from the ground. The tank was estimated to have a capacity of 1000 gallons and was observed to be structurally sound. There was no significant contamination observed or detected in the soil located adjacent to the tank, therefore, no soil was removed. The tank contents were being temporarily staged on site in 55-gallon drums. The hazardous portion of the drummed tank contents have since been removed from the site. The tank itself was cleaned, cut-up, and removed from the site and disposed as scrap-metal. Clean fill was trucked onto the site and used to backfill the tank pit, completing the IRM.

Similarly, the contents of the septic tank, which consisted predominantly of water, were pumped out and are being temporarily stored on-site. The tank (est. 1000 gal.) was cleaned and crushed prior to its removal from the site. There was no contaminated soil observed adjacent to the tank during the excavation. Native soil located within the gunnery range was used to backfill the excavation.

Sump No. 4, a concrete structure, was pumped out with the vac-truck and the contents, predominantly water, were placed into 55-gallon drums for temporary on-site storage. The sediment and varnish located at the bottom of the sump could not be removed with the available apparatus primarily due to the inaccessibility of the structure (approx. 3' wide x 3' long x 14' deep). An alternative remedial measure will have to be implemented to address the contamination within the sump.

1.8 Well Survey

A water supply well survey was conducted to determine the location and number of private wells within a one-mile radius of the Westinghouse site. The NYSDOH was contacted regarding any current information on wells in this area.

The information obtained from the NYSDOH identified sixteen wells outside the area of interest that have been identified and sampled in the past. They also identified seven wells within the area of interest which have not been sampled.

A visual survey was performed to confirm the location of the seven wells identified by NYSDOH on the residential property located along Rehm Road in the Village of Depew. Rehm Road is located approximately one half mile southeast of the site (refer to Figure 1-1). A similar survey was performed along Holtz Road and Aero Drive in the Town of Cheektowaga. As a result of this survey, another six wells were identified on residential properties along Aero Drive, located approximately one-quarter mile north of the site. Additionally, several properties contained 4-inch to 6-inch PVC standpipes on their property, the purposes of which were undetermined.

In summation, numerous private supply wells within a one-mile radius of the Westinghouse site have been identified. However, conversations with several owners indicated the wells are not currently being used. No information on well construction, capacity, or water quality was obtained either through conversation with residents interviewed or from information provided by the NYSDOH. Interviews were not completed with all identified residents.

1.9 Purpose and Organization of Report

The purpose of this report is to present the methods and findings of the Remedial Investigation and characterize the nature and extent of the site contamination. The data obtained during the RI will be used initially to assess potential IRMs which may be undertaken at the site. Subsequently, the data presented in this report will be used in the subsequent Feasibility Study which will assess long-term remedial measures which may be required at the site.

At the completion of the Feasibility Study, a final RI/FS Report will be prepared to include the findings of the Preliminary Site Assessment and the Remedial Investigation and present the conclusions and recommendations based on the Feasibility Study.

This Remedial Investigation Report is divided into two volumes. Volume I contains the text including appropriate tables, maps, figures, forms and plates used to describe the results of the RI. Volume II consists of a series of appendicies which contain raw field data including soil gas results, field sampling logs, geological logs, well completion logs, hydraulic conductivity data and geotechnical analytical results. Chemical analytical data is summarized in tables presented in appropriate sections of Volume I. Raw analytical data is too volumnous to contain in this report. However, raw analytical data will be temporarily archived with Dunn until permanently archived by NYSDEC.

The remaining sections for this report are presented as follows:

Section 2 — Field Investigation Methodologies:
Describes the methods and equipment utilized to perform various field investigation programs. This section also discusses laboratory analysis and data validation procedures.

Section 3 — Physical Characteristics of the Study Area:
Describes the geology, hydrology, land use and ecology of the site.

Section 4 — Nature and Extent of Contamination:
Describes the results of the soil, sediment, and groundwater sampling programs on an area by area basis.

Section 5 — Summary and Conclusions:
Summarizes the findings from each of the Areas of Investigations and discusses the outcome of the investigation.

Section 6 — References

2.0 FIELD INVESTIGATIONS & METHODOLOGIES

2.1 Soil Gas Investigation

Prior to initiating the test pit and/or boring programs, a soil gas survey was performed in Areas P and Q (refer to Plate Map No. 1). The soil gas samples were analyzed for the VOC parameters previously identified to be present on-site during the PSA. The target VOC parameter list is presented below:

- 1,1-Dichloroethene (DCE)
- 1,2-Dichloroethene
- 1,1,1-Trichloroethane (TCA)
- Benzene
- Trichloroethene (TCE)
- Toluene
- Tetrachloroethene (PCE)
- Chlorobenzene
- Ethylbenzene
- m-Xylene
- o-Xylene

Analyses of soil gas/headspace were performed on a gas chromatograph (GC) located in a trailer mobilized to the site. The trailer was climate controlled and consisted of approximately 100 square feet of isolated floor space with a dedicated outside entrance.

2.1.1 Soil Gas Sample Collection

Soil gas sampling locations were prepared by using a "slam bar" to drive a 5/8-inch steel rod to a maximum depth of four feet, removing it and inserting a 1/2-inch diameter hollow aluminum tube into the probe hole to prevent collapse. Care was taken to ensure that the tube was not plugged or inserted into shallow groundwater. Surface soil was packed into the annular space around the top of the tube to prevent infiltration of surface air during sampling.

Soil gas samples were collected with 125 ml gas sampling bulbs. The sample bulb consists of a glass tube with teflon valves at either end, and a septa in the center of the glass wall to allow sample withdrawal. The top of the aluminum tube in the probe hole was connected with 1/2-inch polyethylene tubing to the sample bulb, which in turn was connected to an SKC vacuum pump. The vacuum pump withdrew soil gas through the subsurface probe into glass bulb at a rate of 3 L/min until approximately 2 liters (six sample train volumes) of soil gas was purged. Soil gas was contained in the glass bulb by closing the valve nearest the pump (to prevent backflow), shutting off the vacuum pump, and removing the pump from the glassware. The other valve (nearest the aluminum tube) was left open to the soil source for approximately one minute to allow the system to come to equilibrium pressure. Following the equilibration period, the second valve was closed and the sampling bulb was removed and transported to the on-site trailer for analysis.

2.1.2 Calibration of the GC

The preliminary instrument calibration was checked and corrected daily by analysis of a freshly prepared standard. The calibration standard was prepared by diluting saturated headspace above a pure liquid compound into a static volume container of ultra zero grade air to achieve an analyte concentration in ppm (vol/vol) in accordance with Photo Vac Technical Applications Report #23.

2.1.3 Method Detection Limit Study

A Method Detection Limit (MDL) study was preformed for each analyte. The instrument MDL is defined as the minimum concentration of a substance that can be measured and reported with a 99% confidence level that the analyte concentration is greater than zero. The MDL was performed in accordance with procedures outlined in Appendix B to Part 136, Federal Register, Vol. 49, No. 209, October 1984 .

The MDL study performed July 16, 1993 yielded some erroneous results. Method detection limit results for 1,1,1-TCA, Toluene, PCE, Chlorobenzene, Ethylbenzene and m-Xylene yielded numbers greater than the low standard of 0.5 ppm, which was consistently seen. The fact that these compounds are late eluters and poor integration due to broader peaks in this region may have caused these false MDL results. It was eventually decided that an MDL of 0.25 ppm would be imposed for all compounds (1/2 the low standard of 0.5 ppm). This appeared to be reasonable based upon visual inspection of the resulting chromatograms. A summary of the MDL study can be found in Appendix A.

2.1.4 Sample Analysis

Samples were analyzed on-site using a Photo Vac Model 10S Plus portable gas chromatograph (GC) equipped with a capillary column and photoionization detector (PID). The detector used was suitable for compounds with an ionization potential less than or equal to 10.6 electron volts. The GC was programmed to recognize and quantitate site-specific parameters listed previously.

Sample analyses were conducted by withdrawing a measured aliquot of the sample from the sampling bulb using a syringe. The syringe sample was injected into the GC, which compared the sample instrument response to that of a calibration standard stored in the GC memory. The GC software prepares a report detailing the concentration of recognized compounds and raw instrument responses of "unknown" compounds detected in the sample.

The analytical reports generated by the GC for each sample and tables summarizing the concentrations of known analytes are presented in Appendix A. Tables summarizing known analyte concentrations above the MDL are presented in various sections of this report describing the results from specific site areas (i.e., Area A, Area B, etc.).

2.2 Initial Environmental Sampling

Based on the results of the PSA, initial (non-intrusive) environmental sampling locations were selected at various locations across the project site as well as several locations off-site. Areas incorporated into the initial environment sampling program included storm sewers, sanitary sewers, outfalls, streams, creeks, a sump, a tunnel, surface soils and waste piles. The locations of all non-intrusive sampling points are presented on Plate No. 2. General procedures utilized to decontaminate field sampling equipment is presented in Section 2.5.2 of this report. Specific sampling methodologies are described elsewhere in this section. All sampling was performed by DUNN personnel in accordance with the NYSDEC approved Quality Assurance Project Plan (QAPP) and Work Plan. A Field Sampling Log was completed for each sample location. Sampling logs for all samples collected during the RI are presented in Appendix B of this report.

2.2.1 Sumps, Tunnels and Transformer Vaults

One aqueous and one non-aqueous (sediment) sample were collected from a sump located in electrical Manhole 5A (Area C). The aqueous sample was collected using a pre-cleaned glass dipper jar in such a manner as to minimize disturbance to the water surface (i.e., not strip volatile organic compounds).

After obtaining the aqueous sample, the non-aqueous sample was collected utilizing a pond sampler (refer to QAPP). The non-aqueous sample was lifted from the sump in a pre-cleaned glass jar, decanted and collected on polyethylene sheeting. This process was repeated until a sufficient quantity of sample was obtained. The sample was then transferred to the appropriate sample containers with a stainless steel trowel.

Aqueous samples were also obtained from two flooded tunnels located beneath the building in Areas A and M. The flooded tunnels in Areas A and M contain Sump Nos. 1 and 6, respectively, which were sampled during the PSA. In addition, aqueous samples were collected from several other flooded areas located throughout the main building. The sample locations included four transformer vaults (1, 5, 7 & 12) and the former maintenance shop. All samples were collected by directly submerging the sample containers.

2.2.2 Storm Sewers/Sanitary Sewers/Outfalls

The three main storm sewer line systems (001, 002, 003) and two main sanitary sewer lines were sampled as part of the initial environmental sampling program (Area E). The Area E storm sewer sampling included the collection of samples from the entire length of each line at lateral intersects as well as the associated outfall monitoring stations (001, 002, 003). Preliminary results from the outfall monitoring stations warranted a second sampling event of the three outfall stations. The collection of samples from the sanitary sewer system was limited to downgradient points within each selected line. The storm sewer systems located in Areas E and N discharge to the U-Crest Ditch and Ellicott Creek, respectively. Sampling performed at these discharge locations is discussed in Section 2.2.3 of this report.

A total of twenty-four aqueous samples and eleven non-aqueous (sediment) samples were collected from Area E and a total of five aqueous and non-aqueous samples were collected from Area N. At the sewer locations which could not be directly accessed, a pond-sampler

apparatus was used to obtain both the aqueous and non-aqueous samples. At the sewer locations where direct entry was possible, aqueous samples were collected by directly filling the sample jars. Non-aqueous samples were collected with a stainless steel trowel, mixed in a stainless steel bowl and transferred directly into the appropriate sample containers. The VOA fraction of each non-aqueous sample was collected prior to mixing.

2.2.3 Streams

As mentioned above, both non-aqueous (sediment) and aqueous samples were collected from the storm sewer discharge areas for both Areas E and N. This included the collection of three aqueous and non-aqueous samples from the U-Crest Ditch (Area E discharge area) and four aqueous and non-aqueous samples from Ellicott Creek (Area N discharge area). Preliminary analytical results from the U-Crest Ditch warranted a second sampling event in which seven non-aqueous and three aqueous samples were collected. Aqueous samples were collected by directly submerging the sample containers. Non-aqueous samples were collected with a decontaminated shovel and/or stainless steel trowel, and placed onto polyethylene sheeting until a sufficient quantity of sample was collected to fill the appropriate sample jars. It should be noted that the downstream points were sampled first since sampling upstream points first might disturb the sediment and could possibly result in anomolous analytical results.

2.2.4 Waste Piles

A total of three non-aqueous waste samples were collected from surficial piles located in Area Q. The samples were collected with a stainless steel trowel and placed into a stainless steel bowl until sufficient quantity was obtained to fill the appropriate sample jars. The sample was then mixed in the bowl to achieve homogeneity and then transferred to the appropriate sample containers. The VOA fraction of each sample was collected prior to mixing.

2.2.5 Surface Soils

Surface soil sampling included the collection of samples from Areas F and Q as well as several "background" areas located off-site.

A total of four surface soil samples and two near-surface soil samples were collected in Area F. A total of three surface soil samples were collected in Area Q, and a total of three background near-surface soil samples were collected from off-site areas. The surface soil samples were collected by the same methodology as the waste pile samples described above. The near-surface soil samples were collected with a hand auger.

2.3 Test Pit Excavation

2.3.1 General

A total of one hundred test pits were excavated in eleven principal Areas of Investigation (B, G, I, J, K, L, M,N, O, Q, R). Refer to Plate Map No. 2 for locations of the test pits. All test pits were excavated using a rubber-tired backhoe which was decontaminated between sampling locations as outlined in Section 2.5.1.

Test pit dimensions varied considerably depending on the sampling objective and the geology encountered at each location. The test pits were excavated in approximately one-foot lifts. The excavated soil was visually classified by a geologist using the New York State Department of Transportation (NYSDOT) Soil Description Procedure. Subsurface logs were prepared for each test pit and are presented in Appendix C-1. The subsurface logs include detailed soil descriptions and field observations made during excavation activities.

2.3.2 Headspace Analysis

A soil sample was taken from each of the one hundred test pits on-site and placed in a sample jar, labeled, and covered with aluminum foil for subsequent head space screening.

Headspace screening was performed with the portable GC used in the soil gas investigation (refer to Section 2.1.4). The headspace results were used to delineate the vertical and horizontal extent of contamination within each area and also to assist in the selection of soil samples for subsequent laboratory analysis. The results of the headspace screening are presented with their respective area discussions in Section 4.0.

2.3.3 Subsurface Soil Sampling

Samples were obtained from forty-three of the one hundred test pits and subjected to chemical analysis. The criteria used in selecting the test pits to be sampled included visual observations of the soil/fill, organic vapor readings obtained with an HNU during excavation and headspace screening results obtained with the portable GC. Refer to Test Pit Logs in Appendix C-1 for records of HNU readings obtained and sensory observations made during the test-pitting activities.

Grab samples were collected at discrete intervals where visual observations indicated the presence of chemical contaminants or where elevated HNU and/or headspace readings were encountered. Soil samples were collected from the backhoe bucket using a stainless steel spoon and were then transferred into the appropriate sample containers. Samples selected for volatile organic analysis were collected first in an effort to minimize volatilization. Samples that did not exhibit obvious signs of contamination were sampled from a discrete interval at or above the interface which exhibited moist to wet conditions.

Composite soil samples were collected from several test pit locations when there were:

- No visual/olfactory signs of contamination;
- No elevated HNU readings; and
- No evidence of any water-bearing zones.

In this situation, the on-site geologist would assess the spatial relationship of the test pits in the Area of Interest and determine if a composite sample was required to address the characteristics of the subsurface conditions encountered within the total area. A representative fraction of soil from each one to two-foot interval was collected from the backhoe bucket and placed into a stainless steel mixing bowl with a stainless steel spoon. Upon conclusion of the test pit, composited soil in the mixing bowl was placed into

appropriate sample containers. The volatile fraction was placed into containers prior to mixing while the balance of analyses were collected after mixing. All sampling tools were decontaminated prior to each sampling operation in accordance with Section 2.5.2.

2.4 Drilling/Monitoring Well Installation

A total of fifty test borings were completed in eight Areas of Investigation (B, I, J, K, M, N, P, Q). Refer to Plate Map No. 2 for locations of the test borings. The borings were completed using a CME-55 truck mounted drill rig. Borings advanced in the basement of the building were completed with a portable tripod rig. Drill equipment was decontaminated between each boring location as outlined in Section 2.5.1.

All overburden soil borings were continuously sampled at two-foot intervals using standard split-spoon samplers in accordance with ASTM Method D-1586, *"Standard Method of Penetration Testing and Split Spoon Sampling of Soils"*. The soil borings which were advanced to bedrock were split spoon sampled every five feet. All split-spoon soil samples were visually classified in accordance with the NYSDOT Soil Description Procedure.

Detailed geologic test boring logs were prepared for each boring and presented in Appendix C-2.

2.4.1 Sampling and Headspace Analysis of Split-Spoon Soils

A representative portion of each split-spoon sample was placed into individual laboratory cleaned jars and the cap sealed with aluminum foil. The samples were subsequently stored overnight in the field office and allowed to attain room temperature. VOC concentrations of the head space within each jar were recorded by inserting the tip of the HNU through the aluminum foil seal. The results of the headspace screening are presented with their respective area discussions in Section 4.0.

Selected split-spoon samples were collected for laboratory analysis using a stainless steel spatula and mixing bowl. Selection of the sample interval was based upon field observations and/or HNu screening results. Samples were collected at some locations at a discrete two-foot interval (grab sample) wherein the sample was transferred directly from the split-spoon to the appropriate sample containers. At other boring locations, a sample was collected over the length of the borehole. In this case, a representative sample was collected from each split-spoon and composited by mixing in a stainless steel bowl. All field sampling equipment was decontaminated prior to each sample collection as outlined in Section 2.5.2. In addition, five geotechnical samples were collected in order to provide data for the pending feasibility study. The samples were tested for moisture content, grain size and Atterburg Limits. The results are presented in Appendix H of this report.

2.4.2 Abandonment of Boreholes

Those borings which were not converted to groundwater monitoring wells were backfilled with the generated auger cuttings. The top two feet of each borehole was then filled with a cement/bentonite grout to ground surface.

Auger cuttings exhibiting elevated VOC levels with the HNU were containerized in 55-gallon drums and stored in a secured area until final deposition can be determined.

2.4.3 Monitoring Well/Piezometer Installation

A total of twelve overburden piezometers, four overburden groundwater monitoring wells and seven deep bedrock wells were installed as part of the RI. The locations of the piezometers and monitoring wells were agreed upon by the NYSDEC and DUNN, based on previous analytical data and groundwater flow determination requirements. Refer to Plate No. 2 for the locations of the piezometers and monitoring wells.

The overburden wells were constructed of nominal two-inch diameter PVC machine slotted well screen (0.010 inch slots) and solid PVC riser pipe. All components were constructed of flush threaded materials. No solvents or glues were used in well construction. The annulus between the borehole wall and the monitoring well casing was packed with clean silica sand (Morie-Grade O) to a level above the screened portion of the well. The sand pack was followed by a two to three-foot thick bentonite seal to prevent migration of surface water into the monitoring well. A cement/bentonite grout seal was placed above the bentonite seal and extended to the ground surface. A locking protective metal casing or flush-mount curb-box grouted in place, completed each well installation. A Monitoring Well Construction Log was prepared for each overburden monitoring well/piezometer and is presented in Appendix D. It should be noted that the installation of the piezometers was identical to that of the monitoring wells. However, six of the twelve piezometers were constructed with one-inch diameter PVC piping.

The bedrock monitoring wells were completed by first advancing the 4-1/4"I.D. hollow stem augers to the top of bedrock. Upon encountering bedrock, the augers were removed and replaced with temporary six-inch diameter steel casing. Approximately five feet of rock was cored through the temporary casing using an NX size core barrel. The corehole was subsequently reamed to a nominal six inch diameter with a roller bit. It was determined in the field by DUNN's geologist that a five-foot core run was sufficient to bypass the weathered bedrock/overburden interface zone. A four-inch diameter steel casing was then lowered through the six-inch temporary casing and subsequently tremie-grouted in place while removing the temporary casing. This procedure effectively sealed off the bedrock aquifer from the upper overburden and interface zones, precluding any potential migration of contaminants. After allowing the grout to set at least twenty-four hours, the hole was completed by (NX) coring approximately twenty feet into bedrock. The completed well, which are of "open-hole" construction. A Monitoring Well Construction Log was prepared for each bedrock monitoring well and are presented in Appendix D.

2.4.4 Monitoring Well Development

Development of the newly installed monitoring wells was performed immediately following the completion of the subsurface investigation. Development of the overburden wells was accomplished through use of dedicated PVC bailers. Development of the bedrock wells was accomplished through the use of a Grundfos two-inch submersible electric pump. The submersible pump was decontaminated after each use (refer to Section 2.5.2). Well development was discontinued when ten well volumes were removed from the well or when discharge water reached a specified turbidity value of 50 NTU. Temperature, pH, HNu and

conductivity measurements were collected during the development process. Well Development Logs, completed for each newly installed monitoring well, have been included in Appendix E. Monitoring Wells WEC-MW-19, WEC-MW-20, WEC-MW-21, WEC-MW-22, and WEC-MW-23D exhibited very slow recharge rates which did not allow the aforementioned development goals to be achieved. See Table 2-1 for an overall well development record.

2.4.5 Purging and Groundwater Sampling

Methodologies utilized to complete well purging were identical to those outlined in Section 2.4.4 for well development, in so far as equipment and monitoring procedures utilized. Monitoring wells were purged until three well volumes were evacuated or until dryness was achieved. Groundwater sampling, however, from each monitoring well was conducted within 24 hours of the completion of purging. Monitoring wells WEC-MW11, WEC-MW13, and WEC-MW18 required a week to recharge from purging to sampling due to their extremely slow recharge rates. In addition, WEC-MW22 was not purged between development and sampling due to its extremely slow recharge rate. As previously noted, VOC containers were first to be filled at each sampling location. In addition, pH , conductivity, and turbidity measurements were obtained during sampling. Refer to Appendix F for Well Purging/Sampling Logs for each individual monitoring well.

In addition to all newly installed wells, selected existing wells were purged and sampled utilizing the methodologies previously described. Analytical results for all sampled monitoring wells are discussed in Section 4.18.

2.5 Field Equipment Cleaning and Decontamination Procedures

Systematic and thorough decontamination procedures were employed throughout the entire field program. The objective of this activity was to ensure the accuracy of the analytical results by preventing cross-contamination between sampling locations and/or the introduction of unwanted chemical consituents into sample matrices.

2.5.1 Heavy Equipment Decontamination

During the mobilization and demobilization phase of the field program and prior to each sampling operation, the drill rig, backhoe and all associated equipment were thoroughly cleaned and decontaminated using a high-pressure steam wash. Decontamination was carried out at a ten foot by twelve foot decontamination pad constructed with two-inch by ten inch rails and two layers of heavy duty woven plastic liner (10 ml.). The decontamination pad served to contain wash water used during the decontamination process. Decontamination water associated with borings or test pits with elevated HNu readings was containerized in 55-gallon drums and stored in a secure area pending final disposal.

2.5.2 Decontamination of Field Sampling Equipment

All equipment and tools used to collect samples for chemical analyses (spatulas, spoons, bowls, split spoons, bailers, check valves, probes, etc.) were decontaminated using the following five step procedure:

TABLE 2-1

WESTINGHOUSE ELECTRIC CORPORATION SITE

MONITORING WELL DEVELOPMENT RECORD

Monitoring Well	Well Volume (gallons)	10-Volume Target (gallons)	Amount Evacuated (gallons)	Turbidity at Completion (NTU)	Comments
MW-12D	24.4	250	250	2.23	
MW-17D	25.4	255	255	0.77	Very good recharge.
MW-19	1.35	13.5	14.5	120	Poor recharge, Stronge odor 2 weeks to purge 10 volume.
MW-20	1.83	18.3	21	> 120	Poor recharge, 1week to purge 10 volume.
MW-21	2.24	22	20.5	44	Poor recharge, Strong odor 1 week to purge 10 volume.
MW-21D	25.88	260	260	5.97	
MW-22	1.45	14.5	4.5	60	Extremely slow recharge, static not reached in 26 days.
MW-22D	15.5	155	160	10.42	
MW-23D	31.46	315	90	22	Purged to dryness.
MW-24D	28.9	290	290	1.4	
MW-25D	19.23	192	200	2.6	

- Deionized water wash;
- Alconox/deionized water wash;
- Deionized water rinse;
- Three or more deionized water rinses; and
- Air dry and wrap in aluminum foil, shiny side out.

2.5.3 Personal Decontamination

Personal decontamination was conducted according to the procedures outlined in the QAPP and HASP.

2.6 Air Monitoring

Air monitoring was conducted by DUNN personnel during all phases of the non-intrusive sampling program as well as the subsurface investigation. The purpose of this activity was to determine the level of respiratory protection and other protective equipment required to protect personnel from any release of toxic vapors.

Air monitoring during the non-intrusive sampling was conducted utilizing a portable photoionization detector (Model HNU PI-101, 10.2 ev lamp) and oxygen meter/explosimeter (MSA Micro Gard). This instrument was utilized during the sampling of the sewer lines, outfalls, sumps, surface soil samples, waste and tank samples.

Air monitoring during the subsurface investigation portion of the RI involved the use of a portable photoionization detector (HNU PI-101, 10.2 ev lamp) a particulate air sampler (MIE PDM MiniRam), and an explosimeter (MSA Micro Gard). The HNu was utilized to continuously monitor the breathing zone, recovered soils, test pit, and auger cuttings. The particulate sampler was used to continuously monitor dust levels raised during the test pit and boring portions of the investigation. The explosimeter was used to monitor potentially explosive vapors from the borehole during drilling and test pit operations. There were no levels detected by any of the three instruments which would indicate any significant environmental concern.

All monitoring equipment was calibrated daily and maintained in accordance with QA/QC procedures and the manufacturer's specifications.

2.7 Permeability Testing

Nine of the eleven newly installed groundwater monitoring wells were subjected to permeability testing in order to determine the horizontal hydraulic conductivity of the respective water bearing units. The permeability of the strata surrounding each well was determined by measuring the water level recovery of each well (relative to the initial static water level) as a result of an instantaneous displacement of water within the well by means of injection or withdrawal of an object of known volume (slug). The water level recovery was measured automatically using an In-Situ Hermit SE1000B Environmental Data Logger

and pressure transducer. The data logger recorded water level data based on a pre-programmed logarithmic sampling schedule. The pressure transducer used for all testing had a scale factor of 10.10 PSI/g and no offset.

For overburden wells the "slug" used to displace the water within the well was a five-foot long, one-inch O.D. hollow PVC pipe filled with deionized water and fitted with two watertight, threaded PVC plugs. The "slug" for the bedrock wells was a five-foot long, 3-inch O.D. hollow PVC pipe filled with deionized water and fitted with two watertight threaded PVC plugs.

The slug was inserted and retrieved from the well via dedicated nylon rope (one-quarter inch). Prior to initiating a test, the static water level was obtained and all testing equipment was decontaminated according to the procedure specified in Section 2.5.2. Due to the slow recovery of many of the wells and associated time constraints, slug injection tests as opposed to slug withdrawal tests were performed.

The injection tests were conducted by slowly lowering the PVC slug to just above the static water level surface (in order to prevent splashing); recording the height of water above the transducer (i.e., reference point); and submerging the slug in the water column while simultaneously activating the data logger.

Ideally, slug tests were continued until 80 percent of well recovery was achieved. However, in many cases, recharge rates were slow and time constraints precluded recovery to this target value.

The data stored in the data logger was subsequently downloaded to a personal computer and used to calculate the horizontal hydraulic conductivity via the Bouwer and Rice Method. Refer to Appendix G for calculations of horizontal hydraulic conductivity for each well using the above stated method. Results of the permeability testing are discussed in Section 4.18.

2.8 Surveying

Upon completion of the field operations, a survey of the site was performed by a licensed surveyor from DUNN. The surveyor's scope of work involved locating all test borings, test excavations, piezometers, monitoring wells and surface soil/waste sampling points. Ground elevations were also determined at the test excavation, test boring and surface soil/waste sampling locations. Elevations of the ground surface, top of protective casing and top of PVC well casing were determined for the newly installed monitoring wells. All elevations presented in this report are referenced to mean sea level (MSL) vertical datum. Horizontal control is based on the NYS Planimetric System.

2.9 Laboratory Analyses

Chemical analyses of all environmental samples collected in this investigation were performed by Energy and Environmental Engineering, Incorporated (E3I).

The methods used to analyze all samples collected at the project site were in accordance with those presented in the 1991 NYSDEC Analytical Services Protocol (ASP) and Superfund Contract Laboratory Program (CLP). Specific methods for each parameter (i.e., volatiles,

semi-volatiles, etc.) are presented in Table 2-2. Analytical results are presented in Section 4.0 within their respective Areas of Investigation.

Statement of Work for Organic Analysis (Document No. OLM 1.0). Modifications to these criteria, as may be found in the CLP portion of the 1991 NYSDEC Analytical Services Protocol (ASP) were incorporated where applicable and relevant. The following items/criteria were reviewed:

- Holding times;
- Surrogate recovery;
- GC/MS tuning and mass calibartion;
- Initial calibration;
- Continuing calibrations;
- Internal standards;
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recovery;
- Laboratory method blanks;
- Holding blanks;
- Field and trip blanks;
- Target compound identification and quantification; and
- Tentatively identified compounds (TICs).

2.10 Data Validation

All analytical data was validated in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP Organics Data Review), and Preliminary Review (SOP No. HW-6, Revision No. 7, March 1990), in conjunction with USEPA's CLP.

TABLE 2-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
ANALYTICAL PARAMETERS

SCHEDULE	DOCUMENT/METHOD NO.
TCL Volatiles	NYSDEC ASP-CLP Volatile Organics 91-1
TCL Semi-Volatiles	NYSDEC ASP-CLP Semi-Volatile Organics 91-2
TCL Pesticides/PCBs	NYSDEC ASP-CLP Pesticide/PCB 91-3
TAL Metals (23)	Methods for Chemical Analysis of Water and Waste, EPA 600/4-79-020, March 1983 using either ICP (200.7) or individual metal specific methods as modified for NYSDEC CLP (200 Series).

Aluminum	Magnesium
Antimony	Maganese
Arsenic	Mercury
Barium	Nickel
Beryllium	Potassium
Cadmium	Selenium
Calcium	Silver
Chromium	Sodium
Cobalt	Thallium
Copper	Vanadium
Iron	Zinc
Lead	

Total Cyanide

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Topography

The topography of the site is consistent with that of this region, primarily flat with elevations varying across the site from 700 to 710 feet above mean sea level. Areas of higher elevation are found to the north and east of the site.

A review of USGS 7.5 minute topographic maps (Lancaster, Buffalo NE, 1975 indicates surface water drainage in the area to be in a north to northeast direction towards Ellicott Creek (refer to Figure 1-1), the primary watershed for the area. However, the major portion of the site runoff is directed to Scajaquada Creek, located south of the project site. The nearest wetland is located along Ellicott Creek, approximately one-half mile from the site. The wetland is situated within the 500-year flood plain. The site itself is situated above the 100 year flood plain level of Ellicott Creek.

3.2 Surface Water Hydrology

As previously discussed, a large percentage of the site is either paved or otherwise developed with impervious structures (buildings, etc.). Runoff for the majority of the site is channeled into storm sewers via a series of catch basins. The storm sewers are directed to three outfalls (001, 002 and 003) which discharge south to the U-Crest Ditch emptying to the Scajaquada Creek, Black Rock Canal and ultimately to the Niagara River. Stormwater runoff from the northernmost portion of the site is collected in three catch basins. These catch basins drain into a 48-inch main concrete drainage pipe which discharges into an unnamed ditch. The ditch ultimately discharges into Ellicott Creek.

3.3 Geology and Soils

In recent geologic history, Erie County, as well as most of New York State, has been repeatedly covered by a series of continental ice sheets. The advances and retreats of glacial ice began approximately 300,000 years ago and ended approximately 10,000 years ago. The activity of the glaciers widened pre-existing valleys and deposited widespread accumulations of glacial till. Throughout the region, moraines (generally till) mark former ice margins. The melting of ice produced large volumes of meltwater which shaped channels and deposited thick accumulations of stratified, granular sediments. The project site appears to be located on the Niagara Moraine, a WNW-ESE trending ridge that marks a temporary stopping position for a previously retreating ice sheet.

As glacial ice retreated from the region, meltwater formed lakes in front of the ice margins. The Niagara County region is covered by lake sediments, the most recent being from Lake Warren (a larger predecessor to Lake Ontario and Lake Erie). The sediments consist of blanket sands and beach ridges which are occasionally underlain by lacustrine silts and clays.

The main portion of the project site as well as the surrounding area is classified as Urban land according to the Erie County Soil Conservation Service. Urban land is defined as nearly level urbanized areas, areas of well-drained to poorly drained soils and disturbed soils on

lowland plains. It is not practical to examine and identify the soils underlying these urban lands as 80 percent or more of the soil surface is covered by asphalt, concrete, buildings or other impervious structures.

Soils located in the northern portion of the project site are identified as the Ovid silt loam which is a nearly level, somewhat poorly drained soil. It is found in broad, flat areas of till plains which are often adjacent to glacial lake beds. This soil formed in reddish glacial till or lacustrine sediment that had been reglaciated and mixed with till. The Ovid silt loam is characterized by a seasonally high water table and low permeability in the substratum.

Subsurface investigations undertaken during this investigation support the findings of the Erie County Soil Conservation Service. Reddish-brown to brown glacial till was encountered thorughout the project site at the boring and test pit locations. The till consisted predominantly of a clayey silt matrix with varying amounts of embedded fine to coarse sands, gravels and rock fragments. Relative density of the till was observed to range from firm to very compact. The till was observed to extend to the top of bedrock across the project site.

Overlying the till throughout most of the project site is a layer of fill material which varies in depth from approximately two feet in open areas to eleven feet adjacent to some building areas. The fill consists predominantly of silty sands and gravels. Cinders, coal fragments and concrete have been noted in some areas. Notably, a veneer of glaciolacustrine deposits as well as glacial outwash deposits were encountered beneath the fills and overlying the till in some areas. (Refer to Test Boring Logs and Test Pit Logs in Appendix C for detailed soil descriptions).

According to the Bedrock Map of Erie County (Buehler & Tesmer, 1963) the Onondaga Limestone underlies the project site. The formation is comprised of three members: the Moorehouse Limestone Member, which is a lightly gray limestone containing numerous corals and considerable dark gray chert nodules; the Nedrow Member, which consists of intermixed light gray limestone and dark gray chert; and the Edgecliff Member, which is a gray limestone with some light gray chert nodules and abundant corals. Core samples of the bedrock were recovered from seven locations across the project site (SB-S1 through SB-S7) and penetration into bedrock ranged from 20-25 feet. The bedrock samples were classified by the field geologist as a light gray cherty limestone, with coral noted in six of seven locations. This description correlates to the Moorehouse Limestone member of the Onondaga Limestone formation. The depth to bedrock across the project site ranged from twenty nine to fifty seven feet below ground surface.

3.4 Regional Hydrogeology

The occurrence of groundwater and groundwater flow is consistent with the previously discussed geology of the area. Due to the low permeability of the unconsolidated overburden, the till and lacustrine units are not important sources of water. The relatively impermeable clays, silts and tills limit the rate of groundwater movement in the overburden and generally act as confining units. However, these soils frequently contain higher permeability horizontal laminations (silt and sand seams) as well as partings and fractures which facilitate lateral groundwater movement. Outside of these areas, groundwater flow is predominantly downwards, which is the primary source of bedrock recharge on a regional

scale.

Higher permeability granular deposits may also occur and act as shallow aquifers, however, the yield of wells completed in these sand and gravel units is dependent on the permeability, saturated thickness and areal extent of the deposit. Sand and gravel units in the region are typically thin and relatively isolated, yielding only small quantities of groundwater to individual wells.

The groundwater in the limestone, dolostone and shale bedrock of the region represent significant regional aquifers and are the primary sources of groundwater in the area. Groundwater in the bedrock commonly occurs under confined conditions within the secondary porosity of the bedrock, such as joints, fractures, bedding planes and solution cavities. Large quantities of groundwater can also be found in highly weathered zones at the top of bedrock surfaces and overburden/bedrock interfaces. High yielding wells can be developed in zones of enhanced porosity, such as fracture intersections and bedding planes.

A more detailed site specific discussion of the hydrogeologic conditions is presented in section 4.18 of this report.

3.5 Land Use and Demography

Recent land use at the former Westinghouse facility is considered light industrial, however, past land use included heavy industrial activity (Curtis-Wright Corporation and Westinghouse Electric Corporation). Currently, the site is vacant.

A review of aerial photographs and site inspections determined that there is no land utilized for agricultural purposes within two miles of the site.

The Westinghouse site is located in the Town of Cheektowaga in Erie County, New York. Cheektowaga has a population of approximately 99,000 (1990 Census). Additional townships and population centers in close proximity of the site (less than 5 miles) are the Town of Lancaster, Village of Depew, the Village of Williamsville and the Town of Clarence (refer to Figure 1-1). The closest residential neighborhood consists of a trailer park located approximately one-half mile southeast of the site.

The total population within one mile of the site is approximately 3,000. The total population within two and three miles of the Westinghouse site is approximately 35,000 and 75,000, respectively. The distance to the nearest off-site building is 0.1 mile and the number of buildings within two miles of the site is greater than 1,000. A restaurant, "Flying Tiger's", is located within the northern portion of the project site.

3.6 Flora and Fauna

No scientific studies were undertaken as part of this PSA study with respect to the wildlife and vegetation found within the Westinghouse Electric Corporation project area. However, a list of endangered and threatened species present within a three-mile radius of the Westinghouse property was prepared by the New York State Department of Environmental Conservation (NYSDEC) Wildlife Resources Center Information Services under the Significant Habitat Unit and the New York Natural Heritage Program. It indicated that a rare plant, the

Prairie Gentian (gentana puberulenta), may be present at the site if a suitable habitat still exists. This vulnerable plant was last recorded in 1878 (refer to Appendix I).

4.0 AREAS OF INVESTIGATION

4.1 General

As outlined in Section 1.5, a total of seventeen areas of potential environmental concern were addressed in this investigation. It should be noted that the original Work Plan did not incorporate any further investigation in Area M - The Underground Mixing Room. However, at the request of the NYSDEC, a subsurface investigation was performed in Area M in both the inside and outside of the building. Plate No. 1, Areas of Investigation, presents an overview of the project site and associated study areas. The following sections will address each area of investigation and include a background description, purpose and scope of the investigation, findings, analytical results and conclusions.

The validated analytical results are presented in a tabular format and are labeled according to the Area of Investigation they represent. For example, Table C-1 is the first analytical table containing data from Area C. These tables are located at the end of their respective sections. Applicable standards and/or guidance values have been incorporated into the analytical summary tables in order to provide a basis for comparison. There are a number of laboratory footnotes (qualifiers) associated with these tables. These footnotes are explained in Tables 4-1 and 4-2, respectively.

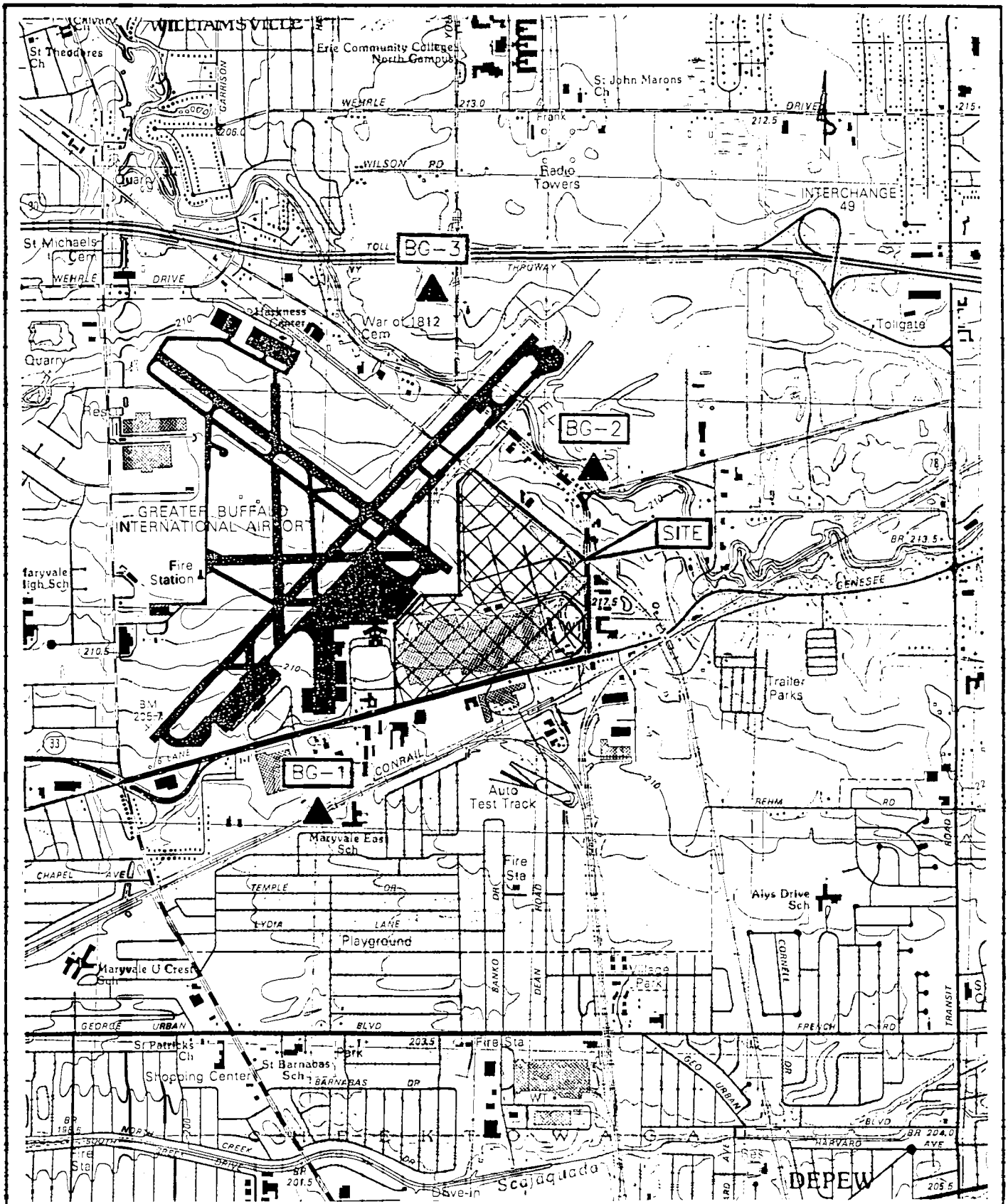
Criteria utilized to evaluate surface waters included 6NYCRR Part 703 Standards and NYSDEC TOGS Guidance Values for Class C and Class B waters (refer to Table 4-3). Part 703 Standards for Groundwater (Class GA) were substituted when Class C water standards or guidance values were not available.

Criteria used to evaluate groundwater included 6NYCRR Part 703 Standards, NYSDEC TOGS Guidance Values, and 10NYCRR Part 5 Standards (refer to Table 4-3). From these, the most stringent value for each analyte was selected as the basis for comparison.

The criteria utilized to evaluate organic compounds detected in surface soil and subsurface soil samples was the NYSDEC Soil Guidance Values and associated Recommended Soil Cleanup Objectives (RSCOs). The guidance values and RSCOs are based upon the Water-Soil Partition Model. The derivation method for the calculation of the RSCOs is presented in Table 4-3. The criteria utilized to evaluate inorganic parameters was the average concentration value and concentration range for respective elements found in uncontaminated soils. The average regional values were obtained by way of a literature search. In addition, three background soil samples were collected from various off-site locations in the vicinity of the project site. The background sample locations were determined by the NYSDEC and NYSDOH and are shown on Figure 4-1. Average concentration values were determined for the project area and were used for comparison with the site values, particularly with regard to inorganics. The analytical results for the background soil samples are presented in Table 4-4.

The criteria utilized to evaluate organic compounds detected in sediment samples was based upon the NYSDEC Division of Fish & Wildlife Technical Guidance for Screening Contaminated Sediments. The derivation of the calculations for the sediment cleanup criteria is presented in Table 4-5 through Table 4-7. A summary table of the sediment cleanup

criteria (for organic analytes) associated with the Westinghouse Site (1.5 % TOC) is presented in Table 4-8. The cleanup criteria used for inorganics is summarized in Table 4-9 and reflects the values presented in the technical guidance document.



DUNN ENGINEERING COMPANY
495 Commerce Drive
Amherst, NY 14228

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

BACKGROUND SAMPLE LOCATIONS

WESTINGHOUSE REMIDIAL INVESTIGATION

PROJECT NO. 35673	DATE Mar., 1994	DWG. NO. 4A0088SD	SCALE 1"=2000'	FIGURE NO. 4-1

TABLE 4-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
EXPLANATION OF QUALIFIERS FOR ORGANIC COMPOUND ANALYTICAL RESULTS

U- Indicates that the compound was analyzed for but not detected at or above the detection limit.

J- Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value which is less than the specified quantitation limit but is greater than zero.

B- The analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

C- Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

K- This is a common laboratory contaminant where the sample result was less than 10 times the associated blank value. The original sample was revised to the Contract Required Quantitation Limit (CRQL)/laboratory reporting limit and qualified with a "U".

L- The parameter is not a common laboratory contaminant but was in the sample result as less than five times the blank result. The original sample result was revised to the CRQL/laboratory reporting limit and qualified with a "U".

N- Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.

NA- Not analyzed

ND- Not detected

NS- A clean-up standard has not been determined.

M- Matrix spike compound.

V- Reported value is estimated due to variance from quality control limits.

R- Reported value is unusable and rejected due to variance from quality control limits.

E- Reported value is estimated due to the presence of matrix interference.

D- Reported result taken from diluted sample analysis.

A- Aldol condensation product.

TABLE 4-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
EXPLANATION OF QUALIFIERS FOR INORGANIC ANALYTE RESULTS

U- Indicates analyte result less that Instrument Detection Limit (IDL).

B- Indicates analyte result between IDL and CRDL.

V- Reported value is estimated due to variance from quality control limits identified during data validation procedures.

E- Reported value is estimated because of the presence of interference.

R- Reported value is unusable and rejected due to variance from quality control limits.

K- Since this is a common laboratory contaminant, EPA guidelines suggest this data revision whenever the sample is less than 10 times the associated blank value. The original sample result was revised to the CRDL/laboratory reporting limit and qualified with a "U".

L- Although the parameter is not a common laboratory contaminant, EPA guidelines suggest that if the sample result is less than five time the blank result this data revision is appropriate. The original sample result was revised to the CRDL/laboratory reporting limit and qualified with a "U".

M- Duplicate injection precision not met.

N- Spiked sample recovery not within control limits.

NA- Not analyzed

ND- Not detected

NS- A clean-up standard has not been determined.

S- The reported value was determined by the Method of Standard Additions (MSA).

W- Post-digest spike recovery furnace analysis was out of 85-125 percent control limit while sample absorbance was less than 50 percent of spike absorbance.

*- Duplicate analysis not within control limit.

+- Correlation coefficient for MSA is less than 0.995.

TABLE 4-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SOURCES OF STANDARDS/GUIDELINES VALUES
APPEARING ON
ANALYTICAL SUMMARY TABLES

- 6NYCRR Part 703 Standards - obtained from the New York State Official Compilation of Codes, Rules and Regulations, Title 6, Chapter X, Part 703. *"Water Quality Regulations: Surface Water and Groundwater Classification and Standards"*, October 22, 1993.

- NYSDEC TOGS (1.1.1) Guidance - Guidance values obtained from the New York State Department of Environmental Conservation Division of Water, Technical Operations Guidance Series (1.1.1) October 22,1993.

- 10 NYSDEC Part 5 Standards - obtained form the New York State Official Compilation of Codes, Rules and Regulations Title 10, Part 5- NYSDOH Maximum Contaminant Levels for Public Water Supplies.

- 10 NYSDEC Division of Fish & Wildlife - Technical Guidance for Screening Contaminated Sediments, November 1993.

- NYSDEC Division of Technical and Administration Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Level, November 16, 1992.

The model predicts the maximum contaminant concentration which is allowed in soil such that if the soil were to be exposed to the groundwater, it would not leach in excess of the groundwater standards. It is based on the soil sorption coefficient between water and soil and the fraction of organic matter in the soil. There is a direct relationship between the organic matter in soils and their capacity to sorb most organic chemicals.

Using the equation below, the maximum soil concentration can be determined for a contaminant given the values for the fraction of organic matter in the soil, the contaminant's partition coefficient, and the contaminant's groundwater or drinking water standard.

$Cs = f \times Koc \times Cw$

Where:
- Cs = allowable concentration in the soil.
- f = fraction of the total organic matter (TOC) in the soil. A value of 1.5% was established for both the stream sediment samples and on-site subsurface soils.
- Koc = partition coefficient between water and soil.
- Cw = allowable groundwater/drinking water standard (whichever more stringent).

Once the Cs was determined, a Correction Factor (CF) of 100 was applied to each constituent to determine the Recommended Soil Cleanup Objective (RSCO). This value was then compared with the USEPA Heath Based RSCO and the more stringent value was used. The RSCOs are the established soil cleanup objectives to protect groundwater quality. Attainment of these objectives will, at a minimum, eliminate all significant threats to human health and/or the environment posed by inactive hazardous waste sites.

TABLE 4-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF ANALYTICAL RESULTS
BACKGROUND SOIL SAMPLES

ANALYTES	SAMPLE IDENTIFICATION			Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-BG1	WEC-BG2	WEC-BG3			
Inorganics (ppm)						
Aluminum	18100	10700	17200	15333	33000	10000 - 300000
Antimony	ND	ND	ND	6.37	0.76	0.2 - 150
Arsenic	7.5	4.9	5.7	6.03	5.0	3.0 - 12.0
Barium	139J	96J	109J	115	290	15 - 600
Beryllium	0.98J	0.87B	0.76B	0.87	0.6	0.0-1.75
Cadmium	ND	ND	0.96J	0.32	0.6	0.1-7.0
Calcium	20800	76900	20100	39267	3400	130 - 35000
Chromium	24.8	11.5	20.3	18.87	33	1.5 - 40
Cobalt	21.6J	6.4J	9.2J	12.4	5.9	2.5 - 60
Copper	31.1J	18.6J	21.6J	23.77	20	2.0 - 100
Iron	34900	16700	26800	26133	14000	2000 - 550000
Lead	16.8	16.5	20.1	17.8	14	4.0 - 61
Magnesium	16200	23300	12500	17333	6300	400 - 9000
Manganese	941J	750J	591J	761	850	100 - 4000
Mercury	ND	ND	ND	ND	0.6	0.001-0.2
Nickel	36.3J	14.7J	21.3J	24.1	40	0.5 - 60
Potassium	2340	1490	2060	1963	12000	100 - 37000
Selenium	ND	ND	ND	ND	0.2	0.01-12.0
Silver	ND	ND	ND	ND	-	0.01-8.0
Sodium	98.7B	175B	146B	139.9	6300	150 - 15000
Thallium	0.53B	ND	ND	0.177	-	-
Vandium	38.7	17.5	33.8	30	100	1.3 - 300
Zinc	94.5J	81.9J	94.2J	90.2	50	10 - 300
Cyanide	ND	ND	ND	ND	-	-
Volatile Organics (ppb)						
Methylene Chloride	ND	ND	ND	-	-	-
Total Volatiles	ND	ND	ND	-	-	-
Total Volatile TICs	ND	ND	ND	-	-	-
Semi-Volatile Organics (ppb)						
Phenanthrene	ND	66 J	ND	-	-	-
Di-n-Butylphthalate	87 J	260 J	ND	-	-	-
Fluoranthene	ND	140 J	50	-	-	-
Pyrene	ND	100 J	ND	-	-	-
Benzo(a)Anthracene	ND	53 J	ND	-	-	-
Chrysene	ND	57 J	ND	-	-	-
Benzo(b)Fluoranthene	ND	96 J	ND	-	-	-
Benzo(a)Pyrene	ND	50 J	ND	-	-	-
Total Semi-Volatiles	87	822	50	-	-	-
Total Semi-Volatile TICs	1956 J	186 J	1109 J	-	-	-
Pesticides/PCBs (ppb)						
Alpha - BHC	ND	ND	0.20 JPV	-	-	-
Heptachlor Epoxide	ND	0.32 J	ND	-	-	-
4,4' - DDD	0.55 JPV	1.3 JPV	0.37 JPV	-	-	-
4,4' - DDT	ND	0.78 JPV	0.62 JV	-	-	-
Endrin Ketone	ND	ND	0.43 J	-	-	-
Endrin Aldehyde	0.80 JPV	1.0 JPV	0.49 JPV	-	-	-
Gamma - Chlordane	0.24 JPV	ND	ND	-	-	-
Aroclor - 1260	11 J	ND	ND	-	-	-

TABLE 4-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
CLEAN-UP CRITERIA FOR SEDIMENTS-TCL VOAs
DERIVATION OF CALCULATIONS

Analyte Classification	*Surface Water Standard or Guidance Value(ppb)		Log Kow**	***Sediment Criteria	
	Water Type H(WS) or H(B)	Water Type A		Human Health Bioaccumulation (ug/gOC-ppb)	Benthic Aquatic Life Chronic Toxicity (ug/gOC-ppb)
Non - Polar					
Vinyl Chloride	0.3	--	0.60	0.001	--
Methylene Chloride	5.0	--	0.95	0.04	--
Carbon Disulfide	--	--	2.00	--	--
1,1-DCE	0.07	--	1.48	0.002	--
1,1-DCA	5.0	--	1.79	0.31	--
1,2-DCA	0.8	--	1.48	0.02	--
1,2-DCE(cis & trans)	5.0	--	0.48	0.02	--
1,2,4-Trichlorobenzene	10.0	5.0	4.30	200	100
Chloroform	7.0	--	1.97	0.65	--
TCE	11.0	--	2.29	2.14	--
1,1,1-TCA	5.0	--	2.50	1.6	--
1,1,2-TCA	0.6	--	2.17	0.09	--
Carbon Tetrachloride	0.4	--	--	--	--
Benzene	6.0	--	2.00	0.60	--
PCE	1.0	--	2.88	0.76	--
1,1,2,2-PCA	0.2	--	2.56	0.07	--
Toluene	5.0	--	2.73	2.7	--
Chlorobenzene	20.0	5.0	2.84	13.8	3.5
Ethylbenzene	5.0	--	3.15	7.1	--
Chloroethane	5.0	--	--	--	--
1,2-Dichlorobenzene	30.0	--	3.38	72	--
1,3-Dichlorobenzene	20.0	--	3.38	48	--
1,4-Dichlorobenzene	30.0	--	3.38	72	--
Styrene	50.0	--	--	--	--
Total Xylenes	5.0	--	3.26	9.1	--
Polar					
2-Hexanone	50.0	--	--	--	--
Acetone	50.0	--	-0.24	--	--
2-Butanone(MEK)	50.0	--	0.26	--	--
4-Methyl-2-Pentanone	--	--	--	--	--

* - NYSDEC TOGS 1.1.1(Oct.1993) - Water Types : H(WS) - Source of Drinking Water ; H(B) - Human Consumption of Fish ; A - Fish Propagation or Wildlife Consumption of Fish.

** - Kow is the Octanol/Water Partition Coefficient

*** - Sediment Criteria Determined By : Surface Water Standard(ug/l) x Inverse Log Kow (1/kg) x 1kg/1000 gOC.

TABLE 4-6

WESTINGHOUSE ELECTRIC CORPORATION SITE
CLEAN-UP CRITERIA FOR SEDIMENTS - TCL PESTICIDES/PCBs
DERIVATION OF CALCULATIONS

Analyte Classification	*Surface Water Standard or Guidance Value(ppb)		Log Kow**	***Sediment Criteria	
	Water Type H(WS) or H(B)	Water Type A		Human Health Bioaccumulation (ug/gOC-ppb)	Benthic Aquatic Life Chronic Toxicity (ug/gOC-ppb)
Non - Polar					
4,4-DDD	0.01	0.001	6.00	10	1.0
4,4-DDT	0.01	0.001	6.00	10	1.0
4,4-DDE	0.01	0.001	6.00	10	1.0
Methoxychlor	35	0.03	4.30	698	0.6
Endrin	0.002	--	5.60	0.8	--
Chlordane	0.002	--	2.78	0.001	--
gamma - Chlordane	--	--	--	--	--
Endosulfan I	--	0.009	3.55	--	0.03
Endosulfan II	--	0.009	3.55	--	0.03
Endosulfan Sulfate	--	--	--	--	--
Aldrin	0.002	--	5.00	0.20	--
All PCB's	0.0000006	0.001	6.14	0.0008	1.4
alpha - BHC	0.05	--	3.90	0.40	--
beta - BHC	0.05	--	3.90	0.40	--
delta - BHC	0.05	--	3.90	0.40	--
gamma - BHC(Lindane)	0.05	--	4.10	0.6	--
Dieldrin	0.0009	--	5.00	0.09	--
Heptachlor	0.009	0.001	4.40	0.23	0.03
Heptaclor Epoxide	0.009	0.001	4.40	0.23	0.03
Parathion	--	0.008	--	--	--
2,4-D	--	--	--	--	--
2,4,5-T	--	--	--	--	--
Silvex	--	--	--	--	--

* - NYSDEC TOGS 1.1.1 (Oct.1993) - Water Types : H(WS) - Source of Drinking Water ;
H(B) - Human Consumption of Fish ; A - Fish Propagation or Wildlife Consumption of Fish.

** - Kow is the Octanol/Water Partition Coefficient

*** - Sediment Criteria Determined By : Surface Water Standard(ug/l) x Inverse Log Kow (1/kg) x 1kg/1000 gOC.

TABLE 4-7

WESTINGHOUSE ELECTRIC CORPORATION SITE
CLEAN-UP CRITERIA FOR SEDIMENTS - TCL BNAs
DERIVATION OF CALCULATIONS

Analyte Classification	*Surface Water Standard or Guidance Value(ppb)		Log Kow**	***Sediment Criteria	
	Water Type H(WS) or H(B)	Water Type A		Human Health Bioaccumulation (ug/gOC-ppb)	Benthic Aquatic Life Chronic Toxicity (ug/gOC-ppb)
Non - Polar					
Bis-2-ethylhexylphthalate	4.0	0.6	5.30	798	120
Napthalene	10.0	--	--	--	--
2-Methylnapthalene	--	--	--	--	--
Pyrene	50.0	--	4.88	3793	--
Phenanthrene	50.0	--	4.45	1409	--
Anthracene	50.0	--	4.45	1409	--
Fluoranthene	50.0	--	4.90	3972	--
Chrysene	0.002	--	6.04	2.2	--
Acenaphthene	20.0	--	4.33	428	--
Acenaphthylene	--	--	1.70	--	--
Fluorene	50.0	--	4.20	792	--
Benzo(a)anthracene	0.002	--	6.04	2.2	--
Benzo(b)fluoranthene	0.002	--	6.04	2.2	--
Benzo(k)fluoranthene	0.002	--	6.04	2.2	--
Benzo(a)pyrene	0.0012	--	6.04	1.3	--
Indeno(1,2,3-cd)pyrene	0.002	--	6.04	2.2	--
Benzo(g,h,i)perylene	--	--	6.51	--	--
Dibenzo(a,h)anthracene	--	--	--	--	--
Hexachlorobenzene	0.02	--	6.18	30.3	--
2,4 - Dichlorophenol	0.3	--	2.90	0.24	--
2 -Methylphenol	--	--	--	--	--
4 - Methylphenol	--	--	--	--	--
4-Chloro-3-Methylphenol	--	--	--	--	--
2,4,5 -Trichlorophenol	--	--	--	--	--
Dibenzofuran	--	--	--	--	--
Pentachlorophenol	--	0.4	5.00	--	40
Aniline	1.0	--	--	--	--
Phenol	--	1.0	2.75	--	0.56
Polar					
Butylbenzylphthalate	50.0	--	--	--	--
Di-n-butylphthalate	50.0	--	5.60	--	--
Dimethylphthalate	50.0	--	--	--	--
Diethylphthalate	50.0	--	2.50	--	--
Di-n-octylphthalate	50.0	--	--	--	--

* - NYSDEC TOGS 1.1.1(Oct.1993) - Water Types : H(WS) - Source of Drinking Water ; H(B) - Human Consumption of Fish ; A - Fish Propagation or Wildlife Consumption of Fish.

** - Kow is the Octanol/Water Partition Coefficient

*** - Sediment Criteria Determined By : Surface Water Standard(ug/l) x Inverse Log Kow (1/kg) x 1kg/1000 gOC.

TABLE 4-8

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF HUMAN HEALTH & AQUATIC TOXICITY BASED SEDIMENT CLEAN-UP CRITERIA
PESTICIDES/PCBs/VOAs/BNAs
(All Concentrations Presented in ug/kg - ppb)

				*Sediment Criteria				
Pest/PCBs	Human Health Bioaccumulation	Benthic Aquatic Life Chronic Toxicity	VOAs	Human Health Bioaccumulation	Benthic Aquatic Life Chronic Toxicity	BNAs	Human Health Bioaccumulation	Benthic Aquatic Life Chronic Toxicity
Non - Polar Analytes			Non - Polar Analytes			Non - Polar Analytes		
4,4-DDD	150.00	15.00	Vinyl Chloride	0.02	--	Bis-2-ethylhexylphthalate	11971.57	1795.74
4,4-DDT	150.00	15.00	Methylene Chloride	0.67	--	Napthalene	--	--
4,4-DDE	150.00	15.00	Carbon Disulfide	--	--	2-Methylnapthalene	--	--
Methoxychlor	10475.13	8.98	1,1-DCE	0.03	--	Pyrene	56893.32	--
Endrin	11.94	--	1,1-DCA	4.62	--	Phenanthrene	21137.87	--
Chlordane	0.02	--	1,2-DCA	0.36	--	Anthracene	21137.87	--
gamma - Chlordane	--	--	1,2-DCE(cis & trans)	0.23	--	Fluoranthene	59574.62	--
Endosulfan I	--	0.48	1,2,4-Trichlorobenzene	2992.89	1496.45	Chrysene	32.89	--
Endosulfan II	--	0.48	Chloroform	9.80	--	Acenaphthene	6413.89	--
Endosulfan Sulfate	--	--	TCE	32.17	--	Acenaphthylene	--	--
Aldrin	3.00	--	1,1,1-TCA	23.72	--	Fluorene	11886.70	--
All PCB's	0.01	20.71	1,1,2-TCA	1.33	--	Benzo(a)anthracene	32.89	--
alpha - BHC	5.96	--	Carbon Tetrachloride	--	--	Benzo(b)fluoranthene	32.89	--
beta - BHC	5.96	--	Benzene	9.00	--	Benzo(k)fluoranthene	32.89	--
delta - BHC	5.96	--	PCE	11.38	--	Benzo(a)pyrene	19.74	--
gamma - BHC(Lindane)	9.44	--	1,1,2,2-PCA	1.09	--	Indeno(1,2,3-cd)pyrene	32.89	--
Dieldrin	1.35	--	Toluene	40.28	--	Benzo(g,h,i)perylene	--	--
Heptachlor	3.39	0.38	Chlorobenzene	207.55	51.89	Dibenzo(a,h)anthracene	--	--
Heptaclor Epoxide	3.39	0.38	Ethylbenzene	105.94	--	Hexachlorobenzene	454.07	--
Parathion	--	--	Chloroethane	--	--	2,4 - Dichlorophenol	3.57	--
2,4-D	--	--	1,2 -Dichlorobenzene	1079.47	52	2 -Methylphenol	--	--
2,4,5-T	--	--	1,3 -Dichlorobenzene	719.65	--	4 - Methylphenol	--	--
Silvex	--	--	1,4 -Dichlorobenzene	1079.47	--	4-Chloro-3-Methylphenol	--	--
			Styrene	--	--	2,4,5 -Trichlorophenol	--	--
			Total Xylenes	136.48	--	Dibenzofuran	--	--
					--	Pentachlorophenol	--	600.00
			Polar Analytes		--	Aniline	--	--
			2-Hexanone	50.00	--	Phenol	--	8.44
			Acetone	50.00	--			
			2-Butanone(MEK)	50.00		Polar Analytes		
			4-Methyl-2-Pentanone	--		Butylbenzylphthalate	50.00	--
						Di-n-butylphthalate	50.00	--
						Dimethylphthalate	50.00	--
						Diethylphthalate	50.00	--
						Di-n-octylphthalate	50.00	--

* - For a Specific Analyte (Non-Polar), the OC Normalized Value(from Tables 4-5 thru 4-7) is Multiplied by the TOC Concentration in the Sediment, Which was Determined to be 1.5%.
For Example, the Sediment Criteria for PCBs w/TOC of 1.5% would be 1.4 ug/gOC x 15 gOC/kg = 20.71 ug/kg(ppb). Sediment Criteria for Polar Analytes are Equivalent to their Respective NYS Surface Water Standards or Guidance Values.

TABLE 4-9

WESTINGHOUSE ELECTRIC CORPORATION SITE
CLEAN-UP CRITERIA FOR SEDIMENTS -TAL METALS

Metal	Lowest Effect Level (ug/g-ppm)	Severe Effect Level (ug/g-ppm)
Antimony	2.0	25
Arsenic	6.0	33
Cadmium	0.6	9.0
Chromium	26	110
Copper	16	110
Iron	20000	40000
Lead	31	110
Manganese	460	1100
Mercury	0.15	1.3
Nickel	16	50
Silver	1.0	2.2
Zinc	120	270

4.2 Area A-Fan Room/Tunnels/Transformer Vaults

Background

The Fan Room and associated air duct tunnel are located in the basement of the eastern section of the main building (refer to Plate Map No. 1). A sump located within the air duct tunnel (Sump No. 1) was sampled during the PSA and determined to contain elevated concentrations of TCE in the surface water as well as elevated levels of TCE and PCE in the sediment.

Purpose of Investigation

As noted previously, power to the site was terminated and, therefore, the sumps located within the building were not operating. The air duct tunnel containing Sump No. 1 has subsequently flooded to an approximate depth of four feet. In addition, several other areas within the building were found to be flooded. These areas included a tunnel located near Area M (which contains Sump No. 6), the maintenance shop area, and several transformer vaults (TV-1, 5, 7 & 12). The locations of each of these areas is presented on Plate Map No. 1. A summary table of the flooded areas and an estimate of the total quantity of water in each area is presented in Table A-1.

It is assumed that the water within the flooded areas represents groundwater which has infiltrated into the building. The purpose of this investigation was to assess the quality of the water within the building.

Scope of Investigation

One aqueous (groundwater) sample was collected from each of the flooded areas and analyzed for TCL VOAs. In addition, the fan room tunnel sample was analyzed for TCL BNAs and the transformer vault samples were analyzed for TCL PCBs.

Analytical Results

A summary table of the analytical results associated with the water samples collected from the flooded areas is presented in Table A-2. The sample collected from the fan room tunnel (WEC-SW-A1) indicated the presence of TCE (100 ppb) at levels which exceed NYS Water Quality Guidance Values. In addition, slightly elevated levels of volatile organics, (TCE & PCE) were detected within the samples collected from the maintenance shop. Water samples collected from the four transformer vaults (WEC-TV1, 5, 7 & 12) indicated the presence of PCBs (Aroclor-1260) at levels which exceed NYS Water Quality Standards. The concentrations ranged from 0.15 ppb in WEC-TV1 to 9.4 ppb in WEC-TV12.

Conclusions

The elevated level of TCE within water collected from fan room tunnel and PCBs within water collected from transformer vaults is a significant environmental concern. The presence

of contaminated water within the building poses an environmental concern due to the potential for off-site migration of contaminants through the existing storm sewer system, sanitary sewer system and/or other utility trenches. It is recommended that the remediation of this area should be addressed in a focused Feasibility Study. The decommissioning of the transformers within the vault areas should be addressed by the respective responsible parties.

TABLE A-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF FLOODED AREAS IDENTIFIED WITHIN MAIN BUILDING

Location	*Approx. Depth of Water (ft)	Approx. Volume of Water (gal)	Comments
Fan Room Tunnel	4.0	71,808	Tunnel Contains Sump No. 1
Area M Tunnel	7.0	13,090	Tunnel Contains Sump No.6
Maintenance Shop Area	5.0	1,122,000	
Transformer Vault No. 1	6.0	33,660	Two PCB Containing Transformers Present
Transformer Vault No. 5	2.0	11,220	Two PCB Containing Transformers Present
Transformer Vault No. 7	3.0	16,830	Two PCB Containing Transformers Present
Transformer Vault No. 12	1.0	5,610	Two PCB Containing Transformers Present

* - Measurements Taken in October 1993

TABLE A-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC, & PCB COMPOUNDS
SURFACE WATER/GROUNDWATER SAMPLES
FLOODED AREAS WITHIN THE MAIN BUILDING
(Concentration Values in ug/l- ppb)

ANALYTES	WEC-SW-A1 Fan Room Tunnel	WEC-TV1 Transformer Vault No. 1	WEC-TV5 Transformer Vault No. 5	WEC-TV7 Transformer Vault No. 7	WEC-TV12 Transformer Vault No. 12	WEC-MT Area M Tunnel	WEC-SHOPE East End of Maint. Shop	WEC-SHOPW West End of Maint. Shop	NYS Surface Water Standard and/or **Guidance Value***
Volatile Organics									
1,2-Dichloroethene(total)	5 J	ND	ND	ND	ND	ND	3 J	2 J	5.0
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	**5.0**
Acetone	21J	ND	ND	ND	ND	ND	ND	ND	**50.0**
Trichloroethene	100	ND	ND	ND	ND	ND	4 J	3 J	**3.0**
Tetrachloroethane	ND	ND	ND	ND	ND	ND	4 J	3 J	**0.7**
Total Volatiles	**126**	**0**	**0**	**0**	**0**	**0**	**11**	**8**	-
Total Volatile TICs	7 NJ	ND	ND	ND	ND	ND	ND	ND	-
Semi-Volatile Organics									
bis(2-Ethylhexyl)phthalate	2 J	-	-	-	-	-	-	-	**4.0**
Total Semi-Volatiles	2	-	-	-	-	-	-	-	-
Total Semi-Volatile TICs	27 J	-	-	-	-	-	-	-	-
PCBs									
Aroclor 1260	-	0.15 JPV	1.4 P	0.75 JP	9.4	-	-	-	0.001

* Represents NYSDEC TOGS 1.1.1 - OCT. 1993

4.3 Area B-Storm Sewer Line 003 - Bedding Material

Background

Area B includes the entire length of storm sewer line 003, which is divided into two main trunk lines located in the western end of the main building (refer to Figure B). A previous investigation of the line 003 bedding material was conducted during the 1990 Consent Order Study in which a section of the line running from the fan room to outfall monitoring station 003 was sampled. Elevated levels of TCE, several polycyclic aromatic hydrocarbons (PAHs) and low levels of PCBs were detected in the bedding material during the investigation.

Purpose of Investigation

It was suspected that the presence of contaminants in the line 003 bedding material may be a source of contamination for the stormwater run-off leaving the site. The purpose of this investigation was to delineate the location, extent and severity of bedding material contamination in order to guide potential remedial efforts associated with storm sewer line 003.

Scope of Investigation

A total of eleven test borings (SB-B1 through SB-B11) and nine test pits (TP-B4 through TP-B12) were completed along the length of storm sewer line 003 (refer to Figure B). Soil/bedding material samples were collected adjacent to the storm sewer line at each test pit/soil boring location and subsequently analyzed for TCL VOAs, BNAs, PCBs and Priority Pollutant (PP) metals. Four of the borings were converted to 1" PVC piezometers in order to assess groundwater flow conditions beneath the main building (refer to Section 4.18). It should be noted that the Work Plan also called for the collection of water samples from the test pits and borings, however, there was insufficient water present to collect an adequate sample.

Subsurface Conditions

As expected, fill material was encountered at each of the boring and test pit locations completed along the storm sewer line 003. The type of fill encountered varied greatly, ranging from sand and gravel to re-worked glacial till. In most instances, there was no "classic" sand and gravel bedding material encountered adjacent to or beneath the storm sewer line. It appears that the trenches excavated during construction of the sewer line were just wide enough to emplace the line in native soil and then back filled to the surface. Detailed geologic logs are presented in Appendix C.

Air Monitoring/Headspace Results

Soil samples recovered from eight of the borings and three of the test pits were screened with the on-site GC (refer to Tables B-1 & 2.) Significantly elevated concentrations (>5ppm) of total VOCs were detected at the following locations: TP-B4 (2716 ppm); SB-B1 (22 ppm); SB-B6 (337 ppm); SB-B7 (17.5 ppm); SB-B4 (8 ppm); and SB-B3 (6.7 ppm). As indicated on the

summary tables, a wide range of VOCs were detected at each location.

Analytical Results

Refer to Tables B-3 through B-6 for a summary of analytical results associated with the soil/bedding material samples collected from the test pits and borings.

Elevated levels of VOCs were detected in soil sample WEC-SB-B6. TCE (3000 ppb) and 1,2-DCE (520 ppb) were detected in WEC-SB-S6 at levels which exceeded their respective RSCOs. There were no elevated levels of VOCs detected within any other test pit or boring soil/bedding samples.

Numerous semi-volatile organics were detected in three bedding material samples: WEC-TP-B4; WEC-TP-B6; and WEC-SB-10. Two of the analytes detected in WEC-SB-B10, benzo(a)anthracene (230 ppb) and benzo(a)pyrene (150 ppb), were detected at levels slightly exceeding RSCOs. Benzo(a)pyrene was also detected at slightly elevated levels in WEC-TP-B4 (67 ppb) and WEC-TP-B6 (180 ppb). There were no elevated levels of semi-volatile organics detected in any of the other test pit or boring samples.

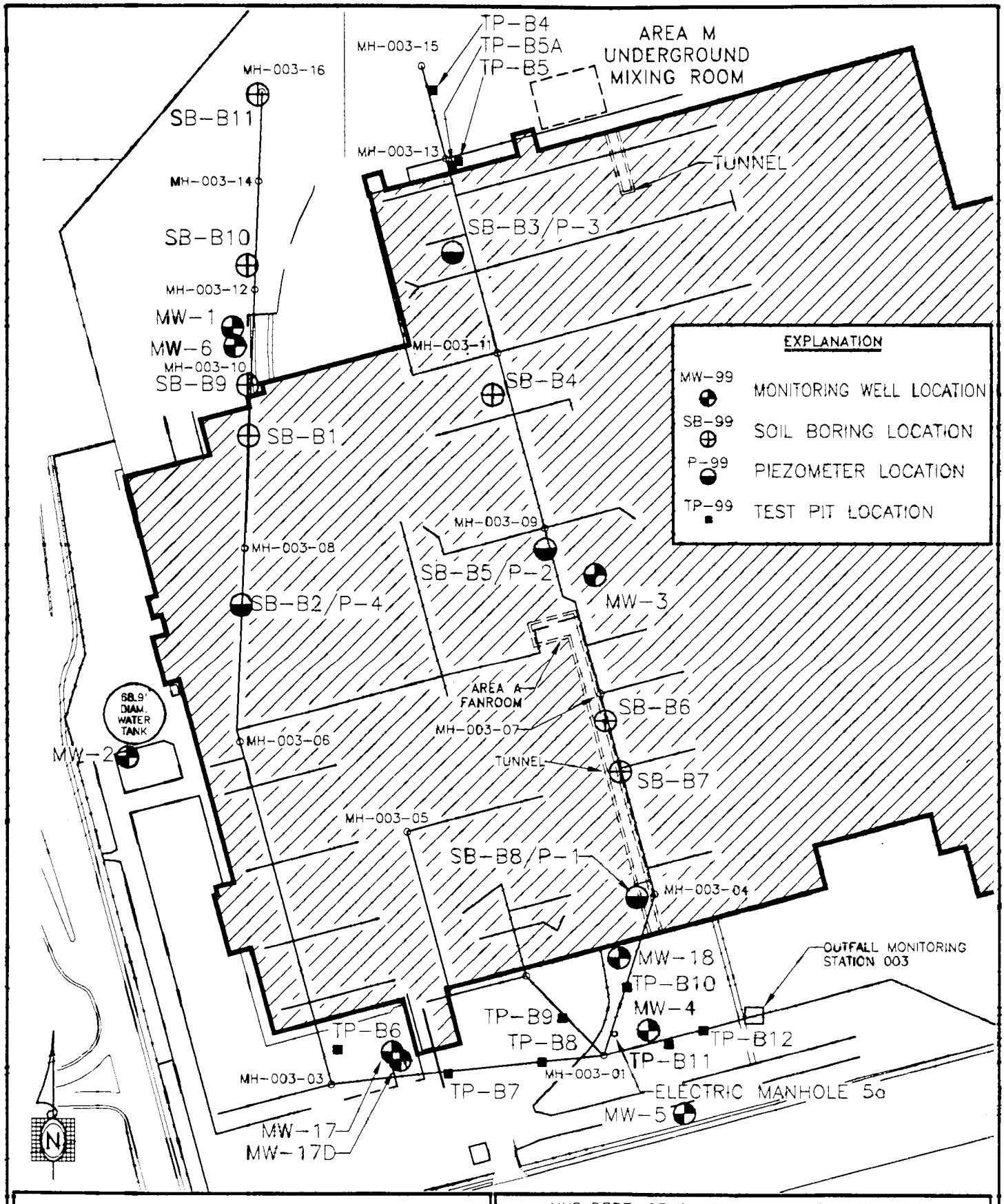
There were no elevated levels of priority pollutant metals detected within any of the test pit or boring soil/bedding samples.

Conclusions

The presence of elevated levels of volatile organic contamination, namely TCE, was detected within the line 003 soil/bedding at one sample location, WEC-SB-B6, which is located approximately ten feet south of manhole MH-003-07 in the basement of the main building. There were no significantly elevated levels of any contaminants detected within any other section of the storm sewer line 003 bedding material, in either the eastern or western main trunk lines (refer to Figure B).

The presence of TCE in the bedding material located adjacent to MH-003-07 was previously documented during the PSA. The PSA also documented the presence of elevated levels of TCE and 1,2-DCE in the bedding material located between MH-003-01 and outfall monitoring station 003. However, the presence of these contaminants in this section of the storm sewer line was not confirmed during this RI investigation.

Based on the results of this investigation, it does not appear that the contamination detected in the line 003 bedding material is either extensive or severe. The contamination detected within the bedding material appears to be confined to localized random areas and is not considered to be a significant source area for the contamination detected within storm sewer line 003. No remedial action is presently considered for the bedding material, however, should storm sewer line 003 be removed in the future, remedial measures may be warranted.



DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

AREA B – TEST PIT/ BORING/PIEZOMETER LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb.,1994	DWG. NO. 4D0066SD	SCALE 1"=150'	FIGURE NO. B

TABLE B-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
BORING SOIL HEADSPACE SURVEY
AREA B-Storm Sewer Line 003
(Concentration values in ppb)

ANALYTES	Boring Location and Depth								
	SB-B1 12-14'	SB-B2 16-18'	SB-B3 8-10'	SB-B4 12-14'	SB-B5 14-16'	SB-B6 4-6'	SB-B6 6-8'	SB-B7 6-8'	SB-B8 6-8'
1,1-DCE	198.80	19.14	370.90	205.00	88.50	2458.00	9042.00	298.00	72.54
trans-1,2-DCE	111.80	1.17	62.41	222.20	47.02	1428.00	4173.00	105.60	90.30
cis-1,2-DCE	920.10	-	388.40	3381.00	-	157400	253300	13970	1718.00
1,1,1-TCA	14780.00	-	3201.00	650.20	-	-	-	-	-
Benzene	4496.00	335.20	358.30	650.20	215.30	1561.00	2002.00	203.70	103.90
TCE	109.90	136.70	31.45	2573.00	19.86	18040.00	67910.00	2820.00	2846.00
Toluene	235.80	31.95	42.81	122.20	18.56	271.60	374.90	25.58	412.20
PCE	283.70	-	88.33	35.64	-	-	-	-	241.20
Chlorobenzene	779.20	-	254.50	104.00	3513.00	-	82.86	-	609.90
Ethylbenzene	291.70	78.73	20.92	-	-	77.49	-	-	278.60
m--Xylene	333.10	81.02	88.14	124.40	-	121.80	169.50	91.70	317.40
o-Xylene	-	-	-	-	-	-	-	-	-
Total	22540.10	683.91	4907.16	8067.84	3902.24	181357.89	337054.26	17514.58	6690.04

TABLE B-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA B-Storm Sewer Line 003
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth				
	TP-B4 2'	TP-B4 4.5'	TP-B5 6'	TP-B5A 5.5'	TP-B9 5.5'
1,1-DCE	21.55	44.90	52.66	-	-
trans-1,2-DCE	8272.00	139.90	40.89	-	-
cis-1,2-DCE	1554.00	200.20	338.10	-	-
1,1,1-TCA	1258000.00	7480.00	-	-	-
Benzene	22610.00	183.40	135.20	-	-
TCE	237100.00	1404.00	80.99	23.84	96.29
Toluene	751400.00	8410.00	57.47	-	-
PCE	168700.00	3782.00	-	-	-
Chlorobenzene	168500.00	7131.00	1445.00	95.90	-
Ethylbenzene	56390.00	3181.00	-	-	-
m-Xylene	4445.00	3093.00	-	-	59.92
o-Xylene	-	-	-	-	-
Total	2716997.55	35049.41	2150.31	119.74	156.21

TABLE B-3
WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
TEST PIT SOIL SAMPLES
AREA B- STORM SEWER LINE 003
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH									RSCO*
	WEC-TP-B4 4' - 6'	WEC-TP-B5 6'	WEC-TP-B6 7'	WEC-TP-B7 4'	WEC-TP-B8 3' - 4'	WEC-TP-B9 5.5'	WEC-TP-B10 8'	WEC-TP-B11 8'	WEC-TP-B12 7'	
Volatile Organics										
Trichloroethene	ND	ND	ND	ND	ND	ND	11	ND	ND	1050
2-Butanone	10 J	ND	ND	ND	ND	ND	6 J	ND	ND	450
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	8 J	1 J	ND	1140
Toluene	ND	1 J	ND	1 J	ND	1 J	ND	ND	ND	2250
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	1 J	ND	8250
Chlorobenzene	ND	2 J	ND	ND	ND	ND	ND	ND	ND	2550
Total Xylenes	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**8 J**	**16**	**ND**	**1800**
Total Volatiles	10	3	0	1	0	1	33	18	0	10000
Total Volatle TICs	19 NJ	ND	19 J	ND	ND	ND	ND	ND	ND	10000
Semi-Volatile Organics										
Phenanthrene	120 J	ND	180 JV	ND	ND	ND	ND	ND	ND	50000
Anthracene	ND	ND	43 J	ND	ND	ND	ND	ND	ND	50000
Carbazole	ND	ND	42 J	ND	ND	ND	ND	ND	ND	-
Di-n-butylphthalate	ND	ND	61 J	ND	ND	ND	ND	ND	ND	12150
Fluoranthene	210 J	ND	430	ND	ND	ND	ND	62 JV	80 J	50000
Pyrene	140 J	ND	370	ND	ND	ND	ND	38 J	64 J	50000
Benzo (a) anthracene	83 J	ND	200 J	ND	ND	ND	ND	ND	ND	220 or MDL
Chrysene	88 J	ND	220 J	ND	ND	ND	ND	ND	50 J	600
Benzo(b)flouranthene	74 J	ND	210 J	ND	ND	ND	ND	ND	ND	1650
Benzo(k)flouranthene	60 J	ND	210 J	ND	ND	ND	ND	ND	41 J	1650
Benzo(a)pyrene	67 J	ND	180 J	ND	ND	ND	ND	ND	ND	61 or MDL
Indeno(1,2,3-cd)pyrene	41 J	ND	65 J	ND	ND	ND	ND	ND	ND	4800
Benzo(g,h,i)Perylene	39 J	ND	ND	ND	ND	ND	ND	ND	ND	50000
Total Semi-Volatiles	922	0	2211	0	0	0	0	100	235	500000
Total Semi-Volatile TICs	2564 J	3246 J	814 J	3484 J	205 J	1661 J	455 J	859 J	0	500000
PCBs										
Aroclor - 1260	ND	ND	9.8 JV	ND	ND	ND	ND	ND	ND	10000
Aroclor - 1242	ND	ND	ND	2000	ND	ND	ND	ND	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE B-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
TEST PIT SOIL SAMPLES
AREA B- STORM SEWER LINE 003
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH									Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Range of Element in Uncont. Soils
	WEC-TP-B4 4'-6'	WEC-TP-B5 6'	WEC-TP-B6 7'	WEC-TP-B7 4'	WEC-TP-B8 3' - 4'	WEC-TP-B9 5.5'	WEC-TP-B10 8'	WEC-TP-B11 8'	WEC-TP-B12 7'			
Arsenic	2.8	2.4	3.10	2.70	1.8 B	2.7	2.40	2.80	2.90	6.03	5	3.0 - 12.0
Beryllium	0.36 B	0.34 B	0.23 B	0.16 B	0.36 B	0.15 B	0.1 B	0.2 B	0.18 B	0.87	0.6	0.0 - 1.75
Chromium	11.00*	11.90*	13.30	4.80	6.00	5.20*	5.00	7.70	7.60	18.87	33	1.5 - 40
Copper	11.7	10.7	26.00	8.20	8.70	11.2	8.40	12.50	11.70	23.77	20	2.0 - 100
Lead	9.30 J	13.10 J	19.30 V	8.10	6.00	8.50 J	5.30 V	13.00 V	9.00 V	17.8	14	4.0 - 61
Nickel	9.70 J	10.40 J	11.80	6.1 B	5.2 B	7.10 J	5.1 B	9.10	7.4 B	24.1	40	0.5 - 60
Silver	ND	0.86B	ND	ND	ND	ND	ND	ND	ND	-	-	0.01 - 8.0
Zinc	70.2	65.5	60.00	41.30	47.70	48.6	26.70	56.90	52.30	90.2	50	10 - 300

TABLE B-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
AREA B - SOIL BORINGS
(Concentrations Values in ug/kg-ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH											RSCO*
	WEC-SB-B1 18'-20'	WEC-SB-B2 16'-18'	WEC-SB-B3 8'-10'	WEC-SB-B4 12'-13'	WEC-SB-B5 14'-15'	WEC-SB-B6 6'-8'	WEC-SB-B7 6'-8'	WEC-SB-B8 6'-8'	WEC-SB-B9 14'-16'	WEC-SB-10 12'-14'	WEC-SB-11 10'-12'	
Volatile Organics												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	2 J	2 J	ND	150
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	3 J	ND	ND	4050
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	440 JD	3 J	ND	ND	ND	ND	450
2-Butanone	3 J	ND	19	ND	ND	ND	ND	ND	ND	ND	ND	450
Trichloroethene	ND	ND	ND	ND	3 J	3000 JD	16	22	ND	ND	ND	1050
Toluene	ND	ND	ND	ND	ND	ND	2J	ND	1 J	2 J	ND	2250
Total Volatiles	**3**	**0**	**19**	**0**	**3**	**3440**	**21**	**22**	**6**	**4**	**ND**	**10000**
Total Volatile TICs	ND	17 NJ	38 NJ	ND	ND	41 NJ	6 NJ	ND	ND	26 J	ND	10000
Semi-Volatile Organics												
Phenol	ND	42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	45 or MDL
1,2,4-Trichlorobenzene	ND	ND	ND	71 J	ND	ND	ND	ND	ND	ND	ND	-
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	130 J	ND	19500
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	61 J	ND	50000
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	40 J	ND	50000
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	49 J	ND	50000
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	120 J	ND	6200
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	230 J	ND	50000
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	660	ND	50000
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	ND	50000
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	ND	-
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	78 J	12150
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	520	ND	50000
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	360	ND	50000
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	230	ND	220 or MDL
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	ND	600
bis(2-Ethylhexyl)phthalate	ND	ND	140 J	65 J	38 J	44 J	ND	ND	210 J	270	ND	50000
Di-n-octylphthalate	ND	650	170 J	310 J	ND	ND	ND	ND	ND	ND	ND	50000
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	350	ND	1650
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	150	ND	61 or MDL
Total Semi-Volatiles	0	692	310	446	38	44	0	0	210	3610	78	500000
Total Semi-Volatile TICs	2462 J	13400 J	4685 J	6896 J	1600 J	4192 J	1544 J	2769 J	1195 J	1698 J	704 J	500000
PCBs												
All PCBs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE B-6

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SOIL BORING SAMPLES
AREA B- STORM SEWER LINE 003
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH											Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Range of Element in Uncont. Soils
	WEC-SB-B1 18'-20'	WEC-SB-B2 16'-18'	WEC-SB-B3 8'-10'	WEC-SB-B4 12'-13'	WEC-SB-B5 14'-15'	WEC-SB-B6 6'-8'	WEC-SB-B7 6'-8'	WEC-SB-B8 6'-8'	WEC-SB-B9 14'-16'	WEC-SB-B10 12'-14'	WEC-SB-B11 10'-12'			
Arsenic	3.70	3.50	3.00	3.3	3.3	2.8	3.5	2.9	4.4	4.5	3.8	6.03	5.0	3.0-12.0
Beryllium	0.34 B	0.45 B	0.3 B	0.34 B	0.27 B	0.28 B	0.32 B	0.34 B	0.35 B	0.44 B	0.34 B	0.87	0.6	0.0-1.75
Cadmium	ND	ND	ND	ND	ND	1.1 J	ND	ND	ND	ND	ND	0.32	0.6	0.1-7.0
Chromium	11.70	12.70	11.70	10.5	10.9	10.6	10.7	10.4	11.5	13.8	11.2	18.87	33	1.5-40
Copper	18.30	16.30	27.20	15.1	14.8	18	15.4	15.4	14.2 J	17.2 J	15 J	23.77	20	2.0-100
Lead	11.40	10.30	11.5 *	10.60 J	10.9 J	9.90 J	10.40 J	32.10 J	13.6	14.1	12.5	17.8	14	4.0-61
Mercury	ND	ND	0.11 B	ND	ND	ND	ND	ND	ND	ND	ND	-	0.6	0.001-0.2
Nickel	15.40	14.50	10.00	12.80 J	12.7 J	11.90 J	14.00 J	14.70 J	12.9 J	15.8 J	13.5 J	24.1	40	0.5-60
Silver	ND	ND	ND	0.67 B	ND	ND	ND	ND	ND	ND	ND	-	-	0.01-8.0
Zinc	64.60	69.20	55.10	69.8	79.1	72.5	70.2	79.7	69.3 J	83.5 J	76.5 J	90.2	50	10-300

4.4 Area C-Electrical Manhole Sump 5A

Background

The Electrical Manhole Sump 5A (EM Sump 5A) is located south of the main building in the southwest corner of the site (refer to Plate Map No. 1). As noted in Section 1.5 of this report, a 1987 study conducted by Malcolm Pirnie indicated the presence of elevated VOC concentrations within EM Sump 5A.

Purpose of Investigation

Sampling of EM Sump 5A was not performed during the PSA. Therefore, the purpose of this investigation was to confirm Malcolm Pirnie's findings in order to determine the potential for remedial action at this location.

Scope of Investigation

One aqueous and one non-aqueous (sediment) sample were collected from EM Sump 5A and analyzed for TCL VOAs and BNAs.

Analytical Results

A summary of analytical results associated with the surface water and sediment samples collected from EM Sump 5A is presented on Table C-1. Analysis of the aqueous sample (WEC-SW-C1) collected from EM Sump 5A indicated the presence of elevated levels of 1, 1-DCA (10 ppb), 1,2-DCE (37 ppb) and TCE (150 ppb) at levels in excess of NYS Water Quality Guidance Values. In addition, significantly elevated levels of 1,2-DCE (9 ppm), 2-butanone (23 ppm), and TCE (440 ppm) were detected within the sediment sample (WEC-SED-C1), collected from EM Sump 5A at levels in excess of the sediment criteria values.

There were no elevated levels of semi-volatile organics detected in WEC-SW-C1. However, numerous PAHs were detected in WEC-SED-C1 at levels exceeding sediment criteria. These included: benzo(a)anthracene (2100 ppb); chrysene (1800 ppb); benzo(b)fluoranthene (2300 ppb); benzo(k)fluoranthene (1700 ppb); benzo(a)pyrene (1400 ppb); and indeno(1,2,3 cd)pyrene (190 ppb).

Conclusions

The presence of excessive levels of volatile and semi-volatile organics within the sediment contained in EM Sump 5A confirms the necessity for remedial measures in this area. It should be noted that the contaminated sediments do not pose an immediate environmental threat as there is no available migration pathway. The removal of contaminated sediments from the sump would be the most probable course of action and should be addressed in a focused Feasibility Study.

TABLE C-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SURFACE WATER/ SEDIMENT SAMPLES
AREA C - HEAT TREATMENT AND PLATING AREA
(Concentration Values in ppb)

ANALYTES	SAMPLE ID AND LOCATION		SEDIMENT CRITERIA	NYS SW Standard or Guidance Value*
	WEC-SW-C1 EM Sump 5a	WEC-SED-C1 EM Sump 5a		
Volatile Organics				
1,1-Dichloroethane	10 J	ND	4.62	5.0
1,2-Dichloroethene (total)	37	39000	0.23	5.0
2-Butanone	ND	23000	50	-
Trichloroethene	150	440000	32.17	3.0
Total Volatiles	197	502000	-	-
Total Volatile TICs	ND	ND	-	-
Semi-Volatile Organics				
4-Methylphenol	130	200 J	-	-
Fluorene	ND	73 J	11886.7	50
Phenanthrene	ND	830	21137.87	50
Anthracene	ND	200 J	21137.87	50
Carbazole	2 J	160 J	-	-
Fluoranthene	ND	2500	59574.62	50
Pyrene	ND	2200	56893.32	50
Benzo(a)anthracene	ND	2100	32.89	0.002
Chrysene	ND	1800	32.89	0.002
bis(2-Ethylhexyl)phthalate	ND	230 J	11971.57	4.0
Benzo(b)fluoranthene	ND	2300	32.89	0.002
Benzo(k)fluoranthene	ND	1700	32.89	0.002
Benzo(a)pyrene	ND	1400	19.74	0.002
Indeno(1,2,3-cd)pyrene	ND	190 J	32.89	0.002
Dibenz(a,h)anthracene	ND	99 J	-	-
Benzo(g,h,i)perylene	ND	140 J	-	-
Total Semi-Volatiles	132	16122	-	-
Total Semi-Volatile TICs	850 J	7340 J	-	-

*6NYCRR Part 703

4.5 Area E-Storm/Sanitary Sewer System

Background

Three primary storm sewer lines exist beneath the main building structure (lines 001, 002 and 003). Line 001 collects runoff from the eastern portion of the site; line 002 collects runoff from the central portion of the site; and line 003 collects runoff from the western portion of the site. In addition, there are two primary sanitary sewer lines (Lines 100 & 200) located beneath the building. Refer to Figure E-1 for the location of the various storm/sanitary sewer lines. The storm sewer lines are diverted through three respective outfall locations (Outfall Monitoring Stations 001, 002 and 003), and ultimately discharge south of the site across Genesee Street to the U-Crest ditch as two outfalls. Line 001 discharges directly to the U-Crest ditch while Lines 002 & 003, combine prior to their discharge to the U-Crest ditch.

Previous investigations, including the PSA, have identified the presence of elevated levels of VOCs, PAHs and inorganic compounds in the surface water and sediment samples collected from storm sewer lines 001 & 003, and to a lesser extent line 002. The outfall monitoring stations continue to be sampled on a monthly basis per a NYSDEC Consent Order. The U-Crest ditch and the sanitary sewer lines have not been previously sampled.

Purpose of Investigation

The purpose of this investigation was to identify potential source areas of contamination within the storm sewer lines through extensive sampling of each line and its laterals. In addition, the impact of the storm sewer discharge into the U-Crest ditch was assessed. Investigation of the sanitary sewer lines was performed in order to ascertain the presence or absence of contamination within the lines.

Scope of Investigation

The evaluation of the storm sewer system consisted of the collection of one surface water and one sediment sample from eight locations along the 001 sewer line system; four locations in the 002 sewer line system; and eight locations in the 003 sewer line system (refer to Figure E-1). All sediment samples were analyzed for TCL VOAs, BNAs, PCBs and PP metals. All surface waters were analyzed for TCL VOAs, BNAs and PP metals. It should be noted that there was an insufficient quantity of sediment to facilitate sampling at numerous sample locations.

A total of three locations were sampled in the U-Crest ditch for both sediment and surface water. The three sampling points were located as follows: upgradient of the line 001 outfall; downgradient of the line 001 outfall; and downgradient of the line 002/003 outfall (refer to Figure E-2). All samples were analyzed for Full CLP parameters and total cyanide. In addition, two sediment and two surface water samples were analyzed for total organic carbon (TOC) and hardness, respectively.

Initial results obtained from the U-Crest ditch indicated the presence of contaminants in both the surface water and sediment. Therefore, an additional sampling round was completed

which involved the collection of seven sediment samples and three surface water samples from the U-Crest ditch. It should be noted that a surface water and sediment sample were collected from the U-Crest ditch just upstream of an area which had been recently excavated. It is not known who completed the work, but sediments and debris were apparently removed from the ditch and subsequently placed on the adjacent stream bank. The three outfall monitoring stations were also resampled (surface water only). The analytical results of this sampling event are included in this report. The sample locations are presented on Figure E-2.

One downgradient sampling point was selected from each of the main sanitary sewer lines. A surface water sample was collected from each location and analyzed for Full CLP parameters and total cyanide. There was no sediment available for sampling at these locations.

Findings of Investigation

Due to the extensive amount of sampling that was conducted in Area E, the discussion of analytical results and conclusions has been divided into five distinct areas. Each individual area will be presented as follows: storm sewer system-line 001; storm sewer system-line 002; storm sewer system-line 003; U-Crest ditch; and the sanitary sewer system.

GREATER BUFFALO
INTERNATIONAL AIRPORT

AREA K
HAZARDOUS WASTE
STORAGE AREA

AREA J
SOLVENT TANK
STORAGE AREA

AREA M
UNDERGROUND
MIXING ROOM

AREA I
OIL STORAGE
BUILDING

AREA A
FAN ROOM

MH-003-16
MH-003-15
MH-003-14
MH-003-13
MH-003-12
MH-003-11
MH-003-10
MH-003-09
MH-003-08
MH-003-07
MH-003-06
MH-003-05
MH-003-04
MH-003-03
MH-003-02
MH-003-01

MH-002-13
MH-002-12
MH-002-11
MH-002-10
MH-002-09
MH-002-08
MH-002-07
MH-002-06
MH-002-05
MH-002-04
MH-002-03
MH-002-02
MH-002-01

MH-001-18
MH-001-17
MH-001-16
MH-001-15
MH-001-14
MH-001-13
MH-001-12
MH-001-11
MH-001-10
MH-001-09
MH-001-08
MH-001-07
MH-001-06
MH-001-05
MH-001-04
MH-001-03
MH-001-02
MH-001-01

SANITARY SEWER LINE 001
SANITARY SEWER LINE 002

LINE 001
LINE 002
LINE 003

OUTFALL 001
MONITORING
STATION

OUTFALL 002
MONITORING
STATION

OUTFALL 003
MONITORING
STATION

TO U-CREST DITCH

TO U-CREST DITCH

GENESEE STREET

HOLTZ ROAD

EXPLANATION

- TUNNEL DELINEATION
- SANITARY SEWER LINE
- STORM SEWER LINE
- TRANSFORMER VAULT
- SAMPLE LOCATION
- MH-001-01 MANHOLE AND CALLOUT

N

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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002525-23

AREA E – SANITARY/STORM SEWER SYSTEM

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb., 1994	4E0083SD	1"=200'	E-1

4.5.1 Storm Sewer System - Line 001

Surface Water Analytical Results

A summary of the analytical results associated with the surface water samples collected from line 001 is presented in Tables E-1 and E-2. Several VOCs were detected within three of the surface water samples, WEC-SW-E1, WEC-SW-E5, and WEC-SW-E6 at levels exceeding NYS Surface Water Standards and/or Guidance Values. WEC-SW-E1, which was collected from the western lateral in MH-001-09, contained elevated levels of 1,2-DCA (19 ppb); 1,2-DCE (21 ppb); 1,1,1-TCA (130 ppb); TCE (10 ppb); and PCE (21 ppb). WEC-SW-E5, which was collected from the eastern lateral of MH-001-06, contained elevated levels of 1,1-DCA (10 ppb); 1,2-DCE (140 ppb); 1,1,1-TCA (45 ppb); and TCE (130 ppb). Each of these analytes were detected at lesser concentrations in WEC-SW-E6, which is located downgradient at outfall monitoring station 001.

There were no significantly elevated levels of semi-volatile organics detected within any of the surface water samples collected in line 001. Slightly elevated concentrations of several PAHs were detected in WEC-SW-E24, located at MH-001-11. Several inorganic parameters, primarily cadmium and lead, were detected in the surface water at several locations at levels exceeding NYS Surface Water Standards and/or Guidance Values.

Sediment Analytical Results

A summary of the analytical results associated with the sediment samples collected from line 001 is presented in Tables E-3 and E-4. Volatile organics were detected at levels exceeding sediment criteria at one sample location, WEC-SED-E6, which was collected from outfall station 001. WEC-SEC-E6 contained elevated levels of 1,2-DCE (8 ppb), 1,1,1-TCA (29 ppb), and PCE (160 ppb).

Significantly elevated concentrations of semi-volatile organics were detected in sediment samples WEC-SED-E6 and WEC-SED-E24. WEC-SED-E24 was collected from the furthest downgradient point of the eastern 001 trunk line (MH-001-11). PCB compounds (Aroclor 1254 & 1260) were detected within four of the five sediment samples (except WWEC-SED-E25) at levels exceeding sediment criteria. The total PCB concentrations ranged from 62 ppb in WEC-SED-E26 to 1160 ppb in WEC-SEC-E24. In addition, each of the sediment samples collected from line 001 contained elevated levels of one or more of the following inorganic parameters: arsenic; cadmium; lead and zinc.

Conclusions

The elevated levels and distribution of VOCs detected in the surface water collected from the western lateral of MH-001-09 and the eastern lateral of MH-001-06 indicates that contamination identified in Area J and Area I, respectively, is adversely impacting the line 001 storm sewer system. It is therefore recommended that the contaminant source areas in both Areas J & I be remediated in order to prevent any further off-site migration of contaminants via the storm sewer line 001 system. In the short term, an IRM should be performed to "close-off" the storm sewer laterals associated with Areas J & I.

The semi-volatile organic contamination detected within the sediment of the eastern 001 trunk line, (MH-001-11) may be attributed to a fuel oil spill which occurred in the boiler house in the 1980s. The sediment sample collected from MH-001-11, located downgradient of the boiler house, exhibited a strong fuel oil odor. Although the presence of fuel oil in the sediments would not be considered a hazardous waste concern, it is an environmental concern and should be addressed.

The elevated levels of PCBs and semi-volatile organics (predominantly PAHs) detected in the sediments collected from outfall monitoring station 001 are also an environmental concern. The fuel oil contamination detected in the MH-001-11 may be contributing to the contamination detected at the outfall station. However, the levels detected at the outfall station are an order of magnitude greater than the levels detected in MH-001-01, which indicates that there may be another source area. It is believed that the former Annex Building, which burned to the ground, may be a contributing source of PAHs to the storm sewer line. PAHs are a common product of combustion and may be present in the surface soils adjacent to this section of line 001. Due to the elevated levels of inorganics, PCBs, and PAHs within the line 001 sediment, remedial action may be warranted. The remediation and/or decommission of the line 001 storm sewer system should be addressed in a focused Feasibility Study.

TABLE E-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SURFACE WATER SAMPLES
AREA E - STORM SEWER LINE 001
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION								NYS SW Standards or Guideline Values*
	WEC-SW-E1 MH-001-09 W	WEC-SW-E2 MH-001-02 W	WEC-SW-E4 MH-001-06 W	WEC-SW-E5 MH-001-06 E	WEC-SW-E6 OUTFALL 001	WEC-SW-E24 MH-001-11	WEC-SW-E25 MH-001-15	WEC-SW-E26 MH-001-18	
Volatile Organics									
Vinyl Chloride	ND	ND	ND	3 J	ND	ND	ND	ND	**0.3**
1,1-Dichloroethane	19	ND	ND	10 J	1	ND	ND	ND	**5.0**
1,2-Dichloroethene (total)	21	ND	ND	140	9 J	ND	ND	ND	**5.0**
2-Butanone	ND	ND	4 BJ	ND	ND	ND	ND	5 J	**50**
1,1,1-Trichloroethane	130	ND	ND	45	7 J	ND	ND	ND	**5.0**
Trichloroethene	10	4 J	ND	130	9 J	ND	3 J	ND	**3.0**
Tetrachloroethene	**21**	**ND**	**ND**	**1 J**	**6 J**	**ND**	**ND**	**ND**	**0.7**
Total Volatiles	201	4	4	329	32	0	3	5	-
Total Volatile TICs	ND	ND	4 J	ND	ND	5 J	ND	ND	-
Semi-Volatile Organics									
Fluoranthene	ND	ND	ND	ND	ND	2 J	ND	ND	**50**
Pyrene	ND	ND	ND	ND	ND	2 J	ND	ND	**50**
Benzo(a)anthracene	ND	ND	ND	ND	ND	1 J	ND	ND	**0.002**
Chrysene	ND	ND	ND	ND	ND	1 J	ND	ND	**0.002**
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	1 J	ND	ND	**0.002**
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	1 J	ND	ND	**0.002**
Benzo(a)pyrene	ND	ND	ND	ND	ND	1 J	ND	ND	**0.002**
Total Semi-Volatiles	0	0	0	0	0	9	0	0	-
Total Semi-Volatile TICs	ND	ND	4 J	ND	ND	15 J	ND	2 J	-

* 6NYCRR Part 703

TABLE E-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
AREA E- STORM SEWER LINE 001
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION								NYS SW Standards or Guidance Values*
	WEC-SW-E1 MH-001-09 W	WEC-SW-E2 MH-001-02 W	WEC-SW-E4 MH-001-06 W	WEC-SW-E5 MH-001-06 E	WEC-SW-E6 Outfall 001	WEC-SW-E24 MH-001-11	WEC-SW-E25 MH-001-15	WEC-SW-E26 MH-001-18	
Antimony	ND	ND	ND	ND	ND	ND	ND	61.60	**3.0**
Arsenic	ND	ND	ND	ND	ND	29.00	22.10	4.10 BW	50
Beryllium	ND	ND	ND	ND	ND	ND	0.9 B	ND	**3.0**
Cadmium	ND	144.00	9.30	13.50	37.30	241.00 V	71.80 V	ND	10
Chromium	ND	16.40	11.20	ND	7.5 B	13.70	21.30	ND	50
Copper	9.7 B	76.10	39.30	8.7 B	17.2 B	196.00 V	51.10 V	7.70 B	200
Lead	**1.8 BNV**	**121 NV**	**9.8 BV**	**2.3 BNW**	**4.1 WV**	**184.00**	**52.00**	**16.30**	**50**
Nickel	14.1 N	ND	ND	ND	ND	20.4 B	28.8 B	ND	-
Selenium	24.50	2.5 BNW	ND	ND	15.6 SNV	ND	ND	ND	10
Silver	ND	ND	ND	ND	ND	ND	4 B	ND	50
Zinc	25.30	461.00	190.00	15.8 B	73.60	233.00 V	212.00 V	38.30 V	300

*6NYCRR Part 703

TABLE E-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
SEDIMENT SAMPLES
AREA E- STORM SEWER LINE 001
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					SEDIMENT CRITERIA
	WEC-SED-E1 MH-001-09	WEC-SED-E6 OUTFALL 001	WEC-SED-E24 MH-001-11	WEC-SED-E25 MH-001-15	WEC-SED-E26 MH-001-18	
Volatile Organics						
Acetone	17	8 J	ND	ND	ND	50
1,1-Dichloroethane	ND	2 J	ND	ND	ND	4.62
1,2-Dichloroethene (total)	ND	6 J	ND	ND	ND	0.23
2-Butanone	ND	ND	12 J	ND	4 J	50
1,1,1-Trichloroethane	3 J	29	ND	ND	ND	23.72
Trichloroethene	7 J	14	ND	ND	ND	32.17
Tetrachloroethene	6 J	160	ND	ND	ND	11.38
Total Volatiles	23	221	12	0	4	-
Total Volatile TICs	ND	ND	333 NJ	1837 NJ	ND	-
Semi-Volatile Organics						
Naphthalene	300 J	60000 JV	11000 J	ND	75 J	-
2-Methylnaphthalene	84 J	ND	2800 J	ND	70 J	-
Acenaphthene	420 J	51000 JV	13000 J	ND	44 J	6413.89
Dibenzofuran	270 J	43000 JV	9700 J	ND	47 J	-
Fluorene	470 J	60000 JV	16000	ND	51 J	11886.70
Phenanthrene	3400	600000 V	91000	ND	660	21137.87
Anthracene	690 J	100000 JV	26000	ND	95 J	21137.87
Carbazole	640 J	130000 V	22000	ND	190 J	-
Di-n-butylphthalate	ND	ND	1600 J	ND	ND	50
Fluoranthene	4400	690000 V	86000	ND	1400	59574.62
Pyrene	3900	490000 V	69000	ND	1200	56893.32
Benzo(a)anthracene	2100	270000 V	44000	ND	710	32.89
Chrysene	2000	290000 V	37000	ND	880	32.89
bis(2-Ethylhexyl)phthalate	180 J	ND	ND	ND	87 J	11971.57
Benzo(b)fluoranthene	1800	160000 V	30000	ND	12000	32.89
Benzo(k)fluoranthene	1700	210000 V	25000	ND	870	32.89
Benzo(a)pyrene	1700	190000 V	31000	ND	840	19.74
Indeno(1,2,3-cd)pyrene	450 J	94000 JV	6000 J	ND	260 J	32.89
Dibenz(a,h)anthracene	ND	36000 JV	2600 J	ND	120 J	-
Benzo(g,h,i)perylene	320 J	81000 JV	3200 J	ND	210 J	-
Total Semi-Volatiles	24824	3555000	526900	0	19809	-
Total Semi-Volatile TICs	2570 J	803000 J	115200 J	10186 J	6770 J	-
PCBs						
Aroclor-1260	84 V	1500	570 J	ND	36 J	0.01
Aroclor - 1254	ND	480V	590 J	ND	26 J	0.01

TABLE E-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SEDIMENT SAMPLES
AREA E - STORM SEWER LINE 001
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					SEDIMENT CRITERIA	
	WEC-SED-E1 MH-001-09	WEC-SED-E6 OUTFALL 001	WEC-SED-E24 MH-001-11	WEC-SED-E25 MH-001-15	WEC-SED-E26 MH-001-18	Lowest Effect Level	Severe Effect Level
Antimony	ND	ND	117.00 NV	ND	ND	2.0	25.0
Arsenic	2.70 V	9.30 NV	1030.00 V	13.00	3.30	6.0	33.0
Beryllium	0.32 B	0.29 B	0.44 BV	0.84 B	0.22 B	-	-
Cadmium	16.70	5330.00 E*V	20.70 V	23.40	19.70	0.6	9.0
Chromium	7.80	51.10 EN*	18.00 V	9.90	11.50	26.0	110.0
Copper	17.40	138.00 EN*	110.00 V	36.50	28.30	16.0	110.0
Lead	25.50	312.00 EN*	117.00 V	9.80	121.00	31.0	110.0
Mercury	ND	0.18 *	0.46 V	ND	ND	0.15	1.3
Nickel	5.00 B	57.20 EN*V	10.50 BV	27.30	12.90	16.0	50.0
Selenium	ND	124.00 N*	38.00 NV	6.10 NV	ND	-	-
Silver	ND	1.00 BN*	ND	ND	ND	1.0	2.2
Thallium	ND	ND	0.95 BWV	ND	ND	-	-
Zinc	94.60 V	641.00 EN*	106.00 EN*	71.30 EN*	191.00 EN*	120.0	270.0

4.5.2 Storm Sewer System - Line 002

Surface Water Analytical Results

A summary of the analytical results associated with the surface water samples collected from line 002 is presented in Tables E-5 and E-6. VOCs were detected in three of the four sample locations (WEC-SW-E7, 9 & 10) at levels exceeding NYS Surface Water Standards or Guidance Values. WEC-SW-E7 was collected from MH-002-13, which is located adjacent to Area K and is the furthest upgradient point in line 002. The following analytes were detected in WEC-SW-E7: 1,1-DCE (2 ppb); 1,1-DCA (26 ppb); 1,2-DCE (13 ppb); 1,1,1-TCA (18 ppb); TCE (52 ppb); and PCE (3 ppb). Several of these analytes were also detected at the downgradient sample locations at lesser concentrations.

There were no semi-volatile organics detected within any of the surface water samples above the analytical detection limits. In addition, there were no elevated levels of inorganic analytes detected in the surface water samples.

Sediments Analytical Results

A summary of the analytical results associated with the sediment samples collected from line 002 is presented in Tables E-7 and E-8. VOCs were detected in both sediment samples at levels exceeding sediment criteria. WEC-SED-E8, which was collected from MH-002-12, contained elevated levels of 1,2-DCE (1400 ppb); 1,1,1-TCA (420 ppb); TCE (880 ppb); and toluene (1800 ppb). WEC-SED-E10, which was collected from outfall station 002, contained elevated levels of TCE (5700 ppb); PCE (3600 ppb); and toluene (290 ppb). Numerous semi-volatile organics, predominantly PAHs, were detected in each sediment sample at levels exceeding sediment criteria. Elevated levels of phenolic compounds were also detected in WEC-SED-E8. In addition, significantly elevated levels of PCBs and inorganic parameters were detected in each sample.

Conclusions

The elevated levels and distribution of VOCs detected in the surface water samples collected from line 002 indicates that the contamination identified in Area K is adversely impacting the line 002 storm sewer system. The presence of VOCs and semi-volatile organics within the sediment in line 002 can be correlated to the contaminants detected within Area K. It is therefore recommended that the contaminant source area in Area K be remediated in order to prevent any further off-site migration of contaminants through the storm sewer line 002 system. In the short term, an IRM should be performed to "close-off" the storm sewer lateral associated with Area K. It should be noted that the source of PCBs within the storm sewer line sediment could not be identified. However, PCBs were detected within the water collected from nearby transformer vaults TV-1 & TV-5 (refer to Section 4.2). The remediation and/or the decommissioning of line 002 should be addressed in a focused Feasibility Study.

TABLE E-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SURFACE WATER SAMPLES
AREA E- STORM SEWER LINE 002
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION				NYS SW Standards or Guidance Values*
	WEC-SW-E7 MH-002-13	WEC-SW-E8 MH-002-12E	WEC-SW-E9 MH-002-10	WEC-SW-E10 002 OUTFALL	
Volatile Organics					
1,1-Dichloroethene	2 J	ND	ND	ND	0.07
1,1-Dichloroethane	26	ND	8 J	5 J	5.0
1,2-Dichloroethene (total)	13	ND	ND	8 J	5.0
Chloroform	ND	ND	2 J	ND	0.2
1,1,1-Trichloroethane	18	ND	5 J	4 J	5.0
Trichloroethene	52	3 J	14	16	3.0
Tetrachloroethene	3 J	ND	ND	ND	0.7
Total Volatiles	114	3	29	33	-
Total Volatile TICs	ND	ND	ND	ND	-
Semi-Volatile Organics					
Total Semi-Volatiles	0	0	0	0	-
Total Semi-Volatile TICs	ND	ND	ND	ND	-

*6NYCRR Part 703

TABLE E-6

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
AREA E- STORM SEWER LINE 002
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION				NYS SW Standards or Guidance Values*
	WEC-SW-E7 MH-002-13	WEC-SW-E8 MH-002-12	WEC-SW-E9 MH-002-10	WEC-SW-E10 OUTFALL 002	
Cadmium	ND	ND	ND	5.2	10
Chromium	ND	ND	36.30	25.30	50
Copper	11.00 B	3.80 B	16.30 B	24.10 B	200
Lead	ND	ND	5.8 WV	8.3 WV	50
Nickel	ND	ND	14.40 B	ND	-
Selenium	8.30 N	3.40 BN	5.40 N	3.3 BV	10
Thallium	2.40 B	ND	ND	ND	4.0
Zinc	12.00 B	ND	47.50	124.00	300

* 6NYCRR Part 703

TABLE E-7

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
SEDIMENT SAMPLES
AREA E- STORM SEWER LINE 002
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE ID AND LOCATION		SEDIMENT CRITERIA
	WEC-SED-E8 MH-002-12	WEC-SED-E10 OUTFALL 002	
Volatile Organics			
1,2-Dichloroethene (total)	1400 J	ND	0.23
1,1,1-Trichloroethane	420 J	ND	23.72
Trichloroethene	880 J	5700	32.17
Tetrachloroethene	ND	3600	11.38
Toluene	1800	290 J	40.28
Total Volatiles	4500	9590	-
Total Volatle TICs	860 J	2400 J	-
Semi-Volatile Organics			
Phenol	38000 V	ND	-
2-Methylphenol	13000 V	ND	-
4-Methylphenol	42000 V	ND	-
2,4-Dimethylphenol	41000	ND	-
Naphthalene	1500 JV	3200 JV	-
2-Methylnaphthalene	2500 JV	ND	-
Acenaphthene	2400 JV	4000 JV	6413.89
Dibenzofuran	2100 JV	3200 JV	-
Fluorene	3200 JV	4700 JV	11886.7
Phenanthrene	24000 JV	42000 V	21137.87
Anthracene	4500 JV	6300 JV	21137.87
Carbazole	3800 JV	7400 JV	-
Di-n-butylphthalate	ND	990 JV	50.00
Fluoranthene	33000 V	54000 V	59574.62
Pyrene	23000 V	38000 V	56893.32
Butylbenzylphthalate	ND	1300 JV	50.00
Benzo (a) anthracene	15000 V	24000 V	32.89
Chrysene	15000 V	22000 V	32.89
bis(2-Ethylhexyl)phthalate	1300 JV	1600 JV	11971.57
Benzo(b)fluoranthene	12000 V	24000 V	32.89
Benzo(k)fluoranthene	9600 V	11000 V	32.89
Benzo(a)pyrene	10000 V	17000 V	19.74
Indeno(1,2,3-cd)pyrene	3400 JV	5400 JV	32.89
Dibenz(a,h)anthracene	1200 JV	2500 JV	-
Benzo(g,h,i)perylene	2900 JV	4400 JV	-
Total Semi-Volatiles	304400	276990	-
Total Semi-Volatile TICs	131100 J	40100 J	-
PCBs			
Aroclor - 1242	2800	ND	0.01
Aroclor - 1254	3400	5600 PV	0.01
Aroclor - 1260	4800	ND	0.01

TABLE E-8

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SEDIMENT SAMPLES
AREA E - STORM SEWER LINE 002
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE ID AND LOCATION		SEDIMENT CRITERIA	
	WEC-SED-E8 MH-002-12	WEC-SED-E10 OUTFALL 002	Lowest Effect Level	Severe Effect Level
Arsenic	4.60 N	16.70 N	6.0	33.0
Beryllium	0.38 B	0.29 B	-	-
Cadmium	9.00 E*	382.00 E*	0.6	9.0
Chromium	60.30 EN*	348.00 EN*	26.0	110.0
Copper	382.00 EN*	775.00 EN*	16.0	110.0
Lead	622.00 EN*	960.00 EN*	31.0	110.0
Mercury	ND	0.49 *	0.15	1.3
Nickel	7.60 BEN*	63.40 EN*	16.0	50.0
Selenium	2.10 N*	60.50 N*	-	-
Silver	2.50 N*	17.60 N*	1.0	2.2
Zinc	772.00 EN*	3780.00 EN*	120.0	270.0

4.5.3 Storm Sewer System - Line 003

Surface Water Analytical Results

A summary of the analytical results associated with the surface water samples collected from line 003 is presented on Tables E-9 and E-10. Several VOCs, including 1,2-DCE, TCE, and PCE were detected in both the eastern and western 003 trunk lines at levels exceeding NYS Surface Water Standards or Guidance Values. There were no elevated levels of semi-volatile organics or inorganics (metals) detected within any of the surface water samples. It should be noted that several dichlorobenzene compounds were detected in WEC-SW-E12, which was collected from the eastern lateral of MH-003-13 E. This lateral originates in Area M - the Underground Mixing Room.

Sediment Analytical Results

A summary of the analytical results associated with the sediment samples collected from line 003 is presented on Tables E-11 and E-12. VOCs were detected in three of the four samples at concentrations exceeding sediment criteria. WEC-SED-E13, which was collected from MH-003-07, contained elevated levels of TCE (1600 ppb) and toluene (490 ppb). WEC-SED-E14, which was collected from MH-003-03, contained elevated levels of acetone (22,000 ppb), TCE (97,000 ppb) and toluene (490 ppb). Numerous semi-volatile organics, predominantly PAHs, were detected at significantly elevated levels in three of four samples (WEC-SED-E13, 14 & 18). WEC-SED-E11, which was collected from MH-003-13, contained elevated levels of several dichlorobenzene compounds, which corresponds to the surface water results for WEC-SW-E12 (see above).

PCBs (Aroclor-1254 & 1260) were detected in each of the four sediment samples at levels exceeding sediment criteria. Total PCB concentrations ranged from 77 ppb in WEC-SED-11 to 2,120 ppb in WEC-SED-E18. In addition, one or more of the following inorganic parameters were detected in each of the sediment samples at elevated levels: cadmium; chromium; copper; lead; nickel; silver, and zinc.

Conclusions

The contaminants detected within the surface water and sediment samples collected from the 003 storm sewer line system pose an environmental concern. A review of the results did not indicate the location of any predominant source area for the various contaminants detected in line 003. However, the storm sewer lateral which originates in Area M and discharges to MH-003-13 appears to be contributing several volatile and semi-volatile organic compounds. In the short term, an IRM should be performed in order to "close-off" the storm sewer lateral associated with Area M. The remediation and/or the decommission of line 003 should be addressed in a focused Feasibility Study.

TABLE E-9

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SURFACE WATER SAMPLES
AREA E- STORM SEWER LINE 003
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION							NYS SW Standards or **Guidance Values***
	WEC-SW-E11 MH-003-13 N	WEC-SW-E12 MH-003-13 E	WEC-SW-E13 MH-003-07	WEC-SW-E14 MH-003-03 N	WEC-SW-E15 MH-003-03 W	WEC-SW-E16 003 OUTFALL	WEC-SW-E17 MH-003-10	
Volatile Organics								
Acetone	ND	20	ND	ND	ND	ND	ND	-
1,2-Dichloroethene (total)	1 J	ND	ND	14	ND	19	9 J	**5.0**
1,1,1-Trichloroethane	ND	ND	ND	4 J	ND	5 J	ND	**5.0**
Carbon Tetrachloride	ND	ND	ND	ND	ND	3 J	ND	**0.4**
Trichloroethene	ND	17	50	19	ND	140	11	**3.0**
Tetrachloroethene	ND	ND	ND	4 J	ND	ND	28	**0.7**
Total Volatiles	**1**	**37**	**50**	**41**	**0**	**167**	**48**	**-**
Total Volatile TICs	ND	ND	ND	ND	ND	ND	ND	-
Semi-Volatile Organics								
1,3-Dichlorobenzene	ND	4 J	ND	ND	ND	ND	ND	20
1,4-Dichlorobenzene	ND	6 J	ND	ND	ND	ND	ND	30
1,2-Dichlorobenzene	ND	24	ND	ND	ND	ND	ND	30
Total Semi-Volatiles	0	34	0	0	0	0	0	-
Total Semi-Volatile TICs	5 J	3 J	ND	7 J	2 J	2 J	13 J	-

*6NYCRR Part 703

TABLE E-10

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
AREA E- STORM SEWER LINE 003
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION							NYS SW Standards or **Guidance Levels***
	WEC-SW-E11 MH-003-13 N	WEC-SW-E12 MH-003-13 E	WEC-SW-E13 MH-003-07	WEC-SW-E14 MH-003-03 N	WEC-SW-E15 MH-003-03 W	WEC-SW-E16 OUTFALL 003	WEC-SW-E17 MH-003-10	
Arsenic	ND	ND	ND	ND	2.7 BW	ND	ND	50
Cadmium	ND	ND	ND	ND	3.9 B	ND	ND	10
Chromium	ND	ND	ND	ND	ND	9.9 B	ND	50
Copper	4.6 B	10.9 B	26.50	14.3 B	7.2 B	19.2 B	16.5 B	200
Lead	ND	ND	9.3 WV	3.3 WV	2.7 BV	10.30	2.1 BNW	50
Zinc	ND	13.3 B	29.50	16.7 B	13.4 B	25.20	92.00	300

* Represents 6NYCRR Part 703

TABLE E-11

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
SEDIMENT SAMPLES
AREA E- STORM SEWER LINE 003
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND IDENTIFICATION				SEDIMENT CRITERIA
	WEC-SED-E11 MH-003-13	WEC-SED-E13 MH-003-07	WEC-SED-E14 MH-003-03	WEC-SED-E18 MH-003-01	
Volatile Organics					
Vinyl Chloride	ND	ND	ND	5 J	0.02
Acetone	ND	ND	22000	ND	50.00
1,1-Dichloroethane	ND	ND	ND	9 J	4.62
1,2-Dichloroethene (total)	ND	ND	ND	38	0.23
2-Butanone	ND	ND	6500 S	4 JS	50.00
1,1,1-Trichloroethane	ND	ND	ND	6 J	23.72
Trichloroethene	ND	1600	97000	65	32.17
Toluene	2 J	490	790	ND	40.28
Chlorobenzene	40	ND	ND	ND	207.55
Ethylbenzene	5 J	ND	ND	ND	105.94
Total Xylenes	130	ND	ND	8 J	136.48
Total Volatiles	177	2090	106490	135	-
Total Volatile TICs	677 J	2500	ND	57 J	-
Semi-Volatile Organics					
1,3-Dichlorobenzene	790 JV	ND	ND	ND	719.65
1,4-Dichlorobenzene	1700 JV	ND	ND	ND	1079.47
1,2-Dichlorobenzene	17000 V	ND	ND	ND	1079.74
Naphthalene	ND	7800 JV	17000 JV	98000 JV	-
2-Methylnaphthalene	ND	2300 JV	ND	28000 JV	-
Acenaphthene	ND	8800 JV	42000 JV	160000 VJ	6413.89
Dibenzofuran	ND	7700 JV	33000 JV	150000 VJ	-
Fluorene	ND	9300 JV	38000 JV	180000 VJ	11886.7
Phenanthrene	ND	95000 V	410000 V	1800000 V	21137.87
Anthracene	ND	14000 JV	95000 V	230000 V	21137.87
Carbazole	ND	17000 JV	66000 JV	280000 V	-
Fluoranthene	ND	110000 V	380000 V	1600000 V	59574.62
Pyrene	ND	85000 V	270000 V	1300000 V	56893.32
Benzo(a)anthracene	ND	54000 V	140000 V	590000 V	32.89
Chrysene	ND	53000 V	160000 V	610000 V	32.89
Benzo(b)fluoranthene	ND	45000 V	140000 V	590000 V	32.89
Benzo(k)fluoranthene	ND	25000 V	79000 JV	200000 JV	32.89
Benzo(a)pyrene	ND	35000 V	110000 V	440000 V	19.74
Indeno(1,2,3-cd)pyrene	ND	14000 JV	65000 JV	190000 JV	32.89
Dibenz(a,h)anthracene	ND	6400 JV	19000 JV	77000 JV	-
Benzo(g,h,i)perylene	ND	12000 JV	63000 JV	160000 JV	-
Total Semi-Volatiles	19490	601300	2127000	86830000	-
Total Semi-Volatile TICs	7570 J	196800 J	475000 J	751000 J	-
PCB's					
Aroclor - 1254	40 PV	57 PV	82 V	1700 JPV	0.01
Aroclor - 1260	33 JPV	77 PV	45 PV	420 PV	0.01

TABLE E-12

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SEDIMENT SAMPLES
AREA E - STORM SEWER LINE 003
(Concentrated Values in mg/kg-ppm)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION				SEDIMENT CRITERIA	
	WEC-SED-E11 MH-003013	WEC-SED-E13 MH-003-07	WEC-SED-E14 MH-003-03	WEC-SED-E18 MH-003-01	Lowest Effect Level	Severe Effect Level
Arsenic	5.70 N	25.10 N	25.50 N	11.2 N	6.0	33.0
Beryllium	0.15 B	0.36 B	0.30 B	0.31 B	-	-
Cadmium	7.30 E*	12.40 E*	10.60 E*	10.6 E*	0.6	9.0
Chromium	13.10 EN*	95.10 EN*	110.00 EN*	239 EN*	26.0	110.0
Copper	55.20 EN*	1400.00 EN*	629.00 EN*	935 EN*	16.0	110.0
Lead	39.20 N*	2950.00 EN*	1010.00 EN*	574 EN*	31.0	110.0
Mercury	-	0.18 *	0.14 *	0.23 *	0.15	1.3
Nickel	5.90 BEN*	40.60 EN*	58.10 EN*V	29.9 EN*	16.0	50.0
Selenium		6.70 R	0.78 BN*	1.1 BN*W	-	-
Silver	0.74 BN*	1.10 BN*	1.30 BN*	7.7 N*	1.0	2.2
Thallium	-	-	0.51 B	-	-	-
Zinc	1150.00 EN*	1620.00 EN*	2730.00 EN*	1390 EN*	120.0	270.0

4.5.4 U-Crest Ditch

Surface Water Analytical Results

A summary of the analytical results associated with the surface water samples collected from the U-Crest ditch is presented on Tables E-13 and E-14. The tables incorporate the results of the initial sampling event performed on June 10, 1993, as well as the additional sampling event performed on December 16, 1993. The tables also include results from the outfall monitoring stations (12/16/93 sample event) in order to allow for direct comparison with the results obtained from the corresponding U-Crest ditch discharge points.

PCE was detected in the sample collected from outfall station 001 (3 ppb) at a level slightly exceeding NYS Guidance Values. PCE was also detected at the 001 discharge point (2 ppb) as well as in the sample collected to ten feet downstream of the discharge point (1-2 ppb). Elevated levels of TCE were encountered in outfall stations 002 and 003 at concentrations of 24 ppb and 230 ppb, respectively. TCE was also detected at the 002/003 discharge point (8 ppb); ten feet downstream of the discharge point (41 ppb); and eight hundred feet downstream of the discharge point (13 ppb).

Slightly elevated levels of several semi-volatile organics (PAHs) and pesticides (dieldrin) were detected in the surface water sample collected from outfall station 001. In addition, slightly elevated levels of PAHs, pesticides (Endosulfan II), and PCBs (Aroclor-1260) were detected at outfall station 003. However, there were no significantly elevated levels of these compounds detected within the surface water samples collected from the U-Crest ditch.

Significantly elevated levels of cadmium (115 ppb) were detected in the surface water sample collected from outfall station 001. Elevated levels of cadmium were also detected at the 001 discharge point (27.5 ppb) as well as ten feet downstream of the discharge point (15.2-16.8 ppb). The remainder of the inorganic analyte levels detected (aluminum, cobalt, iron) are not considered to be significant.

Sediment Analytical Results

A summary of the analtyical results associated with the sediment samples collected from the U-Crest ditch is presented on Tables E-15, 16 & 17. The tables incorporate the results of the initial sampling event performed on June 8, 1993 as well as the additional sampling event performed on December 16, 1993.

Concentrations of TCE, PCE and 1, 2-DCE were detected in the sediment samples collected fifteen feet downstream of the 001 discharge point at levels exceeding sediment criteria. These compounds were not detected in the three samples collected upstream of the 001 discharge point. There were no significantly elevated levels of VOCs detected downstream of the 002/003 discharge point.

Numerous semi-volatile organic compounds, predominantly PAHs, were detected at levels exceeding sediment criteria in each of the sediment samples collected from the U-Crest ditch. The total semi-volatile organic concentrations detected in the sediment samples are as

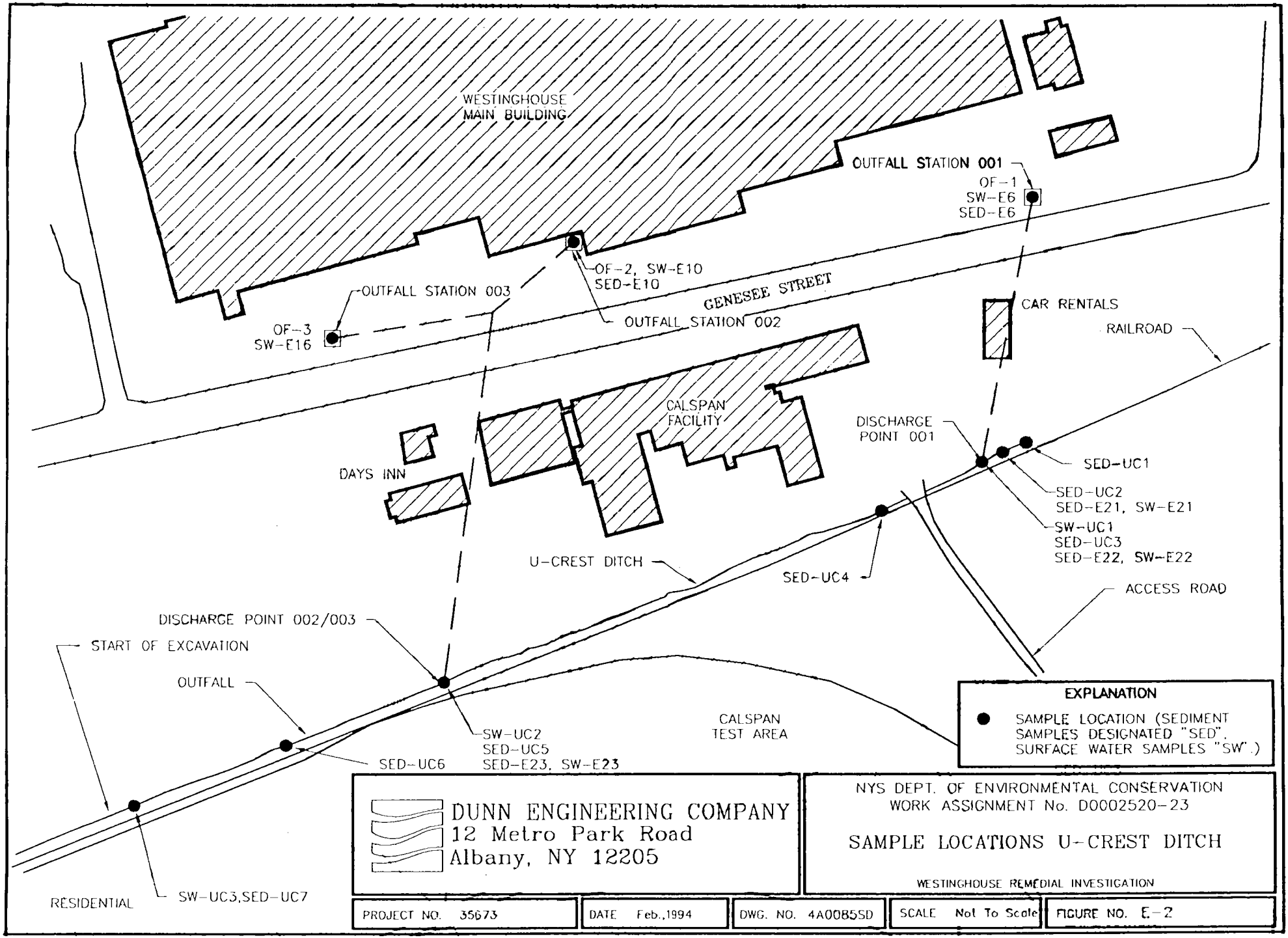
follows: upstream of the 001 discharge point (20-80 ppm); downstream of the 001 discharge point (78-496 ppm); and downstream of the 002/003 discharge point (85-390 ppm).

Several pesticides were detected at levels exceeding sediment criteria within the sediment samples collected throughout the U-Crest ditch. However, there was no significant increase in pesticide contaminant concentrations detected between the upstream and downstream sample locations. PCBs were also detected at levels exceeding sediment criteria within the sediment samples collected throughout the U-Crest ditch. The total PCB concentrations detected in the sediment samples are as follows: upstream of the 001 discharge point (0-37 ppb); downstream of the 001 discharge point (210-3300 ppb); and downstream of the 002/003 discharge point (81-6900 ppb).

There were no elevated levels of inorganic parameters detected within the sediment collected upstream of the 001 discharge point. Sediment samples collected from locations downstream of the 001 and 002/003 discharge points contained elevated levels of one or more of the following: antimony; cadmium; copper; iron; lead; nickel; silver; and zinc. Cadmium was the most prevalent inorganic parameter detected, which corresponds to the results obtained for the 001 storm sewer line.

Conclusions

It is apparent from a review of the analytical data that the storm water discharge from the Westinghouse site is adversely impacting environmental conditions in the U-Crest ditch. The types of contaminants detected in surface water and sediments of the U-Crest ditch correspond to the contaminants identified within the storm sewer systems (001, 002 and 003) on the project site. It is therefore recommended that the site's storm sewer system be either decommissioned or remediated prior to discharge to the U-Crest ditch. In addition, remediation of the sediments contained within the U-Crest ditch as well as the sediment within the discharge pipe lines will have to be performed. The remedial alternatives for the site's storm sewer lines and the U-Crest ditch should be addressed in a focused Feasibility Study.



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D0002520-23

SAMPLE LOCATIONS U-CREST DITCH

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb.,1994	4A0085SD	Not To Scale	E-2

TABLE E-13

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS - UNVALIDATED DATA
SURFACE WATER SAMPLES
AREA E- U- CREST DITCH
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION, LOCATION AND DATE SAMPLED										NYS SW Standards or Guidance Levels*
	WEC-SW-E21 UPSTREAM-001 (10') (06/10/93)	SWOF1 OUTFALL 001 (12/16/93)	SWUC1 DISCHARGE PT 001 (12/16/93)	WEC-SW-E22 DNSTREAM-001 (10') (06/10/93)	WEC-DUP1-SW DUP of SW-E22 (10') (06/10/93)	SWOF2 OUTFALL 002 (12/16/93)	SWOF3 OUTFALL 003 (12/16/93)	SWUC2 DISCHARGE PT 002/003 (12/16/93)	WEC-SW-E23 DNSTREAM 002/003 (10') (06/10/93)	SWUC3 DNSTREAM 002/003 (800') (12/16/93)	
Volatile Organics											
Methylene Chloride	ND	ND	2 BJ	ND	ND	2 BJ	2 BJ	2 BJ	ND	2 BJ	5.0
Acetone	ND	12	ND	ND	ND	ND	ND	ND	ND	ND	50.0
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	2 J	ND	ND	ND	0.07
1,1-Dichloroethane	ND	ND	ND	ND	ND	1 J	ND	ND	ND	ND	5.0
1,2 Dichloroethene (total)	ND	5 J	1 J	ND	ND	ND	41	2 J	6 J	3 J	5.0
1,1,1-Trichloroethane	ND	3 J	2 J	2 J	3 J	ND	28	ND	2 J	ND	5.0
Trichloroethene	ND	3 J	1 J	3 J	4 J	24	230 D	8 J	41	13	3.0
Tetrachloroethene	ND	3 J	2 J	1 J	2 J	ND	ND	1 J	ND	ND	0.7
Total Volatiles	0	26	8	6	9	27	303	13	49	18	-
Total Volatile TICs	ND	ND	ND	ND	ND	ND	9 J	ND	ND	ND	-
Semi-Volatile Organics											
Phenanthrene	ND	ND	ND	ND	ND	ND	7 J	ND	ND	ND	50.0
Anthracene	ND	ND	ND	ND	ND	ND	1 J	ND	ND	ND	50.0
Carbazole	ND	ND	ND	ND	ND	ND	1 J	ND	ND	ND	–
Di-n-Butylphthalate	ND	ND	2 BJ	ND	ND	ND	7 BJ	3 BJ	ND	5 BJ	50.0
Fluoranthene	ND	2 J	ND	ND	ND	ND	12	ND	ND	ND	50.0
Pyrene	ND	2 J	ND	ND	ND	ND	11	ND	ND	ND	50.0
Benzo(a)Anthracene	ND	ND	ND	ND	ND	ND	6 J	ND	ND	ND	0.002
Chrysene	ND	1 J	ND	ND	ND	ND	7 J	ND	ND	ND	0.002
bis(2-Ethylhexyl)phthalate	ND	2 J	ND	ND	ND	ND	ND	ND	6 J	ND	4.0
Benzo(b)fluoranthene	ND	1 J	ND	ND	ND	ND	8 J	ND	ND	ND	0.002
Benzo(k)Fluoranthene	ND	1 J	ND	ND	ND	ND	5 J	ND	ND	ND	0.002
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	6 J	ND	ND	ND	0.0012
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	3 J	ND	ND	ND	0.002
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	1 J	ND	ND	ND	–
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	3 J	ND	ND	ND	–
Total Semi-Volatiles	0	9	2	0	0	0	78	3	6	5	–
Total Semi-Volatile TICs	ND	ND	2 J	ND	ND	21 J	11 J	92 J	12 J	11	–
Pesticides/PCBs											
Dieldrin	ND	0.036 JP	ND	ND	ND	ND	ND	ND	0.11 JPV	ND	0.0009
Endosulfan II	ND	ND	ND	ND	ND	ND	0.014 J	ND	ND	ND	0.009
Methoxychlor	0.24 JV	ND	ND	0.20 JV	0.18 J	ND	ND	ND	0.11 JPV	ND	35
Endrin Aldehyde	ND	ND	ND	ND	ND	ND	022 JP	ND	ND	ND	–
Aroclor 1260	ND	ND	ND	ND	ND	ND	0.22 JP	ND	ND	ND	0.001

*6NYCRR Part 703

TABLE E-14

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS - UNVALIDATED DATA
SURFACE WATER SAMPLES
AREA E- U-CREST DITCH
(Concentration Values In ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION , LOCATION AND DATE SAMPLED										NYS SW Standards or Guidance Levels*
	WEC-SW-E21 UPSTREAM - 001 (10') (06/10/93)	SWOF1 OUTFALL 001 (12/16/93)	SWUC1 DISCHARGE PT 001 (12/16/93)	WEC-SW-E22 DNSTREAM-001 (10') (06/10/93)	WEC-DUP1-SW DUP OF SW-E22 (10') (06/10/93)	SWOF2 OUTFALL 002 (12/16/93)	SWOF3 OUTFALL 003 (12/16/93)	SWUC2 DISCHARGE PT. 002/003 (12/16/93)	WEC-SW-E23 DSTREAM 002/003 (10') (06/10/93)	SWUC3 DNSTREAM 002/003 (800') (12/16/93)	
Aluminum	ND	257.00	264.00	ND	ND	ND	ND	ND	134.00 B	ND	100
Arsenic	3.70 BW	30.00	2.70 BNW	2.40 B	ND	2.90 BNW	ND	3.00 BN	ND	ND	50
Barium	53.00 B	29.00 B	49.00 B	38.00 B	43.00 B	43.00 B	43.00 B	46.00 B	38.00 B	38.00 B	1000
Beryllium	ND	0.30 B	0.30 B	ND	ND	ND	ND	ND	ND	ND	1100**
Cadmium	ND	115.00	27.50	16.80	15.20 B	7.60	ND	ND	ND	7.4	10
Calcium	94000.00	48100.00	90400.00	64100.00	70000.00	55900.00	58400.00	66900.00	52900.00	60500.00	-
Chromium	ND	11.40	ND	ND	ND	22.00	36.80	11.50	10.10	6.20 B	50
Cobalt	ND	6.50 B	9.40 B	ND	ND	10.30 B	ND	ND	ND	9.90 B	5
Copper	7.20 B	28.20	3.50 B	10.70 B	10.20 B	22.50 B	47.30	29.50	52.90	10.60 B	200
Iron	1060.00	629.00	488.00	109.00	94.00 B	364.00	455.00	403.00	347.00	176.00	300
Lead	9.90 V	31.90	7.20	4.10 V	2.90 BWV	20.30	19.60	8.60	8.40 V	3.70	50
Magnesium	12300.00	9330.00	20300.00	12100.00	13000.00	17100.00	17300.00	17900.00	11000.00	14800.00	35000
Manganese	96.80	71.40	42.00	14.90 B	18.30	14.00 B	21.70	25.40	17.10	17.00	300
Mercury	ND	0.21	ND	ND	ND	ND	ND	ND	ND	ND	-
Potassium	1980.00 B	3600.00 B	4150.00 B	3730.00 B	3690.00 B	4150.00 B	4150.00 B	3670.00 B	4790.00 B	3560.00 B	-
Selenium	2.30 BNW	7.20	7.20	3.70 BNV	11.60 SN	5.60	2.80 BW	2.40 B	ND	3.20 B	10
Silver	ND	ND	5.40 B	ND	ND	ND	ND	ND	ND	ND	50
Sodium	52500.00	16700.00	76100.00	51200.00	56600.00	36400.00	56100.00	74500.00	61800.00	70100.00	-
Vanadium	4.30 B	ND	ND	ND	4.70 B	ND	ND	ND	ND	ND	14
Zinc	24.50	275.00	102.00	51.40	49.70	201.00	62.70	81.50	130.00	74.80	300
Cyanide	ND	--	--	ND	ND	--	--	--	ND	--	-

*6NYCRR Part 703

TABLE E-15

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS - UNVALIDATED DATA
SEDIMENT SAMPLES
AREA E- U- CREST DITCH
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION, LOCATION AND DATE SAMPLED											SEDIMENT CRITERIA
	SEDUC1 UPSTREAM-001 (40') (12/16/93)	SEDUC2 UPSTREAM-001 (15') (12/16/93)	WEC-SED-E21 UPSTREAM - 001 (10') (06/08/93)	SEDUC3 DNSTREAM-001 (15') (12/16/93)	WEC-SED-E22 DNSTREAM-001 (15') (06/08/93)	WEC-DUP1-SED DUPL. OF E22 (15') (06/08/93)	SEDUC4 MIDWAY POINT 001 & 002/003 (12/16/93)	SEDUC5 DNSTREAM-002/003 (10') (12/16/93)	WEC-SED-E23 DNSTREAM-002/003 (10') (06/08/93)	SEDUC6 DNSTREAM-002/003 (230') (12/16/93)	SEDUC7 DNSTREAM-002/003 (800') (12/16/93)	
Volatile Organics												
Vinyl Chloride	ND	ND	ND	25	6J	ND	ND	ND	ND	ND	ND	0 02
Methylene Chloride	ND	4 J	ND	ND	ND	ND	7 BJ	5 BJ	ND	ND	14 BJ	0 67
Acetone	24	49	ND	10 J	ND	ND	12	9 J	57	11 J	24 B	50 00
1,2-Dichloroethene (total)	ND	ND	ND	150	300	77	4 J	ND	ND	3 J	ND	0 23
2-Butanone	ND	ND	44	ND	ND	ND	ND	ND	27	ND	ND	50 00
Trichloroethene	ND	ND	ND	50	79	8 J	5 J	5 J	9 J	8 J	4 J	32 17
Tetrachloroethene	ND	ND	ND	130	210	30	2 J	1 J	ND	ND	ND	11 38
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	6 J	ND	ND	40 28
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	16 J	ND	ND	105 94
Total Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	11J	ND	ND	136 48
Total Volatiles	24	53	44	365	595	115	30	20	126	22	42	-
Total Volatile TICs	ND	10 J	ND	ND	ND	ND	211 J	19 J	68 NJ	13 J	24 J	-
Semi-Volatile Organics												
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	820 J	350 J	8 44
4 - Methyphenol	ND	ND	ND	ND	ND	ND	ND	ND	4700 J	ND	ND	-
Naphthalene	ND	ND	70 J	1000 J	5000 J	ND	1100 J	2200 J	ND	4400 J	840 J	-
2-Methylnaphthalene	ND	360 J	ND	390 J	ND	ND	420 J	900 J	ND	2100 J	530 J	-
Acenaphthylene	70 J	1300 J	200 J	ND	ND	ND	ND	ND	ND	ND	ND	-
Acenaphthene	44 J	310 J	61 J	1000 J	6500 J	960 J	1300 J	4600 J	1600 J	7000 J	1800 J	6413.89
Dibenzofuran	35 J	230 J	78 J	990 J	5100 J	ND	1000 J	3100 J	1300 J	5400 J	1100 J	-
2,4-Dinitrotoluene	ND	ND	82 J	ND	ND	ND	ND	ND	ND	ND	ND	-
Fluorene	65 J	580 J	220 J	1300 J	7300 J	1000 J	1600 J	5300 J	2400 J	6900 J	2000 J	11886.7
Phenanthrene	1200	5800	1400	11000	76000	22000	14000	36000	24000	63000	19000	21137.87
Anthracene	130 J	1200 J	310 J	1800 J	15000 J	3000 J	2500 J	6200 J	3700 J	13000	3400 J	21137.87
Carbazole	260 J	970 J	120 J	2100	14000 J	3000 J	3300 J	7900 J	5100 J	15000	4300 J	-
Di-n-Butylphthalate	210 BJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	620 BJ	50 00
Fluoranthene	3200	15000	2400	14000	96000	32000	18000	39000	45000	66000	27000	59574 62
Pyrene	2800	14000	2400	11000	71000	22000	15000	32000	34000	52000	22000	56893.32
Butylbenzylphthalate	49 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50 00
Benzo(a)anthracene	1500	9000	1300	6400	36000	10000	9400	18000	18000	35000	15000	32 89
Chrysene	1800	8700	1300	5800	40000	9500	7700	17000	20000	29000	11000	32 89
bis(2-Ethylhexyl)phthalate	320 J	520 J	82 J	1300 J	9400 J	3800 J	1700 J	1500 J	8000	630 J	1100 J	11971.57
Di-n-octylphthalate	42 J	170 J	ND	140 J	ND	ND	ND	ND	2300 J	ND	ND	50 00
Benzo(b)fluoranthene	3400	11000	1700	7300	32000	6800 J	8700	20000	25000	27000	16000	32 89
Benzo(k)fluoranthene	1800	5400	770	5600	24000	7300 J	4700	5900 J	19000	20000	5300	32 89
Benzo(a)pyrene	1700	7300	1000	4600	28000	6200 J	6500	13000	16000	24000	9900	19 74
Indeno(1,2,3-cd)pyrene	890	2900	230 J	1400 J	9200 J	2900 J	2800 J	6700 J	2000 J	9700	2600 J	32.89
Dibenz(a,h)anthracene	190 J	880 J	65 J	450 J	3200 J	ND	970 J	2300 J	ND	3400 J	1100 J	-
Benzo(g,h,i)perylene	620	1900 J	170 J	850 J	7900 J	2200 J	1900 J	4600 J	1600 J	6100 J	1800 J	-
Total Semi Volatiles	20325	87520	13958	78420	485600	132660	102590	226200	233700	390450	85800	-
Total Semi Volatile TICs	25510 J	40140 J	7280 J	17480 J	106100 J	11500 J	23200 J	60100 J	66400 J	53800 J	26400 J	-

TABLE E-16
WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF PESTICIDE/PCB COMPOUNDS - UNVALIDATED DATA
SEDIMENT SAMPLES
AREA E - U-CREST DITCH
(Concentrations Values in ug/kg - ppb)

ANALYTES	SAMPLE IDENTIFICATION , LOCATION AND DATE SAMPLED											SEDIMENT CRITERIA
	SEDUC1 UPSTREAM-001 **(40')** (12/16/93)	SEDUC2 UPSTREAM-001 **(15')** (12/16/93)	WEC-SED-E21 UPSTREAM-001 **(10')** (06/08/93)	SEDUC3 DNSTREAM-001 (15') (12/16/93)	WEC-SED-E22 DNSTREAM-001 (15') (06/08/93)	WEC-DUP1-SED DUPL OF E22 **(15')** (06/08/93)	SEDUC4 MIDWAY POINT 001 **& 002/003** (12/16/93)	SEDUC5 DNSTREAM-002/003 **(10')** (12/16/93)	WEC-SED-E23 DNSTREAM-002/003 (10') (06/08/93)	SEDUC6 DNSTREAM-002/003 **(230')** (12/16/93)	SEDUC7 DNSTREAM-002/003 (800') (12/16/93)	
Gamma-BHC	ND	ND	ND	ND	15.0 PV	ND	ND	ND	ND	ND	ND	9 44
Heptachlor	ND	2 6 P	ND	1 7 JP	17.0 PV	17.0 JP	7.0 P	1 8 JP	5.3 PV	2.0 JP	2 6 P	3 39
Aldrin	2 1 JP	ND	ND	ND	1 3 JPV	ND	ND	7 5 P	ND	ND	ND	3.00
Heptachlor Epoxide	0 50 JP	5 7 P	ND	2 6 P	16 V	46.0 P	6.2 P	3 2 P	3 9 P	8.5 P	ND	3.39
Endosulfan I	ND	1.5 JP	5 4 RJP	1.2 JP	ND	ND	3 0 P	1 7 JP	ND	2 2 P	10.0 P	--
Dieldrin	4.5 JP	27.0 P	ND	13.0 P	ND	ND	18 0 P	ND	ND	33 0 P	28 0 P	1 35
4,4'-DDE	0.54 JP	2 5 J	ND	1 5 JP	ND	ND	7 4 P	2 5 JP	42 0 JPV	7 3	30 0 P	150
Endrin	4 6 JP	26.0 P	ND	12.0 P	150 NVEP	340	19.0 P	13.0 P	ND	26.0 P	18	11.94
Endosulfan II	0.70 JP	7 1 P	ND	7.0 P	46 V	ND	38	1 8 JP	76 0 PV	17.0 P	55	--
4,4'-DDD	**ND**	**ND**	**ND**	**ND**	**37.0 PV**	**ND**	**ND**	**ND**	**6 3 JPV**	**ND**	**8 5 P**	**150**
4,4'-DDT	1 4 JP	6 3 P	ND	8 1 P	33.0 PV	98 0 P	17 0 P	9 1 P	56 0 PV	25 0 P	15 0 P	150
Endosulfan Sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Methoxychlor	ND	26.0 P	58 RBJP	12.0 JP	ND	210 BP	17 0 JP	13.0 JP	ND	27 0 P	19 0 JP	10475.13
Endrin Ketone	ND	ND	11 JP	ND	460 DVN	330 P	ND	ND	140 0 EPNV	ND	ND	--
Endrin Aldehyde	ND	ND	ND	5 8 P	ND	ND	ND	ND	73 0 PV	ND	ND	--
Alpha-Chlordane	ND	ND	ND	0.7 JP	ND	ND	ND	0 94 JP	ND	ND	ND	--
Gamma-Chlordane	ND	1.7 JP	ND	2 7 P	ND	ND	4 6 P	2 3 P	5 7 PV	2 6 P	7 9 P	--
Aroclor-1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	360	2000	0 01
Aroclor-1260	9.5 JP	37 JP	ND	210	3300 DV	1400 P	1000	81	6900 DV	480	2200	0 01

TABLE E-17

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS - UNVALIDATED DATA
SEDIMENT SAMPLES
AREA E- U- CREST DITCH
(Concentration Values in mg/kg- ppm)

ANALTYES	SAMPLE IDENTIFICATION AND LOCATION AND DATE SAMPLED											SEDIMENT CRITERIA	
	SEDUC1 UPSTREAM-001 (40') (12/16/93)	SEDUC2 UPSTREAM-001 (15') (12/16/93)	WEC-SED-E21 UPSTREAM-001 (10') (06/08/93)	SEDUC3 DNSTREAM-001 (15') (12/16/93)	WEC-SED-E22 DNSTREAM -001 (15') (06/08/93)	WEC-DUP1-SED DUPL OF E22 (15') (06/08/93)	SEDUC4 MIDWAY POINT 001 & 002/003 (12/16/93)	SEDUC5 DNSTREAM 002/003 (10') (12/16/93)	WEC-SED-E23 DNSTREAM-002/003 (10') (06/08/93)	SEDUC6 DNSTREAM-002/003 (230') (12/16/93)	SEDUC7 DNSTREAM-002/003 (800') (12/16/93)	Lowest Effect Level	Severe Effect Level
Aluminum	9150 00	10000.00	3760 00	3540 00	8740 00 V	3920.00	4480.00	2600 00	3900 00	4580 00	6130 00	-	-
Antimony	ND	19 90 N	ND	24.80 N	ND	ND	33.60 N	32 10 N	ND	24 10 N	27 80 N	2.0	25.0
Arsenic	4 50	26.30	5 70	4 00	14 30 V	10 10	7.50	5 60	5 80	12 80	9 50	6.0	33.0
Barium	83.70	71.90	43 00 B	24 90 B	73 20 V	92 30	55 60	34 30 B	97 40	53 60	63 70	-	-
Beryllium	0 27 B	0 29 B	0 39 B	0 14 B	0 54 BV	0 28 B	0 18 B	0 09 *	0 37 B	0.34 B	0 23 B	-	-
Cadmium	3.40 E*	8.30 E*	133 00	78.60 E*	8.40 V	87.20	93 10 E*	45.50 E*	12 10 V	29.40 E*	120 00 E*	0.6	9.0
Calcium	35800 00 E	34900.00 E	108000 00	125000 00 E	48900 00 V	113000 00	79000 00 E	119000.00 E	100000 00	118000 00 E	86100 00 E	-	-
Chromium	12 90 *	16.50 *	35 70	47 50 *	15 70 V	27 90	21 00 *	97 00 *	89 80	71 10 *	146 00 *	26.0	110 0
Cobalt	7 70 B	5 00 B	3 00 B	ND	2.70 V	8 90 B	2.60 B	ND	25 90	ND	3 70 B	-	-
Copper	17.40 E*	27.70 E*	57.50	452 00 E*	36.20 V	50 40	36 00 E*	119.00 E*	238.00	95 70 E*	409.00 E*	16.0	110 0
Iron	16500 00 E	19400.00 E	22500 00	31300.00 E	15400.00 V	18000 00	16900 00 E	31700 00 E	41400 00	24600 00 E	16700 00 E	20000 0	40000 0
Lead	37 40 N*	65 40 N*	81.10 V	46 80 N*	153.00 V	68 70	69 30 N*	311.00 N*	253.00	164.00 N*	201.00 N*	31 0	110 0
Magnesium	11000 00 *	15700 00 *	16400.00	15700 00 *	15900 00 V	17900 00	15900 00 *	20800 00 *	13800.00	14400 00 *	22500 00 *	-	-
Manganese	803 00 EN	365 00 EN	568 00	417 00 EN	402 00 V	587 00	344 00 EN	359 00 EN	495 00	567 00 EN	314 00 EN	460 0	1100 0
Mercury	ND	ND	0.14	0.16 N*	0.25 V	ND	0 13 N*	ND	0 30	ND	ND	0 15	1.3
Nickel	22.20	18.40	49.00	18.70	18.90 V	138 00	43 30	18 00	26 20	41 10	76.50	16 0	50 0
Potassium	1300 00 B	1780.00	343 00 B	494 00 B	1550 00 BV	412 00 B	695 00 B	450 00 B	476 00 B	622 00 B	1140 00 B	-	-
Selenium	ND	0 92 BN*W	129.00	1.30 EN*	1.02 BV	6 80 +	4 40 BN*	ND	0 86 B+	5.10 +N*	19 40 +N*	-	-
Silver	ND	ND	ND	ND	ND	8 20	ND	ND	ND	1.30 BN*	47 60 N*	1.0	2 2
Sodium	74 80 B	137.00 B	171 00 B	96 90 B	243 00 BV	199 00 B	85 20 B	100 00 B	199 00 B	155 00 B	161 00 B	-	-
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	1.00 BW	ND	ND	-	-
Vanadium	19.50	24.60	14 20	11 40 B	21 20 V	10 70 B	16 50	9.00 B	15 80	18 30	20 50	-	-
Zinc	87.30	139 00 EN*	227 00	352.00 EN*	157 00 V	440 00	187.00 EN*	253 00 EN*	549 00	328 00 EN*	424.00 EN*	120.0	270.0
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

4.5.5 Sanitary Sewer System

Surface Water Analytical Results

A summary of the analytical results associated with the surface water samples collected from the sanitary sewer lines is presented in Tables E-18 and E-19. The sample collected from line 200 (WEC-SW-E19) contained levels of TCE (17 ppb), several pesticides, PCBs (Aroclor-1254 @ 44 ppb), and numerous inorganics (metals) at levels exceeding NYS Surface Water Standards or Guidance Values. The sample collected from the line 100 contained levels of TCE (5 ppb), pentachlorophenol (9 ppb), dieldrin (0.022 ppb) and 4,4' DDT (0.014 ppb) at levels exceeding NYS Surface Water Standards or Guidance Values.

Sediment Analytical Results

There were no sediment samples collected from the sanitary sewer system.

Conclusions

It is apparent from a review of the analytical results that contamination from the site has entered the sanitary sewer line system and is migrating off-site. Therefore, it is recommended that the storm sewer system be decommissioned and/or remediated and the remedial alternatives should be addressed in a focused Feasibility Study.

TABLE E-18

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
SURFACE WATER SAMPLES
AREA E- SANITARY SEWER SYSTEM
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE ID AND LOCATION		NYS SW Standards or Guidance Levels*
	WEC-SW-E19 LINE 200	WEC-SW-E20 LINE 100	
Volatile Organics			
Acetone	ND	16J	50
1,1,1-Trichloroethane	1 J	ND	5.0
Trichloroethene	17	5 J	3.0
Total Volatiles	18	21	-
Total Volatile TICs	ND	ND	-
Semi-Volatile Organics			
Pentachlorophenol	ND	9 J	1.0
Di-n-butylphthalate	3 J	ND	50
Fluoranthene	2 J	ND	50
Pyrene	2J	ND	50
Butylbenzylphthalate	8 J	ND	50
bis(2-Ethylhexyl)phthalate	36	ND	4.0
Total Semi-Volatiles	51	9	-
Total Semi-Volatile TICs	608 J	3 J	-
Pesticides/PCBs			
Heptachlor Epoxide	0.18 JPBVN	ND	-
Endosulfan I	0.12 JPV	ND	0.009
Dieldrin	ND	0.022 JPV	0.0009
4,4'-DDE	1.4 V	ND	-
Endosulfan II	1.00 PV	ND	0.009
4,4'-DDT	0.32 JPV	0.014 JP	0.01
Endosulfan Sulfate	0.63 PV	ND	-
Methoxychlor	ND	0.051 JV	35
Endrin Ketone	0.19 JPV	ND	-
Alpha-Chlordane	ND	0.011 JPV	-
Gamma-Chlordane	1.9 PV	0.013 JPV	-
Aroclor-1254	44	ND	0.01

*6NYCRR Part 703

TABLE E-19

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
AREA E- SANITARY SEWER SYSTEM
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE ID. AND LOCATION		NYS SW Standards or Guidance Levels*
	WEC-SW-E19 LINE 200	WEC-SW-E20 LINE 100	
Aluminum	2000.00 V	ND	100
Arsenic	6.70 B	ND	50
Barium	750.00	22.00 B	1000
Cadmium	47.10	ND	10
Calcium	86400.00	35900.00	--
Chromium	146.00	ND	50
Cobalt	34.20	ND	5.0
Copper	3060.00	39.30	200
Iron	31300.00	223.00	300
Lead	681.00 V	4.60	50
Magnesium	24100.00	10600.00	35000
Manganese	2110.00 V	11.60 BV	300
Mercury	0.38	ND	2.0
Nickel	77.30	ND	--
Potassium	14800.00	11500.00	--
Selenium	1.80 BWV	2.00 BV	10
Silver	13.30 N	ND	50
Sodium	23800.00	35200.00	--
Vanadium	6.10 B	ND	14
Zinc	1400.00	112.00	300
Cyanide	ND	ND	100

*6NYCRR Part 703

4.6 Area F-Transformer Area

Background

Area F is located in the southeast corner of the study area. The area consists of a power substation comprised of two stationary transformers and a row of circuit breakers. Refer to Plate No. 1, Areas of Investigation Map for the location of Area F. There had been no previous sampling performed in the transformer area.

Purpose of Investigation

Surficial staining was observed adjacent to both of the transformers located in the substation. The purpose of this investigation was to ascertain the presence or absence of PCB contamination within the surficial and subsurface soils.

Scope of Investigation

A total of six soil samples were collected in the substation area. Three surface soil samples were collected from the stained areas adjacent to the two transformers and one surface soil sample was collected from adjacent to the circuit breaker assembly. Two subsurface soils were also collected by hand augering at locations adjacent to each of the transformers at a depth of 2-3 feet (refer to Figure F for locations of the sampling points).

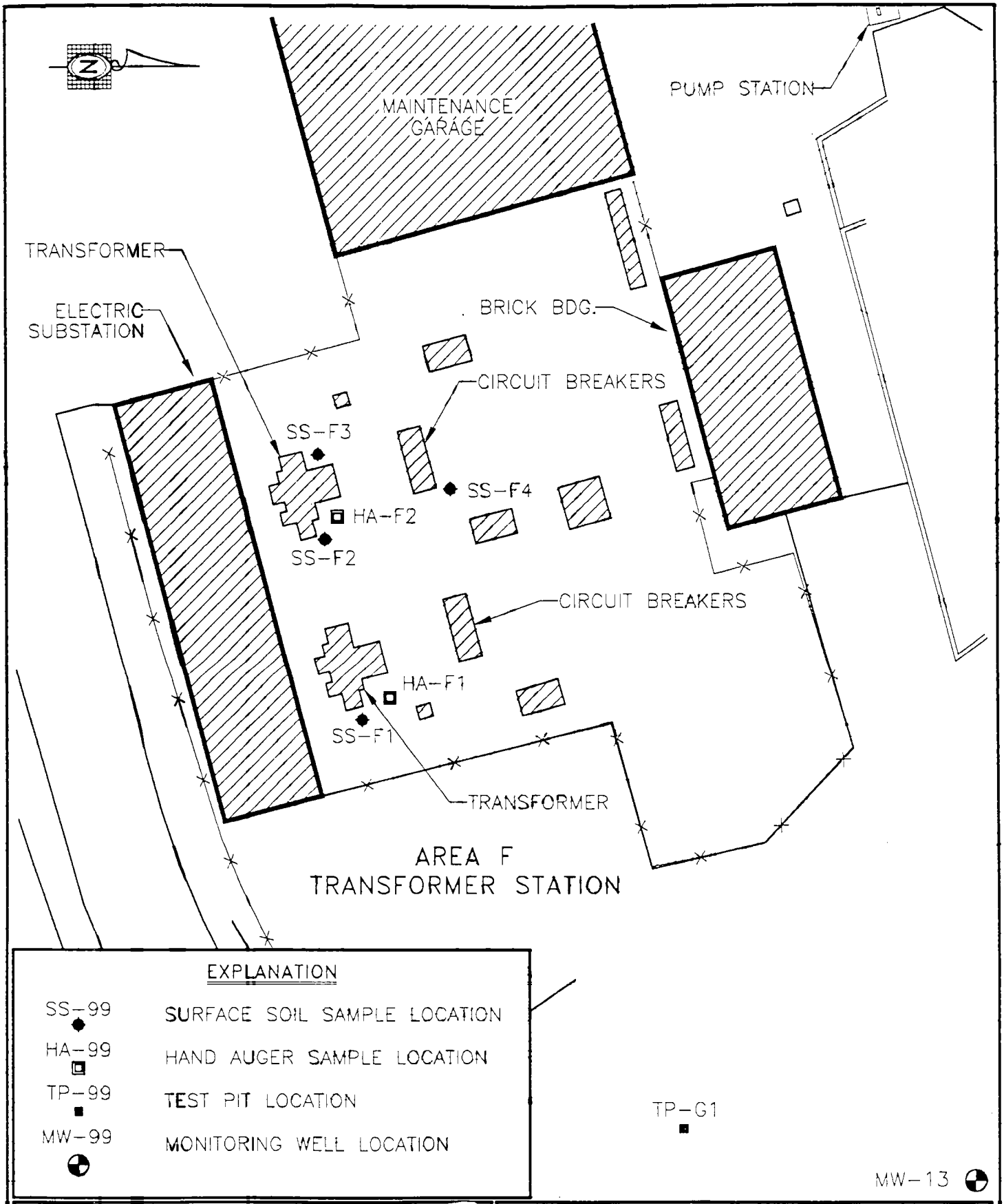
All samples were analyzed for TCL PCBs and one sub-surface soil sample was also analyzed for Total Organic Carbon (TOC).

Analytical Results

A summary table of the analtyical results is presented in Table F-1. Aroclor-1260 (PCB) was detected in each of the surficial soil samples (WEC-SS-F1 through WEC-SS-F4) at concentrations ranging from 320 to 1000 ppb, which do not exceed the RSCO for surface soils (1000 ppb). Aroclor-1260 was also detected in the subsurface soil samples (WEC-HA-F1 &F2) at levels ranging from 5.1 to 24 ppb, which is far lower than the RSCO for subsurface soils (10,000 ppb).

Conclusions

The levels of PCBs detected within the surface and subsurface soils in the transformer area do not pose a significant environmental concern. No further action is recommended for this area.



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AREA F - SAMPLE LOCATIONS

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0054SD	SCALE 1"=30'	FIGURE NO. F

TABLE F-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF PCBs
HAND AUGER AND SURFACE SOIL SAMPLES
AREA F-TRANSFORMER AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND DEPTH						RSCO*
	WEC-HA-F1 1' - 2'	WEC-HA-F2 1' - 2'	WEC-SS-F1 6"	WEC-SS-F2 6"	WEC-SS-F3 6"	WEC-SS-F4 6"	
PCBs							
Aroclor-1260	5.1 JV	24 JV	330 PV	1000 PV	320 PV	470 PV	1000-Surface 10,000-Subsurface

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

HA - Hand Auger SS - Surface Soil

4.7 Area G - East Fill/Mound Area

Background

Area G consists of a mound located in the southeastern portion of the project area, north of Area F. It is bounded to the north and east by the access roadway running roughly parallel with Holtz Drive and to the west by a drainage ditch and a former rail line. Due west of Area G is the Boiler House Facility (Area H) and the Oil Storage Building (Area I). Refer to Plate No.1, Areas of Investigation Map. Data collected during the PSA indicated the presence of low levels of several PAHs, pesticides, and inorganic compounds within the subsurface soils.

Purpose of Investigation

The purpose of this investigation was to confirm the results of the PSA and determine if any remedial action is warranted for this area.

Scope of Investigation

A total of five test pits (TP-G1 through TP-G5) were excavated in this area at the locations presented in Figure G. A soil sample was collected for chemical analysis from three of the five test pit locations and analyzed for TCL VOAs, BNAs, Pesticides and PCBs.

Subsurface Conditions

The depth of fill was found to range from two to three feet and all pits were terminated between five and seven feet. The fill was comprised mainly of gray-brown silt and gravel. The native strata underlying the fill was a brown till consisting of clayey silt with embedded fine to coarse gravel. Additional observed physical characteristics of the till included low plasticity and a blocky structure. Detailed geologic logs are presented in Appendix C-1.

Air Monitoring/Headspace Results

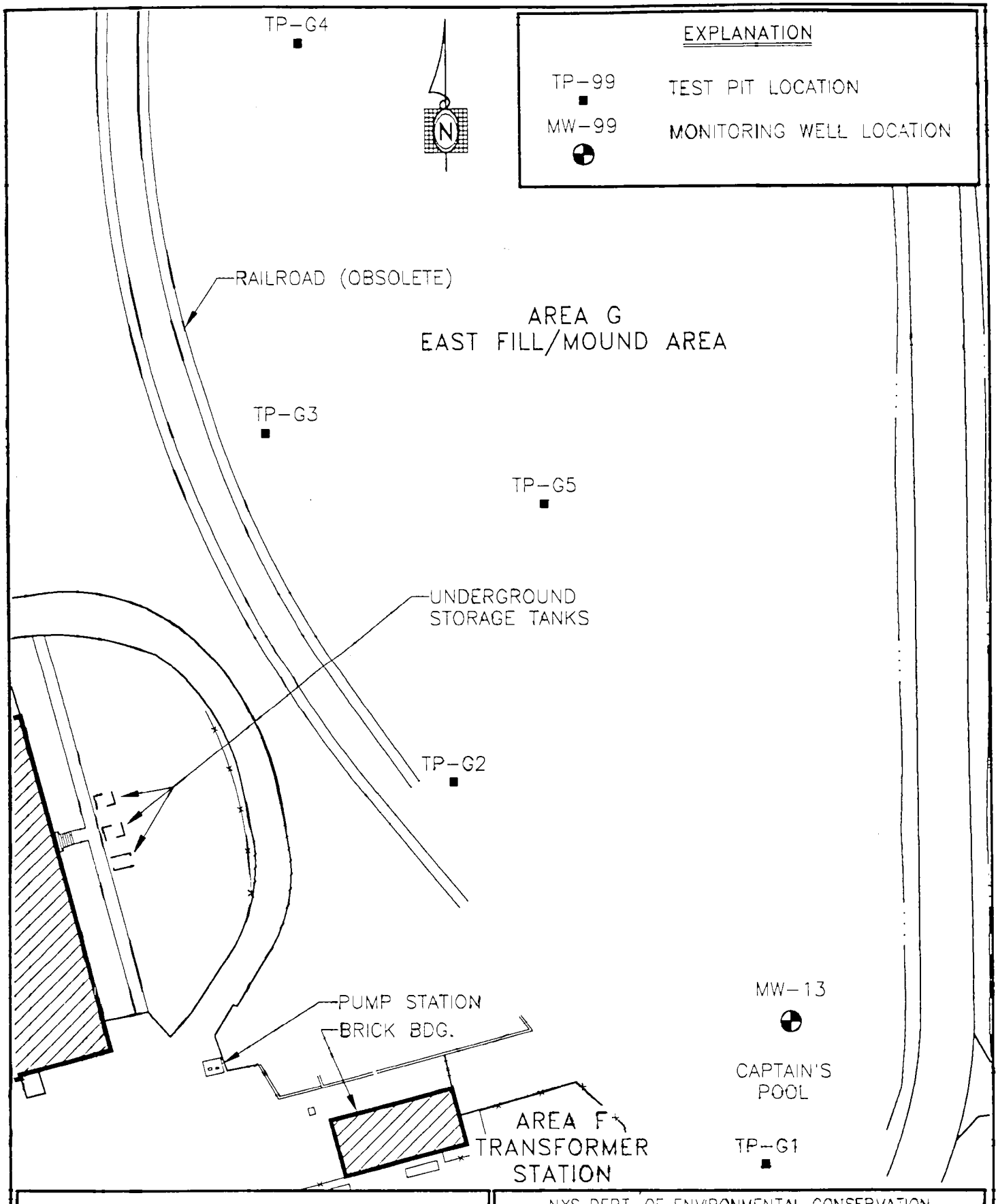
Organic vapor levels as measured by an HNu were not detected above ambient background levels during any of the test pit excavations.

Analytical Results

A summary table of the analytical results is presented in Table G-1. VOCs were detected in all three test pit samples at very low concentrations, well below their respective RSCOs. In addition, numerous semi-volatile organics (mainly PAHs) were detected in the fill material collected from test pit WEC-TP-G5, several of which exceeded their respective RSCOs. These included: benzo(a)anthracene (5200 ppb); chrysene (4800 ppb); benzo(b)fluoranthene (3500 ppb); benzo(a)pyrene (4500 ppb); and dibenz(a,h)anthracene (420 ppb).

Conclusions

Although elevated concentrations of PAHs have been identified within subsurface soils in Area G, the levels detected were not excessive and the contaminants appear to be confined to the two to three foot veneer of fill material. Based on the results of this investigation, there is no evidence to indicate that hazardous waste disposal occurred in Area G. No further action is recommended in this area.



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AREA G - TEST PIT LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0055SD	SCALE 1"=60'	FIGURE NO. G

TABLE G-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
TEST PIT SOIL SAMPLES
AREA G- EAST FILL/MOUND AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH			RSCO*
	WEC-TP-G1 5'	WEC-TP-G3 4'	WEC-TP-G5 2' - 3'	
Volatile Organics				
Toluene	1 J	4 J	1 J	2250
Total Xylenes	ND	14	ND	1800
Total Volatiles	1	18	1	10000
Total Volatle TICs	ND	ND	ND	10000
Semi-Volatile Organics				
Naphthalene	ND	ND	770 J	19500
2-Methylnaphthalene	ND	ND	270 J	50000
Acenaphthene	ND	ND	1200 J	50000
Dibenzofuran	ND	ND	650 J	9300
Fluorene	ND	ND	1400 J	50000
Phenanthrene	ND	49 J	7000 J	50000
Anthracene	ND	ND	2400 J	50000
Carbazole	ND	ND	1600 J	-
Fluoranthene	ND	38 J	9100 J	50000
Pyrene	ND	ND	7400 J	50000
Benzo (a) anthracene	ND	ND	5200 J	220 or MDL
Chrysene	ND	ND	4800 J	600
Benzo(b)fluoranthene	ND	ND	3500 J	1650
Benzo(k)fluoranthene	ND	ND	4100 J	1650
Benzo(a)pyrene	ND	ND	4500 J	61 or MDL
Indeno(1,2,3-cd)pyrene	ND	ND	1300 J	4800
Dibenz(a,h)anthracene	ND	ND	420 J	14 or MDL
Benzo(g,h,i)perylene	ND	ND	660 J	500000
Total Semi-Volatiles	ND	87	56270	500000
Total Semi-Volatile TICs	4800 J	4797 J	14100 J	500000
Pesticides/PCBs				
Endrin Aldehyde	ND	1.2 JPV	45 PV	-
4,4' DDE	0.54 JPV	3.9 PV	4.9 PV	2100
4,4' DDT	0.92 JPV	6.6 PV	23 PV	2100
Endosulfan II	ND	3.4 JPV	8.3 PV	1350
4,4' DDD	ND	1.5 JPV	12.0 P	2900
Endrin Ketone	ND	1.4 JPV	45 PV	--
Alpha Chlordane	ND	0.73 JPV	ND	--
Aroclor - 1254	ND	75 PV	170 V	10000
Aroclor - 1260	ND	43 JPV	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

4.8 Area I - Oil Storage Building Area/SS Line 001

Background

The Oil Storage Building is located east of the main plant structure and north of the Boiler House Facility with abandoned railroad tracks located to the east. Refer to Plate No. 1, Areas of Investigation. There were five underground storage tanks located north and east of the Oil Storage Building which ranged in size from 550 to 15,000 gallons. Information obtained from site maps indicates that the tanks reportedly contained toluene and chlorethene. The Empire Soils Report (1987) stated that the tanks may have been removed between 1985 and 1987.

Significantly elevated levels of VOCs (primarily TCE) were detected in Area I in both the subsurface soil and groundwater samples collected during the PSA.

Purpose of Investigation

The purpose of this investigation was to delineate the horizontal and vertical extent of the contamination detected during the PSA, and to assess localized groundwater flow conditions. In addition, a lateral to storm sewer line 001 is located adjacent to the contaminated area. Investigation of the storm sewer lateral bedding material was performed in order to ascertain the presence or absence of contaminants which may have impacted storm sewer line 001.

Scope of Investigation

A total of eight borings (SB-I1 through SB-I8) were completed in Area I at the locations shown on Figure I-1. A soil sample was collected from six of the eight borings and analyzed for TCL VOAs and BNAs. Two of the boreholes were converted to piezometers (P5 & P6) in order to establish localized groundwater flow. In addition, a deep bedrock monitoring well (SB-S1/MW-23D) was installed in Area I to assess the bedrock aquifers' groundwater quality and hydrogeologic characteristics. A complete discussion of the sites' overall groundwater quality and hydrogeologic conditions is presented in Section 4.18.

A total of three test pits (TP-I1 through TP-I3) were excavated along the sewer line lateral at the locations shown on Figure I-1. A soil/bedding sample was collected from two of the three test pit locations and analyzed for TCL VOAs, BNAs, PCBs and PP Metals.

Subsurface Conditions

Fill material was encountered in the three test pits excavated along the storm sewer line lateral to the terminus of each excavation. The top of the storm sewer line was encountered at each location at a depth of five to six feet below grade. There was no "classic" sand and gravel bedding material encountered adjacent to the sewer line. The material used to backfill the sewer line trench appeared to be a re-worked till consisting of clayey silt with varying amounts of embedded sand and gravel. It should be noted that an apparent underground storage tank (UST) was encountered during the excavation of TP-I3. Historic mapping does not indicate the presence of a UST at this location. Stained soil was observed adjacent to the

UST.

Fill material was encountered in borings SB-I3, SB-I4, SB-S1 at depths ranging from fourteen to eighteen feet below grade. It is presumed that these borings are located within former tank pit area as evidenced by the excessive depth of fill. The depth of fill material in SB-I1, I2, I6, and I8 ranged from 1.5 - 2.0 feet below ground surface.

Glacial till was encountered beneath the fill at all boring locations and extended to the top of bedrock, which was encountered at a depth of 29.2 feet in SB-S1. The bedrock consisted of a light gray, medium hard, bedded, cherty limestone. Detailed geologic logs for all borings and test pits are presented in Appendix C.

Air Monitoring/Headspace Results

Headspace screening was performed on soil samples recovered from each of the test pits as well as several of the borings using the on-site portable GC. All recovered boring samples were screened with an HNu. The results of these screenings are presented on Tables I-1 to I-3.

Elevated VOC concentrations were detected within the soil collected from each of the test pit locations. The total VOC concentrations ranged from 28 ppm in TP-I3 to 1205 ppm in TP-I2. Although a wide range of constituents were detected in the soils, the primary contaminants present were TCE and 1,2-DCE. Elevated levels of these compounds were also detected in the soils recovered from test borings SB-I1 (167 ppm) and SB-I4 (351 ppm).

HNu readings indicated the presence of elevated levels of VOCs throughout the entire depth of borings SB-I4 and SB-I6 as well as the upper portion of SB-I1. There were no significantly elevated VOC concentrations detected within any of the other soil borings. It is assumed that SB-I4 and SB-I6 are located within and/or adjacent to the former tank pit. The approximate lateral extent of contamination in Area I is depicted in Figure I-2. The vertical extent of contamination was determined to extend to the top of bedrock in SB-I6, at a depth of 29.2 feet below grade. A cross-sectional area of the contaminated zone is depicted on Figure I-3.

Analytical Results

A summary of the analytical results associated with the subsurface soil samples collected from Area I is presented in Tables I-4 and I-5. Elevated levels of VOCs were detected at levels exceeding RSCOs at the following sample locations: WEC-TP-I1; WEC-SB-I3: WEC-SB-I4; and WEC-SB-I6. The types of VOCs detected at these locations included: 1,1-DCA; 1,2-DCE; 1,1,1-TCA; TCE; and toluene. There were no elevated levels of semi-volatile organics or inorganics detected within any of the subsurface soil samples collected.

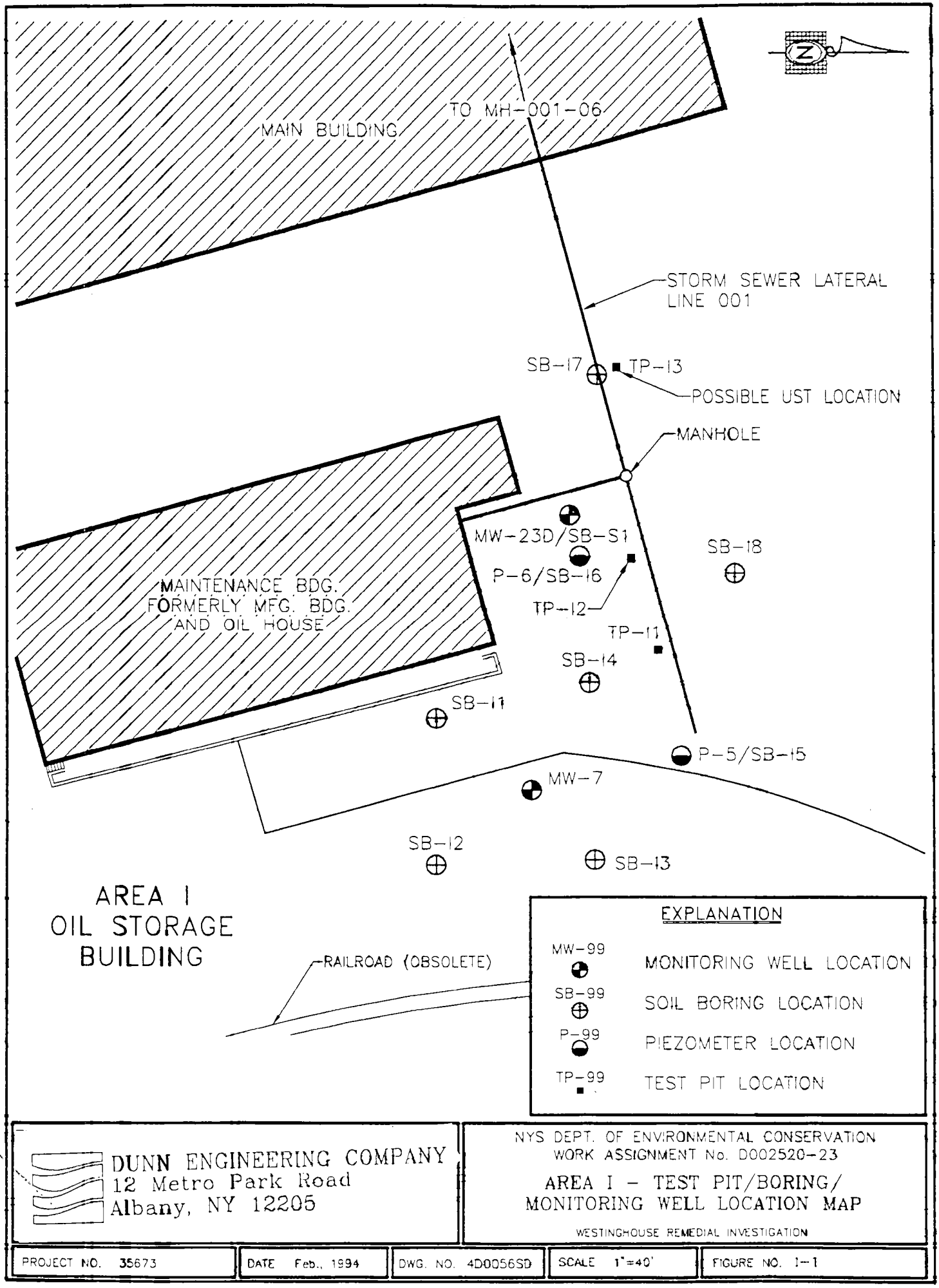
Conclusions

The analytical results generally confirm the findings of the headspace analyses. Elevated levels of VOC contaminants appear to be confined to the former tank pit area as delineated in Figures I-2 & I-3. The contamination was determined to extend to the top of bedrock within the tank pit area to a depth of approximately 29 feet below grade and may be

adversely impacting the bedrock aquifer (refer to Section 4.18).

The presence of contamination within the bedding material of the nearby storm sewer line 001 lateral has been confirmed in this investigation. Analytical data associated with a surface water sample collected from the line 001 lateral indicates that contamination in Area I has infiltrated the storm sewer system (refer to Section 4.5.1).

VOC contamination of both the subsurface soil and groundwater within Area I (refer to Section 4.18) has been documented in this investigation. In addition, migration of contamination from Area I to the adjacent storm sewer system has been confirmed. Therefore, it is recommended that remedial action be performed in Area I in order to eliminate the contaminant source area (former tank pit). The remedial alternatives should be addressed in a focused Feasibility Study. In addition, an IRM should be performed to "close off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.



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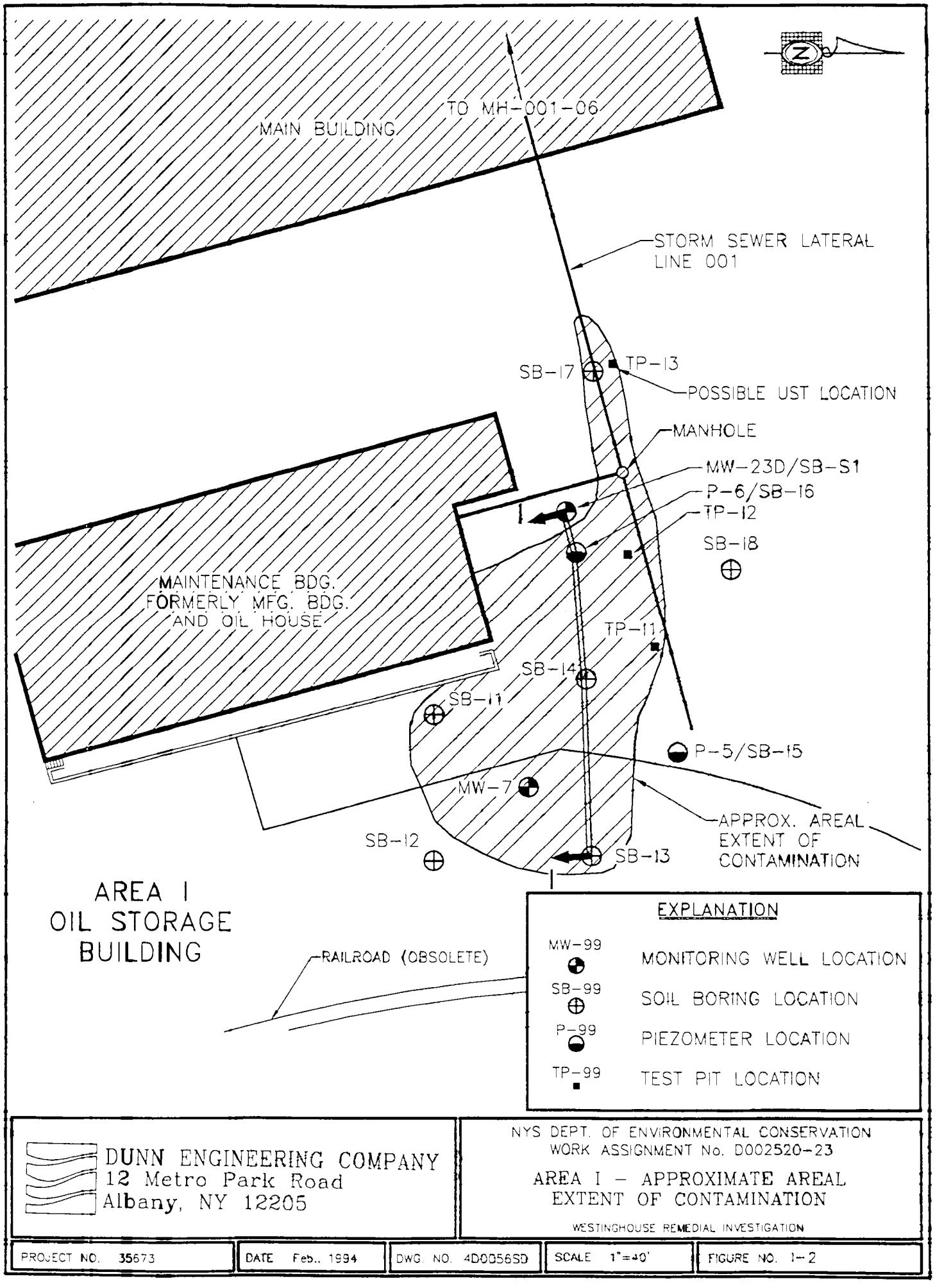
AREA I - TEST PIT/BORING/ MONITORING WELL LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4D0056SD	SCALE 1"=40'	FIGURE NO. 1-1



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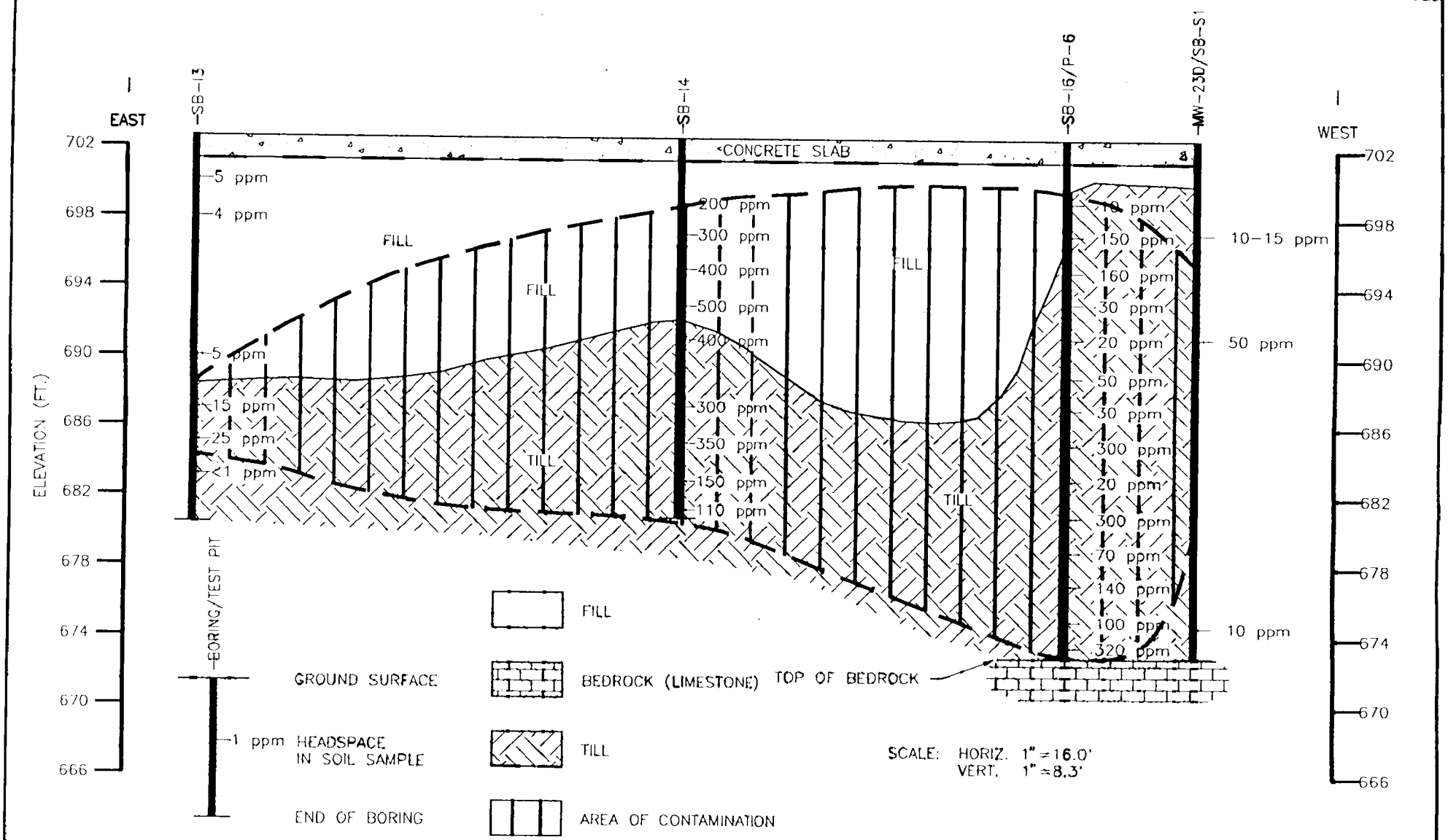
AREA I – APPROXIMATE AREAL EXTENT OF CONTAMINATION

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4D0056SD	SCALE 1"=40'	FIGURE NO. 1-2



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SECTION I-I

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb.,1994	C000	As Noted	I-3

TABLE I-1

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY OF HEADSPACE RESULTS
AREA I - OIL STORAGE BUILDING AREA
(Concentration Values in ppm)

Boring Depth	Soil Boring Location & HNU Readings								Boring Depth	
(Feet)	SB-I1	SB-I2	SB-I3	SB-I4	SB-I5	SB-I6	SB-I7	SB-I8	(Feet)	SB-S1
0-2	-	Bkg	2	-	-	-	-	Bkg	5-7	3
2-4	190	Bkg	4	200	30	70	-	Bkg	10-12	130
4-6	200	1	-	300	Bkg	150	-	Bkg	15-17	NR
6-8	90	6	-	400	Bkg	160	-	Bkg	20-22	NR
8-10	6	Bkg	-	300	Bkg	30	12	Bkg	25-27	Bkg
10-12	70	Bkg	Bkg	400	Bkg	20	Bkg	Bkg	30-32	-
12-14	1	NR	5	400	Bkg	50	Bkg	Bkg	35-37	-
14-16	2	2	15	300	Bkg	30	Bkg	Bkg	40-42	-
16-18	8	Bkg	25	350	Bkg	300	NR	Bkg	45-47	-
18-20	1	Bkg	Bkg	150	Bkg	20	Bkg	Bkg	50-52	-
20-22	2	Bkg	Bkg	110	-	300	-	-	55-57	-
22-24	-	-	-	-	-	70	-	-		
24-26	-	-	-	-	-	190	-	-		
26-28	-	-	-	-	-	100	-	-		
28-30	-	-	-	-	-	300	-	-		

Background Represents HNU<1 ppm
NR- No Recovery

Table I-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SOIL BORING HEADSPACE SURVEY
AREA I- Oil Storage Building
(Concentration Values in ppb)

ANALYTES	Boring Location and Depth				
	SB-I1 6-8'	SB-I1 10-12'	SB-I1 16-18'	SB-I2 16-18'	SB-I4 12-14'
1,1-DCE	1293.00	640.60	48.97	5.76	2287.00
trans-1,2-DCE	408.50	219.30	-	4.12	2198.00
cis-1,2-DCE	98910.00	63040.00	129.60	19.19	132900.00
1,1,1-TCA	-	-	-	-	-
Benzene	640.50	357.30	-	-	242.60
TCE	62650.00	32350.00	223.10	72.32	159600.00
Toluene	2505.00	1339.00	-	104.60	19280.00
PCE	248.20	-	-	-	16810.00
Chlorobenzene	539.20	101.30	-	-	1707.00
Ethylbenzene	529.60	99.45	-	-	1331.00
m-Xylene	271.50	40.49	-	83.67	1031.00
o-Xylene	-	-	-	-	-
Total	167995.50	98187.44	401.67	289.66	351576.60

TABLE I-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA I-Oil Storage Building
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth				
	TP-I1 2'	TP-I1 5'	TP -I2 2'	TP-I2 6'	TP-I3 6'
1,1-DCE	4914.00	5213.00	1275.00	3076.00	217.60
trans-1,2-DCE	12110.00	7244.00	2464.00	14040.00	2666.00
cis-1,2-DCE	41940.00	736300.00	98960.00	1175000.00	16510.00
1,1,1-TCA	-	-	2528.00	-	-
Benzene	1216.00	704.10	2079.00	3384.00	7575.00
TCE	78810.00	21970.00	16060.00	7575.00	8220.00
Toluene	898.10	47.74	338.70	137.50	120.00
PCE	82.62	-	1767.00	190.20	194.20
Chlorobenzene	227.30	-	4720.00	678.30	130.20
Ethylbenzene	42.05	-	2308.00	373.90	87.31
m--Xylene	80.51	126.40	1128.00	482.20	145.00
o-Xylene	-	-	546.00	-	-
Total	517780.58	771605.24	134173.70	1204937.10	28580.81

TABLE I-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
AREA I - OIL STORAGE BUILDING
TEST PIT AND SOIL BORING SAMPLES
(Concentration Values in ug/kg)

ANALYTES	SAMPLE LOCATION AND DEPTH								RSCO*
	WEC-TP-I1 5'	WEC-TP-I3 6'	WEC-SB-I1 6'-8'	WEC-SB-I2 16'-18'	WEC-SB-I3 14'-16'	WEC-SB-I4 12'-14'	WEC-SB-I5 8'-18'	WEC-SB-I6 16'-18'	
Volatile Organics									
Methylene Chloride	ND	ND	ND	ND	ND	5200 B	ND	ND	150
Carbon Disulfide	2 J	ND	ND	ND	ND	ND	ND	ND	4050
1,1-Dichloroethene	5 J	ND	ND	ND	ND	ND	ND	ND	300
1,1-Dichloroethane	110	2 J	ND	ND	7200	ND	ND	510 J	450
1,2-Dichloroethene (total)	1100 D	29	5 J	ND	ND	310 J	ND	ND	450
1,1,1-Trichloroethane	ND	ND	ND	ND	19000	ND	ND	ND	1140
Carbon Tetrachloride	ND	ND	ND	ND	2400	ND	ND	ND	900
Trichloroethene	770 D	80	7 J	ND	2300	44000	12	100000 D	1050
Benzene	2 J	ND	ND	ND	ND	ND	ND	1500 JD	90
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	180 J	1050
Toluene	3 J	2 J	ND	ND	460 J	420 J	ND	6200	2250
Total Xylenes	ND	2 J	ND	ND	ND	ND	ND	ND	1800
Total Volatiles	1992	115	12	0	31360	49930	12	108390	10000
Total Volatile TICs	660 NJ	ND	ND	ND	ND	ND	ND	ND	10000
Semi Volatile Organics									
2-Methylnaphthalene	ND	60 J	ND	ND	ND	ND	ND	ND	50000
bis(2-Ethylhexyl)phthalate	ND	43 J	39 J	38 JSV	160 JSV	ND	51 JS	78 JS	50000
Di-n-octyl Phthalate	ND	ND	ND	ND	ND	ND	180 JS	ND	50000
Total Semi-Volatiles	ND	103	39	38	160	ND	231	78	500000
Total Semi-Volatile TICs	2008 J	3370 J	6117 J	3818 J	2721 J	4085 J	4243 J	4170 J	500000
PCBs									
All PCBs	ND	ND	-	-	-		-	-	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; C$ x Cf

TP - Test Pit SB - Soil Boring

TABLE I-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
TEST PIT SAMPLES
AREA I - OIL STORAGE BUILDING
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH		Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-TP-I1 5'	WEC-TP-I3 6'			
Arsenic	3.10	2.70	6.03	5	3.0-12.0
Beryllium	0.30 B	0.41 B	0.87	0.6	0.0-1.75
Chromium	10.30 *	11.00 *	18.87	33	1.5-40
Copper	13.10	13.10	23.77	20	2.0-100
Lead	11.30J	9.30 J	17.8	14	4.0-61
Nickel	12.60J	13.10 J	24.1	40	0.5-60
Selenium	0.45 J	ND	ND	-	-
Zinc	64.20	57.70	90.2	50	10-300

4.9 Area J-Underground Solvent Tank Area

Background

The solvent tank area is located adjacent to the northern side of the main building structure. An abandoned railway traverses the northern boundary of the area, parallel to the existing roadway. Refer to Plate 1, Areas of Investigation. A review of historical site plans indicated the presence of four underground storage tanks. According to a report prepared by Empire Soils Investigations, Inc. (1987), two underground storage tanks were previously removed from the area, the remaining two tanks were filled with sand and abandoned. The removed tankage was thought to be utilized for the storage of toluene and trichloroethane. No information could be found to confirm what products were stored in the abandoned tankage.

Elevated concentrations of VOCs were detected in both subsurface soils and groundwater samples collected during the PSA. Elevated concentrations of PAHs were also detected in the subsurface soil samples collected during the PSA.

Purpose of Investigation

The purpose of this investigation was to delineate the horizontal and vertical extent of the contamination detected during the PSA, determine the disposition of the underground storage tanks, and to assess localized groundwater flow conditions.

Scope of Investigation

A total of six test pits (TP-J1 through TP-J6) were excavated in the former tank pit area as shown on Figure J-1. A soil sample was collected from four of the six test pits and analyzed for TCL VOAs and BNAs.

A total of three borings (SB-J1 through SB-J3) were completed along the roadway in an attempt to delineate the vertical extent of any contamination . A soil sample was collected from two of the three borings and analyzed for TCL VOAs and BNAs.

One of the test borings (SB-S3) was converted to a piezometer (P7) in order to assess localized groundwater flow conditions. The hydrogeologic discussion of the site is presented in Section 4.18.

Surface Conditions

Three test pits (TP-J1, J2 & J3) were excavated in the tank pit area and three test pits (TP-J4, J5 & J6) were excavated along the former railway. Fill material in the tank pit area ranged in depth from seven to eleven feet below grade and consisted predominantly of clayey, sandy silt. The east and west ends of an abandoned UST were encountered during the excavations of TP-J1 and TP-J2, respectively. Minor quantities of stained soil were observed adjacent to the tank in TP-J1. A second abandoned UST was encountered during the excavation of TP-J3. Possible vent pipes or product lines were observed to be coming from the tank and appeared to lead to the nearby pump station. The soil beneath the product/vent lines was

stained and emitted a strong solvent odor.

Fill material beneath the former railway was encountered at depths ranging from two and one half to four feet below grade. The bottom one to two feet of the fill consisted of a dark gray to black sand and gravel with a strong creosote/heavy end petroleum odor. Glacial till was encountered beneath the fill at all test pit locations, which caused a perched water table condition within the sand and gravel fill material. A slight sheen was observed on the perched water in TP-J6.

Fill material was encountered in the three soil borings advanced in the roadway at depths ranging from three to eight and one half feet below grade. Glacial till was encountered beneath the fill to the terminus of the boreholes.

Air Monitoring/Headspace Results

Soil samples recovered from the six test pits were screened with the on-site GC. The soil samples recovered from the three borings were screened with an HNu. The results of the headspace screenings are presented on Table J-1 & J-2. Elevated VOC levels were detected within each of the test pit soil samples. Significantly elevated total VOC levels were detected in TP-J3 (516 ppm); TP-J4 (220 ppm); TP-J5 (118-246 ppm); and TP-J6 (83 ppm). Some of the primary constituents detected in these samples included: 1,2-DCE; chlorobenzene; ethylbenzene; and xylenes. There were no significantly elevated VOC concentrations detected in the soil boring samples. The lateral extent of contamination detected in Area J is presented in Figure J-2. In addition, the vertical extent of the contamination is depicted in Figure J-3.

Analytical Results

A summary of the analytical results associated with the subsurface soil sample collected from Area J is presented in Table J-3. VOCs were detected in every sample collected from Area J at varying concentrations. VOCs were detected at levels exceeding RSCOs at two sampling locations; WEC-TP-J3 and WEC-SB-J1. WEC-TP-J3 contained elevated levels of ethylbenzene (19,000 ppb) and total xylenes (120,000 ppb) whereas WEC-SB-J1 contained elevated levels of PCE (3800 ppb).

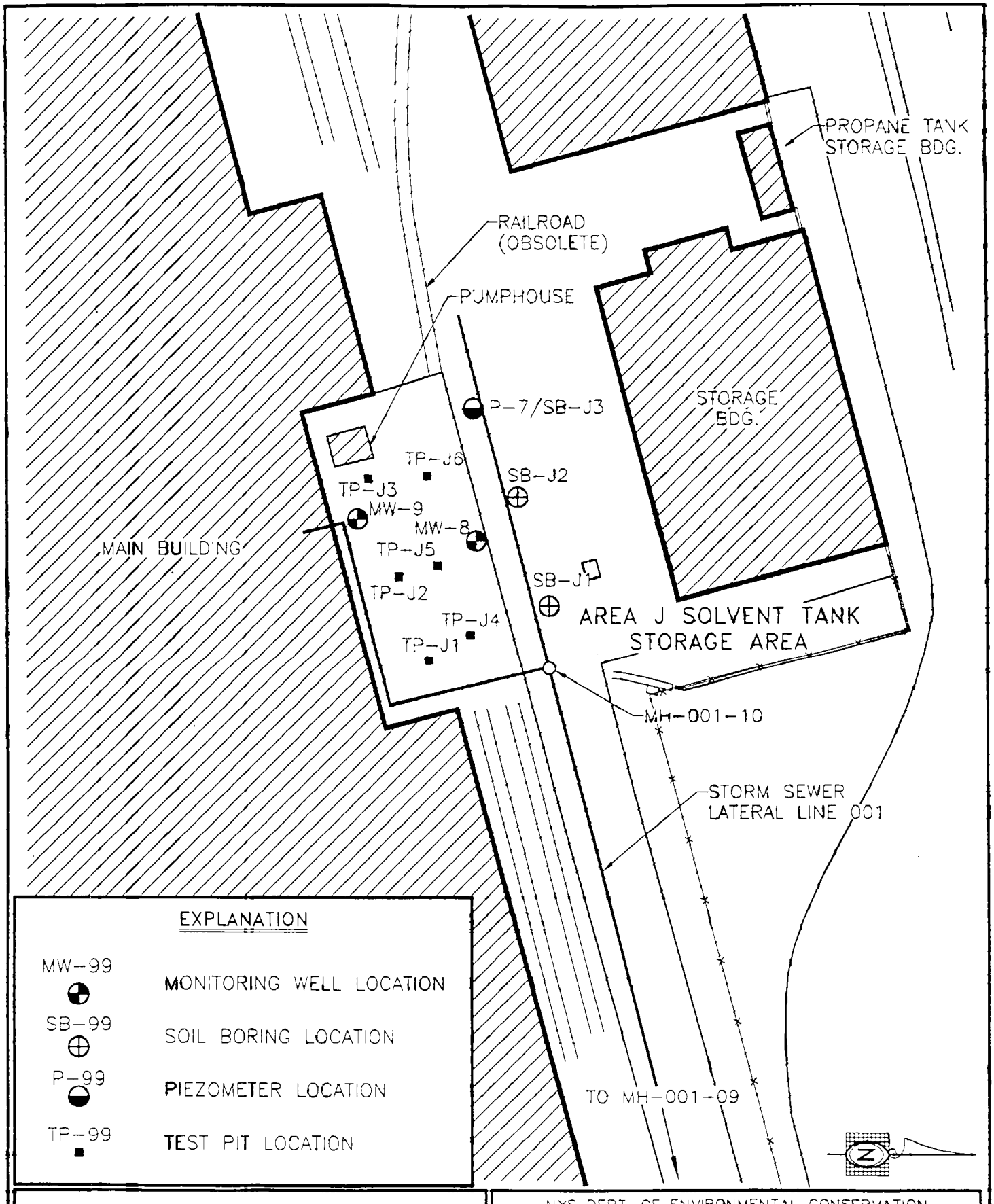
Several semi-volatile organics, mainly PAHs, were also detected at levels exceeding RSCOs at four sample locations: WEC-TP-J2; WEC-TP-J3; WEC-TP-J5; and WEC-SB-J2. The types and concentrations of PAHs detected are not unexpected given the industrial setting and use of the site.

Conclusions

Based on the results of this investigation, it is apparent that Area J poses a significant environmental concern. Subsurface contamination of both soil and groundwater (refer to Section 4.18) has been confirmed. In addition, it appears that the contamination in Area J has infiltrated the nearby storm sewer system (refer to Section 4.5.1) and is migrating off-site. It should be noted that an additional investigation was subsequently completed in order to delineate the extent of contamination beneath the former railroad tracks. The results will be

presented in the Final RI report.

It is therefore recommended that remedial action be performed in Area J in order to eliminate the contaminant source area. The remedial alternatives should be addressed in a focused Feasibility Study. In addition, an IRM should be performed to "close-off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.



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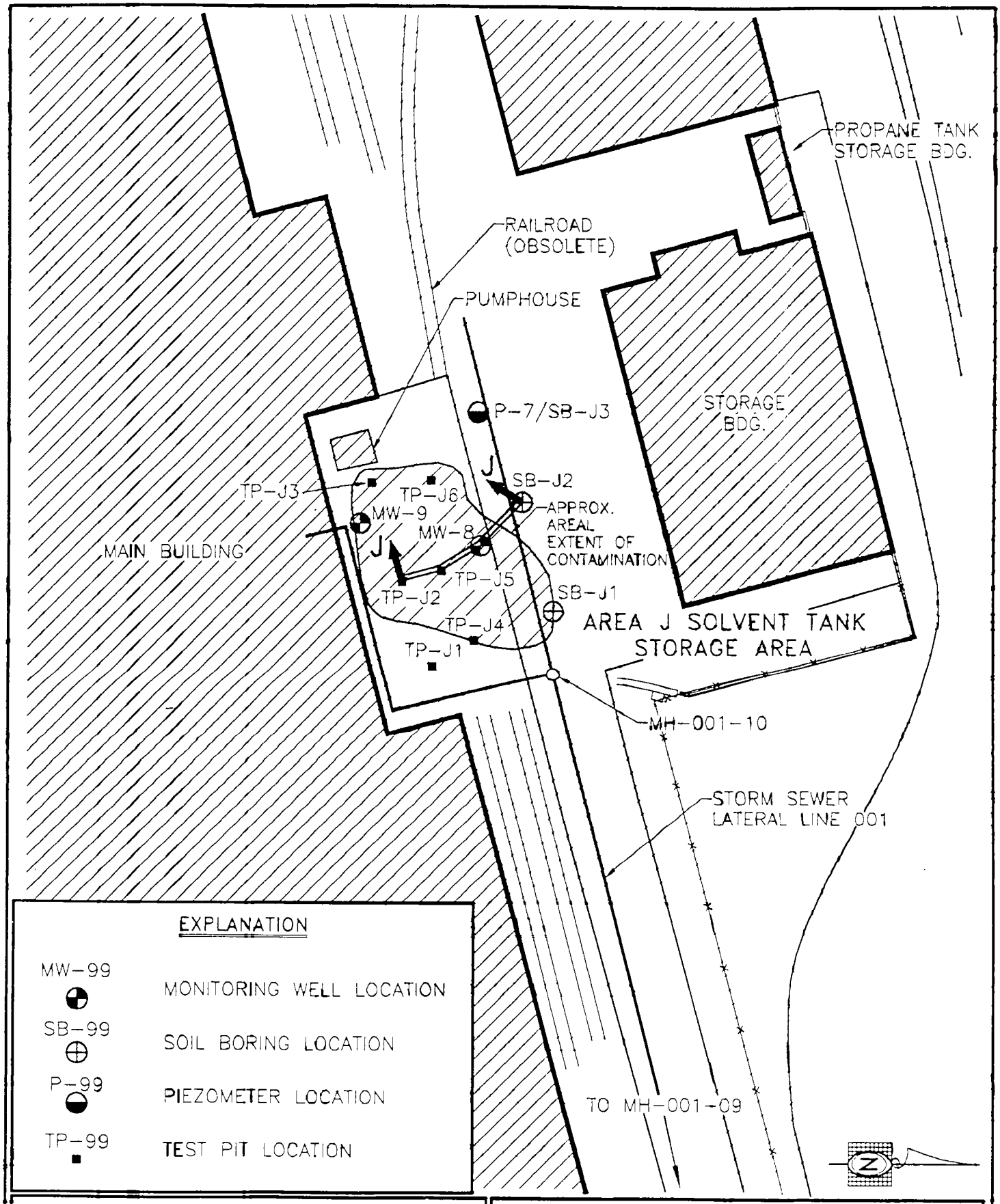
AREA J – TESTPIT/BORING/MONITORING WELL LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb., 1994	4A0057SD	1"=50	J-1



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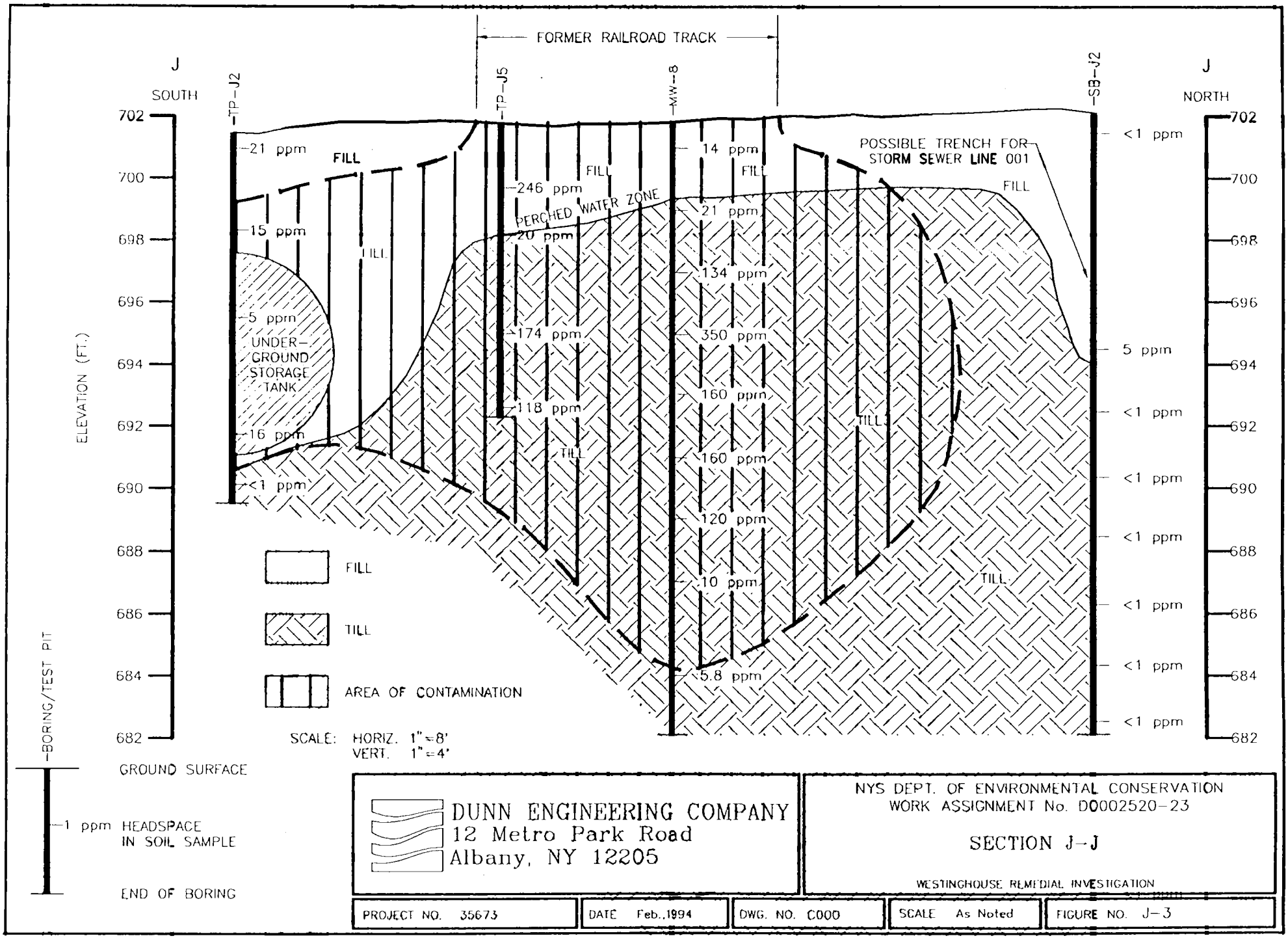
AREA J – APPROXIMATE AREAL EXTENT OF CONTAMINATION

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb., 1994	4A0057SD	1"=50	J-2



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SECTION J-J

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb.,1994	C000	As Noted	J-3

TABLE J-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT SOIL HEADSPACE SURVEY
AREA J-Underground Solvent Tank Area
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth										
	TP-J1 3.5'	TP-J1 10'	TP-J2 6'	TP-J2 10'	TP-J3 3.5'	TP-J3 5'	TP-J4 9'	TP-J5 2'	TP-J5 7'	TP-J5 9'	TP-J6 6'
1,1-DCE	105.60	-	79.38	166.30	109.30	96.42	1302.00	274.20	2318.00	-	826.10
trans-1,2-DCE	4.53	8.32	97.00	39.65	-	2.13	7001.00	816.40	1615.00	64.97	363.40
cis-1,2-DCE	-	-	3034.00	792..2	261.10	280.50	201900.00	59340.00	162700.00	116900.00	66620.00
1,1,1-TCA	-	-	-	9190.00	-	2797.00	-	1726.00	-	-	-
Benzene	-	-	94.36	570.40	-	-	75.84	793.84	50.48	-	-
TCE	-	-	276.60	144.40	11.95	178.70	5214.00	454.40	2278.00	31.51	127.10
Toluene	56.62	43.61	30.70	127.40	393.20	38880.00	23.12	3521.00	43.71	-	63.39
PCE	133.00	19.54	98.51	1045.00	1234.00	58210.00	15.23	315.90	-	-	388.50
Chlorobenzene	706.30	-	393.80	2029.00	12.12	224000.00	-	2169.00	58.93	-	1469.00
Ethylbenzene	1924.00	1360.00	356.50	1103.00	3968.00	192300.00	834.00	38950.00	1017.00	305.10	2399.00
m-Xylene	6270.00	5794.00	509.70	383.90	3275.00	-	3739.00	137900.00	4216.00	1439.00	11300.00
o-Xylene	-	-	-	-	-	-	-	-	-	-	-
Total	9200.05	7225.47	4970.55	15591.25	9264.67	516744.75	220104.19	246260.30	174297.12	118740.58	83556.49

TABLE J-2

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY OF HEADSPACE RESULTS
AREA J - UNDERGROUND SOLVENT TANK AREA
(Concentration Values in ppm)

Boring Depth (Feet)	Sample Location		
	SB-J1	SB-J2	SB-J3
0-2	--	--	--
2-4	3	Bkg	3
4-6	11	NR	Bkg
6-8	9	5	Bkg
8-10	2	Bkg	Bkg
10-12	2	Bkg	Bkg
12-14	5	Bkg	Bkg
14-16	NR	Bkg	Bkg
16-18	4	Bkg	Bkg
18-20	2	Bkg	Bkg

Background Represents HNU<1 ppm
NR- No Recovery

TABLE J-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
TEST PIT AND SOIL BORING SOIL SAMPLES
AREA J - UNDERGROUND SOLVENT TANK AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH						RSCO*
	WEC-TP-J2 10'	WEC-TP-J3 5'	WEC-TP-J4 9'	WEC-TP-J5 2'	WEC-SB-J1 2'-10'	WEC-SB-J2 6'-8'	
Volatile Organics							
1,2-Dichloroethene (total)	ND	ND	200	33 J	59	ND	300
2-Butanone	6 J	ND	5 J	22 J	ND	ND	450
Trichloroethene	ND	ND	180	48	360	11 J	1050
Tetrachloroethene	ND	ND	ND	ND	3800 D	ND	2100
Toluene	ND	ND	4 J	110	21 J	3 J	2250
Chlorobenzene	1 J	ND	ND	240	ND	ND	2550
Ethylbenzene	3 J	19000	3 J	230	ND	ND	8250
Total Xylenes	ND	120000	11	1100	ND	ND	1800
Total Volatiles	10	139000	403	1783	4240	14	10000
Total Volatile TICs	10 NJ	19400 NJ	ND	1017 NJ	ND	2063 J	10000
Semi-Volatile Organics							
1,2-Dichlorobenzene	ND	ND	ND	5300	ND	ND	12750
Naphthalene	100 J	420	ND	270 J	ND	ND	19500
Acenaphthene	500 J	ND	ND	440 J	ND	240 J	50000
Dibenzofuran	260 J	100 J	ND	290 J	ND	ND	9300
Fluorene	450 J	240 J	ND	630 J	ND	390 J	50000
Phenanthrene	3800	1500	71 J	4700	83 J	4500	50000
Anthracene	440 J	330 J	ND	910 J	ND	1800 J	50000
Carbazole	720 J	ND	ND	860 J	ND	290 J	-
Fluoranthene	5500	1900	71 J	6100	130 J	7900	50000
Pyrene	4500	1300	53 J	6300J	120 J	6900	50000
Benzo (a) anthracene	3900	910	ND	3600J	61 J	3800	220 or MDL
Chrysene	2200	640	ND	2500J	70 J	3800	600
bis(2-Ethylhexyl)phthalate	ND	50 J	49 J	ND	54 JS	ND	50000
Di-n-octyl phthalate	ND	ND	ND	ND	100 JS	ND	50000
Benzo(b)fluoranthene	2400	740	ND	2100 J	110 J	4600	1650
Benzo(k)fluoranthene	1600	500	ND	1400 J	ND	ND	1650
Benzo(a)pyrene	1600	580	ND	1600 J	60 J	2700	61 or MDL
Indeno(1,2,3-cd)pyrene	1100	270 J	ND	760 J	ND	1300 J	4800
Dibenz(a,h)anthracene	540 J	150 J	ND	ND	ND	540 J	14 or MDL
Benzo(g,h,i)perylene	470 J	190 J	ND	510 J	ND	1000 J	50000
Total Semi-Volatiles	30080	9820	244	38270	788	39760	500000
Total Semi-Volatile TICs	3850 J	30810 J	4999 J	27680 J	3616 J	8440 J	500000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TP - Test Pit SB - Soil Boring

4.10 Area K - Hazardous Waste Storage Area

Background

The Hazardous Waste Storage Area is located on the northern side of the main building and west of the entrance building. Refer to Plate 1, Areas of Investigation. The area is bounded to the west and south by the main building, and to the north and east by a concrete curb (refer to Figure K-1). The Hazardous Waste Storage Area contains four cement-filled and abandoned 15,000 gallon underground storage tanks (Empire 1987) which are located in the northern portion of Area K. No information was available pertaining to the material stored in the tankage. The drum storage and waste storage buildings have been demolished since the PSA was performed.

Elevated levels of VOCs were detected in Area K in both the subsurface soil and groundwater samples collected during the PSA.

Purpose of Investigation

The purpose of this investigation was to delineate the horizontal and vertical extent of contamination detected during the PSA, with particular focus on the tank pit area, and to assess localized groundwater flow conditions. In addition, the northern portion of storm sewer line 002 is located adjacent and parallel to Area K (refer to Figure K). Investigation of the storm sewer line bedding material was performed in order to ascertain the presence or absence of contaminants which may be impacting line 002.

Scope of Investigation

A total of four test pits (TP-K1 through TP-K4) were excavated in the tank pit area as shown on Figure K-1. A soil sample was collected from three of four test pits and analyzed for TCL VOAs, BNAs and PCBs.

A total of seven test borings (SB-K1 through SB-K7) were completed in Area K at the locations shown on Figure K. Five of the borings (SB-K1, 2, 3, 4 & 7) were located near the tank pit area and two of the borings (SB-K5 & 6) were located along storm sewer line 002. A soil sample was collected from five of the seven borings and analyzed for TCL VOAs, BNAs and PCBs. Two of the seven test borings were converted to piezometers (P8 & P9) in order to assess localized groundwater flow conditions (refer to Section 4.18).

Subsurface Conditions

Fill material was encountered in the tank pit area at depths ranging from nine to eleven feet below grade. The fill consisted predominantly of clayey silt with varying amounts of sands and gravels. The presence of the USTs was confirmed by the excavation of TP-K1 through TP-K4 which were all excavated adjacent to the abandoned tankage. Strong solvent odors were detected at each of the test pit locations. The depth of fill material in the tank pit area was determined by the completion of two test borings (SB-K4 & K7) within two of the test pits (TP-K1 & TP-K3), respectively. It appears that a concrete pad is located at the base of the tanks. Native glacial till was encountered below the concrete pad.

The test borings completed around the perimeter of the tank pit area (SB-K1 through SB-K3) indicated the presence of fill from two to six feet below grade. Glacial till was encountered beneath the fill within each of the test borings to the terminus of the borehole.

The test borings completed adjacent to storm sewer line 002 (SB-K5 & K6) encountered fill material to a depth of fourteen feet, which was the approximate depth of the sewer line. Detailed geologic logs of each test boring are presented in Appendix C.

Air Monitoring/Headspace Results

Soil samples recovered from the four test pits were screened with the on-site GC. Soil samples recovered from the seven soil borings were screened with an HNu. The results of the headspace screenings are presented on Tables K-1 & K-2.

Significantly elevated VOC concentrations were detected at varying depths in each of the test pits excavated in the tank pit area. The total VOC concentrations detected ranged from 59 ppm in TP-K4 to 7228 ppm in TP-K3. Although a wide range of VOCs were detected, it appears that the primary constituent detected was 1,1,1-TCA.

Elevated VOC concentrations were also detected with the HNu in several of the test borings. The levels detected in SB-K4 and K7, which were advanced in the tank pit area, ranged from 14-300 ppm. However, the concentrations decreased significantly with depth, which indicates that the contaminants are limited in their vertical extent beneath the tank bottoms. The lateral extent of contamination detected in Area K is presented on Figure K-2. The vertical extent of contamination is presented on Figure K-3. Consistently elevated VOC levels were also detected in the storm sewer line borings (SB-K5 & K6), which may indicate that the contaminants within the tank area and/or the product distribution lines have migrated to and impacted storm sewer line 002.

Analytical Results

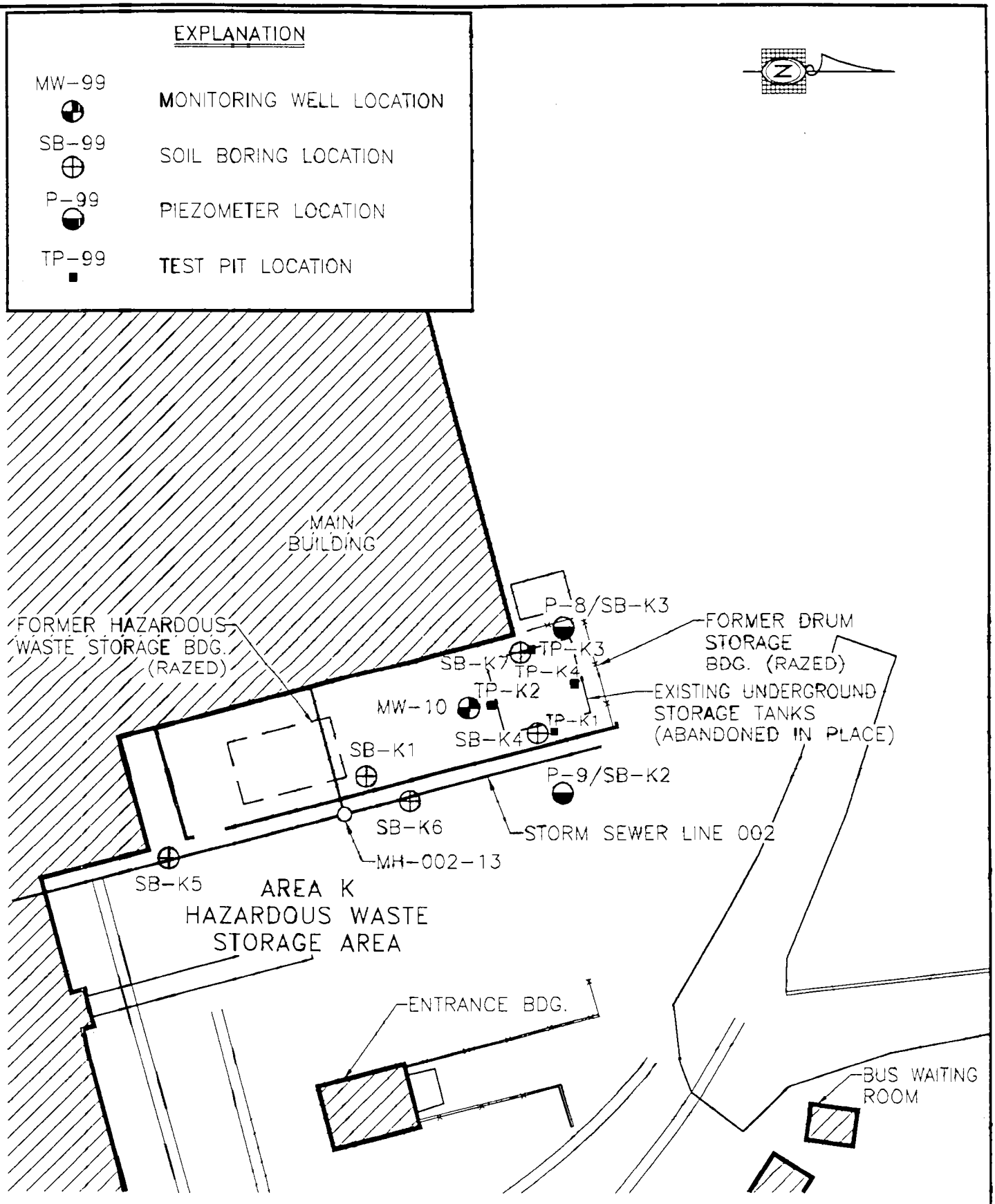
A summary of the analytical results associated with the subsurface soil samples collected from Area K is presented in Tables K-3 and K-4. VOCs were detected in each of the test pit samples at levels exceeding RSCOs. The types of VOCs detected included 1,1,-TCA, 4-methyl-2-pentanone, PCE, toluene, ethylbenzene, and total xylenes. In addition, several semi-volatile organics including phenol, were detected in the test pit samples at levels exceeding RSCOs.

There were no significantly elevated levels of VOCs or semi-volatile organics detected within any of the soil boring samples.

Conclusions

Based on the results of this investigation, the contamination detected in Area K poses a significant environmental concern. The presence of elevated levels of VOCs within the subsurface soil and groundwater (refer to Section 4.18) has been confirmed. In addition, the results indicate that the contamination in Area K has infiltrated the nearby storm sewer line system and is migrating off-site (refer to Section 4.5.2).

It is therefore recommended that remedial action be performed in Area K in order to eliminate the contaminant source area. The remedial alternatives should be addressed in a focused Feasibility Study. In addition, an IRM should be performed to "close-off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.



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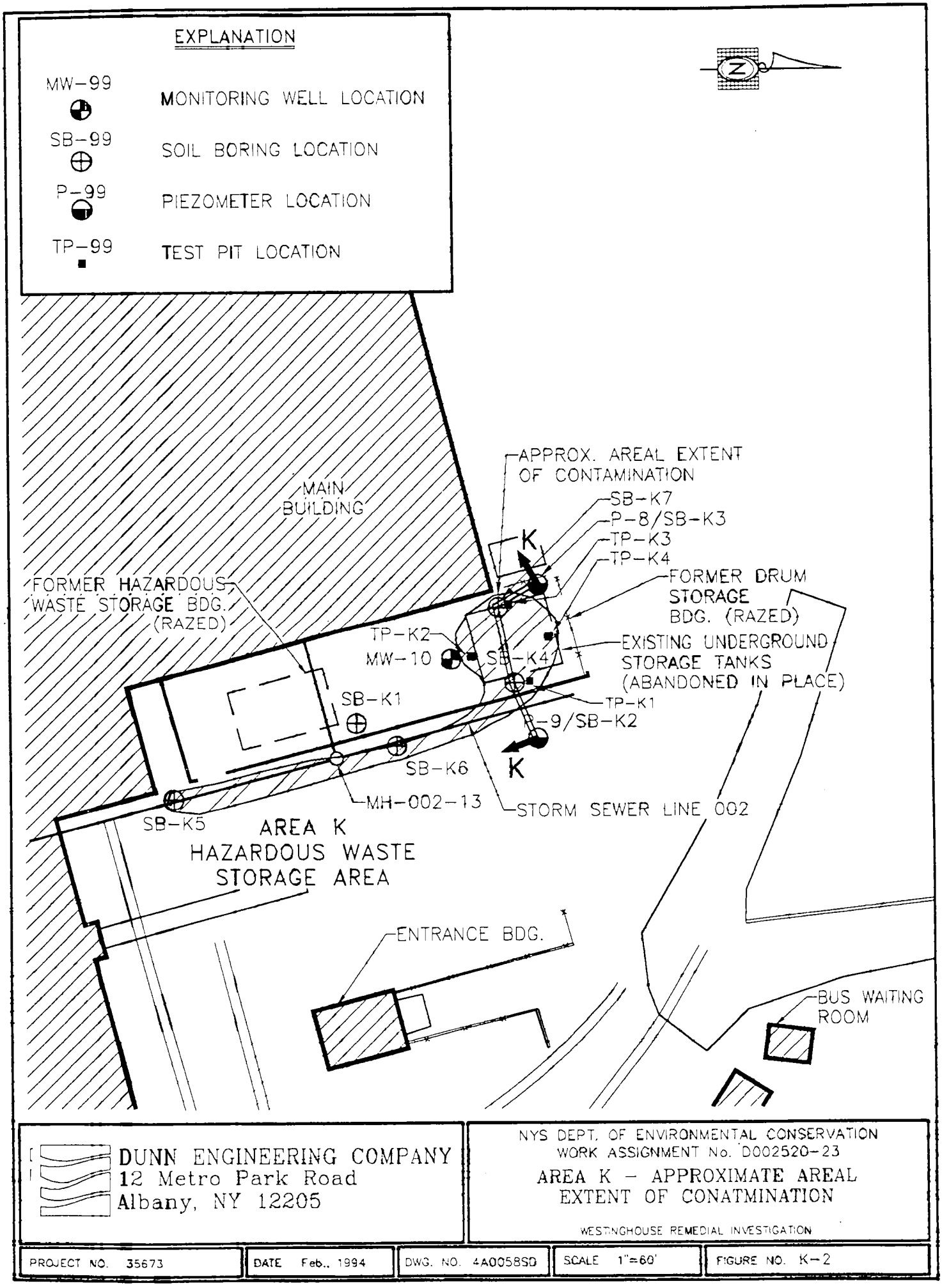
AREA K – TEST PIT/BORING/ MONITORING WELL LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0058SD	SCALE 1"=60'	FIGURE NO. K-1



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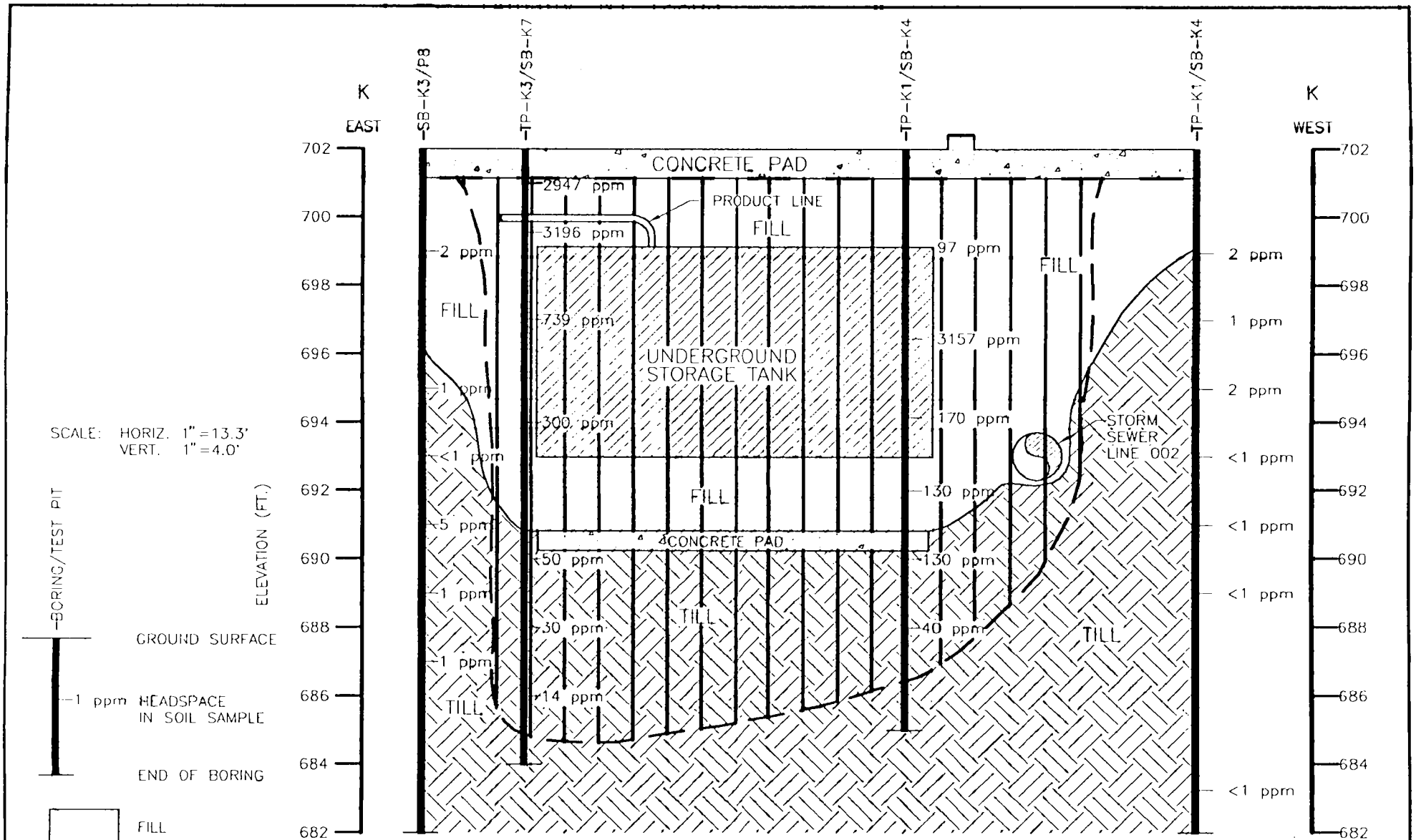
AREA K – APPROXIMATE AREAL EXTENT OF CONATMINATION

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0058SD	SCALE 1"=60'	FIGURE NO. K-2



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SECTION K-K

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb.,1994	C000	As Noted	K-3

Table K-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA K - Hazardous Waste Storage Area
(Concentration values in ppb)

ANALYTES	Test Pit Location and Depth						
	TP-K1 3.00	TP-K1 5.50	TP-K2 8.00	TP-K3 1.00	TP-K3 2.50	TP-K3 5.00	TP-K4 3.50
1,1-DCE	1736.00	5770.00	71280.00	7939.00	7560.00	42450.00	-
trans-1,2-DCE	4317.00	14910.00	4822.00	12620.00	14350.00	34470.00	18.29
cis-1,2-DCE	14680.00	56670.00	40550.00	39870.00	36850.00	122600.00	490.10
1,1,1-TCA	745700.00	2416000.00	633100.00	2310000.00	2295000.00	4892000.00	6975.00
Benzene	71950.00	240500.00	11400.00	65040.00	158300.00	293300.00	-
TCE	23960.00	80640.00	5503.00	16770.00	30820.00	42310.00	355.00
Toluene	78450.00	265800.00	79450.00	25300.00	99710.00	149000.00	566.00
PCE	10720.00	31330.00	97910.00	2671.00	9638.00	6583.00	12810.00
Chlorobenzene	11620.00	12370.00	1168.00	18350.00	13690.00	11830.00	-
Ethylbenzene	10800.00	-	-	-	84900.00	-	10160.00
m-Xylene	5162.00	33060.00	5670.00	448600.00	445900.00	1634000.00	28410.00
o-Xylene	-	-	-	386.60	-	-	-
Total	97095.00	3157050.00	950853.00	2947546.60	3196718.00	7228543.00	59784.39

TABLE K-2

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY OF HEADSPACE RESULTS
AREA K - HAZARDOUS WASTE STORAGE AREA
(Concentration Values in ppm)

Boring Depth (Feet)	Soil Boring Location & HNU Readings					Boring Depth (Feet)	Location	
	SB-K1	SB-K2	SB-K3	SB-K5	SB-K6		SB-K4	SB-K7
0-2	-	-	-	-	-	5-7	130	-
2-4	6	20	30	-	2	7-9	170	300
4-6	5	18	NR	50	20	9-11	130	NR
6-8	3	2	Bkg	88	90	11-13	130	50
8-10	2	1	70	50	50	13-15	40	30
10-12	1	1	70	50	40	15-17	NR	14
12-14	2	71	6	4	8		-	-
14-16	NR	NR	100	-	-		-	-
16-18	-	NR	NR	-	-		-	-
18-20	-	14	NR	-	-		-	-
20-22	-	-	-	-	-		-	-

Background Represents HNU<1 ppm
NR- No Recovery

TABLE K-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
SOIL BORING SAMPLES
AREA K- HAZARDOUS WASTE STORAGE AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH					RSCO*
	WEC-SB-K2 2'-8'	WEC-SB-K3 6'-8'	WEC-SB-K4 13'-15'	WEC-SB-K5 4'-12'	WEC-SB-K6 12'-14'	
Volatile Organics						
Acetone	ND	ND	ND	11 J	ND	200
1,1-Dichloroethane	ND	ND	130	ND	ND	300
2-Butanone	ND	ND	13	ND	ND	450
Trichloroethene	3 J	ND	ND	2 J	720	1050
Benzene	ND	ND	7 J	ND	ND	90
Toluene	1 J	3 J	18	1 J	ND	2250
Ethylbenzene	ND	6 J	16	25	ND	8250
Total Xylenes	ND	14	57	76	ND	1800
Total Volatiles	4	23	241	115	720	10000
Total Volatile TICs	ND	ND	35 J	116 J	ND	10000
Semi-Volatile Organics						
2-Methylphenol	ND	ND	170 J	55 J	ND	150 or MDL
4-Methylphenol	ND	ND	1100	240 J	ND	1350
2,4-Dimethylphenol	ND	78 J	3100	1000	ND	-
Di-n-Butylphthalate	ND	66 JS	ND	160 JS	ND	12150
Naphthalene	ND	ND	ND	97 J	ND	19500
2-Methylnaphthalene	ND	ND	ND	190 J	ND	50000
Acenaphthylene	ND	ND	ND	76 J	ND	50000
Acenaphthene	ND	ND	ND	64 J	ND	50000
Dibenzofuran	ND	ND	ND	130 J	ND	9300
Fluorene	ND	ND	ND	290 J	ND	50000
Phenanthrene	ND	ND	ND	930	ND	50000
Anthracene	ND	ND	ND	200 J	ND	50000
Carbazole	ND	ND	ND	230 J	ND	-
Fluoranthene	ND	ND	ND	890	ND	50000
Pyrene	ND	ND	ND	700	ND	50000
Benzo(a)Anthracene	ND	ND	ND	400	ND	220 or MDL
Chrysene	ND	ND	ND	450	ND	600
Bis(2-Ethylhexyl)Phthalate	41 JS	52 JS	150 J	100 JS	ND	50000
Di-n-octyl Phthalate	ND	50 JS	ND	ND	ND	50000
Benzo(b)Fluoranthene	ND	ND	ND	670 J	ND	1650
Benzo(k)Fluoranthene	ND	ND	ND	ND	ND	1650
Benzo(a)Pyrene	ND	ND	ND	350 J	ND	61 or MDL
Indeno(1,2,3-cd)Pyrene	ND	ND	ND	160 J	ND	4800
Dibenzo(a,h) Anthracene	ND	ND	ND	57 J	ND	14 or MDL
Benzo(g,h,i) Perylene	ND	ND	ND	110 J	ND	50000
Total Semi-Volatiles	41	246	4520	7549	ND	500000
Total Semi-Volatile TICs	1482 J	2359 J	7110 J	6980 J	ND	500000
PCBs						
Aroclor - 1260	ND	ND	ND	5.0 JPV	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE K-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB COMPOUNDS
TEST PIT SOIL SAMPLES
AREA K- HAZARDOUS WASTE STORAGE AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH			RSCO*
	WEC-TP-K1 5'	WEC-TP-K2 8'	WEC-TP-K3 5'	
Volatile Organics				
Acetone	ND	ND	13000 J	200
1,1-Dichloroethane	ND	500 J	ND	600
1,1,1-Trichloroethane	ND	2000	ND	1140
4-Methyl-2-Pentanone	11000	ND	7200 J	1500
Tetrachloroethene	ND	1500	ND	2100
Toluene	1000 J	1000 J	6600 J	2250
Ethylbenzene	7700	ND	120000	8250
Total Xylenes	57000	440 J	530000	1800
Total Volatiles	76700	5440	676800	10000
Total Volatle TICs	183000 NJ	1500 NJ	42000 NJ	10000
Semi-Volatile Organics				
Phenol	4800J	ND	ND	45 or MDL
4-Methylphenol	190 J	ND	ND	1350
2,4-Dimethylphenol	130 J	ND	1300 J	-
Naphthalene	220 J	1200 J	3900 J	19500
2-Methylnaphthalene	160 J	530 J	2000 J	50000
Acenaphthylene	83 J	1000 J	ND	50000
Acenaphthene	80 J	530 J	4200	50000
Dibenzofuran	190 J	1400 J	3000 J	9300
Fluorene	420 J	3100	4800	50000
Phenanthrene	1300J	9500	23000	50000
Anthracene	250 J	2000	7400	50000
Carbazole	ND	1500 J	2600 J	-
Fluoranthene	1100	9300	20000	50000
Pyrene	780	5900	15000	50000
Benzo(a)anthracene	410 J	4800	10000	220 or MDL
Chrysene	390 J	4100	8500	600
Benzo(b)fluoranthene	390 J	4200	6800	1650
Benzo(k)fluoranthene	260 J	2800	4800	1650
Benzo(a)pyrene	330 J	3700	7100	61 or MDL
Indeno(1,2,3-cd)pyrene	210J	2100	3500 J	4800
Dibenz(a,h)anthracene	110 J	820 J	1400 J	14 or MDL
Benzo(g,h,i)perylene	180 J	1900	2200 J	50000
Total Semi-Volatiles	11983	60380	131500	500000
Total Semi-Volatile TICs	27150 J	18540 J	53400 J	500000
All PCBs	ND	ND	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) incorporates a Correction Factor (Cf) of 100 ; Cs x Cf

4.11 Area L-Railroad Transfer/Unloading Platform

Background

Area L is located on the north side of the main building in the northwest portion of the site adjacent to and north of Area M (Underground Mixing Room). The transfer station is connected to the underground mixing room by a six to eight-inch diameter product line, located several feet below grade (refer to Figure L). There has been no prior environmental sampling performed in this area.

Purpose of Investigation

As no prior information on this area exists, the purpose of this investigation was to ascertain the presence or absence of any subsurface contamination located adjacent to the railroad transfer/unloading platform and associated product line.

Scope of Investigation

A total of twelve test pits (TP-L1 through TP-L12) were excavated in this area. A soil sample was collected from three of the twelve test pits and analyzed for Full CLP parameters and total cyanide.

Subsurface Conditions

Fill material was encountered adjacent to the transfer station at depths ranging from three to five feet below grade. Surficial staining of the concrete pad located adjacent to the transfer station was noted, and exhibited a strong solvent odor. The depth of fill in the remainder of the area ranged from two to three feet below grade. The fill consisted of a one to two-foot thick gravel and sand sub-base beneath the concrete pad, beneath which was a dark brown to gray organic clayey silt. Glacial till was encountered beneath the fill at all test pit locations. Perched water was noted at the fill/till interface in several test pits.

Air Monitoring/Headspace Results

Headspace screening of recovered soil samples was performed using the on-site GC, and the results are presented on Table L-1 . Significantly elevated VOC levels (> 5 ppm) were detected at the following test pit locations: TP-L1 (49 ppm); TP-L2 (33 ppm); TP-L8 (12 ppm); TP-L11 (6098 ppm) and TP-L12 (34 ppm). The levels detected in TP-L1, L2 and L8 appear to be associated with former activities at the transfer station (i.e., spillage). There were no elevated VOC levels detected within the soil located adjacent to the product line. The elevated VOC levels detected in TP-L11, appear to be from a different source, as field observations indicated a weathered gasoline odor. As was the case with Area K, the primary VOC constituent detected in the headspace analysis was 1,1,-TCA.

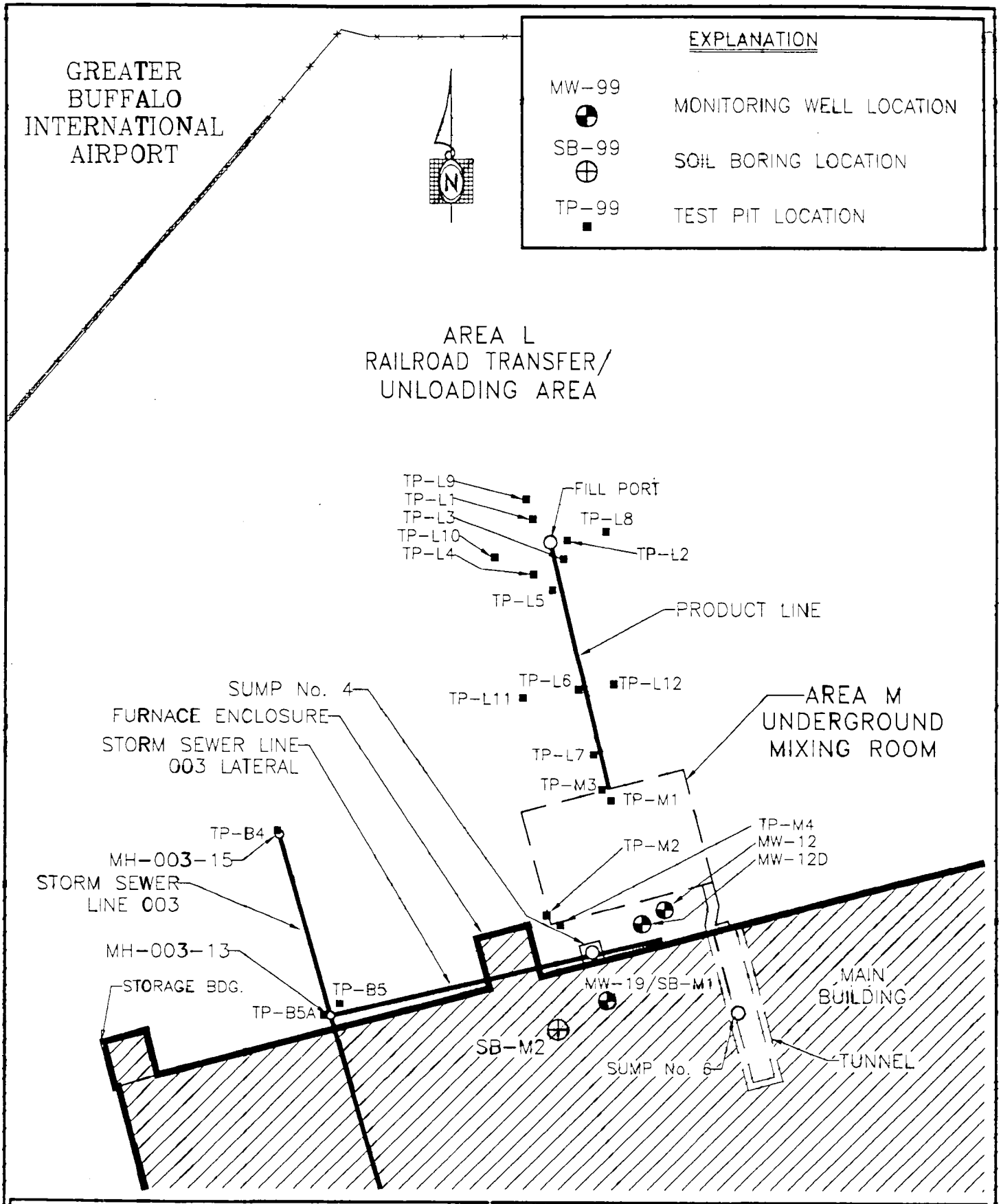
Analytical Results

A summary of the analytical results associated with the subsurface soil samples collected from Area L area presented in Tables L-2 and L-3. VOCs and semi-volatile organics were detected above RSCOs at only one sample location, WEC-TP-L2. The elevated analytes detected in WEC-TP-L2 included total xylenes (2400 ppb), phenol (1000 ppb), 2-methylphenol (2300 ppb), 4-methylphenol (4800 ppb), and several PAHs.

Several inorganic parameters were also detected in each of the test pit samples at levels above background, however, the concentrations detected were not considered to be significant.

Conclusions

Contamination of the subsurface soil located adjacent to the former railroad transfer area has been documented in this investigation. However, the contamination detected was neither extensive or severe and may be attributed to incidental spillage near the fill port. In addition, there was no evidence to indicate the presence of any contaminants adjacent to the product line which runs from Area L to Area M. The results of this investigation indicate that no further investigations or remedial actions are presently warranted in Area L. However, it should be noted that isolated pockets of contaminated soil may be encountered if any future construction activities are performed in Area L.



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AREA L – TEST PIT LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0059SD	SCALE 1"=60'	FIGURE NO. L

TABLE L-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA L-Railroad Transfer Unloading Area
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth									
	TP-L1 2'	TP-L1 7'	TP-L2 1'	TP-L4 3.5'	TP-L6 2.5'	TP-L7 2'	TP-L8 2'	TP-L10 3'	TP-L11 1'	TP-L12 2'
1,1-DCE	33.35	18.37	22.13	17.03	16.00	-	14.88	39.00	101.70	45.71
trans-1,2-DCE	49.57	18.48	31.49	37.16	-	-	8.23	186.80	16560.00	18.80
cis-1,2-DCE	345.90	78.22	217.50	656.50	-	-	100.40	575.20	90660.00	85.53
1,1,1-TCA	33910.00	3624.00	16340.00	-	-	-	6919.00	3197.00	4167000.00	4779.00
Benzene	2757.00	235.70	1756.00	289.20	-	-	100.70	313.30	374600.00	1059.00
TCE	799.20	69.36	173.00	8.00	-	-	432.70	9.00	227100.00	1348.00
Toluene	3251.00	231.10	1015.00	72.83	-	-	3303.00	63.86	936700.00	13610.00
PCE	205.40	51.87	195.70	-	-	-	34.36	-	162200.00	3890.00
Chlorobenzene	2421.00	158.20	3900.00	147.60	-	-	469.30	82.08	36570.00	5393.00
Ethylbenzene	1493.00	65.09	2031.00	112.50	-	-	187.20	-	58450.00	2543.00
m-Xylene	4512.00	107.30	7015.00	261.00	-	-	291.40	-	28400.00	1320.00
o-Xylene	-	-	-	-	-	-	-	-	-	-
Total	49777.42	4657.69	32696.82	1601.82	16.00	0.00	11861.17	4466.24	6098341.70	34092.04

TABLE L-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
TEST PIT SOIL SAMPLES
AREA L- RAILROAD TRANSFER/UNLOADING PLATFORM
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH			RSCO*
	WEC-TP-L2 1'	WEC-TP-L8 2'	WEC-TP-L11 2'	
Volatile Organics				
2-Butanone	ND	ND	4 J	450
4-Methyl-2-Pentanone	ND	ND	130	1500
Toluene	19 J	ND	3 J	2250
Chlorobenzene	360	ND	ND	2550
Ethylbenzene	190	ND	ND	8250
Total Xylenes	2400	ND	14	1800
Total Volatiles	2969	0	151	10000
Total Volatle TICs	14310 NJ	321 NJ	268 NJ	10000
Semi-Volatile Organics				
Phenol	1000J	ND	ND	45 or MDL
2-Methylphenol	2300J	ND	ND	150 or MDL
4-Methylphenol	4800J	ND	ND	1350
2,4-Dimethylphenol	2200J	ND	ND	-
Naphthalene	720 J	ND	ND	19500
2-Methylnaphthalene	210 J	ND	ND	50000
Acenaphthene	460 J	ND	ND	50000
Dibenzofuran	350 J	ND	ND	9300
Phenanthrene	1600	ND	ND	50000
Anthracene	460 J	ND	ND	50000
Fluoranthene	1700	ND	ND	50000
Pyrene	1200	ND	ND	50000
Benzo (a) anthracene	520 J	ND	ND	220 or MDL
Chrysene	370 J	ND	ND	600
bis(2-Ethylhexyl)phthalate	ND	43 J	ND	50000
Benzo(b)fluoranthene	320 J	ND	ND	1650
Benzo(k)fluoranthene	230 J	ND	ND	1650
Benzo(a)pyrene	270 J	ND	ND	61 or MDL
Indeno(1,2,3-cd)pyrene	83 J	ND	ND	4800
Benzo(g,h,i)perylene	80 J	ND	ND	50000
Total Semi-Volatiles	18873	43	ND	500000
Total Semi-Volatile TICs	61430 J	11788 J	21030 J	500000
Pesticides/PCBs				
Endosulfan II	2.9 JPV	ND	ND	1325
Endrin Ketone	7.4 JPNV	ND	ND	--
Alpha-Chlordane	3.1 JPV	ND	ND	--
Aroclor-1254	140 V	ND	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE L-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
TEST PIT SOIL SAMPLES
AREA L - RAILROAD TRANSFER/ UNLOADING PLATFORM
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH			Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-TP-L2 1'	WEC-TP-L8 2'	WEC-TP-L11 2'			
Aluminum	17100	8710	12000	15333	33000	10000-300000
Arsenic	3.4	3.9	2.3	6.03	5	3.0-12.0
Barium	225	96.2	136	115	290	15-600
Beryllium	2.7	0.42 B	1.4	0.87	0.6	0.0-1.75
Cadmium	1.4 *V	ND	ND	0.32	0.6	0.1-7.0
Calcium	170000 *	77880	89200 *	39267	3400	130-35000
Chromium	12.7	12.3	11	18.87	33	1.5-40
Cobalt	4.4 B	5.6 B	5.2 B	12.4	5.9	2.5-60
Copper	12.7 V	13.7	11.2	23.77	20	2.0-100
Iron	11200	14700	12600	26133	14000	2000-550000
Lead	21.5	15	22.2	17.8	14	4.0-61
Magnesium	19600	29300	24900	17333	6300	400-9000
Manganese	2570	538	1160	761	850	100-4000
Nickel	11.3 NV	10.5 N	7.9 BN	24.1	40	0.5-60
Potassium	1850	2060	1870	1963	12000	100-37000
Selenium	1.1 BNV	0.57 BNWV	0.62 B+NV	ND	0.2	.01-12
Sodium	465 B	142 B	271 B	139.9	6300	150-15000
Vanadium	15 V	18.3	14	30	100	1.3-300
Zinc	54.4 EV	71.5 E	68.3 E	90.2	50	10-300
Cyanide	ND	ND	ND	ND	-	-

4.12 Area M-Underground Mixing Room

Background

Area M is located in the northwest portion of the site and encompasses an area both inside and outside the main building (refer to Plate Map No. 1). Area M is comprised of: an underground mixing room, which is located outside the main building footprint and was backfilled along with two concrete-filled USTs; one sump which is located outside the main building (Sump No. 4); and one sump which is located in a tunnel beneath the buiding (Sump No. 6).

The results of the PSA did not indicate the presence of any significant contamination of soil or groundwater either within or adjacent to the underground mixing room. In addition, there was no significant contamination detected within the surface water or sediment collected from Sump No. 6. However, significantly elevated concentrations of VOCs and phenolic compounds were detected in both the surface water and sediment collected from Sump No. 4. Water from Sump No. 4 was evacuated as part of the IRM activities (refer to Section 1.6) but has since returned. The design and construction of Sump No. 4 could not be determined either through field observations or a review of available drawings.

Purpose of Investigation

The purpose of this investigation was to determine if the contamination within Sump No. 4 had adversely impacted the subsurface media beneath the building footprint. In addition, an investigation of the underground mixing room was performed in order to determine if a connection exists with Sump No. 4. The underground mixing room was also studied to ascertain the presence or absence of contamination at the point where the product line from Area L enters the mixing room.

Scope of Investigation

A total of four test pits (TP-M1 through TP-M4) were excavated in and adjacent to the underground mixing room (refer to Figure M). There were no samples collected from the test pits.

A total of two borings (SB-M1 and M2) were completed inside the building in the vicinity of Sump No. 4. A soil sample was collected from each of the borings and analyzed for Full CLP parameters and total cyanide. One of the borings completed inside the building (SB-M1) was converted into an overburden monitoring well (MW-19). In addition, a deep bedrock well (SB-S6/MW-12D) was installed outside the building adjacent to an existing well (MW-12). Results of the chemical analyses performed on the groundwater samples as well as the associated hydrogeologic data is presented in Section 4.18.

Subsurface Conditions

Gravel and sand fill material was encountered in the two test pits completed inside the mixing room (TP-M1 & M2). Water was encountered in each of these test pits at a depth of

two feet, which inhibited further excavation due the collapsing of the hole. There were no elevated HNu readings encountered in the underground mixing room backfill and there was no visual evidence of any contamination at the location where the product line from Area L entered the mixing room. The product line was encountered at a depth of two and one-half feet below grade. There was also no visual contamination observed outside of the mixing room at the juncture with the product line (TP-M3).

An effort was made to determine if there was any connection between Sump No. 4 and the underground mixing room. TP-M4 was excavated outside the southwest corner of the underground mixing room in line with Sump No. 4. Fill material was encountered to a depth of seven feet below grade and consisted of silty gravel and sand. There were no elevated HNu readings detected or visual observations of contamination within the fill material. In addition, there was no evidence to indicate that Sump No. 4 was connected to the underground mixing room. However, it should be noted that a hardened resin material was encountered in the eastern lateral of storm sewer line 003 (MH-003-13). The resin material appears to be similar to the resin encountered in Sump No. 4 during the PSA.

Glacial till was encountered in each of the borings (SB-M1, M2 & S6) at a depth of two feet below grade, and extended to the top of bedrock which was located at a depth of 51.5 feet in SB-S6. Strong varnish type odors, similar to those encountered in Sump No. 4, were detected in the till recovered from both SB-M1 and SB-M2 at depths of approximately six to ten feet. The bedrock consisted of a light gray cherty limestone. Detailed geologic logs of the borings and test pits are presented in Appendix C.

Air Monitoring/Headspace Results

As indicated above, there were no elevated VOCs detected with the HNu during the excavation of the test pits.

Headspace analyses with the on-site GC were conducted on soil samples collected from two test pits and two borings as presented on Table M-1. There were no significantly elevated levels of VOCs (>5 ppm) detected in any of the recovered soil samples, although total VOC levels detected in SB-M1 and M2 ranged from 4-5 ppm. It is presumed that the strong varnish type odors detected in SB-M1 and M2 are the result of semi-volatile contaminants, and therefore, were not detected by the GC. There is not a sufficient amount of data presently available to generate drawings depicting the lateral and vertical extent of contamination in Area M.

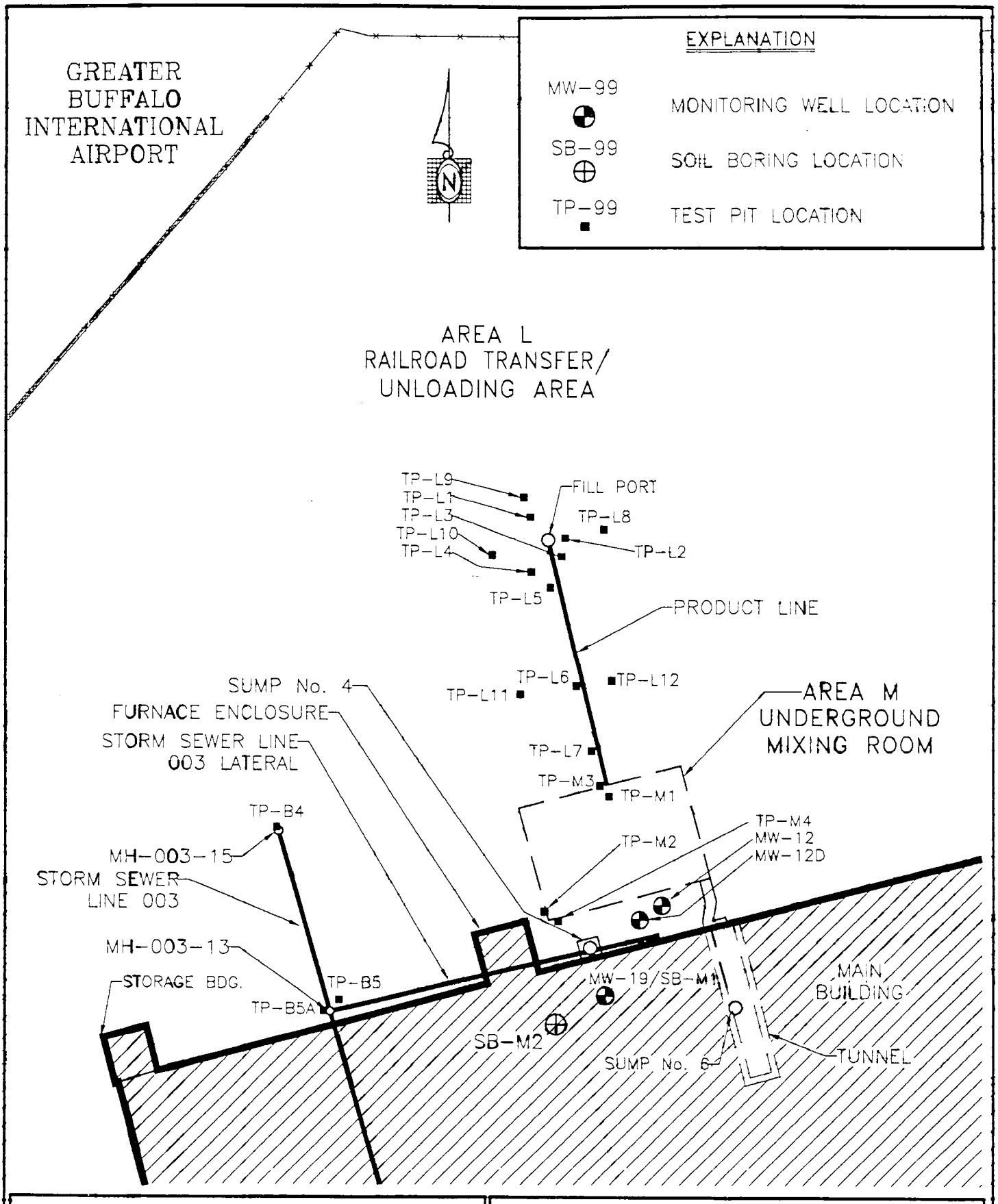
Analytical Results

A summary of the analytical results associated with the subsurface soil samples collected from Area M are presented in Tables M-2 and M-3. There were no VOCs detected in either sample at levels exceeding RSCOs. One semi-volatile organic analyte, 4-methylphenol (14,000 ppb), was detected at a level exceeding the RSCO in WEC-SB-M1. There were several metals detected in each sample at levels exceeding background values including lead (823 ppm), which was present in WEC-SB-M1.

Conclusions

Significantly elevated levels of semi-volatile organics, primarily phenolic compounds, have been documented to exist in both the subsurface soil and groundwater (refer to Section 4.18) beneath the building footprint in Area M. The type of contaminants detected beneath the building correspond to the contaminants detected in Sump No. 4 during the PSA. In addition, it appears that the contamination in Sump No. 4 may have infiltrated into the nearby storm sewer lateral (003) and is migrating off-site. There were no elevated levels of contaminants detected outside the main building either in or adjacent to the underground mixing room.

An additional investigation in Area M was subsequently completed in order to delineate the extent and severity of contamination beneath the building; the results will be presented in the Final RI report. Remedial alternatives for the subsurface soils and Sump No. 4 should be addressed in a focused Feasibility Study. In addition, an IRM should be performed to "close off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.



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AREA M - TEST PIT/BORING/
MONITORING WELL LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0059SB	SCALE 1"=60'	FIGURE NO. M

TABLE M-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SOIL BORING and TEST PIT HEADSPACE SURVEY
AREA M-Underground Mixing Room
(Concentration Values in ppb)

ANALYTES	Sampling Location and Depth			
	SB-M1 8-10'	SB-M2 8-10'	TP-M3 3.5'	TP-M4 4'
1,1-DCE	18.34	26.18	-	-
trans-1,2-DCE	10.31	13.65	2.30	6.92
cis-1,2-DCE	3189.00	287.80	-	-
1,1,1-TCA	-	-	-	-
Benzene	1617.00	58.36	-	-
TCE	506.10	7.59	15.89	-
Toluene	1821.00	14.91	228.40	18.61
PCE	-	76.55	206.60	14.12
Chlorobenzene	523.20	945.90	73.71	-
Ethylbenzene	13890.00	1400.00	289.90	-
m-Xylene	25870.00	1600.00	-	57.24
o-Xylene	-	-	143.60	-
Total	4744.95	4430.94	1014.40	96.89

TABLE M-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
SOIL BORING SAMPLES
AREA M - UNDERGROUND MIXING ROOM
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH		RSCO*
	WEC-SB-M1 8'-16'	WEC-SB-M2 8'-16'	
Volatiles			
1,2-Dichloroethene(total)	2 J	ND	450
4-Methyl-2-Pentanone	6 J	ND	1500
Toluene	2 J	ND	2250
Chlorobenzene	2 J	7 J	2550
Ethylbenzene	67	9 J	8250
Xylene(total)	220	11 J	1800
Total Volatiles	299	27	10000
Total Volatile TICs	30 NJ	7 NJ	10000
Semi-Volatiles			
4-Methylphenol	14000	230 J	1350
2,4-Dimethylphenol	1500 J	520	-
Bis(2-Ethylhexyl)Phthalate	ND	95 J	50000
Total Semi-Volatiles	15500	845	500000
Total Semi-Volatile TICs	3240 J	4606 J	500000
All Pesticides/PCBs	ND	ND	-

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92)
Incorporates a Correction Factor (Cf) of 100; Cs x Cf

TABLE M-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SOIL BORING SAMPLES
AREA M - UNDERGROUND MIXING ROOM
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH		Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-SB-M1 8'-16'	WEC-SB-M2 8'-16'			
Aluminum	6680	8820	15333	33000	10000-300000
Arsenic	5.0	4.0	6.03	5	3.0-12.0
Barium	62.90	70.30	115	290	15-600
Beryllium	0.30 B	0.36 B	0.87	0.6	0.0-1.75
Cadmium	ND	1.00	0.32	0.6	0.1-7.0
Calcium	68900	67500	39267	3400	130-35000
Chromium	9.10	12.20	18.87	33	1.5-40
Cobalt	5.50 B	5.40 B	12.4	5.9	2.5-60
Copper	17.20	16.70	23.77	20	2.0-100
Iron	14000	16400	26133	14000	2000-550000
Lead	823.00	13.10	17.8	14	4.0-61
Magnesium	25400	25600	17333	6300	400-9000
Manganese	433	496	761	850	100-4000
Nickel	13.00	14.20	24.1	40	0.5-60
Potassium	1340	2130	1963	12000	100-37000
Sodium	107 B	134 B	139.9	6300	150-15000
Vanadium	14.80	19.50	30	100	1.3-300
Zinc	64.60	78.80	90.2	50	10-300
Cyanide	ND	ND	ND	-	-

4.13 Area N - Parking Lot Area/Storm Sewer Drainage System

Background

Area N is located in the northern portion of the site and is comprised of the parking lot area and associated storm sewer drainage system herein refered to as the north storm sewer system (refer to Plate Map No. 1). The investigation in Area N focused on three distinct potential areas of concern which included: the parking lot area; the north storm sewer drainage system; and Ellicott Creek, which is the ultimate discharge point of the north storm sewer system.

4.13.1 Parking Lot Area

Background

Surface soil sampling performed in the parking lot area during the PSA did not indicate the presence of any elevated levels of contaminants. No previous sampling of the subsurface media in the parking lot has been performed.

Purpose of Investigation

The purpose of this investigation was to ascertain the presence or absence of contamination within the subsurface media located beneath the parking lot area and to determine groundwater flow direction.

Scope of Investigation

A total of twelve test pits (TP-N1 through TP-N12) were excavated throughout the parking lot at the locations shown on Figure N-1. A soil sample was collected from six of the twelve test pits and analyzed for Full CLP parameters and total cyanide.

In addition, four borings were completed (SB-N1 through SB-N3 & SB-S5) and subsequently converted to these piezometers (P-10, 11 & 12) and a deep bedrock well (MW-24D), respectively. The hydrogeologic data gathered from these wells is presented in Section 4.18.

Subsurface Conditions

Fill material was encountered beneath the weathered asphalt throughout the parking lot area to an average depth of two feet. The fill consisted primarily of a gravel and sand sub-base which was underlain by glacial till. A perched water zone was noted at several test pit locations at the fill/till interface. The till was determined to extend to the top of bedrock, which was encountered at a depth of 57 feet in SB-S5. The bedrock consisted of a cherty, slightly fossiliferous limestone. Detailed geologic logs are presented in Appendix C.

Air Monitoring/Headspace Results

There were no elevated HNu readings recorded during the completion of the test pitting and

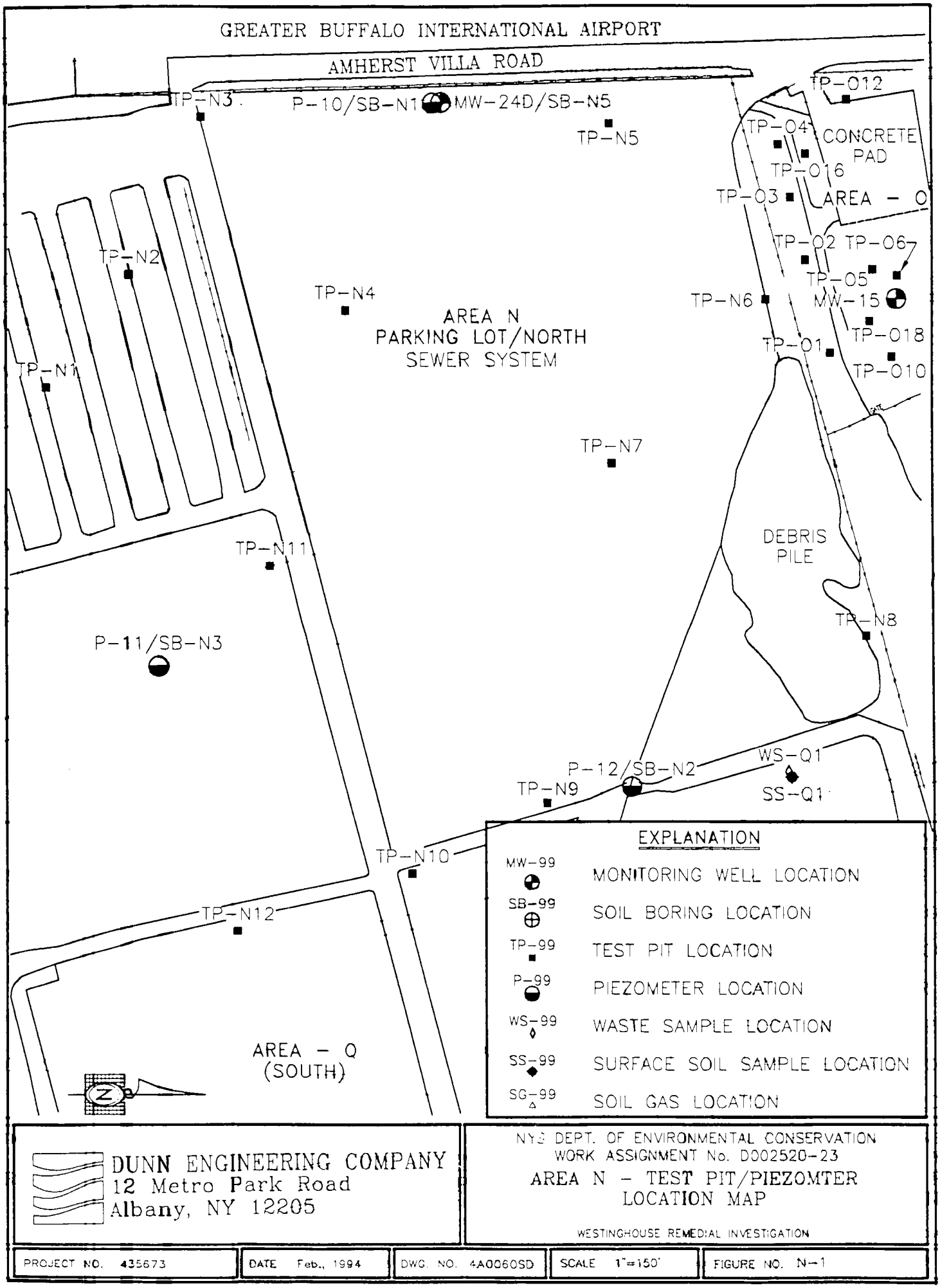
boring activities in the parking lot.

Analytical Results

A summary of the analytical results is presented in Tables N-1 & N-2. There were no significantly elevated levels of VOCs, BNAs, pesticides, PCBs or inorganics detected within any of the six test pit soil samples.

Conclusions

The subsurface soil in the parking lot area does not pose an environmental concern and therefore no further action is recommended for this area.



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AREA N - TEST PIT/PIEZOMTER LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
435673	Feb., 1994	4A0060SD	1"=150'	N-1

TABLE N-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
TEST PIT SOIL SAMPLES
AREA N - NORTH PARKING LOT AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH						RSCO*
	WEC-TP-N2 1' - 2'	WEC-TP-N5 1' - 2'	WEC-TP-N8 1' - 2'	WEC-TP-N10 2'	WEC-TP-N11 5' - 6'	WEC-TP-N12 2' - 3'	
Volatile Organics							
Methylene Chloride	ND	ND	ND	ND	ND	ND	150
Acetone	ND	ND	ND	ND	ND	ND	200
1,2-Dichloroethane	7 J	ND	ND	ND	ND	ND	150
2-Butanone	ND	15	ND	ND	ND	9 J	450
Toluene	ND	ND	ND	ND	ND	ND	2250
Ethylbenzene	ND	ND	2 J	ND	ND	ND	8250
Total Xylenes	ND	ND	23	ND	10 J	ND	1800
Total Volatiles	7	15	25	0	10	9	10000
Total Volatle TICs	11 J	27 J	ND	64 J	ND	ND	10000
Semi-Volatile Organics							
Phenanthrene	68 J	ND	79 J	ND	ND	ND	50000
Di-n-butylphthalate	ND	ND	ND	ND	53 JV	ND	12150
Fluoranthene	270 JV	38 JV	200 JV	76 J	ND	57 JV	50000
Pyrene	220 J	ND	150 J	65 J	ND	52 J	50000
Benzo (a) anthracene	130 J	ND	82 J	38 J	ND	ND	220 or MDL
Chrysene	170 J	ND	86 J	51 J	ND	ND	600
Benzo(b)fluoranthene	270 JV	44 JV	140 JV	73 JV	ND	ND	1650
Benzo(k)fluoranthene	150 J	ND	69 J	47 J	ND	ND	1650
Benzo(a)pyrene	190 J	ND	83 J	51 J	ND	ND	61 or MDL
Indeno(1,2,3-cd)pyrene	110 J	ND	ND	ND	ND	ND	4800
Benzo(g,h,i)perylene	65 J	ND	ND	ND	ND	ND	50000
Total Semi-Volatiles	1643	82	889	401	53	109	500000
Total Semi-Volatile TICs	831 J	1019 J	2524 J	2445 J	403 J	1010 J	500000
Pesticides/PCBs							
Dieldrin	0.57 JPV	ND	ND	2 JPV	ND	ND	44
4,4' - DDE	0.89 J	0.83 JPV	1.2 J	1.2 JPV	ND	ND	2100
Endosulfan II	0.74 JPV	ND	1.2 J	0.8 JPV	ND	ND	1325
4,4' - DDD	0.51 JPV	ND	1.1 JPV	2.7 JPV	ND	ND	2900
4,4' - DDT	1.9 JPV	ND	3.2 JV	1.7 JPV	ND	ND	2100
Endrin Aldehyde	ND	1.5 JPNV	ND	0.54 JPNV	ND	ND	-
Heptachlor Epoxide	ND	ND	0.51 J	0.49 JPV	ND	ND	30

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE N-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
TEST PIT SAMPLES
AREA N - NORTH PARKING LOT
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH						Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-TP-N2 1' - 2'	WEC-TP-N5 1' - 2'	WEC-TP-N8 1' - 2'	WEC-TP-N10 2'	WEC-TP-N11 5' - 6'	WEC-TP-N12 2'- 3'			
Aluminum	19800	9260	3270	17700	4080	20100	15333	33000	10000 - 300000
Arsenic	4.3	3.6	1.9	3.3	1.8 B	3.2	6.03	5.0	3.0 - 12.0
Barium	202	80.9	37.2 B	161	24.4 B	189	115	290	15 - 600
Beryllium	2.5	1.1	0.39 B	2.8	0.19 B	2.4	0.87	0.6	0.0-1.75
Cadmium	ND	ND	1.2 V	ND	ND	ND	0.32	0.6	0.1-7.0
Calcium	95600	174000	239000	176000	95000	89300	39267	3400	130 - 35000
Chromium	13.1	7.4	4.8	10	5.3	16.9	18.87	33	1.5 - 40
Cobalt	4.3 B	1.9 B	ND	2.7 B	2.5 B	3.6 B	12.4	5.9	2.5 - 60
Copper	17.3	11.5	12.7	10.5	18.1	10.6	23.77	20	2.0 - 100
Iron	18600	9710	5050	11900	8680 V	28800	26133	14000	2000 - 550000
Lead	30.7	18.1 V	16.6	74.7 V	46.4	16.7	17.8	14	4.0 - 61
Magnesium	16200	14600	7120	14000	43800	11600	17333	6300	400 - 9000
Manganese	1620	653	320	1590	564	1890	761	850	100 - 4000
Mercury	ND	0.11	ND	0.14	ND	ND	ND	0.6	0.001-0.2
Nickel	9.5	8.7	3.3 B	8.9	7.7	9.2	24.1	40	0.5 - 60
Potassium	1530	923 B	441 B	1300	542 B	1420	1963	12000	100 - 37000
Selenium	ND	ND	ND	0.92 BV	ND	ND	ND	0.2	0.01-12.0
Sodium	473 B	202 B	94.9 B	422 B	134 B	414 B	139.9	6300	150 - 15000
Thallium	ND	ND	ND	0.63 BW	ND	0.67 BW	0.177	-	-
Vanadium	16.5	9.7 B	5.5 B	8.0 B	7.1 B	24.8	30	100	1.3 - 300
Zinc	65.3	43.5	43.9	36.9	78.7	43.2	90.2	50	10 - 300
Cyanide	ND	ND	ND	ND	ND	ND	ND	-	-

4.13.2 North Storm Sewer Drainage System

Background

The north storm sewer drainage system collects storm water runoff from the entire northern portion of the site including areas N, O, P and Q (refer to Figure N-2). The system discharges to a drainage ditch located on the Greater Buffalo International Airport property, which ultimately discharges to Ellicott Creek. There has been no previous sampling performed on the north storm sewer system.

Purpose of Investigation

The purpose of this investigation was to identify which areas of the storm sewer system, if any, have been impacted by the analytes identified in Areas Q, O and P.

Scope of Investigation

One surface water and one sediment sample were collected from two manhole locations (MH-NPL-01 & 05) along the main storm sewer line at the locations shown on Figure N-2. In addition, a surface water and sediment sample were collected from three locations in the airport drainage ditch: upgradient of the outfall; downgradient of the outfall and at the outfall. All samples collected during this activity were analyzed for Full CLP parameters and total cyanide. It should be noted that the Work Plan called for the sampling of four manhole locations, however, MH-NPL-03 & 04 could not be located in the field.

Surface Water Analytical Results

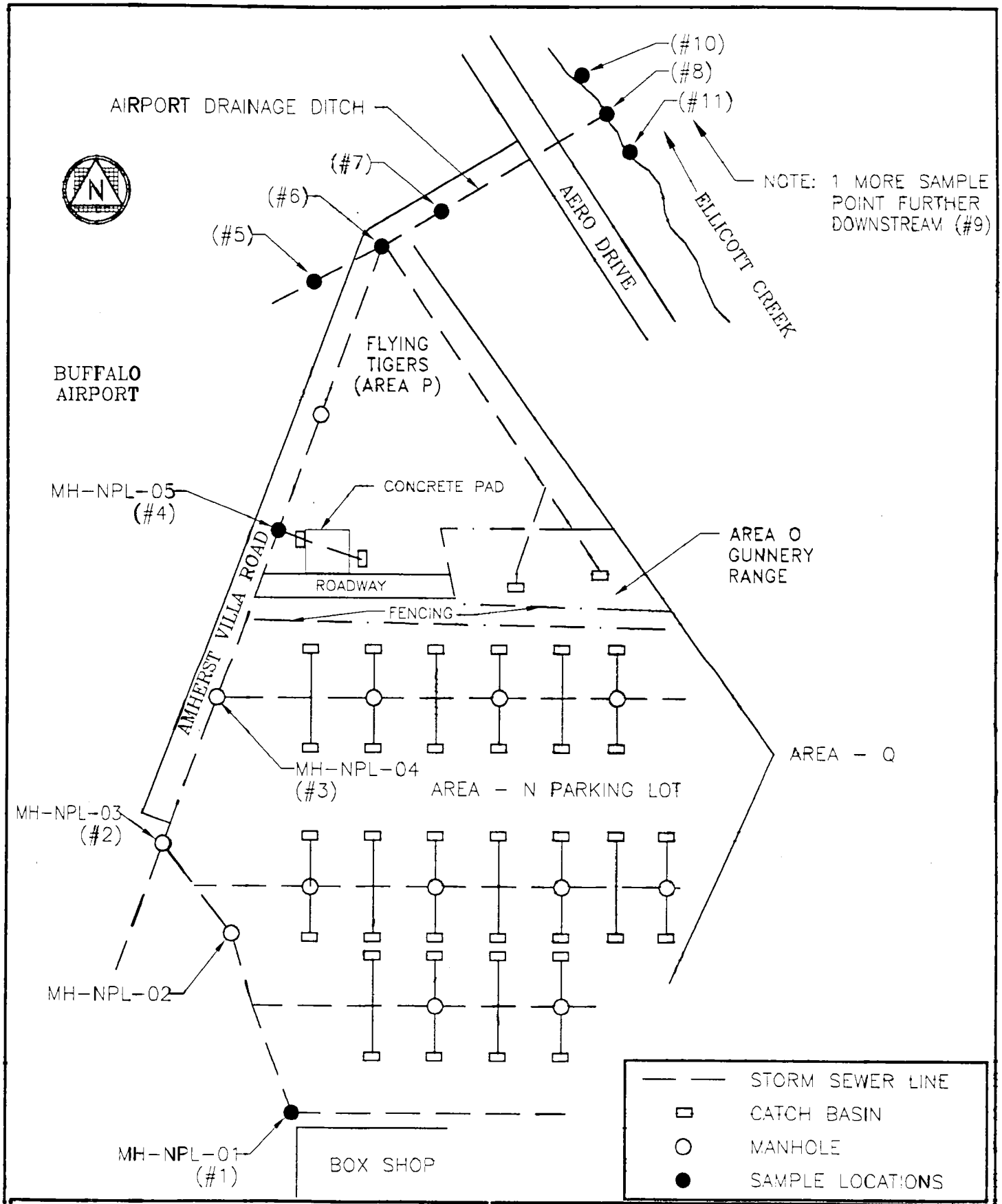
A summary of the analytical results associated with the surface water samples collected from the north storm sewer drainage system is presented on Tables N-3 and N-4. A slightly elevated level of TCE (7 ppb) was detected in the sample collected from MH-NPL-05 (WEC-SW-N4) which exceeds NYS Surface Water Guidelines. There were no other elevated levels of VOCs detected at any other sample location. In addition, there were no significantly elevated levels of semi-volatile organics, pesticides/PCBs or inorganics detected within any of the surface water samples.

Sediment Analytical Results

A summary of the analytical results associated with the sediment samples collected from the north storm sewer system is presented on Tables N-5 and N-6. There were no significantly elevated levels of VOCs, pesticides or inorganic parameters detected within any of the sediment samples. Several semi-volatile organics, predominantly PAHs, were detected in each of the sediment samples at levels exceeding sediment criteria. The total concentration of semi-volatile organics detected ranged from 34 ppm in WEC-SED-N1, to 3.8 ppm in WEC-SED-N6 (outfall). In addition, slightly elevated levels of PCBs (Aroclor-1260) were detected in four of five sediment samples at concentrations ranging from 39 to 160 ppb.

Conclusions

There were no significantly elevated levels of contaminants detected within either the surface water or sediment located in the north storm sewer drainage system. The contaminants detected in Areas O, P and Q do not appear to have adversely impacted the storm sewer system. It should be noted that the low level of TCE detected in MH-NPL-05, which may be attributed to contaminants detected in Area O, is not considered to be a significant environmental concern. The presence of low levels of PAHs and PCBs within the sediment samples collected from the north storm sewer system is not unexpected given the industrial setting of the site. No further action is considered warranted in this area.



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AREA N - NORTH STORM SEWER SYSTEM SAMPLING LOCATION DIAGRAM

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0026SD	SCALE Not To Scale	FIGURE NO. N-2

TABLE N-3

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS-
SURFACE WATER SAMPLES
AREA N- NORTH PARKING LOT STORM SEWER LINE
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					NYS SW Standards* or **Guidance Levels**
	WEC-SW-N1 MH-NPL-01	WEC-SW-N4 MH-NPL-05	WEC-SW-N5 UPSTREAM-OFALL	WEC-SW-N6 OUTFALL	WEC-SW-N7 DNSTREAM-OFALL	
Volatile Organics						
Trichloroethene	ND	7 J	ND	1 J	ND	**3.0**
Total Volatiles	0	7	0	1	ND	--
Total Volatile TICs	ND	ND	ND	ND	ND	--
Semi-Volatile Organics						
Total Semi-Volatiles	0	0	0	0	0	--
Total Semi-Volatile TICs	**49 J**	**ND**	**15 J**	**ND**	**18 J**	**--**
Pesticides/PCBs						
Endrin Aldehyde	0.02 NJ	ND	ND	ND	ND	--

*6NYCRR Part 703

TABLE N-4

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
AREA N - NORTH PARKING LOT STORM SEWER SYSTEM
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					NYS SW Standards* or Guidance Levels
	WEC-SW-N1 MH-NPL-01	WEC-SW-N4 MH-NPL-05	WEC-SW-N5 UPSTREAM-OFALL	WEC-SW-N6 OUTFALL	WEC-SW-N7 DNSTREAM-OFALL	
Aluminum	ND	122.00 B	1410.00	ND	193.00 B	100
Arsenic	5.00 B	ND	ND	ND	ND	50
Barium	63.00 B	58.00 B	44.00 B	62.00 B	57.00 B	1000
Calcium	86600.00	99600.00	90400.00	99700.00	93800.00	-
Chromium	ND	6.80 B	6.60 B	ND	ND	50
Copper	ND	ND	12.30 B	ND	ND	200
Iron	ND	76.00 B	1610.00	120.00	63.00 B	300
Lead	ND	2.20 B	3.60	2.30 B	ND	50
Magnesium	23300.00	37300.00	22600.00	37300.00	35300.00	35000
Manganese	7.40 B	6.80 B	67.10	8.50 B	16.10	300
Potassium	1360.00 B	1430.00 B	703.00 B	1550.00 B	1360.00 B	-
Selenium	ND	ND	ND	2.50 BNW	ND	10
Sodium	20000.00	17500.00	3580.00 B	23600.00	20600.00	-
Vanadium	ND	ND	ND	4.00 B	ND	14
Zinc	ND	ND	24.30	23.90	26.30	30
Cyanide	ND	ND	ND	ND	ND	-

*6NYCRR Part 703

TABLE N-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI- VOLATILE ORGANIC, & PESTICIDE/PCB COMPOUNDS
SEDIMENT SAMPLES
AREA N - NORTH PARKING LOT STORM SEWER SYSTEM
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					SEDIMENT CRITERIA
	WEC-SED-N1 MH-NPL-01	WEC-SED-N4 MH-NPL-05	WEC-SED-N5 UPSTREAM	WEC-SED-N6 OUTFALL	WEC-SED-N7 DNSTREAM	
Volatile Organics						
Trichloroethene	ND	13	ND	ND	ND	32.17
Total Volatiles	0	13	0	0	0	-
Total Volatle TICs	ND	ND	ND	ND	ND	-
Semi-Volatile Organics						
Naphthalene	110 J	ND	54 J	ND	ND	-
Acenaphthylene	ND	ND	42 JV	ND	ND	-
Acenaphthene	360 JV	290 J	ND	ND	41 J	6413.89
Dibenzofuran	210 J	140 J	48 J	ND	ND	-
Fluorene	310 J	360 J	130 J	ND	50 J	11886.70
Phenanthrene	3800	3300	660	280 J	440	21137.87
Anthracene	550 J	820	140 J	51 J	100 J	21137.87
Carbazole	1000	610 J	160 J	57 J	78 J	-
Di-n-butylphthalate	ND	ND	ND	ND	100 J	50.00
Fluoranthene	5800	5000	850	470	710	59574.62
Pyrene	5100	3700	600	470	690	56893.32
Butylbenzylphthalate	110 J	ND	ND	270 J	ND	50.00
Benzo(a)anthracene	2900	2400	380 J	230 J	310 J	32.89
Chrysene	2900	2200	430	330 J	390	32.89
bis(2-Ethylhexyl)phthalate	240 J	87 J	ND	310 J	320 J	11971.57
Di-n-octylphthalate	ND	ND	ND	46 JV	ND	50.00
Benzo-fluoranthene(total)	7400 V	4100	890 V	880 V	870	32.89
Benzo(a)pyrene	2600	1800	390	260 JV	300 J	19.74
Indeno(1,2,3-cd)pyrene	470 JV	460 J	89 J	81 JV	84 J	32.89
Dibenz(a,h)anthracene	220 JV	230 J	ND	ND	ND	-
Benzo(g,h,i)perylene	380 JV	320 J	59 J	79 JV	72 J	-
Total Semi-Volatiles	34460	25817	4922	3814	4555	-
Total Semi-Volatile TICs	6740 J	8410 J	2117 J	18200 J	4338 J	-
Pesticides/PCB's						
Gamma-BHC(Lindane)	ND	ND	ND	0.46 J	ND	9.44
Heptachlor	7.0 JD	2.3 J	0.35 J	1.0J	ND	3.39
Heptachlor Epoxide	ND	1.2 J	0.32 J	ND	ND	3.39
4,4'-DDE	ND	1.2 J	ND	1.6 J	ND	150.00
Endrin	ND	ND	ND	1 J	ND	11.94
Endosulfan II	13 JD	5.7 J	1.3 J	2.1 J	ND	-
4,4-DDD	ND	3.5 J	1 J	0.95 J	ND	150.00
4,4'-DDT	ND	19 J	0.73 J	5.4 J	10 JD	150.00
Methoxychlor	36 J	ND	ND	ND	ND	10475.13
Endrin Ketone	30 J	ND	ND	ND	ND	-
Gamma Chlordane	ND	2.1 J	ND	ND	ND	-
Aroclor-1260	160 JD	76 JP	ND	39 J	63 JD	0.01

TABLE N-6

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SEDIMENT SAMPLES
AREA N- NORTH PARKING LOT STORM SEWER SYSTEM
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION					SEDIMENT CRITERIA	
	WEC-SED-N1 MH-NPL-01	WEC-SED-N4 MH-NPL-05	WEC-SED-N5 UPSTREAM-OFALL	WEC-SED-N6 OUTFALL	WEC-SED-N7 DNSTREAM-OFALL	Lowest Effect Level	Severe Effect Level
Aluminum	3530	3590 *	5210	3350	2900	-	-
Arsenic	3.6	2.9	2.7	2.1 BW	2.6	6.0	33.0
Barium	31.90 B	33.10 B	46.50 B	35.60 B	25.60 B	-	-
Beryllium	0.45 B	0.45 B	0.23 B	0.37 B	0.32 B	-	-
Cadmium	5.20 V	3.40	ND	3.10 V	4.50 V	0.6	9.0
Calcium	122000	168000	61000	186000	171000	-	-
Chromium	9.10	9.00	8.20	11.60	9.60	26.0	110.0
Cobalt	1.90 B	2.10 B	5.80 B	ND	ND	-	-
Copper	10.70	12.60	13.10	8.40	10.20	16.0	110.0
Iron	6730	8080 E	10600	7310	6850	20000.0	40000.0
Lead	54.50	67.90	9.60	72.40	94.80	31.0	110.0
Magnesium	25600	24500	22700	25700	25600	-	-
Manganese	401	389 N	344	359	470	460.0	1100.0
Nickel	5.80 B	6.30 B	8.50 B	6.00 B	4.90 B	16.0	50.0
Potassium	403 B	336 B	1090 B	437 B	386 B	-	-
Sodium	185 B	153 B	118 B	212 B	181 B	-	-
Thallium	ND	0.52 BWV	ND	ND	ND	-	-
Vanadium	4.60 B	5.10 B	13.00	7.50 B	6.70 B	-	-
Zinc	62.60	49.60 EN*	60.80	63.10	51.80	120.0	270.0
Cyanide	ND	ND	ND	ND	ND	-	-

4.13.3 Ellicott Creek

Background

Ellicott Creek, which is located northeast of the site, is the ultimate discharge point for stormwater run-off collected from the northern portion of the site (refer to Plate Map No. 2). There has been no previous sampling performed in Ellicott Creek near the discharge point.

Purpose of Investigation

The purpose of this investigation was to determine if the site has adversely impacted environmental conditions within Ellicott Creek.

Scope of Investigation

One surface water and one sediment sample were collected from four locations within Ellicott Creek. The sampling points were located as follows: upgradient of the discharge point; at the discharge point; approximately fifteen feet downgradient of the discharge point; and approximately five hundred feet downgradient of the discharge point on the other side of the airport runway (refer to Plate Map No. 2 and Figure N-2). All samples were analyzed for Full CLP parameters and total cyanide. In addition, two of the sediment samples and two of the surface water samples were analyzed for total organic carbon (TOC) and hardness, respectively

Analytical Results

A summary of the analytical results associated with the collection of surface water and sediment samples from Ellicott Creek is presented on Tables N-7 through N-11. It should be noted that additional background data has been incorporated into the analytical tables. The data were collected in association with the Pfhol Brothers site, which is located approximately one mile upstream of the Westinghouse site's discharge point. There were no significantly elevated levels of organic or inorganic contaminants detected within any of the samples (surface water or sediment) collected from Ellicott Creek. Numerous PAHs were detected at slightly elevated levels within several sediment samples. In comparison, the total concentration of PAHs detected were relatively equal both upstream and downstream of the discharge point.

Conclusions

The stormwater run-off from the northern portion of the project site does not appear to have adversely impacted environmental conditions within Ellicott Creek. No further action is recommended for this area.

TABLE N-7

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SURFACE WATER SAMPLES
AREA N- ELLICOTT CREEK
(Concentration Values in ug/l- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION								NYS SW Standards*** or Guidance Levels
	WEC-SW-N8 DISCHARGE PT.	WEC-DUP2-SW DUPLICATE(N8)	WEC-SW-N9 DSTREAM-500'	WEC-SW-N10 DSTREAM-15'	WEC-SW-N11 UPSTREAM-15'	SW-8-001* UPSTREAM-1 Mi.	SWT-45** UPSTREAM-1 Mi	SWT-46** UPSTREAM-1 Mi.	
Volatile Organics									
Methylene Chloride	ND	ND	ND	ND	1 BJ	ND	ND	ND	5.0
Total Volatiles	0	0	0	0	1	0	0	0	-
Total Volatile TICs	ND	ND	ND	ND	ND	--	--	--	-
Semi-Volatile Organics									
Di-n-butylphthalate	10	9 J	4 J	1 J	ND	ND	2.0	1.0	50
Diethylphthalate	ND	ND	ND	ND	ND	ND	2.0	ND	
bis(2-Ethylhexyl)phthalate	1 JS	1 J	ND	ND	ND	ND	13	6.0	4.0
Total Semi-Volatiles	11	10	4.0	1.0	0	0	17	7.0	-
Total Semi-Volatile TICs	2 J	12 J	3 J	3 J	ND	--	--	--	-
Pest/PCBs									
4,4' - DDT	0.35 J	ND	ND	ND	ND	--	ND	ND	0.01
Endrin Ketone	0.48 NJ	ND	ND	ND	ND	--	ND	ND	--
Alpha - BHC	ND	ND	ND	ND	0.0077 J	--	ND	ND	0.05

* - Pfohl Brothers Landfill Data From March 1990 Report - "Interim Report : Leachate, Surface Water & Sediment Investigation".

** - Pfohl Brothers Landfill Data From June 1990 Report - " Supplemental Sampling".

*** - 6NYCRR Part 703

TABLE N-8

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE WATER SAMPLES
ELLICOTT CREEK
(Concentrations in ug/l - ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION								NYS SW Standards*** or Guidance Levels
	WEC-SW-N8 DISCHARGE PT.	WEC-DUP2-SW DUPLICATE (N8)	WEC-SW-N9 DNSTREAM - 500'	WEC-SW-N10 DNSTREAM - 15'	WEC-SW-N11 UPSTREAM - 15'	SW-8-001* UPSTREAM-1 Mi.	SWT-45** UPSTREAM-1 Mi.	SWT-46** UPSTREAM-1 Mi.	
Aluminum	367	436	176 B	225	197 B	190 B	--	--	100
Barium	47 B	47 B	47 B	51 B	54 B	38.5 B	670	620	1000
Cadmium	ND	ND	ND	ND	ND	8.6	ND	ND	10
Calcium	68600	69800	221000	248000	253000	133000	--	--	-
Chromium	ND	ND	ND	6.3 B	6.4 B	ND	ND	ND	50
Copper	ND	ND	ND	ND	ND	6.7 B	ND	ND	
Iron	466	535	286	312	421	462	--	--	300
Lead	1.5 B	2.0 B	ND	ND	ND	4.8 B	ND	3.5	50
Magnesium	25600	26100	20600	23700	23500	16600	--	--	35000
Manganese	39.3	44.0	53.1	59.6	64.9	42.1	37.0	22.0	300
Potassium	1030 B	1320 B	2310 B	2830 B	2850 B	2840 B	--	--	-
Sodium	20300	21400	39000	44500	44800	33600	--	--	-
Zinc	6.5 B	14.1 B	ND	ND	4.3 B	47.60	ND	ND	300
Cyanide	ND	ND	ND	ND	ND	ND	--	--	-

* - Pfohl Brothers Landfill Data From March 1990 Report - "Interim Report : Leachate, Surface Water & Sediment Investigation".

** - Pfohl Brothers Landfill Data From June 1990 Report - " Supplemental Sampling".

*** - 6NYCRR Part 703

TABLE N-9

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SEDIMENT SAMPLES
AREA N- ELLICOTT CREEK
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION										SEDIMENT CRITERIA
	WEC-SED-N8 DISCHARGE PT.	WEC-SED-N9 DNSTREAM-500'	WEC-DUP2-SED DUPLICATE(N9)	WEC-SED-N10 DNSTREAM-15'	WEC-SED-N11 UPSTREAM-15'	SE-8-001* UPSTREAM-1Mi	*SE-18-001 UPSTREAM-1Mi	SE-19-001* UPSTREAM-1Mi	STR-19** UPSTREAM-1Mi.	STR-20** UPSTREAM-1Mi	
Volatile Organics											
Methylene Chloride	ND	ND	ND	ND	ND	13	20 B	18 B	ND	ND	0.67
Acetone	ND	ND	ND	ND	ND	ND	24	50	ND	ND	50 00
2-Butanone	ND	5 J	7 J	7 J	6 J	ND	ND	ND	ND	ND	50 00
Total Volatiles	0	5	7	7	6	13	44	68	0	8.75	-
Total Volatile TICs	ND	ND	ND	ND	ND	--	--	--	--	--	-
Semi-Volatile Organics											
Isophorone	ND	ND	ND	ND	ND	ND	ND	ND	58	ND	-
Acenaphthylene	ND	ND	ND	310 J	ND	ND	ND	ND	51	32	-
Acenaphthene	ND	ND	ND	59 J	ND	ND	ND	ND	24	--	6413.89
Dibenzofuran	ND	ND	ND	140 J	ND	ND	ND	ND	ND	ND	-
Fluorene	ND	ND	ND	480	ND	ND	ND	ND	33	ND	11886.70
Diethylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	35	ND	50 00
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	51	31	50 00
bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND	ND	ND	780	1600	11971.57
Phenanthrene	54 J	160 J	310 J	2000	340 J	ND	ND	ND	230	96	21137.87
Anthracene	ND	ND	53 J	520	86 J	ND	ND	ND	93	47	21137.87
Carbazole	ND	ND	ND	270 J	ND	ND	ND	ND	ND	ND	-
Fluoranthene	130 J	330 J	460	2100	600	81 J	ND	ND	380	210	59574.62
Pyrene	100 J	230 J	320 J	1400	510	91 J	ND	ND	340	200	56893.32
Benzo (a) anthracene	61 J	140 J	160 J	1000	260 J	ND	ND	ND	120	110	32 89
Chrysene	87 J	160 J	190 J	870	270 J	ND	ND	ND	170	150	32 89
Benzo(b)fluoranthene	49 J	110 J	170 J	650	230 J	73 J	ND	ND	370	140	32.89
Benzo(k)fluoranthene	69 J	150 J	160 J	520	240 J	ND	ND	ND	370	140	32 89
Benzo(a)pyrene	64 J	130 J	160 J	760	260 J	ND	ND	ND	140	110	19 74
Indeno(1,2,3-cd)pyrene	ND	45 J	ND	150 J	89 J	ND	ND	ND	273	83	32 89
Dibenz(a,h)anthracene	ND	ND	ND	52 J	ND	ND	ND	ND	257	54	-
Benzo(g,h,i)perylene	ND	ND	ND	86 J	65 J	ND	ND	ND	320	190	-
Total Semi-Volatiles	614	1455	1983	11367	2950	245	0	0	4095	3193	-
Total Semi-Volatile TICs	9310 J	9700 J	10467 J	7585 J	7190 J	--	--	--	--	--	-

* - Pfohl Brothers Landfill Data From March 1990 Report - "Interim Report : Leachate, Surface Water & Sediment Investigation".

** - Pfohl Brothers Landfill Data From June 1990 Report - " Supplemental Sampling".

TABLE N-10

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF PESTICIDE/PCB COMPOUNDS
SEDIMENT SAMPLES
AREA N - ELLICOTT CREEK
(Concentrations in ug/kg - ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION									SEDIMENT CRITERIA
	WEC-SED-N8 DISCHARGE PT.	WEC-SED-N9 DNSTREAM-500'	WEC-DUP2-SED DUPLICATE(N9)	WEC-SED-N10 DNSTREAM-15'	WEC-SED-N11 UPSTREAM-15'	SE-18-001* UPSTREAM-1Mi.	SE-19-001* UPSTREAM-1Mi.	STR-19** UPSTREAM-1Mi.	STR-20** UPSTREAM-1Mi.	
Pest/PCBs										
Heptachlor Epoxide	0.27 J	0.59 J	0.26 J	1.4 J	ND	ND	ND	ND	ND	3.39
Endosulfan II	0.48 J	0.61 J	0.58 J	3.8 J	0.98 J	ND	ND	ND	ND	-
4,4' - DDT	2.1 J	1.5 J	1.3 J	3.1 J	1.2 J	--	ND	ND	ND	150.00
Heptachlor	ND	0.31 J	ND	1.1 J	ND	ND	ND	ND	ND	3.39
4,4' - DDE	ND	0.62 J	0.82 J	1.9 J	ND	--	ND	ND	ND	150.00
4,4' - DDD	ND	1.3 J	1.3 J	3.8 J	1.2 J	--	ND	ND	ND	150.00
Endrin Aldehyde	ND	0.87 J	ND	ND	ND	ND	ND	ND	ND	-
Alpha - Chlordane	ND	0.56 J	1.1 J	ND	ND	ND	ND	ND	ND	-
Gamma - Chlordane	ND	0.74 J	1.4 J	ND	ND	ND	ND	ND	ND	-
Dieldrin	ND	ND	ND	0.52 J	ND	ND	ND	ND	ND	1.35
Endrin	ND	ND	ND	1.9 J	ND	ND	ND	ND	ND	11.94

* - Pfohl Brothers Landfill Data From March 1990 Report - "Interim Report : Leachate, Surface Water & Sediment Investigation".

** - Pfohl Brothers Landfill Data From June 1990 Report - " Supplemental Sampling".

TABLE N-11

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SEDIMENT SAMPLES
AREA N- ELLICOTT CREEK
(Concentration Values in mg/kg- ppm)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION										SEDIMENT CRITERIA	
	WEC-SED-N8 DISCHARGE PT.	WEC-SED-N9 DNSTREAM-500'	WEC-DUP2-SED DUPLICATE(N9)	WEC-SED-N10 DNSTREAM-15'	WEC-SED-N11 UPSTREAM-15'	SE-8-001* UPSTREAM-1Mi.	SE-18-001* UPSTREAM-1Mi.	SE-19-001* UPSTREAM-1Mi.	STR-19** UPSTREAM-1Mi.	STR-20** UPSTREAM-1Mi.	Lowest Effect Level	Severe Effect Level
Aluminum	2840	3200	2040	3590	2630	5120	9010	8750	--	--	-	-
Arsenic	3.5	1.6 B	1.9 B	5.3	1.9 B	2.6 JL	2.2 B	2.6 B	4.3	9.5	6.0	33.0
Barium	21.3 B	24 B	15.2 B	22.1 B	14.3 B	21.9 BJL	74.7	50.8 B	--	271	-	-
Beryllium	0.15 B	0.2 B	0.13 B	0.21 B	0.16 B	0.33 B	0.54 B	0.57 B	--	--	-	-
Cadmium	ND	1.6	ND	ND	1.1 B	1.3	0.33 B	ND	0.6	3.1	0.6	9.0
Calcium	79300	47400	32600	73100	49900	6480	6660	14000	--	--	-	-
Chromium	6.2	10.7 V	4.7 V	6.1	6.6	9.3	14.0	12.4	4.4	9.8	26.0	110.0
Cobalt	3.7 B	3.3 B	3.9 B	5.6 B	2.8 B	4.7 B	5.7 B	4.8 B	--	--	-	-
Copper	11.2	13.8	7.3	9.6	7.0	15.5 JQ	[illegible] 2160 [illegible]	20.8	ND	22.9	16.0	110.0
Iron	8020 EV	7030 E	6770 E	9580 E	6530 E	12600	14500	13000	--	--	20000.0	40000.0
Lead	22.8	8.3	14.8	22.1	43.9	--	16.5	36.7	46.7	62.0	31.0	110.0
Magnesium	36200	14400	10400	22100	13600	2820	3670	5690	--	--	-	-
Manganese	351 NV	184 N	145 N	272 N	207 N	311	183	131	149	103	460.0	1100.0
Nickel	6.4 B	3.9 B	ND	7.3 B	3.1	14.9	14.2	18.7	--	--	16.0	50.0
Potassium	493 B	445 B	332 B	618 B	3.1 B	--	1210 B	1180 B	--	--	-	-
Sodium	114 B	146 B	99.1 B	106 B	126 B	--	130 B	144 B	--	--	-	-
Thallium	0.58 BWV	ND	ND	0.51 BWV	ND	ND	ND	ND	--	--	-	-
Vanadium	7.7 B	6.2	5.4 B	8.4 B	5.3 B	13.1	14.5	16.0	--	--	-	-
Zinc	ND	36.2 EN	40.9 EN	42.5 EN	45.3 EN	61.2	144	96.9	103	157	120.0	270.0
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	--	--	-	-

* - Pfohl Brothers Landfill Data From March 1990 Report - "Interim Report : Leachate, Surface Water & Sediment Investigation"

** - Pfohl Brothers Landfill Data From June 1990 Report - " Supplemental Sampling".

4.14 Area O-Gunnery Range

Background

Area O is located in the northern portion of the site and is bounded to the north and east by a fenceline located along the abandoned Lehigh Valley Railroad, to the south by Area Q (The Railroad Track Area) and to the west and northwest by Area P-The Flying Tiger's Area. Refer to Plate 1, Areas of Investigation.

Elevated concentrations of volatile and semi-volatile organics were detected within the subsurface soil in Area O during the PSA. Contaminants were also identified within Sump No. 5, which was actually a septic tank. Remediation of Sump No. 5 was completed under an IRM (refer to Section 1.6).

Purpose of Investigation

The purpose of this investigation was to delineate the extent and severity of subsurface soil contamination identified during the PSA.

Scope of Investigation

A total of eighteen test pits (TP-O1 through TP-O18) were excavated throughout this area at the locations shown on Figure O-1. Five of the eighteen test pits were sampled and analyzed for TCL VOAs, BNAs, PCBs and total cyanide.

Subsurface Conditions

Fill material was encountered at each test pit location at depths ranging from 1.5 to 4.5 feet below grade. The fill consisted predominantly of sand and gravel with varying amounts of silt, with wood fragments noted at several locations. A concrete slab was encountered beneath the fill at test pit locations TP-O6 and TP-O7 and may be an old foundation.

Reddish-brown glacial till was encountered beneath the fill at all test pit locations and consisted of clayey silt with varying amounts of embedded sand & gravel. Refer to the Subsurface Logs in Appendix C for detailed geologic descriptions.

Air Monitoring/Headspace Results

Headspace screening was performed on soil samples recovered from each of the test pits with the on-site portable GC. The results are presented on Table O-1. Significantly elevated total VOC concentrations (>5 ppm) were detected at the following test pit locations: TP-O5 (8 ppm); TP-O6 (39 ppm); TP-O7 (9 ppm); TP-O8 (10 ppm); TP-O10 (73 ppm); TP-O15 (9 ppm); and TP-O16 (6 ppm). As indicated on Table O-1, a wide range of VOCs were detected within the various test pit samples. This is consistent with field observations, as both solvents and petroleum odors were detected during the excavation of test pits in Area O. The contaminants were detected within the fill material in Test Pit Nos. O6, O7, O8 and O15 and within the till in Test Pit Nos. O4, O5, O8, O10 and O18. The areal extent of VOCs

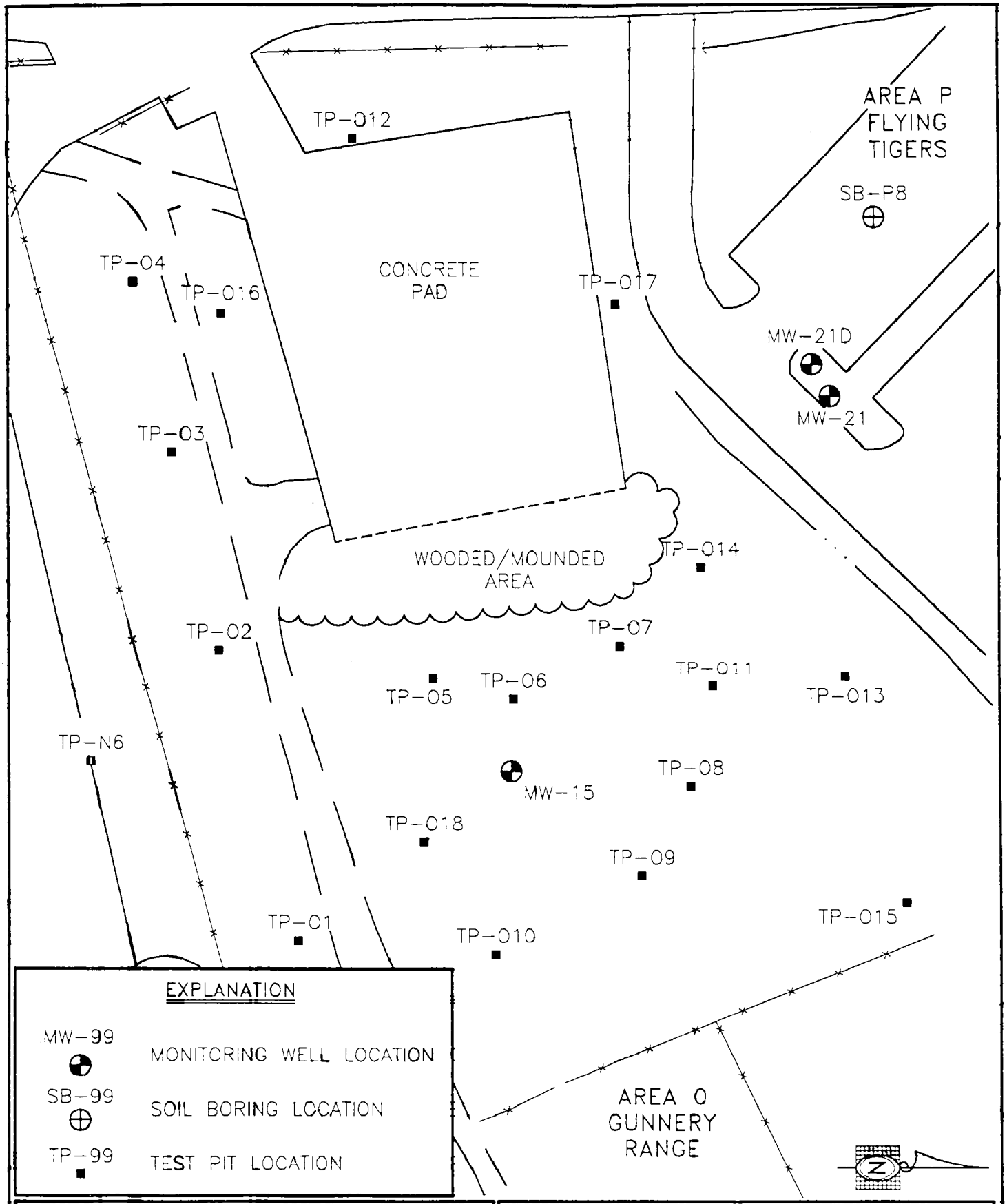
detected in Area O covers a relatively large area (refer to Figure O-2). However, the vertical extent was limited to a maximum depth of six feet below grade (refer to Figure O-3).

Analytical Results

A summary of the analytical results associated with the subsurface soil samples collected from Area O is presented in Tables O-2. Several VOCs were detected in the soil samples, however, none of the concentrations exceeded their respective RSCOs. Several semi-volatile organics (PAHs) were detected at levels exceeding RSCOs in four of the six test pit samples, however, the levels detected were not excessive.

Conclusions

Analytical results obtained from the collection of soil samples in Area O did not indicate the presence of significantly elevated levels of contaminants. However, field observations, GC screening results and previous chemical analyses performed during the PSA all indicate that contamination of the subsurface soil in Area O is present at levels which pose a significant environmental concern. Strong solvent and/or petroleum odors were encountered during the excavation of numerous test pits. It is recommended that remedial measures should be performed in Area O and that the remediation of this area should be addressed in a focused Feasibility Study.



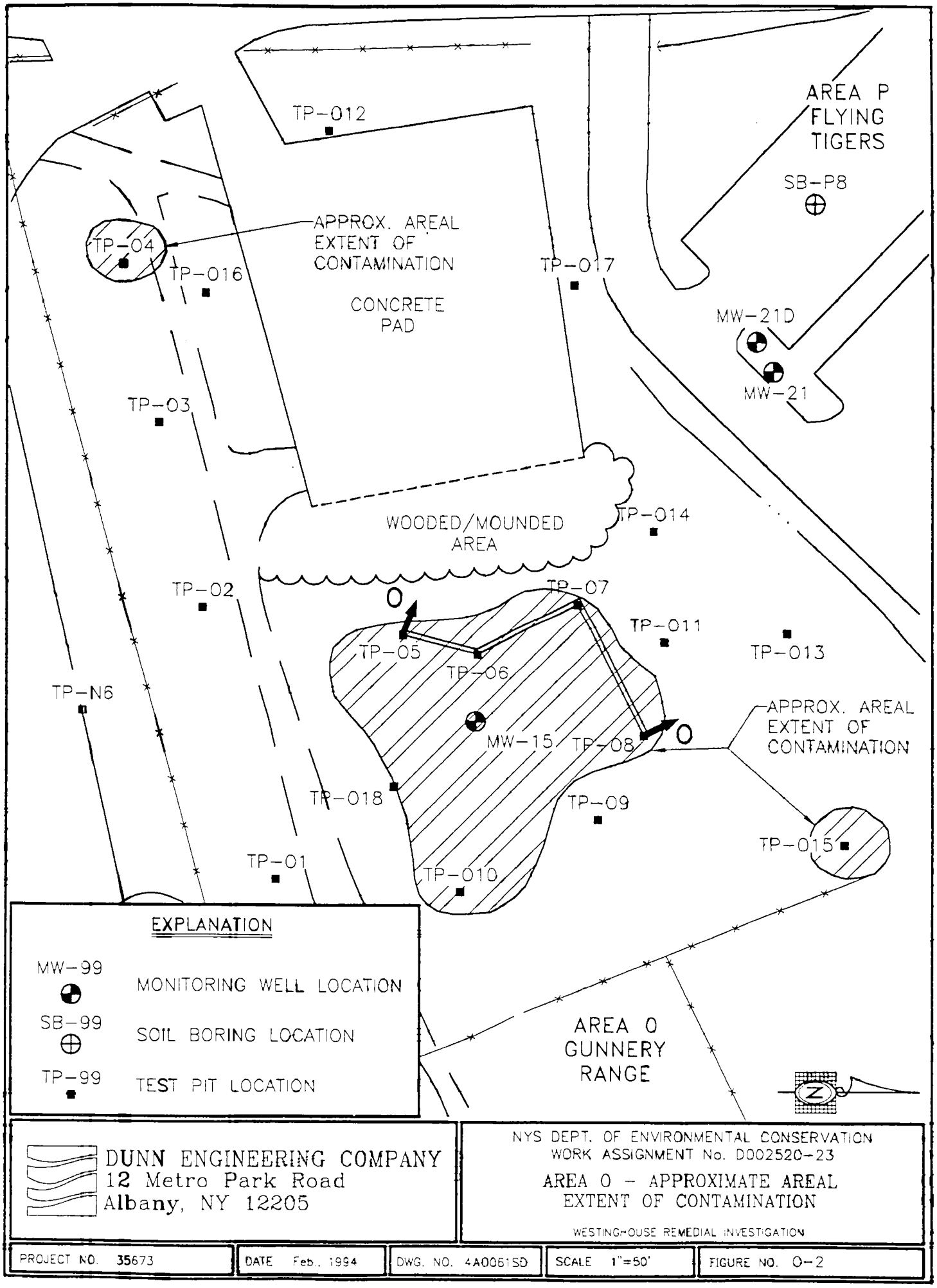
DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

AREA O – TEST PIT LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0061SD	SCALE 1"=50'	FIGURE NO. O-1



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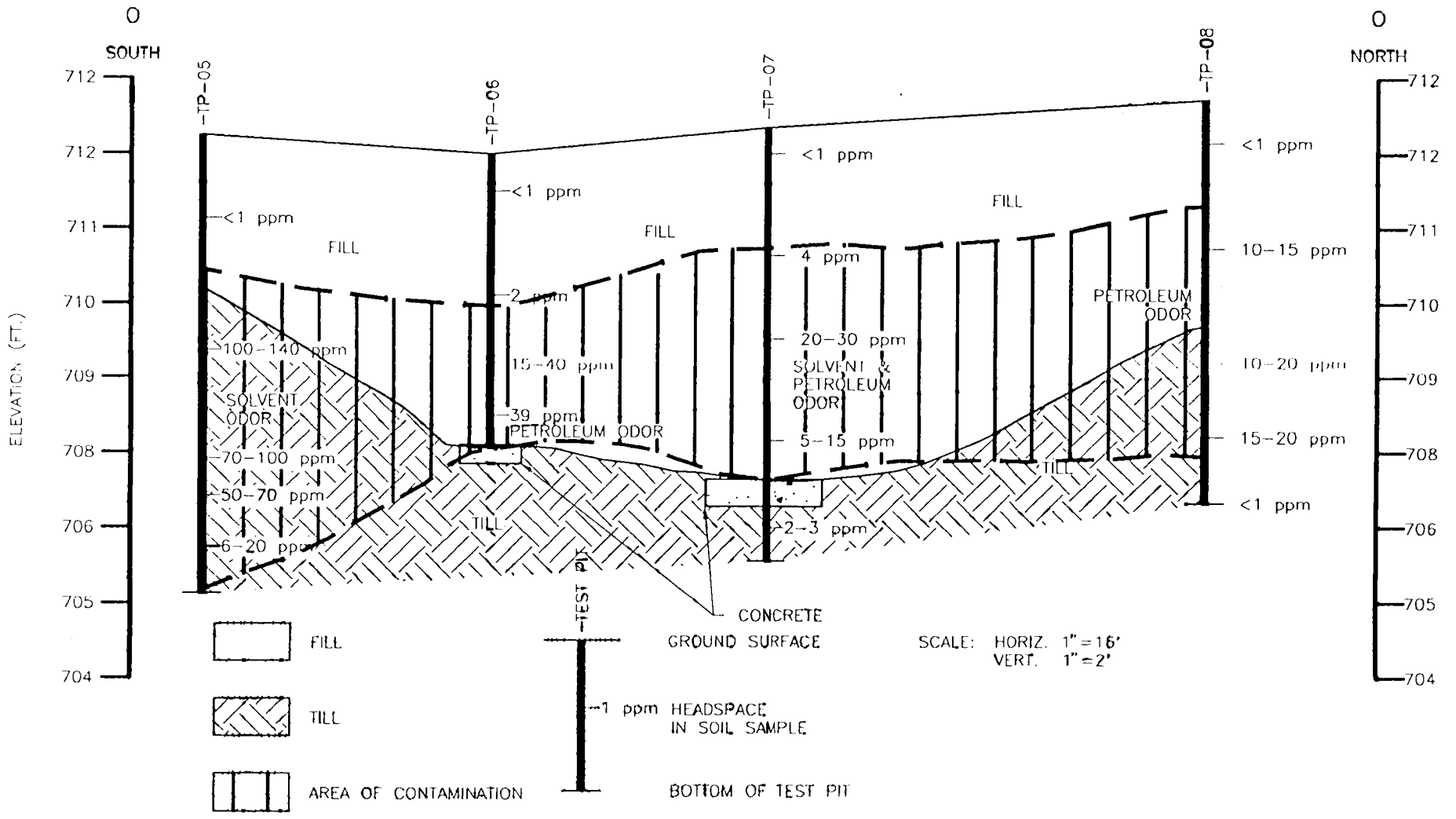
WORK ASSIGNMENT No. D002520-23

AREA O – APPROXIMATE AREAL EXTENT OF CONTAMINATION

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0061SD	SCALE 1"=50'	FIGURE NO. O-2



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D0002520-23

SECTION O-O

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb.,1994	DWG. NO. C000	SCALE As Noted	FIGURE NO. O-3

TABLE O-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA O-Gunnery Range
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth									
	TP-O1 6'	TP-O2 6'	TP-O3 6'	TP-O4 3'	TP-O5 2.5'	TP-O5 6'	TP-O6 3.5'	TP-O7 3'	TP-O7 5.5'	TP-O8 3.5'
1,1-DCE	83.09	-	-	301.00	98.33	207.50	56.35	53.40	15.14	29.62
trans-1,2-DCE	37.95	-	-	38.03	19.24	45.44	30.58	31.94	20.82	5.16
cis-1,2-DCE	-	-	-	1433.00	84.44	5574.00	870.10	997.20	1049.00	131.00
1,1,1-TCA	-	-	-	-	-	-	12080.00	1727.00	-	2917.00
Benzene	-	-	-	-	-	112.30	3939.00	1170.00	2223.00	592.40
TCE	6.34	15.72	-	12.29	49.28	9.31	692.50	449.70	77.15	37.58
Toluene	-	-	-	-	7.81	-	1019.00	197.30	-	62.63
PCE	-	-	-	-	423.50	-	691.70	190.60	-	94.93
Chlorobenzene	-	-	-	256.80	5940.00	-	5874.00	1855.00	-	248.90
Ethylbenzene	-	-	-	54.45	953.90	-	8502.00	1662.00	171.60	5962.00
m-Xylene	43.17	104.70	-	62.19	-	-	5439.00	810.80	82.57	-
o-Xylene	-	-	-	-	516.40	-	-	-	-	-
Total	170.55	120.42	0.00	2157.76	8092.90	5948.55	39194.23	9144.94	3639.28	10081.22

TABLE O-1 (Continued)

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA O-Gunnery Range
(Concentration Values in ppb)

ANALYTES	Test Pit Location And Depth									
	TP-O9 5.5'	TP-O10 2.5'	TP-O11 5'	TP-O12 4.5'	TP-O13 4'	TP-O14 0.4'	TP-O15 3'	TP-O16 4'	TP-O17 4.5'	TP-O18 3.5'
1,1-DCE	12.75	5.34	-	-	-	-	51.65	16.69	8.36	6.68
trans-1,2-DCE	3.11	-	-	-	26.33	61.26	46.37	9.38	4.27	4.18
cis-1,2-DCE	-	-	18.12	-	199.70	476.10	436.10	230.60	-	-
1,1,1-TCA	-	-	-	-	-	-	7766.00	-	-	-
Benzene	-	-	-	-	-	-	227.90	-	-	-
TCE	5.73	85.86	11.89	9.63	43.89	632.60	104.30	5589.00	7.79	7.31
Toluene	26.60	48.78	-	8.00	-	-	52.37	-	-	-
PCE	-	159.00	-	-	19.21	-	27.36	-	-	-
Chlorobenzene	19.05	2551.00	-	-	41.48	24.06	88.29	-	-	225.70
Ethylbenzene	-	3106.00	120.30	166.20	61.66	35.28	36.52	23.67	-	94.19
m-Xylene	60.50	67490.00	293.60	416.50	84.41	55.29	68.74	98.49	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-
Total	127.75	73445.98	443.91	600.34	476.68	1284.59	8905.60	5967.83	20.41	338.06

TABLE O-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC, PCBs AND INORGANIC ANALYTES
TEST PIT SOIL SAMPLES
AREA O - GUNNERY RANGE
(Concentrations in ug/kg - ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH						RSCO*
	WEC-TP-O4 3'	WEC-TP-O4 DUP	WEC-TP-O5 3'	WEC-TP-O6 3'-5'	WEC-TP-O8 3'-5'	WEC-TP-O10 2'-3'	
Volatile Organics							
2-Butanone	10 J	8 J	23	ND	9 J	ND	450
4-Methyl-2-Pentanone	ND	ND	ND	1 J	ND	ND	1500
Toluene	ND	ND	ND	3 J	ND	ND	2250
Ethylbenzene	ND	ND	ND	15	22	ND	8250
Xylene(total)	ND	ND	ND	5 J	ND	ND	1800
Total Volatiles	10	8	23	24	31	0	10000
Total Volatile TICs	ND	ND	469 NJ	44 NJ	ND	172 NJ	10000
Semi-Volatile Organics							
4-Methylphenol	ND	ND	ND	210 J	ND	ND	1350
Napthalene	ND	ND	ND	230 J	48 J	ND	19500
2-Methylnaphthalene	ND	ND	ND	ND	320 J	ND	50000
Dibenzofuran	ND	ND	ND	ND	120 J	ND	9300
Fluorene	48 J	ND	ND	250 J	110 J	ND	50000
Phenanthrene	110 J	220 J	66 J	1000 J	230 J	220 J	50000
Anthracene	ND	44 J	ND	290 J	ND	50 J	50000
Carbazole	ND	37 J	ND	220 J	ND	ND	-
Di-n-Butylphthalate	ND	ND	ND	1100 J	ND	ND	12150
Fluoranthene	360 J	510	110 J	2000	ND	460	50000
Pyrene	200 J	290 J	69 J	1800 J	ND	300J	50000
Benzo(a)Anthracene	120 J	200 J	ND	910 J	ND	200 J	220 or MDL
Chrysene	130 J	190 J	37 J	950 J	ND	190 J	600
Benzo(b)Fluoranthene	110 J	220 J	ND	900 J	ND	150 J	1650
Benzo(k)Fluoranthene	61 J	94 J	ND	850 J	ND	120 J	1650
Benzo(a)Pyrene	66 J	140 J	ND	780 J	ND	130 J	61 or MDL
Indeno(1,2,3-cd)Pyrene	49 J	110 J	ND	510 J	ND	94 J	4800
Benzo(g,h,i)Perylene	ND	76 J	ND	260 J	ND	71 J	50000
Total Semi-Volatiles	1254	2131	282	12260	828	1985	500000
Total Semi-Volatile TICs	13930 J	24020 J	16980 J	61080 J	27500 J	5999 J	500000
PCBs							
Aroclor-1260	10 J	7.8 PJV	ND	69 PV	4.8 JVN	23 JPV	10000
Inorganics (ppm)							
Cyanide	ND	ND	ND	ND	ND	ND	-

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) incorporates a Correction Factor(Cf) of 100; Cs x Cf

4.15 Area P-Flying Tiger's Area

Background

The Flying Tiger's Area is located in the northern-most portion of the project site. It is bounded to the west and north by the Greater Buffalo International Airport and to the south by the Gunnery Range. Refer to Plate 1, Areas of Investigation Map.

Purpose of Investigation

The results of the PSA investigation indicated contamination of the subsurface soils by volatile organic compounds, semi-volatile organic compounds, and in one instance, PCBs.

The purpose of this investigation was to delineate the extent and severity of subsurface contamination detected during the PSA. In addition, groundwater flow direction and quality was assessed.

Scope of Investigation

Prior to intrusive sampling, a 500' x 500' grid was established which employed a staggered 100' grid spacing (refer to Figure P-1). Soil gas samples were collected from each grid station and analyzed using an on-site Gas Chromatograph (GC). Refer to Section 2.1 for a complete description of Soil Gas Survey Methodologies.

Based on the results of the soil gas survey, a total of eight borings (SB-P1 through SB-P8) were completed at the locations shown on Figure P-2. A soil sample was collected from five of the eight borings and analyzed for Full CLP parameters and total cyanide.

Two of the soil borings (SB-P1 & SB-P2) were converted to groundwater monitoring wells (MW-20 & MW-21). An additional boring (SB-S3) was completed and a bedrock monitoring well (MW-21D) was installed (refer to Figure P-2). The results associated with groundwater quality and hydrogologic data are presented in Section 4.18.

Soil Gas Survey

The values presented in Table P-1 represent the VOC concentrations detected at each grid station sampled during the soil gas program. The VOCs detected were totaled at each sample location and these values were used to generate a contour map of equal VOC concentrations (refer to Figure P-1).

A review of the results indicated the presence of elevated total VOC levels (>5ppm) at seven sample locations. The most significant total VOC concentrations, 33 ppm and 19 ppm, were detected at grid stations (100,200) and (50,0), respectively. Total VOC concentrations in the 1-5 ppm range were detected at the following grid stations: (0,200); (150,0); (150,300); (300,50); and (500,200). The VOCs detected at one or more of these locations included: 1,1-DCE; 1,2-DCE (cis & trans); 1,1,1-TCA; benzene; TCE; toluene; PCE; chlorobenzene; and xylenes. In addition, there were numerous other sample locations at which total concentrations were

detected at less than 1 ppm.

Subsurface Conditions

With the exception of SB-P7, fill material was encountered at each boring location at a depth ranging from four to six feet below grade. SB-P7 was advanced adjacent to a storm sewer line and backfill material was encountered to a depth of sixteen feet, at which depth the top of the line was encountered. The fill consisted predominantly of silty sand and gravel with some clay at several locations.

A glaciolacustrine deposit consisting of a two to four-foot thick layer of clayey silt was encountered beneath the fill at two boring locations, SB-P1 and SB-P3. Glacial till was encountered beneath the fill or glaciolacustrine unit at each boring and was determined to extend to the top of bedrock in SB-S3, located at a depth of 47.0 feet. The till consisted of a brown to reddish-brown clayey silt with embedded sands and gravels. Bedrock was comprised of a light gray, medium hard, cherty limestone which was relatively sound with a moderate amount of horizontal fractures. Detailed geologic descriptions are presented on the individual boring logs in Appendix C-2.

Air Monitoring/Headspace Results

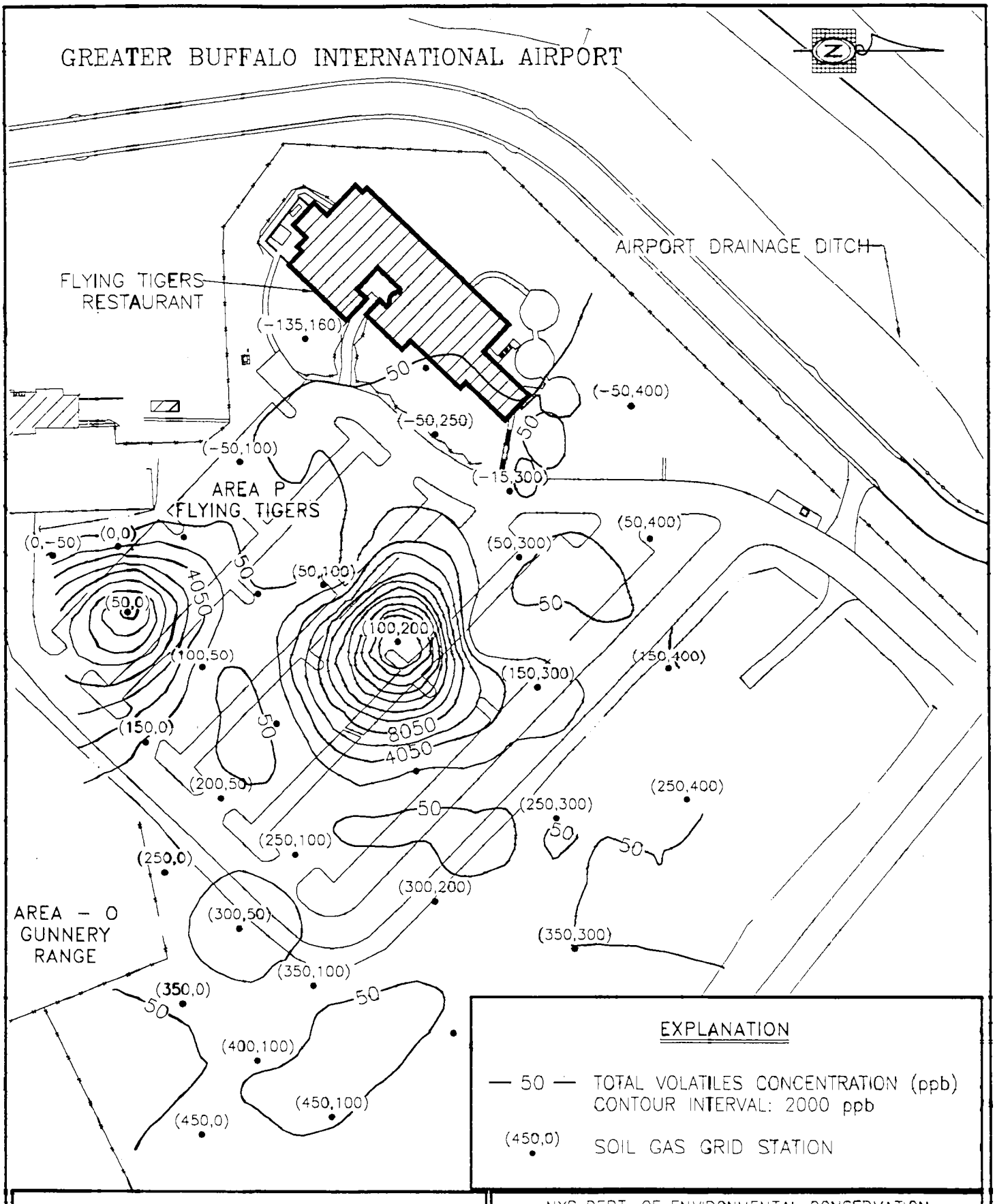
A summary of headspace screening results performed on the soil samples recovered from the eight test borings is present in Table P-2 . Headspace screening was not performed on SB-S3 as there were no split-spoon samples collected. Significantly elevated VOC levels were detected at two boring locations, SB-P1 and SB-P2. VOC concentrations in the soils recovered from SB-P2 ranged from 30-400 ppm from the surface to a depth of fourteen feet with strong solvent odors noted. Petroleum odors (i.e., fuel oil) were noted in SB-P1 at a depth of four to eight feet, which exhibited VOC levels of 30 ppm. There were no significantly elevated levels of VOCs detected within any of the other soil borings advanced in Area P. The detected presence of VOCs within SB-P1 and SB-P2 approximately corresponds to the areas where elevated VOC levels were detected during the soil gas survey (refer to Figure P-1). There is not a sufficient amount of data presently available to generate drawings depicting the lateral and vertical extent of contamination in Area P.

Analytical Results

A summary of the analytical results associated with the subsurface soil samples collected from Area P are presented in Tables P-3, 4, and 5. Significantly elevated levels of VOCs were detected in one of the five soil boring samples, WEC-SB-P2. Toluene (13000 ppb) and total xylenes (4300 ppb) were detected in WEC-SB-P2 at levels exceeding RSCOs. Several semi-volatile organics, primarily PAHs, were also detected in several samples at levels exceeding RSCOs, however, the concentrations were not excessive. In addition, several inorganics (metals) were detected in the soil samples at levels above background values. It should be noted that there were no elevated levels of VOCs detected in WEC-SB-P1, which was located adjacent to soil gas grid station (100,200).

Conclusions

The presence of significantly elevated levels of VOCs within the subsurface soils and groundwater (refer to Section 4.18) in Area P was confirmed in this investigation. An additional investigation was subsequently completed in Area P in order to delineate the extent and severity of contamination detected in SB-P2 as well as to ascertain the presence or absence of contamination adjacent to grid station (100,200). The results of the additional investigation will be presented in the Final RI report. The remediation of the subsurface soils in Area P should be addressed in a focused Feasibility Study.



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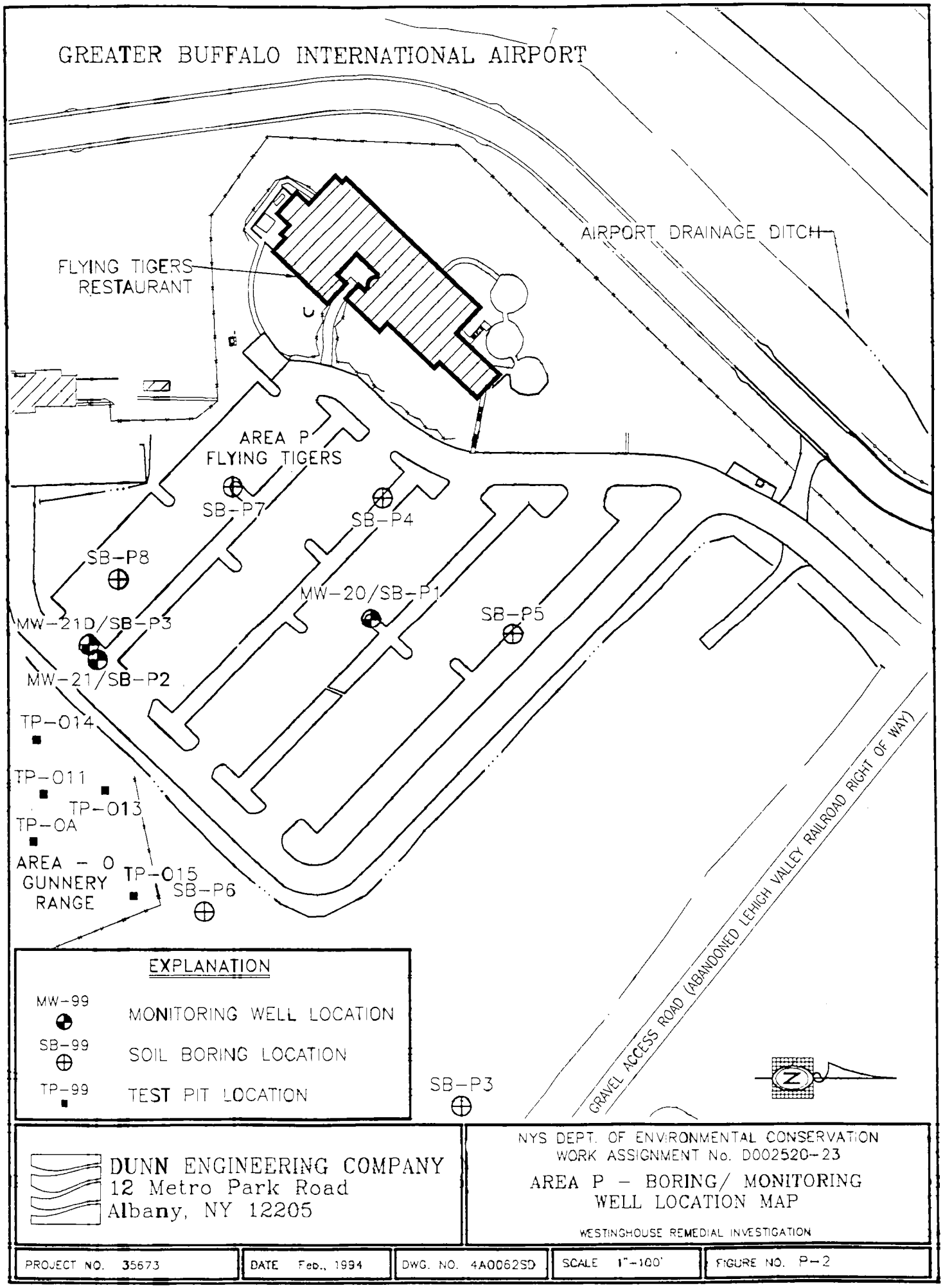
NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

AREA P - CONTOUR MAP
SOIL GAS SURVEY

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0062SD	SCALE 1"=100'	FIGURE NO. P-1



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AREA P – BORING/ MONITORING WELL LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0062SD	SCALE 1"=100'	FIGURE NO. P-2

TABLE P-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF SOIL GAS SURVEY RESULTS
AREA P - FLYING TIGERS
(Concentration Values in ppb)

Grid Location		ANALYTE AND CONCENTRATION DETECTED												Total
		1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	1,1,1-TCA	Benzene	TCE	Toluene	PCE	Chlorobenzene	Ethylbenzene	m-Xylene	o-Xylene	Concentration
-135	160	--	--	--	--	--	--	--	--	--	--	--	--	0.0
-90	250	--	6.0	--	--	81.6	--	--	--	--	--	--	--	87.6
-50	100	--	--	--	--	--	13.0	--	--	33.4	--	--	--	46.4
-50	200	102.1	--	--	--	--	70.6	--	--	--	--	--	--	172.7
-50	250	--	4.9	--	--	77.3	--	--	18.0	52.2	39.4	47.6	--	239.3
-50	400	9.8	--	--	--	--	214.3	--	--	--	--	--	--	224.1
-15	300	--	4.4	--	--	--	--	8.9	--	31.0	--	--	--	44.3
0	-50	--	--	--	--	--	17.3	--	--	32.3	--	--	--	49.6
0	0	--	--	--	--	--	40.1	--	--	--	--	--	--	40.1
0	50	11.0	1.9	--	--	75.6	72.9	16.8	--	21.7	--	--	--	199.9
0	200	13.1	--	11.0	--	97.6	56.1	153.3	462.4	455.8	613.0	--	--	1862.3
50	0	52.0	107.7	5012.0	--	--	13230.0	--	--	--	--	--	820.8	19222.5
50	100	--	--	--	--	--	82.9	--	--	33.4	--	--	--	116.3
50	160	129.0	4.0	--	--	--	--	--	--	--	--	--	--	133.0
50	300	--	23.8	--	--	--	95.9	--	--	51.9	--	--	--	171.7
50	400	17.1	2.6	--	--	164.6	96.9	--	--	19.7	--	661.8	--	962.8
100	50	22.7	17.0	--	--	99.2	55.6	--	--	--	--	--	--	194.4
100	200	43.5	2.3	54.5	25510.0	3157.0	620.8	76.2	64.0	396.1	--	3313.0	--	33237.4
100	245	--	4.6	--	--	--	--	7.7	--	--	--	--	--	12.3
150	0	5.9	1.7	12.7	1111.0	138.2	84.5	28.3	--	36.8	--	26.0	--	1445.1
150	100	--	--	--	--	30.7	--	--	--	--	--	--	--	30.7
150	300	99.3	19.0	234.6	2676.0	488.5	84.4	35.0	25.9	72.3	--	--	--	3735.1
150	400	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	50	30.4	--	27.6	--	69.1	167.5	21.1	--	40.0	--	--	--	355.7
200	200	--	--	--	--	--	379.1	19.0	17.4	54.9	--	--	--	470.3
250	0	14.8	--	--	--	6.9	55.7	--	--	--	--	--	--	77.4
250	100	10.4	13.3	16.7	--	111.2	129.5	15.6	32.2	52.9	--	--	--	381.8
250	300	18.1	37.6	--	--	108.0	--	--	--	33.0	--	--	--	196.7
250	400	12.5	--	--	--	--	--	--	--	66.9	--	--	--	79.4
300	50	--	--	--	332.4	--	--	--	--	18.9	719.7	4111.0	--	5182.0
300	200	37.6	25.1	--	--	69.6	85.4	15.4	--	32.8	--	--	--	265.9
350	0	--	--	--	--	--	--	--	--	--	--	--	--	0.0
350	100	--	--	--	--	100.6	--	--	--	--	--	--	--	100.6
350	300	--	--	--	--	--	60.2	--	--	--	--	--	--	60.2
400	50	--	--	--	--	--	--	--	--	--	--	--	--	0.0
400	200	15.9	16.8	--	--	--	80.5	--	--	33.1	--	--	--	146.3
450	0	--	3.4	--	--	--	10.3	29.8	25.6	83.9	70.7	85.3	--	308.9
450	100	--	--	--	--	--	--	--	--	--	--	--	--	0.0
475	50	23.2	--	--	--	--	19.5	--	--	65.8	--	57.1	--	165.5
500	200	--	--	--	--	--	1234.0	--	--	52.0	--	--	--	1286.0

TABLE P-2

WESTINGHOUSE ELECTRIC CORPORATION
SUMMARY OF HEADSPACE RESULTS
AREA P - FLYING TIGERS AREA
(Concentration Values in ppm)

Boring Depth (Feet)	Soil Boring Location & HNU Readings							
	SB-P1	SB-P2	SB-P3	SB-P4	SB-P5	SB-P6	SB-P7	SB-P8
0-2	Bkg	30	Bkg	Bkg	3	Bkg	5	1
2-4	2	400	1	Bkg	1	Bkg	1	NR
4-6	30	400	Bkg	1	Bkg	Bkg	7	Bkg
6-8	30	30	Bkg	Bkg	Bkg	Bkg	Bkg	Bkg
8-10	3	140	Bkg	Bkg	Bkg	Bkg	Bkg	Bkg
10-12	1	400	Bkg	Bkg	Bkg	Bkg	Bkg	Bkg
12-14	1	400	Bkg	Bkg	Bkg	Bkg	Bkg	NR
14-16	Bkg	NR	Bkg	Bkg	Bkg	Bkg	NR	Bkg
16-18	Bkg	5	Bkg	Bkg	Bkg	Bkg	-	-
18-20	Bkg	7	NR	Bkg	Bkg	-	-	-

Background Represents HNU<1 ppm
NR- No Recovery

TABLE P-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUNDS
SOIL BORING SAMPLES
AREA P-FLYING TIGERS
(Concentrations in ug/kg - ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH					RSCO*
	WEC-SB-P1 2'-10'	WEC-SB-P2 2'-6'	WEC-SB-P4 4'-8'	WEC-SB-P6 0'-4'	WEC-SB-P8 4'-6'	
Volatile Organics						
Acetone	ND	ND	14	49 V	13	300
2-Butanone	ND	ND	ND	11 JV	ND	450
1,2-Dichloroethene(total)	ND	ND	ND	ND	38	450
Trichloroethene	ND	ND	ND	ND	100	1050
Toluene	ND	13000	ND	ND	ND	2250
Ethylbenzene	ND	950 J	ND	ND	ND	8250
Xylene(total)	ND	4300	ND	ND	ND	1800
Total Volatiles	0	18250	14	60	151	10000
Total Volatile TICs	167 J	17000 J	20 J	76 J	ND	10000
Semi-Volatile Organics						
2-Methylphenol	ND	110 J	ND	ND	ND	150 or MDL
4-Methylphenol	ND	160 J	ND	ND	ND	1350
Napthalene	290 J	85 J	ND	40 J	ND	19500
2-Methylnaphthalene	96 J	ND	ND	48 J	ND	50000
Acenaphthylene	ND	ND	76 J	90 J	ND	50000
Acenaphthene	330 J	ND	58 J	40 J	ND	50000
Dibenzofuran	250 J	ND	37 J	54 J	ND	9300
Fluorene	460	ND	86 J	61 J	ND	50000
N-Nitrosodiphenylamine	ND	190 J	ND	ND	ND	-
Phenanthrene	2500	70 J	790	640	ND	50000
Anthracene	630	ND	200 J	150 J	ND	50000
Carbazole	540	ND	170 J	73 J	ND	-
Di-n-Butylphthalate	ND	ND	720 B	ND	150 JS	12150
Fluoranthene	3000	96 J	1500	1700	ND	50000
Pyrene	2100	70 J	1200	1600	ND	50000
Benzo(a)Anthracene	1600	ND	840	560	ND	220 or MDL
Chrysene	1300	ND	690	660	ND	600
Bis(2-Ethylhexyl)Phthalate	45	260 JS	ND	ND	240 JS	50000
Di-n-octyl Phthalate	110	ND	ND	ND	ND	50000
Benzo(b)Fluoranthene	2200	ND	1600	1400	ND	1650
Benzo(k)Fluoranthene	ND	ND	ND	ND	ND	1650
Benzo(a)Pyrene	1200	ND	690	500	ND	61 or MDL
Indeno(1,2,3-cd)Pyrene	520	ND	160 J	170 J	ND	4800
Dibenzo(a,h)Anthracene	210 J	ND	45 J	90 J	ND	14 or MDL
Benzo(g,h,i)Perylene	330 J	ND	90 J	170 J	ND	50000
Total Semi-Volatiles	17711	1041	8952	8046	390	500000
Total Semi-Volatile TICs	9610 J	6616 J	3336 J	3305 J	969 J	50000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92)
Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE P-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF PESTICIDE/PCB COMPOUNDS
SOIL BORING SAMPLES
AREA P-FLYING TIGERS
(Concentrations in ug/kg - ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH					RSCO*
	WEC-SB-P1 2'-10'	WEC-SB-P2 2'-6'	WEC-SB-P4 4'-8'	WEC-SB-P6 0'-4'	WEC-SB-P8 4'-6'	
Pest/PCBs						
Alpha-BHC	ND	ND	ND	0.19 JPV	ND	110
Gamma-BHC	ND	ND	0.62 JP	0.23 JPV	ND	90
Heptachlor	0.83 JPV	ND	0.28 JP	0.41 JPV	ND	150
Heptachlor Epoxide	ND	ND	0.82 JP	1.3 JPV	ND	30
Endosulfan I	ND	0.46 JPV	ND	0.26 JPV	ND	1325
Endosulfan II	2.4 JPV	0.86 JPV	1.1 JP	4.5	ND	1325
Endrin	ND	0.98 JPV	ND	4.2 PV	ND	150
4,4' - DDE	ND	ND	2.1 JP	2.0 JPV	ND	2100
4,4' - DDD	ND	0.48 JPV	1.9 J	2.5 JPV	ND	2900
4,4' - DDT	3.4 JPV	ND	2.1 JP	3.2 JPV	ND	2100
Methoxychlor	13 JPV	ND	4.7 JP	5.3 JPV	ND	10000
Endrin Ketone	15 PV	ND	4.1 P	7.2	ND	--
Endrin Aldehyde	ND	1.3 JPVN	ND	4.2 PV	ND	--
Alpha-Chlordane	ND	1.4 J	ND	ND	ND	--
Gamma-Chlordane	ND	0.40 JPV	ND	ND	ND	--
Aroclor - 1260	ND	ND	ND	110 PV	ND	10000
Aroclor - 1254	ND	74 PV	ND	ND	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92)
Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE P-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SOIL BORING SAMPLES
AREA P-FLYING TIGERS
(Concentration Values in mg/kg - ppm)

ANALYTES	SAMPLE LOCATION AND DEPTH					Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soil	Conc. Range of Element in Uncont. Soils
	WEC-SB-P1 2'-10'	WEC-SB-P2 2'-6'	WEC-SB-P4 4'-8'	WEC-SB-P6 0'-4'	WEC-SB-P8 4'-6'			
Aluminum	ND	8360	9130	12000	6090	15333	33000	10000 - 300000
Antimony	ND	ND	ND	11.6 J	ND	-	0.76	0.2 - 150
Arsenic	1.7 B*	3	3.3	25.1	2 B	6.03	5	3.0 - 12.0
Barium	ND	60.1	63.3 J	1150 J	60.2 J	115	290	15-600
Beryllium	0.6 B	0.36 B	0.54 B	1.6	0.3 B	0.87	0.6	0-1.75
Cadmium	1.5 *	ND	ND	27.6 J	ND	0.32	0.6	0.1-7.0
Calcium	ND	73200	73800	24000	68700	39267	3400	130 - 35000
Chromium	15.0 V	11.6 V	12.5	48.2	9.5	18.87	33	1.5 - 40
Cobalt	ND	5.3 B	5.7 B	7.8 B	4.9 B	12.4	5.9	2.5 - 60
Copper	19.7	15.3 V	17.9	247	15.8	23.77	20	2.0 - 100
Iron	ND	13500 V	13800 J	35400 J	11800 J	26133	14000	2000 - 550000
Lead	17	11.7 V	23.6	165	10.1	17.8	14	4.0 - 61
Magnesium	ND	25500	19100	5440	25100	17333	6300	400 - 9000
Manganese	ND	440	504	473	468	761	850	100 - 4000
Mercury	ND	ND	ND	0.39	ND	ND	0.6	0.001-0.2
Nickel	13.1 N	10.9	10.8 J	34.6 J	8.3 J	24.1	40	0.5 - 60
Potassium	ND	1720	1430	1230	1340	1963	12000	100 - 37000
Selenium	4.3 BNV	ND	ND	ND	ND	ND	0.2	0.01-12.0
Sodium	ND	181 B	192 J	247 J	140 J	139.9	6300	150 - 15000
Thallium	ND	ND	ND	1.1 B	ND	0.177	-	-
Vanadium	ND	15.1	16.8	34.9	13.4	30	100	1.3 - 300
Zinc	76.6 EV	78.4 V	76.1 J	514 J	81.2 J	90.2	50	10 - 300
Cyanide	ND	ND	ND	ND	ND	-	-	-

4.16 Area Q Former Railroad Track Area/Western Parking Lot

Background

Area Q is located in the eastern/northeastern portion of the site and is bounded to the north by the Gunnery Range (Area O), to the east and northeast by a former railroad and fence line, and to the west by the Parking Lot Area (Area N). Refer to Plate 1, Areas of Investigation.

Elevated concentrations of VOCs, namely TCE, were detected in both the subsurface soil and groundwater in Area Q during the PSA. In addition, elevated concentrations of heavy metals and PCBs were detected in a surficial waste pile located in Area Q.

Purpose of Investigation

The purpose of this investigation was to delineate the extent and severity of the subsurface soil and groundwater contamination identified during the PSA. The assessment of the surficial waste piles and their potential impact to surface soil was also addressed as part of this investigation.

Scope of Investigation

Prior to intrusive sampling, a 250' x 600' grid was established which employed a staggered 100-foot spacing (refer to Figure Q-1). Soil gas samples were collected from each grid station and analyzed with the on-site GC. Refer to Section 2.1 for a complete description of soil gas survey methodologies.

Based on the results of the soil gas survey, a total of twenty-one test pits (TP-Q1 through TP-Q21) were excavated in Area Q at the locations shown in Figure Q-2 . A soil sample was collected from six of the twenty-one test pits and analyzed for TCL VOAs, BNAs and total cyanide. In addition, one overburden monitoring well (SB-Q1/MW-22) and one bedrock monitoring well (SB-S4/MW-22D) were completed. Groundwater quality and hydrogeologic data associated with these monitoring well locations is presented in Section 4.18.

A total of three waste samples were collected from selected surficial piles as shown on Figure Q-2. Also, a surface soil sample was collected adjacent to each sampled waste pile. All samples were analyzed for Full CLP parameters and total cyanide.

Soil Gas Survey

The values presented in Table Q-1 represent the VOC concentrations detected at each grid station sampled during the soil gas program. The VOCs concentrations were totaled for each sample location and were subsequently used to generate a contour map of equal VOC concentrations (refer to Figure Q-1). While VOCs were detected at a number of stations, the results indicated the presence of levels greater than 5 ppm at only one sample location, (-50,200). The type of VOCs detected at this location were predominantly TCE (14.3 ppm) with lesser amounts of 1,1-DCE, (0.033 ppm), trans 1,2-DCE, (0.003 ppm) and chlorobenzene

(0.12 ppm).

Total VOC concentrations in the 1-2 ppm range were detected at grid stations (-50,100) and (50,50) at 1.7 ppm and 1.1 ppm, respectively. In addition, there were numerous other sample locations at which total VOC concentrations were detected below 1 ppm.

Subsurface Conditions

With the exception of the area located adjacent to MW-16, fill material was encountered throughout Area Q at depths ranging from one and one-half to three feet below ground surface. The fill consisted predominantly of gravels and sands with lesser amounts of silt. Localized perched water zones were encountered within the fill at various locations throughout Area Q. The fill material encountered adjacent to MW-16 ranged in depth from two to six feet below grade and consisted of silty fine sands (refer to TP-Q8 and Q21). The depth and type of fill material encountered in this area was consistent with that observed during the PSA (refer to TP-40 and MW-16/B-24).

Glacial till was encountered beneath the fill at all locations in Area Q and was determined to extend to the top of bedrock in SB-S4. Bedrock was encountered at a depth of 37.0 ft and was comprised of a light gray, medium hard, bedded limestone. Refer to the Subsurface Logs presented in Appendix C for detailed geologic descriptions.

Air Monitoring/Headspace Results

Soil samples were collected from each test pit excavated in Area Q and headspace screening was performed using the on-site GC. The results are presented in Table Q-2 . Elevated VOC concentrations were detected at the following test pit locations: TP-Q2; TP-Q3; TP-Q7; TP-Q8, TP-Q9, TP-Q11; and TP-40, which was re-excavated during the RI program for confirmatory purposes. Total VOC concentrations detected in these test pits ranged from 13 ppm in TP-Q2 to 808 ppm in TP-40. The location of these test pits generally corresponded to the suspect areas identified during the soil gas survey. The most significant levels of VOCs were detected in the silty sand fill material located proximal to MW-16. Strong solvent odors were detected in each of the test pits excavated in this material (TP-Q21, TP-Q8 and TP-40).

It appears that the silty fine sand fill material is a source of contamination in the area although the origin of the contamination within the sand could not be determined. The permeable fill material is located in a relatively small isolated area and is surrounded by relatively impermeable native till deposits. However, the test pit program revealed that limited westward migration of the contaminants from the fill into the adjacent till unit has occurred. This is evidenced by the detected presence of VOCs within the till unit in TP-Q9, TP-Q11 and TP-Q1. The lateral and vertical extent of contamination as determined by the test pit program is presented in Figures Q- 3 and Q-4, respectively. Headspace screening with the GC indicated that TCE is the primary contaminant of concern (refer to Table Q-2), which corresponds to the results of the PSA.

Subsurface Soil Analtyical Results

A summary of the analytical results associated with the subsurface soil samples collected

from Area Q is presented on Table Q-3. VOCs were detected in each of the test pit samples at varying concentrations but only WEC-TP-Q8 exhibited levels above RSCOs. TCE was detected in WEC-TP-Q8 at a concentration of 8300 ppb. There were no semi-volatile organics or cyanide detected in any of the samples.

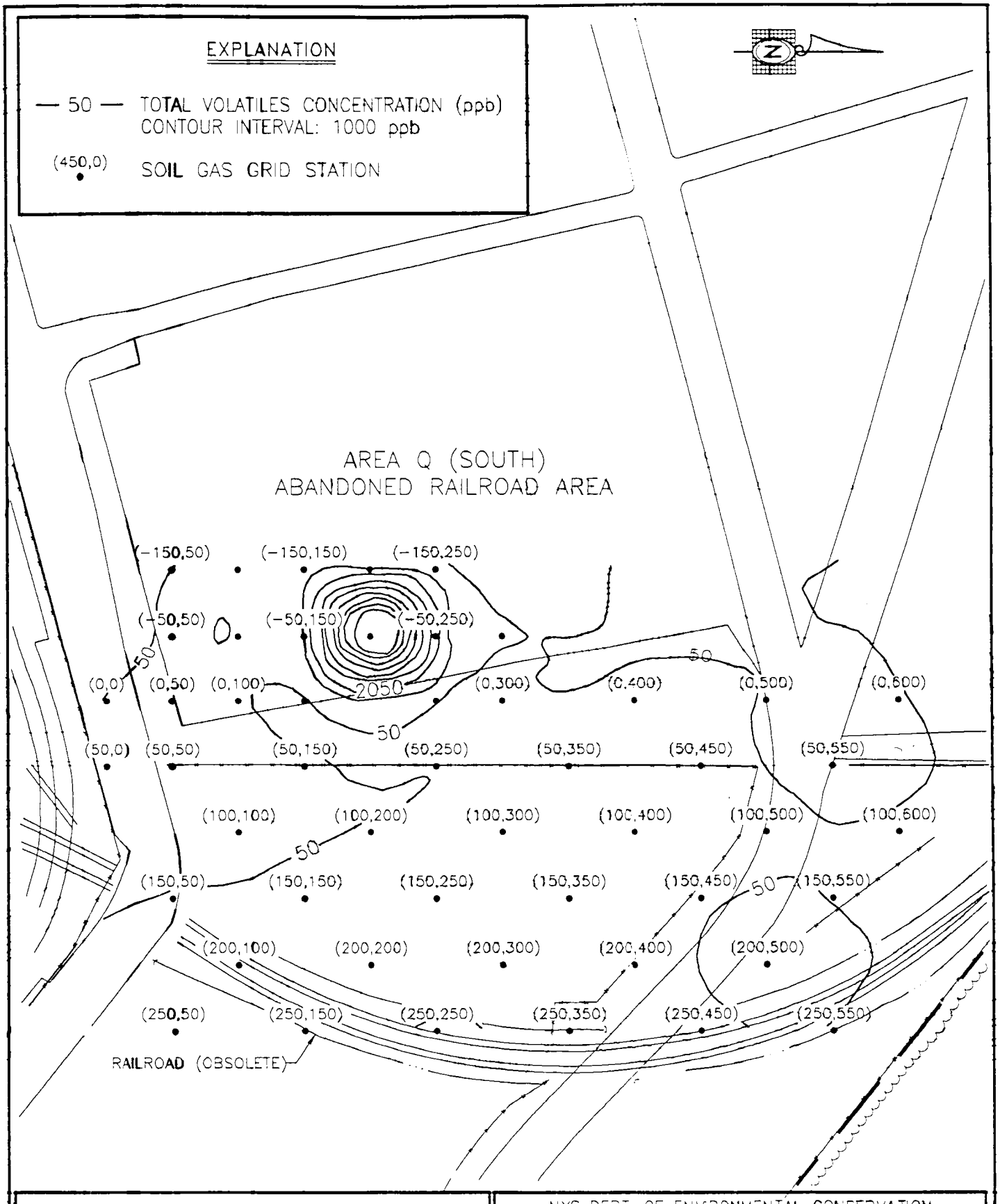
Surface Soil/Waste Analytical Results

A summary of the analytical results associated with the surface soil and waste pile samples is presented in Tables Q-4 through Q-7. There were no elevated levels of VOCs detected in either the waste pile samples or adjacent surface soil samples. Several semi-volatile organics (PAHs) were detected in each of the samples at levels exceeding RSCOs, however, the levels detected do not appear to be excessive given the industrial nature of the site. Two different PCBs (Aroclor-1254 and 1260) were detected in each of the waste pile samples and one of the surface soil samples (WES-SSQ1) at levels exceeding RSCOs for surface soil (1000 ppb). Several inorganic parameters (metals) were also detected in each of the samples collected at levels exceeding background values although the levels detected were not excessive.

Conclusions

The presence of elevated levels of VOCs (namely TCE) within the subsurface soil and groundwater (refer to Section 4.18) in Area Q has been confirmed in this investigation. The contamination appears to be confined to an isolated area of limited horizontal and vertical extent (refer to Figures Q-3 & Q-4). It is recommended that remedial measures should be performed in Area Q and that the remediation of this area should be addressed in a focused Feasibility Study.

Low levels of contaminants were detected within surficial waste piles located in Area Q. The types and concentrations of contaminants detected are not considered to be a significant environmental concern given the industrial history of the site. Given the relatively small quantity of the waste piles (est. 20 cu. yds.), it may be prudent to include the remediation of the surficial waste piles with the subsurface soil remediation.



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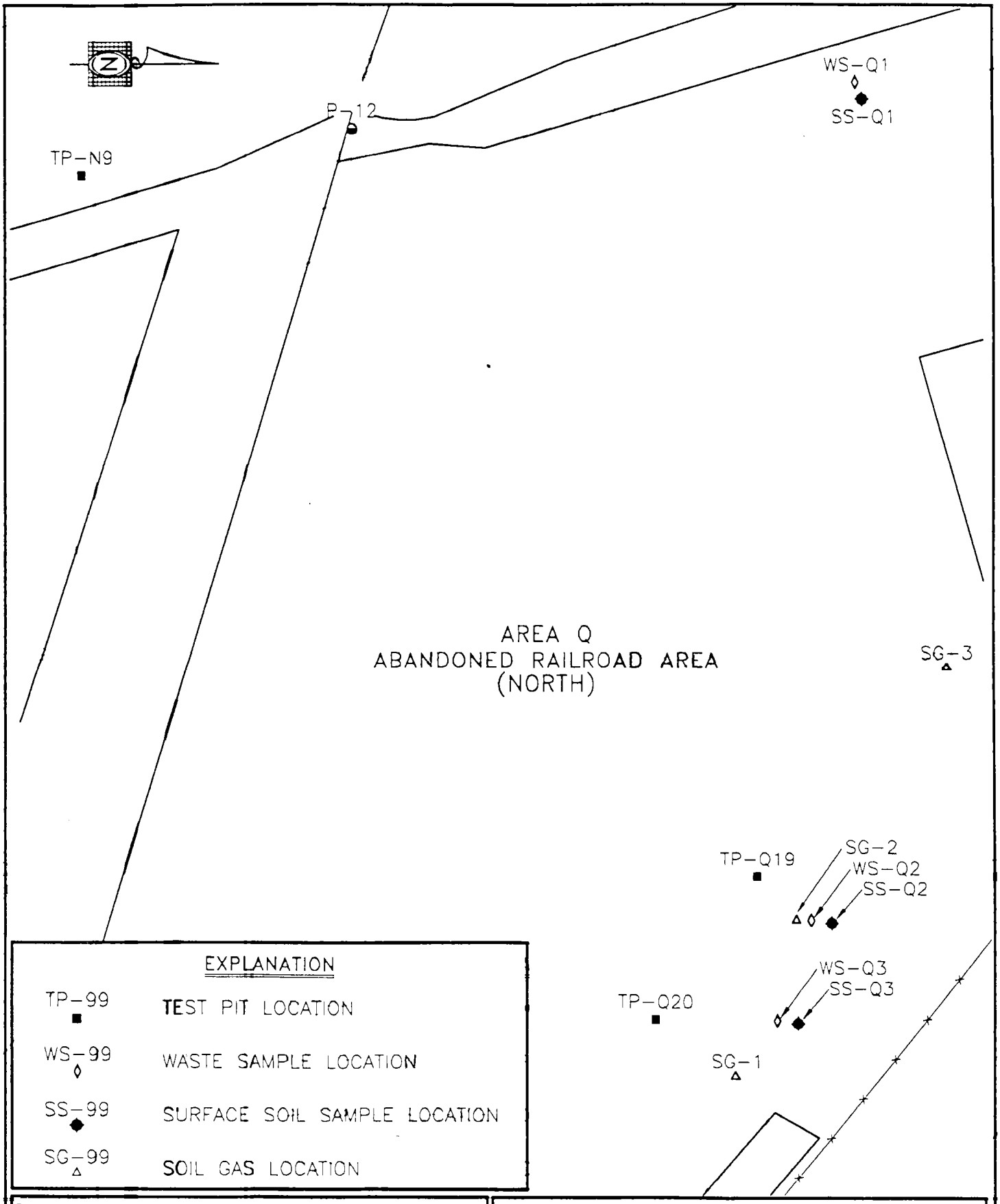
AREA Q – SOIL GAS SURVEY
CONTOUR MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO.	SCALE 1"=100'	FIGURE NO. Q-1



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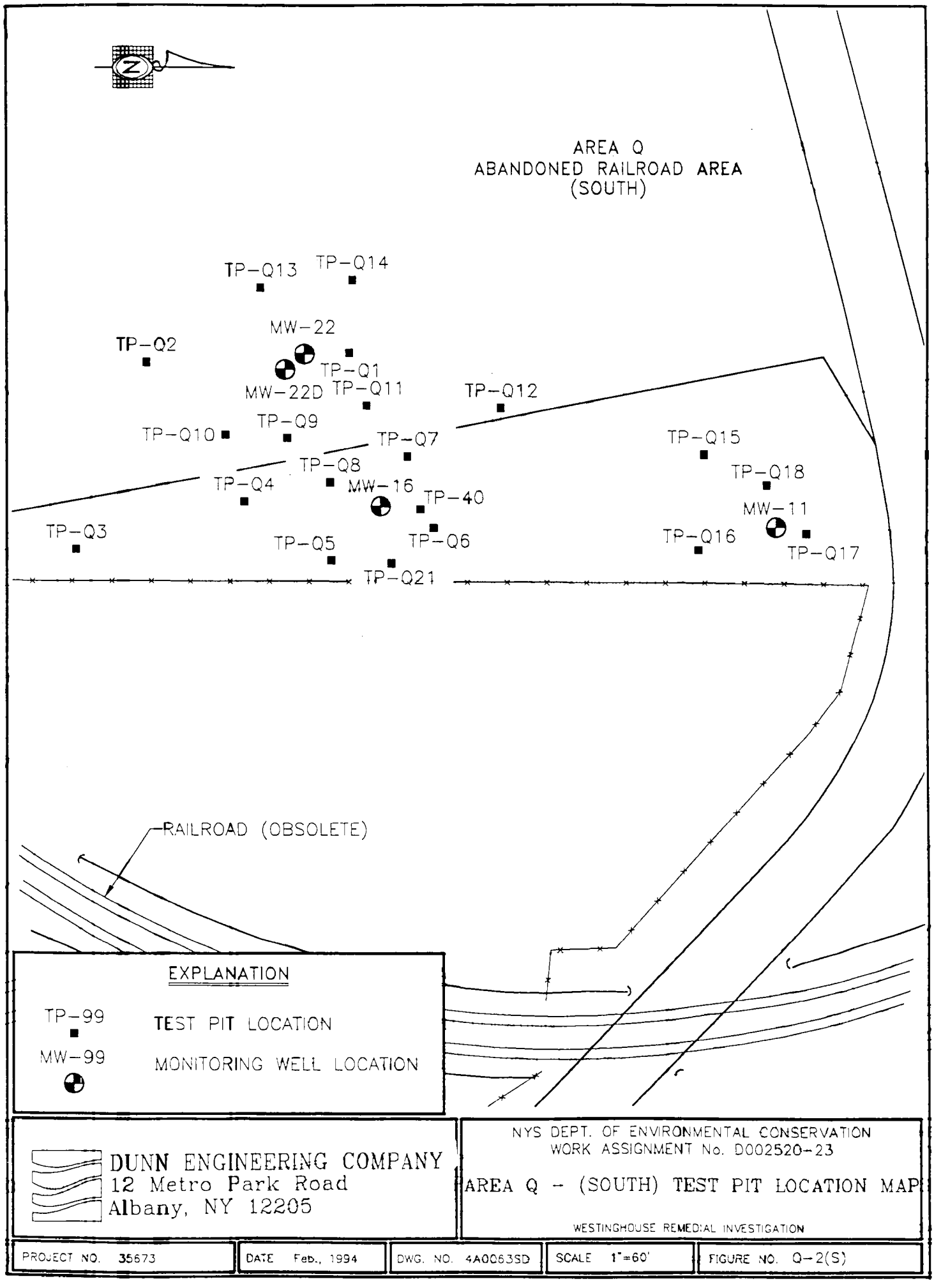
AREA Q - (NORTH) TEST PITS SURFACE SAMPLE LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Jan., 1994	4A0064	1"=50'	Q-2(N)



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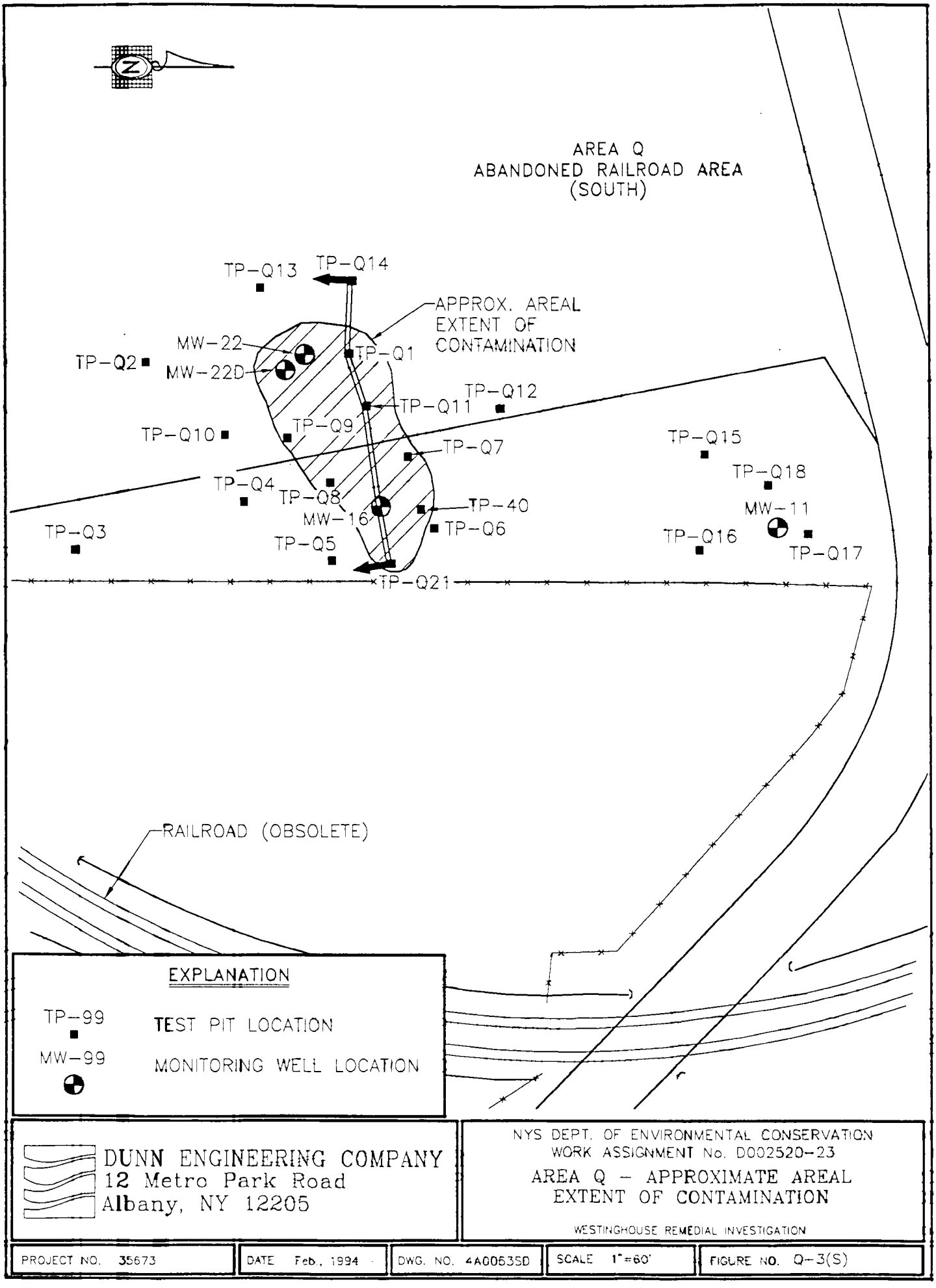
AREA Q - (SOUTH) TEST PIT LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0063SD	SCALE 1"=60'	FIGURE NO. Q-2(S)



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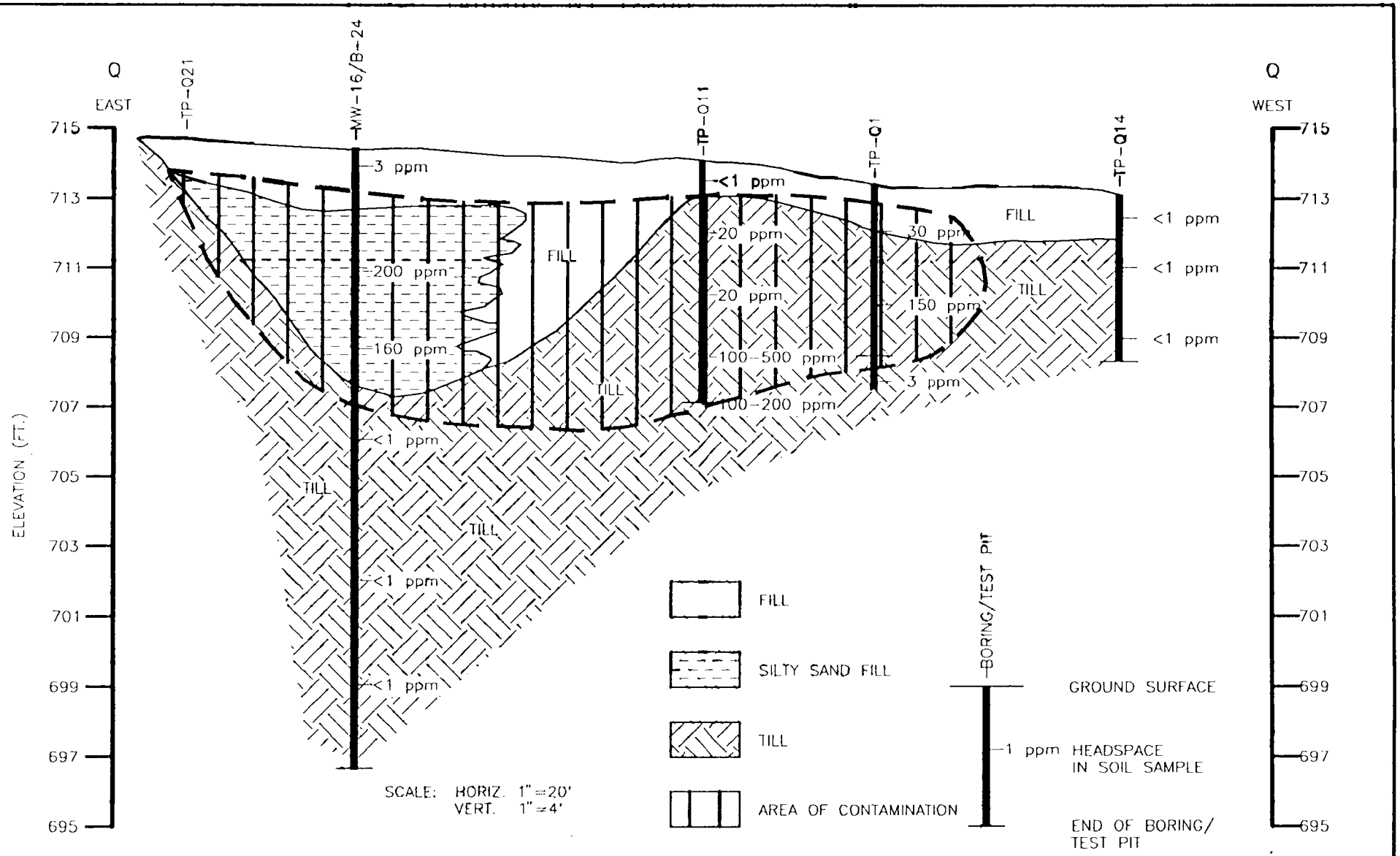
AREA Q – APPROXIMATE AREAL EXTENT OF CONTAMINATION

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A00635D	SCALE 1"=60'	FIGURE NO. Q-3(S)



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SECTION Q-Q

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb.,1994	DWG. NO. C000	SCALE As Noted	FIGURE NO. 0-4

TABLE Q-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF SOIL GAS SURVEY RESULTS
AREA Q- FORMER RAILROAD TRACK AREA
[Concentration Values in ppb]

Grid Location		ANALYTE AND CONCENTRATION DETECTED												Total
		1,1-DCE	trans-1,2-DCE	cis-1,2-DCE	1,1,1-TCA	Benzene	TCE	Toluene	PCE	Chlorobenzene	Ethylbenzene	m-Xylene	o-Xylene	Concentration
-100	50	9.2	--	--	--	--	--	--	--	--	--	--	--	9.2
-100	**100**	**21.1**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**216.9**	**--**	**238.0**
-100	150	14.0	--	--	--	--	143.3	--	--	--	--	142.4	--	299.7
-100	200	--	--	--	--	--	--	--	--	75.3	--	--	--	75.3
-100	**250**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**136.1**	**--**	**--**	**--**	**136.1**
-50	50	45.8	--	--	--	--	--	--	--	14.1	--	--	--	59.9
-50	100	--	4.6	--	--	--	1658.0	--	--	--	--	--	--	1662.6
-50	150	--	4.4	--	--	--	95.9	--	--	--	--	--	--	100.3
-50	200	33.9	3.1	--	--	--	14260.0	--	--	117.4	--	--	--	14414.3
-50	250	--	--	--	--	--	131.4	--	--	114.3	76.8	163.9	--	486.4
-50	300	--	--	--	--	--	--	--	--	--	--	284.4	--	284.4
0	0	20.0	--	--	--	--	18.7	--	--	--	--	--	--	38.6
0	50	45.6	3.6	--	--	--	219.0	--	--	--	--	--	--	268.2
0	100	--	--	--	--	--	46.3	--	--	--	--	--	--	46.3
0	**150**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**17.3**	**54.2**	**--**	**--**	**--**	**71.5**
0	**200**	**--**	**7.8**	**38.6**	**--**	**--**	**835.0**	**--**	**--**	**--**	**--**	**--**	**--**	**881.3**
0	**250**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**33.8**	**--**	**--**	**--**	**33.8**
0	**300**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.0**
0	**400**	**4.3**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**4.3**
0	**500**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**26.0**	**38.8**	**--**	**--**	**--**	**64.8**
0	**600**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**32.3**	**--**	**--**	**--**	**32.3**
0	**700**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.0**
50	0	--	--	--	--	--	319.7	--	--	--	--	--	--	319.7
50	50	8.5	--	--	--	--	172.9	--	--	47.1	--	870.4	--	1098.9
50	150	30.3	17.3	--	--	66.7	24.0	29.9	--	--	--	--	--	168.3
50	250	--	--	--	--	--	--	--	--	--	--	--	--	0.0
50	350	--	--	--	--	--	--	--	--	26.7	--	--	--	26.7
50	450	--	--	--	--	--	--	--	--	--	--	--	--	0.0
50	550	--	--	--	--	--	186.0	--	--	--	--	--	--	186.0
100	100	--	--	--	--	--	201.2	--	--	--	--	--	--	201.2
100	200	--	--	--	--	--	--	--	--	--	--	--	--	0.0
100	300	--	--	--	--	--	--	--	--	--	--	--	--	0.0
100	400	--	--	--	--	--	--	--	--	--	--	--	--	0.0
100	500	--	--	--	--	--	--	--	--	--	--	--	--	0.0
100	600	--	--	--	--	10.0	--	--	--	--	--	--	--	10.0
150	50	--	--	--	--	--	--	--	--	--	--	--	--	0.0
150	150	--	--	--	--	--	--	--	--	--	--	--	--	0.0
150	250	--	--	--	--	--	--	--	--	--	--	--	--	0.0
150	350	--	--	--	--	--	--	--	--	--	--	--	--	0.0
150	450	--	--	--	--	--	--	--	--	--	--	--	--	0.0
150	550	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	100	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	200	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	300	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	400	--	--	--	--	--	--	--	--	--	--	--	--	0.0
200	500	29.9	251.5	--	--	--	--	--	--	--	--	--	--	281.4
250	50	--	--	--	--	--	--	--	--	--	--	--	--	0.0
250	150	--	17.7	--	--	--	--	--	--	--	--	--	--	17.7
250	250	20.3	44.5	--	--	--	--	--	--	--	--	--	--	64.8
250	350	13.0	15.8	--	--	--	--	--	--	--	--	--	--	28.8
250	450	--	--	--	--	--	--	--	--	--	--	--	--	0.0
250	550	--	--	--	--	--	--	--	--	--	--	--	--	0.0
SG	#1	14.3	--	--	--	--	--	--	--	--	--	--	--	14.3
SG	#2	--	47.5	--	--	69.9	22.1	72.6	--	--	126.7	97.2	--	436.0
SG	#3	20.1	--	--	--	31.5	--	--	--	--	--	--	--	51.6
SG	#4	--	--	--	--	--	--	--	--	--	--	--	--	0.0

TABLE Q-2

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA Q-Former Railroad Track Area
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth										
	TP-Q2 4.5'	TP-Q3 5.5'	TP-Q4 5'	TP-Q5 5.5'	TP-Q6 3.5'	TP-Q7 3.5'	TP-Q8 3.5'	TP-Q9 5'	TP-Q10 5.5'	TP-Q11 5.5'	TP-Q12 4'
1,1-DCE	-	-	-	-	254.90	257.70	94.38	-	46.87	-	-
trans-1,2-DCE	55.81	-	-	-	26.98	18.78	651.00	2267.00	-	143.10	-
cis-1,2-DCE	60.49	221.60	-	-	138.70	80.27	16950.00	5129.00	-	1277.00	-
1,1,1-TCA	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	40.40	34.67	-	-	105.60	-
TCE	12880.00	15300.00	-	-	2713.00	15240.00	88190.00	26560.00	18.06	103800.00	332.40
Toluene	-	-	-	-	-	10.14	242.20	-	-	-	-
PCE	-	-	-	-	-	15.53	530.40	-	-	31.04	-
Chlorobenzene	-	-	121.80	-	-	23.78	44.79	16.53	-	-	-
Ethylbenzene	-	-	-	-	-	24.10	59.93	-	-	-	-
m-Xylene	-	-	69.51	-	-	46.56	92.74	71.20	-	66.72	66.71
o-Xylene	-	-	-	-	-	-	-	-	-	-	-
Total	12996.30	15521.60	191.31	0.00	2878.68	15754.57	107053.52	34138.11	18.06	105470.33	339.11

TABLE Q-2 (Continued)

WESTINGHOUSE ELECTRIC CORPORATION SITE
TEST PIT HEADSPACE SURVEY
AREA Q-Former Railroad Track Area
(Concentration Values in ppb)

ANALYTES	Test Pit Location and Depth							
	TP-Q13 5'	TP-Q14 5'	TP-Q15 3-5'	TP-Q16 4'	TP-Q17 4'	TP-Q18 5'	TP-Q19 3'	TP-40 4'
1,1-DCE	-	-	111.50	-	-	5.00	-	-
trans-1,2-DCE	-	-	-	-	-	-	-	2764.00
cis-1,2-DCE	-	-	-	-	-	87.88	13.99	492800.00
1,1,1-TCA	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-
TCE	-	-	21.68	-	-	1011.00	125.00	207100.00
Toluene	-	-	-	-	-	88.43	7.53	-
PCE	-	-	17.18	-	-	165.60	20.41	2967.00
Chlorobenzene	-	-	37.21	-	-	-	-	-
Ethylbenzene	-	-	57.04	-	-	-	-	32.89
m-Xylene	-	-	72.48	-	-	-	19.41	470.00
o-Xylene	-	-	-	-	-	-	-	-
Total	0.00	0.00	317.09	0.00	0.00	1357.91	187.52	808037.89

TABLE Q-3

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC AND INORGANIC ANALYTES
TEST PIT SOIL SAMPLES
AREA Q- RAILROAD TRACK AREA
(Concentration Values in ug/kg - ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH								RSCO*
	WEC-TP-Q1 4'	WEC-TP-Q1 DUPLICATE (Q1)	WEC-TP-Q2 5'	WEC-TP-Q8 3'-4'	WEC-TP-Q18 5'	WEC-TP-Q19 3'	WEC-TP-Q21 5'-6'	DUP5TP TP-Q21	
Volatile Organics									
Methylene Chloride	ND	4 BJ	ND	ND	ND	ND	ND	ND	150
Acetone	ND	3 J	ND	ND	ND	ND	ND	ND	300
1,2-Dichloroethene (total)	ND	ND	ND	51 J	ND	1 J	ND	6 J	450
2-Butanone	ND	ND	ND	ND	ND	5 J	ND	ND	450
Trichloroethene	110	150	28	8300 D	15	5 J	400	410	1050
4-Methyl-2-Pentanone	2 J	2 J	ND	ND	ND	ND	ND	ND	1500
Tetrachloroethene	**ND**	**ND**	**ND**	**7 J**	**ND**	**ND**	**ND**	**ND**	**2100**
Toluene	3 J	2 J	ND	ND	2 J	4 J	ND	3 J	2250
Total Xylenes	4 J	4 J	ND	ND	ND	ND	ND	ND	1800
Total Volatiles	119	165	28	8358	17	15	400	419	10000
Total Volatile TICs	98 NJ	330 J	ND	ND	220 J	ND	ND	ND	10000
Semi-Volatile Organics									
Total Semi-Volatiles	0	0	0	0	0	0	0	0	500000
Total Semi-Volatile TICs	3894 J	2891 J	1802 J	2355 J	413 J	2083 J	1018 J	671 J	500000
Inorganics (ppm)									
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	-

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE Q-4

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
SURFACE SOIL SAMPLES
AREA Q - RAILROAD TRACK AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION			RSCO*
	WEC-SS-Q1 ADJ. to WS-Q1	WEC-SS-Q2 ADJ. to WS-Q2	WEC-SS-Q3 ADJ. to WS-Q3	
Volatile Organics				
2-Butanone	ND	ND	3 JS	450
Trichloroethene	52	ND	ND	1050
Tetrachloroethene	2 J	ND	ND	2100
Toluene	ND	10 J	ND	2250
Total Volatiles	54	10	3	10000
Total Volatile TICs	9 J	ND	ND	10000
Semi-Volatile Organics				
Naphthalene	100 J	47 JV	45 J	19500
2-Methylnaphthalene	70J	52 JV	56 J	50000
Dimethylphthalate	220 J	ND	ND	-
Fluorene	61 J	ND	ND	50000
Phenanthrene	760 J	310 J	300 J	50000
Anthracene	150 J	ND	ND	50000
Carbazole	130J	ND	ND	-
Di-n-butylphthalate	2000	ND	48 JV	12150
Fluoranthene	2000	590	590	50000
Pyrene	1700	580	520	50000
Benzo (a) anthracene	1200	290 J	310 J	220 or MDL
Chrysene	1100	410 J	390 J	600
bis(2-Ethylhexyl)phthalate	160 J	70 J	68 J	50000
Benzo(b)fluoranthene	1500	360 J	350 J	1650
Benzo(k)fluoranthene	1300	340J	240 JV	1650
Benzo(a)pyrene	1300	280 J	250 J	61 or MDL
Indeno(1,2,3-cd)pyrene	300 J	140 J	160 J	4800
Dibenz(a,h)anthracene	130 J	50 J	44 J	14 or MDL
Benzo(g,h,i)perylene	230 J	100 J	110 J	50000
Total Semi-Volatiles	14411	3619	3481	500000
Total Semi-Volatile TICs	11510 J	16589 J	10290 J	500000
Pesticides/PCBs				
Heptachlor	8.1 JV	ND	3.0 JPV	150
Endosulfan I	16 PV	ND	ND	1325
4,4'-DDE	46 PV	12 JPV	ND	2100
Endosulfan II	15 JPV	5.3 JPV	ND	1325
4,4-DDD	20 PV	ND	ND	2900
4,4'-DDT	61 PV	29 JV	14 JV	2100
Endrin Ketone	41 PV	ND	ND	--
Endrin Aldehyde	31 PV	19 JPV	ND	--
Aroclor-1254	1200	67 J	54 J	1000
Aroclor-1260	930 PV	230 JPV	78 JPV	1000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor(Cf) of 100; Cs x Cf

TABLE Q-5

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
SURFACE SOIL SAMPLES
AREA Q - RAILROAD TRACK AREA
(Concentration Values in mg/kg- ppm)

ANALTYES	SAMPLE IDENTIFICATION AND LOCATION			Average Background Soil Conc.	Avg. Conc. of Element in Uncont. Soils	Conc. Range of Element in Uncont. Soils
	WEC-SS-Q1 ADJ. TO WS-Q1	WEC-SS-Q2 ADJ. TO WS-Q2	WEC-SS-Q3 ADJ. TO WS-Q3			
Aluminum	10500	23100	17800	15333	33000	10000 - 300000
Arsenic	5.3 N	7.1 N	4.8 N	6.03	5.0	3.0 - 12.0
Barium	110	236	185	115	290	15 - 600
Beryllium	1.5	4.1	2.9	0.87	0.6	0.0-1.75
Cadmium	36.9 E*	11.9 E*	10 E*	0.32	0.6	0.1-7.0
Calcium	207000	170000	182000	39267	3400	130 - 35000
Chromium	25.8 EN*	56.1 EN*	59.3 EN*	18.87	33	1.5 - 40
Cobalt	ND	2.9 BN*	2.1 BN*	12.4	5.9	2.5 - 60
Copper	68.2 EN*	42.7 EN*	25.3 EN*	23.77	20	2.0 - 100
Iron	14000 E	13200 E	9580 E	26133	14000	2000 - 550000
Lead	102 EN*	129 EN*	75.5 EN*	17.8	14	4.0 - 61
Magnesium	11600	18400	14900	17333	6300	400 - 9000
Manganese	957 E	2580 E	1870 E	761	850	100 - 4000
Nickel	13.3 EN*	13 EN*	10.4 EN*	24.1	40	0.5 - 60
Potassium	758 B	1750	1490	1963	12000	100 - 37000
Selenium	3.9 R	2.5 SN*	ND	ND	0.2	0.01-12.0
Sodium	424 B	582 B	572 B	139.9	6300	150 - 15000
Thallium	ND	ND	0.47 BW	0.177	-	-
Vanadium	7.3 BN*	9 BN*	7.8 BN*	30	100	1.3 - 300
Zinc	159 EN*	268 EN*	153 EN*	90.2	50	10 - 300
Cyanide	ND	ND	ND	ND	-	-

TABLE Q-6

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PESTICIDE/PCB COMPOUNDS
WASTE PILE SAMPLES
AREA Q- RAILROAD TRACK AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE IDENTIFICATION AND LOCATION		
	WEC-WS-Q1 WASTE SAMPLE	WEC-WS-Q2 WASTE SAMPLE	WEC-WS-Q3 WASTE SAMPLE
Volatile Organics			
2-Butanone	ND	ND	11 JS
Trichloroethene	1 J	4	34
Tetrachloroethene	5 J	ND	ND
Toluene	ND	19 V	7 JV
Total Volatiles	6	23	52
Total VolatileTICs	ND	14	49
Semi-Volatile Organics			
Naphthalene	ND	760 JV	530 JV
2-Methylnaphthalene	ND	590 J	ND
Diethylphthalate	1400 J	ND	ND
Phenanthrene	3800	940 J	680 J
Carbazole	470 J	ND	ND
Di-n-butylphthalate	630 J	1100 J	ND
Fluoranthene	5100V	1100 J	ND
Pyrene	5700	1800 JV	1800 JV
Benzo (a) anthracene	2500 J	840 JV	ND
Chrysene	2300 J	1300 JV	820 JV
bis(2-Ethylhexyl)phthalate	540	ND	900 JV
Benzo(b)fluoranthene	3100 J	2900 JV	1100 JV
Benzo(k)fluoranthene	3300 J	3900 JV	1000 JV
Benzo(a)pyrene	2400 J	1000 JV	730 JV
Indeno(1,2,3-cd)pyrene	990 JV	630 JV	ND
Benzo(g,h,i)perylene	850 J	630 JV	ND
Total Semi-Volatiles	33080	17490	7560
Total Semi-Volatile TICs	7090 J	29700 J	42090 J
Pesticides/PCBs			
Heptachlor	ND	ND	15 JPV
Endosulfan I	28 PV	ND	ND
4,4'-DDE	170	19 JPV	76 PV
Endrin	14 JPV	44 PV	100 V
Endosulfan II	120 PV	34 JPV	91 PV
4,4-DDD	36 PV	16 JPV	74 PV
4,4'-DDT	37 PV	82 PV	270 PV
Endrin Ketone	81 PV	ND	84 PV
Endrin Aldehyde	130 PV	50 PV	ND
Gamma -Chlordane	ND	41	150 PV
Aroclor-1254	4800 DPV	910	5200 PV
Aroclor-1260	4600 D	1700	1900 PV

TABLE Q-7

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
WASTE PILE SAMPLES
AREA Q- RAILROAD TRACK AREA
(Concentration Values in mg/kg- ppm)

ANALTYES	SAMPLE IDENTIFICATION AND LOCATION		
	WEC-WS-Q1 WASTE SAMPLE	WEC-WS-Q2 WASTE SAMPLE	WEC-WS-Q3 WASTE SAMPLE
Aluminum	3110	5040	3600
Arsenic	21.7 R	24.1 N	30.9 N
Barium	109	123	174
Beryllium	0.12 B	0.53 B	0.37 B
Cadmium	42.4 E*	57.2 E*	42.1 E*
Calcium	49700	21700	11800
Chromium	632 EN*	97.8 EN*	336 EN*
Cobalt	47 N*	10.8 N*	16.3 N*
Copper	1210 EN*	312 EN*	691 EN*
Iron	266000 E	132000 E	255000 E
Lead	1330 EN*	220 EN*	219 EN*
Magnesium	20100	5870	2890
Manganese	1570 E	876 E	1560 E
Mercury	0.85 *	0.33 *	0.15 *
Nickel	202 EN*	80.7 EN*	144 EN*
Potassium	263 B	524 B	300 B
Selenium	0.7 BN*W	3.2 +N*	1 R
Silver	8.3 N*	ND	ND
Sodium	129 B	87.2 B	133 B
Thallium	0.5 BW	ND	0.46 BW
Vanadium	37.1 N*	6.7 BN*	ND
Zinc	295 EN*	328 EN*	304 EN*
Cyanide	ND	ND	ND

4.17 Area R-Southwest Corner/Storage Tank Area

Background

Area R is located off the southwest corner of the main building structure. Refer to Plate 1, Areas of Investigation Map. Three 15,000-gallon underground storage tanks were located in this area. This tankage was reported to have been removed in 1985 (Empire 1987). No information is available concerning the products stored in this tankage.

The results of the PSA indicated the presence of low levels of semi-volatile organic compounds within the subsurface soil collected from this area.

Purpose of Investigation

The purpose of this investigation was to delineate the horizontal and vertical extent of contamination, if any, adjacent to the former USTs.

Scope of Investigation

A total of five test pits (TP-R1 through TP-R5) were excavated in this area at the locations shown on Figure R. A soil sample was collected from two of the five test pits and analyzed for TCL VOAs, BNAs and PCBs. In addition, a bedrock well (SB-S2/MW-17D) was installed in this area. Hydrogeologic and groundwater quality data associated with this monitoring well are presented in Section 4.18.

Subsurface Conditions

The subsurface investigation indicated fill was present in depths varying from two and a half feet to nine and a half feet below grade. The fill consisted predominantly of silt with fine to coarse sand and gravel.

Glacial till was encountered beneath the fill and was found to extend to the top of bedrock in SB-S2 at a depth of 42.0 feet. The till was comprised of red-brown clayey silt with embedded fine to medium gravels and coarse sands. The bedrock consisted of a cherty, slightly fossiliferous limestone. Detailed geologic logs are presented in Appendix C.

Air Monitoring Headspace Results

Organic vapor levels as measured by the HNu were not detected above ambient background levels either during the test pit excavations or monitoring well installation program.

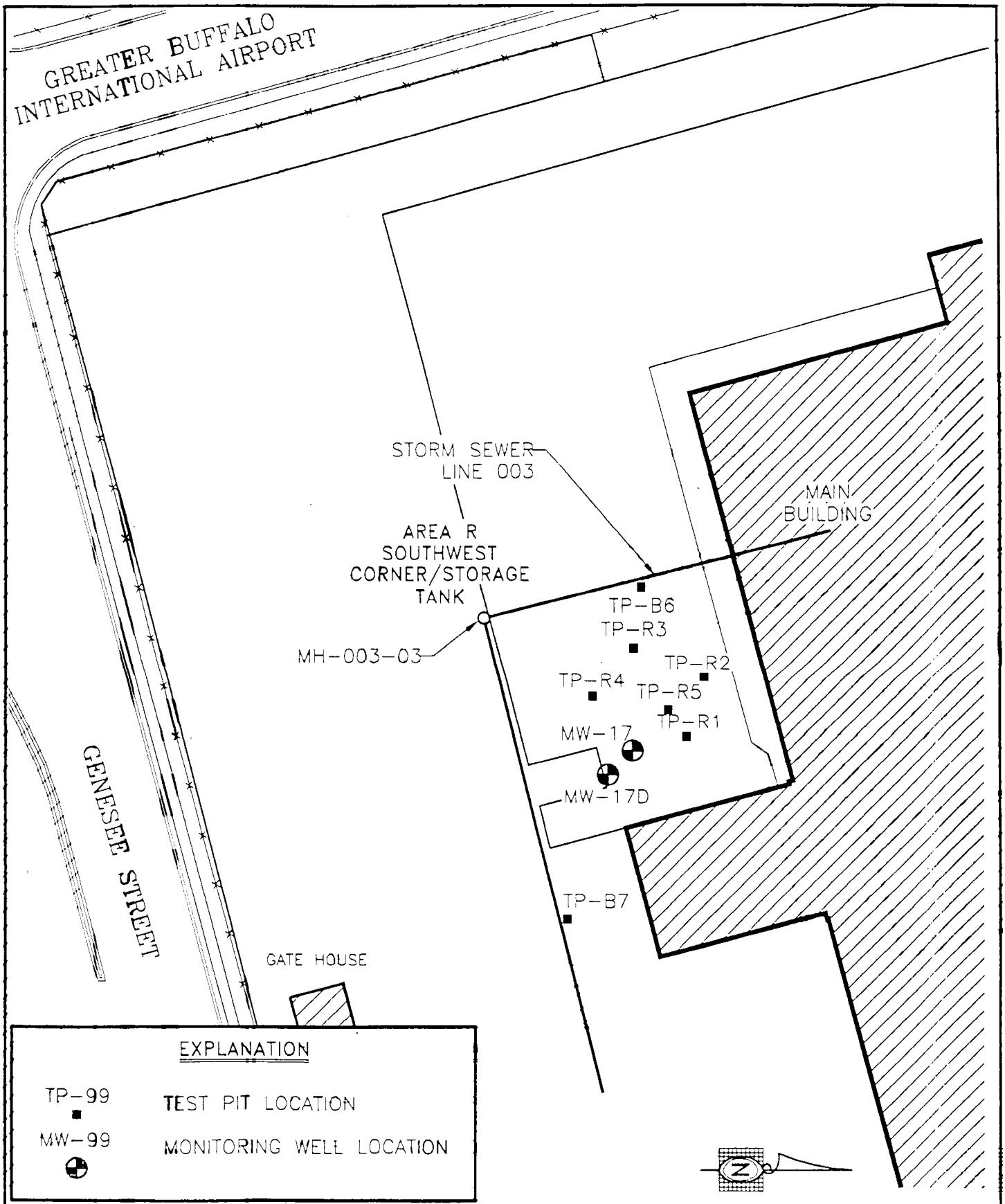
Analytical Results

A summary of the analytical results associated with the test pit soil samples collected from Area R and presented in Table R-1. Analyses of the two soil samples indicated the presence of very low concentrations of VOCs in WEC-TP-R4. Semi-volatile organic compounds were detected in the soil samples collected from WEC-TP-R3. One compound, benzo(a)pyrene,

was detected at a level slightly exceeding its RSCO. There were no PCBs detected within either soil sample.

Conclusions

The low levels of volatile and semi-volatile compounds detected in the subsurface soil samples are not considered to pose an environmental concern. No further action is recommended for this area.



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NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

AREA R – TEST PIT LOCATION MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO. 35673	DATE Feb., 1994	DWG. NO. 4A0065SD	SCALE 1"=50'	FIGURE NO. R

TABLE R-1

WESTINGHOUSE ELECTRIC CORPORATION SITE
UMMARY TABLE OF VOLATILE, SEMI-VOLATILE ORGANIC & PCB PARAMETERS
TEST PIT SOIL SAMPLES
AREA R - SOUTHWEST CORNER/ STORAGE TANK AREA
(Concentration Values in ug/kg- ppb)

ANALYTES	SAMPLE LOCATION AND DEPTH		RSCO*
	WEC-TP-R3 8'	WEC-TP-R4 10'	
Volatile Organics			
Total Xylenes	ND	9 J	1800
Total Volatiles	0	9	10000
Total Volatle TICs	ND	ND	10000
Semi-Volatile Organics			
Phenanthrene	60 J	ND	50000
Fluoranthene	110 JV	ND	50000
Pyrene	130 J	ND	50000
Benzo (a) anthracene	69 J	ND	220 or MDL
Chrysene	71 J	ND	600
Benzo(b)fluoranthene	66 J	ND	1650
Benzo(k)fluoranthene	58 JV	ND	1650
Benzo(a)pyrene	66 J	ND	61 or MDL
Indeno(1,2,3-cd)pyrene	43 J	ND	4800
Total Semi-Volatiles	673	0	500000
Total Semi-Volatile TICs	1010 J	1460 J	500000
PCBs			
All PCBs	ND	ND	10000

*RSCO - Recommended Soil Clean-up Objectives(NYSDEC TAGM - 11/92) Incorporates a Correction Factor of 100; Cs x Cf

4.18 Groundwater

Background

Evaluation of groundwater quality data obtained from the PSA investigation revealed the presence of volatile organics at concentrations exceeding groundwater standards in ten of the seventeen groundwater monitoring wells. Volatile organic concentrations ranged from non-detectable to 58,000 ppb. Constituents detected at significant concentrations consisted predominantly of vinyl chloride, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and toluene. The presence of these elevated VOCs in monitoring wells at the site indicated significant groundwater contamination in Areas P, I, J, K and Q.

Purpose of Investigation

Based on results of the PSA, piezometers, bedrock monitoring wells, and additional overburden monitoring wells were added to the existing monitoring well network during the Remedial Investigation. The additional wells/piezometers were installed to further characterize the groundwater quality in suspected or documented areas of contamination and to better define the hydrogeologic flow conditions at the site. The resulting hydrogeologic data acquired from the Remedial Investigation was used to evaluate groundwater flow directions, horizontal and vertical hydraulic gradients, aquifer permeabilities and flow velocities. Analytical data were used to assess the degree of groundwater contamination, if present, and delineate its extent in various areas across the site.

4.18.1 Overburden Groundwater

Scope

A total of five piezometers were installed in Areas I, J, and K to further define flow directions where contamination was previously detected. Three piezometers were installed in Area N, where no previous water-level data existed, and four piezometers were installed in Areas B to define overburden groundwater flow beneath the main building. Additional data was required to define the flow beneath the building due to the influence from storm sewers and building foundations. All piezometers were installed to obtain water-level data only, and were not sampled as part of this investigation. Refer to Plate Map No. 2 for piezometer locations within each area.

In addition, a total of four overburden groundwater monitoring wells were added to the existing monitoring well network. One monitoring well was added in Area Q to delineate the extent of contamination previously encountered during the PSA. Two wells were placed in Area P to evaluate the absence or presence of groundwater contamination, and one well was placed in Area M to assess the absence or presence of contamination beneath the building near Sump No. 4. The analyses performed on groundwater samples from each area were based on the previous PSA results. However, in areas in which no previous groundwater data existed (Areas P & M) Full CLP parameters were performed.

Overburden Hydrogeology

Groundwater elevation data obtained from all new and existing monitoring wells and piezometers were used to generate groundwater contour maps (overburden and bedrock, October 1993). Table 4-10 presents a summary of the monthly groundwater elevations obtained from site monitoring wells. Figure 4-2 depicts groundwater flow directions and associated hydraulic gradients in the overburden unit for October, 1993. Only the October 1993 contour map is presented because it represents the most complete water-level data set.

It should be noted that several overburden monitoring wells and piezometers were not used for groundwater contouring (P-7, P-8, MW-13 and MW-18) due to insufficient water-level recovery after piezometer installation or well sampling.

The overburden groundwater contour map (Figure 4-2) reveals the occurrence of a prominent groundwater divide trending northwest-southeast (parallel to Ellicott Creek) and which bisects the north-central portion of the site (Areas N, P, and Q). This divide represents a hydraulic barrier to groundwater flow such that groundwater north of the divide generally flows to the northeast towards Ellicott Creek, while groundwater south of the divide generally flows to the southwest, towards Genesee Street. Groundwater flow in the overburden unit is primarily controlled by local discharge zones represented by Ellicott Creek to the north and U-Crest ditch/Cayuga Creek to the south.

A significant number of anthropogenic influences exist at the site, such as sewer/utility lines, building foundations, and underground storage tank pits. These features cause localized deviations in the overall overburden flow directions. The affects of these features are indicated on the contour map (Figure 4-2) by anomolous groundwater mounds (MW-17, MW-4 and MW-5, and MW-16), groundwater depressions, sharp perturbations of contour lines (MW-7), and/or sharp changes in hydraulic gradient.

Based on the groundwater contours generated from the water-level data, the overburden hydraulic gradient ranges between 0.010 and 0.020 ft/ft. Refer to Table 4-11 for a summary of the respective hydraulic gradient determined for each region of the site. Three distinct flow regions are identified within the overburden deposits and each region has a distinctive hydraulic gradient, characteristic hydraulic conductivity and corresponding groundwater velocity. The three distinct overburden flow regions consist of the area north of the groundwater divide (northeastern portion of the site); the area south of the divide (southcentral portion of the site); and the area beneath the western portion of the building (southwest portion of the site).

Horizontal saturated hydraulic conductivities were determined for a selected number of newly installed monitoring wells using the in-situ permeability testing methods described in Section 2.7 of this report. The conductivity values calculated for the newly installed wells generally correspond with the results obtained from wells tested during the PSA investigation.

Overburden hydraulic conductivities ranged from 1.28×10^{-3} cm/sec at MW-16 to 2.15×10^{-7} cm/sec at MW-7. The anomalously high conductivity encountered at MW-16 results from the suspected fill material at this location comprised of silty fine sand. Hydraulic

conductivities of wells screened in till ranged from 2.15 x 10^{-7} cm/sec (MW-7-Area I) to 3.35 x 10^{-4} cm/sec (MW-17), with a geometric mean conductivity of 2.34 x 10^{-6} cm/sec. Table 4-12 presents hydraulic conductivity data collected during this RI as well as previously measured values.

Based on the hydraulic gradients and hydraulic conductivities obtained from groundwater contours and permeability testing, respectively, groundwater flow velocities (horizontal seepage velocity) were calculated for the overburden deposits in each specified region of the site. Flow velocities were calculated using Darcy's law and the associated characteristic hydraulic conductivity and hydraulic gradient values. The characteristic hydraulic conductivity was determined by geometrically averaging hydraulic conductivities of wells screened in till within each specified area. A conservative estimated value of 0.2 was utilized for the effective porosity of the till. The velocity calculations are presented in Appendix G.

Table 4-11 indicates that the groundwater flow velocities in the till ranged from 0.05 feet/year, immediately south of the groundwater divide, to 0.46 ft/year in the southwest portion of the site. The flow velocity north of the groundwater divide was calculated to be 0.29 ft/yr. These flow velocities are based on hydraulic parameters of wells screened in till only. Groundwater velocities within fill areas would be inherently greater.

Overburden Analytical Results

The overburden groundwater analytical results associated with the nineteen monitoring wells sampled as part of the Remedial Investigation are presented in Tables 4-13, 14, 15 , and 17. The analysis performed on each overburden groundwater sample was based on the analytical results obtained from the PSA investigation and are presented as follows:

OVERBURDEN WELLS	ANALYSIS REQUESTED
WEC-MW-1, 2	TCL VOAs
WEC-MW-3, 5, 17, 18	TCL VOAs, BNAs, & PCBs
WEC-MW-7 through 12, 15, 16, 22	TCL VOAs, & BNAs
WEC-MW-19 through 21	Full CLP + Cyanide
WEC-MW-13	TCL VOAs, BNAs, & Pesticides/PCBs

With the exception of MW-22, which was installed in an area with previous analytical data, all newly installed wells were analyzed for Full CLP parameters.

The analytical results indicate that VOCs are the most significant and prevalent contaminant detected in overburden groundwater. Volatile organic concentrations exceeded NYS Water Quality Standards in fifteen of the nineteen overburden wells sampled. Only monitoring wells MW-5 (Area C), MW-12 (Area M), MW-17 (Area R) and MW-20 (Area P) did not indicate the presence of volatile organics at concentrations above water quality standards.

The highest concentration of any VOC was detected in MW-8 (1,2-DCE @ 170,000 ppb) which is located in Area J. The most pervasive volatile organic constituent encountered was TCE, which was detected above groundwater standards in eight of the nineteen monitoring wells. The second most common volatile constituent detected was 1, 2-DCE which is a common

degradation product of TCE. Plate Map No. 3 presents an overview of the contaminated monitoring wells and their associated chemical constituents. In general, the overburden groundwater results confirmed the analytical results obtained during the PSA investigation.

There were no elevated levels of VOCs detected in MW-12 (Area M).either during the PSA investigation or the RI. However, analytical results from newly installed monitoring well MW-19 (Area M), located inside the building proximal to Sump No. 4, indicated the presence of volatile organics at concentrations exceeding NYS Groundwater Quality Standards.

The presence of elevated concentrations of VOCs in MW-21 indicates groundwater contamination in Area P, for which no previous groundwater analytical data was available. The following VOCs were detected in MW-21 at levels exceeding groundwater standards: vinyl chloride (12,000 ppb); 1,2-DCE (22,000 ppb); TCE (13,000 ppb); and 1,1,2,2 PCE (1,200 ppb).

To summarize, the RI investigation confirmed the presence of significantly elevated levels of VOCs within the groundwater in the following areas: Areas I, J, K, Q and P. In addition, elevated levels of 1,1-DCA (160 ppb) and 1,1,1 TCA (13 ppb) were detected in MW-2, which is located on the western side of the main building (refer to Plate No. 3).

Semi-volatile organics were detected at levels exceeding NYS Groundwater Standards in only two overburden monitoring wells, MW-19 (Area M) and MW-21 (Area P). MW-19 contained elevated levels of phenol (550 ppb), 2-Methylphenol (710 ppb) and 4-Methylphenol (24000 ppb). MW-21 contained elevated levels of 2-Methylphenol (24 ppb).

Analytical results for selected overburden monitoring wells indicated the presence of pesticides in two of the seven monitoring wells sampled (MW-20 and MW-21-Area P) at levels exceeding NYS Groundwater Standards. However, the levels detected are not considered excessive. PCBs (Aroclor-1260) were detected at one sample location (MW-18-Area C) at a level (5.8 ppb) significantly higher than the groundwater standard (0.10 ppb).

Inorganic (TAL Metals) analytical results of groundwater samples obtained from all newly installed overburden wells (except MW-22) indicated the presence of elevated concentrations of iron, magnesium, and sodium, which are common constituents in groundwater in this region. Only one monitoring well , MW-19 (Area M), contained a metals concentration above NYS Groundwater Standards. Cadmium was detected in MW-19 at a concentration of 14.8 ppb.

Conclusions

Hydrogeologic data obtained from overburden groundwater monitoring wells during this investigation indicated the presence of a northwest-southeast trending groundwater divide which influences overburden groundwater flow directions at the site. Based on the orientation of the divide, overburden groundwater at the site generally flows towards the northeast and southwest. As a result of the groundwater divide in the north central portion of the site and anthropogenic influences on groundwater flow in the southwestern portion of the site (003 sewerline, building foundations), three distinct overburden flow regions were identified. Northeastern, southcentral, and southwestern groundwater flow velocities in

each flow region of the site were calculated at 0.29 ft/yr, 0.05 ft/yr, and 0.46 ft/yr, respectively.

Analytical results of overburden groundwater sampling indicated that volatile organic compounds are the most prevalent contaminants in overburden groundwater at the site. VOCs were detected at levels exceeding NYS Groundwater Standards in ten of the areas of investigation. Areas identified with significant, localized volatile organic groundwater contamination likely warranting remedial action include the following:

Area I (Oil Storage Building);
Area J (Solvent Tank Area);
Area K (Hazardous Waste Storage Area);
Area Q (Railroad Track Area); and
Area P (Flying Tigers Area)

In addition, the presence of elevated levels of VOCs within MW-2 (west of main building) is an environmental concern. The groundwater flow direction in this area is to the southwest (refer to Figure 4-2), which indicates the potential for off-site migration of contaminants. Another monitoring well was recently installed in this area to determine if off-site migration has occurred. The results will be presented in the Final RI report.

Significant concentrations of semi-volatile organics were detected in Area M (MW-19). The contaminants detected correspond to the contaminants identified in Sump No. 4 during the PSA. An additional investigation was recently completed in Area M to delineate the extent of groundwater contamination and the results will be presented in the Final RI report.

4.18.2 Bedrock Groundwater

Scope

Seven bedrock monitoring wells were installed during this investigaton to determine bedrock groundwater flow conditions at the site and to ascertain the absence or presence of contamination in the bedrock aquifer. The original Work Plan stipulated the installation of six bedrock monitoring wells, however, during the course of the investigation contamination was determined to extend to the top of bedrock in Area I (refer to Section 4.8). This warranted the addition of a seventh bedrock monitoring well.

The bedrock monitoring wells were located in order to maximize the areal coverage across the site and to adequately evaluate the bedrock flow conditions and groundwater quality. In addition, the bedrock monitoring wells were located adjacent to overburden monitoring wells, or piezometers where possible, to assess the vertical hydraulic gradients between the bedrock aquifer and overburden deposits, and thereby, determine the vertical groundwater flow directions. Refer to Plate Map No. 2 for bedrock monitoring well locations. As no previous groundwater analytical results existed for the bedrock aquifer, all newly installed bedrock wells were analyzed for Full CLP parameters and total cyanide.

Bedrock Hydrogeology

The bedrock unit is generally interpreted as a leaky-confined, fractured bedrock aquifer that receives recharge (leakage) from the overlying till (confining unit). This interpretation is supported by bedrock hydraulic head elevations (Table 4-10) that extend above the base of the confining unit at all bedrock monitoring wells with the exception of MW-22D. The bedrock water-level elevation is approximately 6.5 feet below the top of bedrock in MW-22D, thus indicating that unconfined conditions exist in that area.

A bedrock groundwater contour map (potentiometric surface map) was generated from bedrock monitoring well water-level elevations presented in Table 4-10. The potentiometric surface map for October 1993 (Figure 4-3) indicates that groundwater flow in the bedrock aquifer generally flows from the east to the west-southwest. The bedrock groundwater contours generally mimmick the top-of-bedrock topography (Figure 4-4).

As depicted in the bedrock potentiometric surface map, a groundwater mound and steep hydraulic gradient is observed in Area I. The hydraulic gradient observed in this area (0.06 ft/ft) is the maximum encountered at the site and may result from the anomolously low hydraulic conductivity which causes a corresponding increase in hydraulic head (see hydraulic conductivity table below). More representative hydraulic gradients range from 0.016 ft/ft in the eastern/central portions of the site and progressively decrease to 0.003 ft/ft in the western portion of the site. The decrease in hydraulic gradient towards the west is in response to a corresponding decrease in the top-of-bedrock surface gradient and higher bedrock permeabilities, which cause a concomitant decrease in head.

Horizontal saturated hydraulic conductivity values were determined for each newly installed bedrock monitoring well as described in Section 2.7 of this report. The respective

conductivity value of each bedrock well is presented below:

Bedrock Hydraulic Conductivity Summary

Bedrock Monitoring Well	Area of Investigation	Hydraulic Conductivity (cm/sec)
WEC-MW-12D	M	2.73×10^{-3}
WEC-MW-17D	R	2.87×10^{-2}
WEC-MW-21D	P	3.10×10^{-4}
WEC-MW-22D	Q	3.20×10^{-3}
WEC-MW-23D	I	1.05×10^{-5}
WEC-MW-24D	N	1.85×10^{-2}
WEC-MW-25D	-	2.70×10^{-3}

Horizontal bedrock hydraulic conductivities range from 1.05×10^{-5} cm/sec (MW-23D) to 2.87×10^{-2} cm/sec (MW-17D) with a geometric mean conductivity of 1.70×10^{-3} cm/sec. Based on the bedrock hydraulic conductivity data, characteristic bedrock conductivities of 8.78×10^{-4} cm/sec and 8.85×10^{-3} cw/sec were determined for the eastern/central and western portions of the site, respectively. These results were subsequently used to determine the corresponding bedrock groundwater flow velocities in each region. (Refer to Appendix G for the calculations).

As indicated in the table above, the bedrock groundwater flow velocities are greater in the western portions of the site as a result of a higher permeabilities observed in that area.

Water-level data from wells occuring in clusters (overburden wells located adjacent to bedrock wells) were used to determine the vertical hydraulic gradients and direction of flow at each cluster location. Overburden/piezometer water-level elevations were subtracted from bedrock water-level elevations to obtain the vertical hydraulic head difference at each cluster. The vertical head differentials presented in the table below indicate the vertical direction of groundwater flow between the two water-bearing zones and the relative magnitude of the vertical gradients at each well cluster.

VERTICAL HEAD DIFFERENCES AT
MONITORING WELL CLUSTERS

Monitoring Well Cluster	Area of Investigation	Hydraulic Head Difference (ft)
MW-12, MW-12D	M	-34.26
MW-17, MW-17D	R	-23.79
MW-21, MW-21D	P	-28.47
MW-22, MW-22D	Q	-35.79
P-6, MW-23D	I	-9.34
P-10, MW-24D	N	39.26

The negative head differentials presented in the above table indicate an overall downward hydraulic gradient at the site in which the overburden unit recharges the underlying bedrock aquifer.

Bedrock Analytical Results

The groundwater analytical results associated with the seven newly installed bedrock monitoring wells are presented in Tables 4-16 and 4-17. Full CLP analyses were performed on all bedrock groundwater samples.

VOCs were detected at levels exceeding NYS Groundwater Standards in two of the seven bedrock monitoring wells, MW-23D (Area I) and MW-24D (Area N). MW-23D contained elevated concentrations of the following: acetone (190 ppb); 1,1-DCA (12 ppb); and TCE (9 ppb). MW-24D contained elevated concentrations of benzene (2 ppb), xylene (6 ppb), and chloroform (9 ppb).

Semi-volatile organics were also detected at levels exceeding NYS Groundwater Standards at two locations, MW-17D (Area R) and MW-24D (Area N). Phenol was detected in MW-24D at a concentration of 6 ppb. Bis-2-ethylhexylphthalate was detected in MW-24D and MW-17D at a concentration of 190 ppb and 120 ppb, respectively.

Pesticide/PCB results indicated the presence of pesticides at levels exceeding NYS Groundwater Standards at three monitoring well locations. Concentrations of 4,4'-DDT exceeded standards at MW-24D, MW-17D and MW-21D (Areas N, R and P respectively). In addition, an elevated concentration of 4-4' DDT was detected in MW-24D.

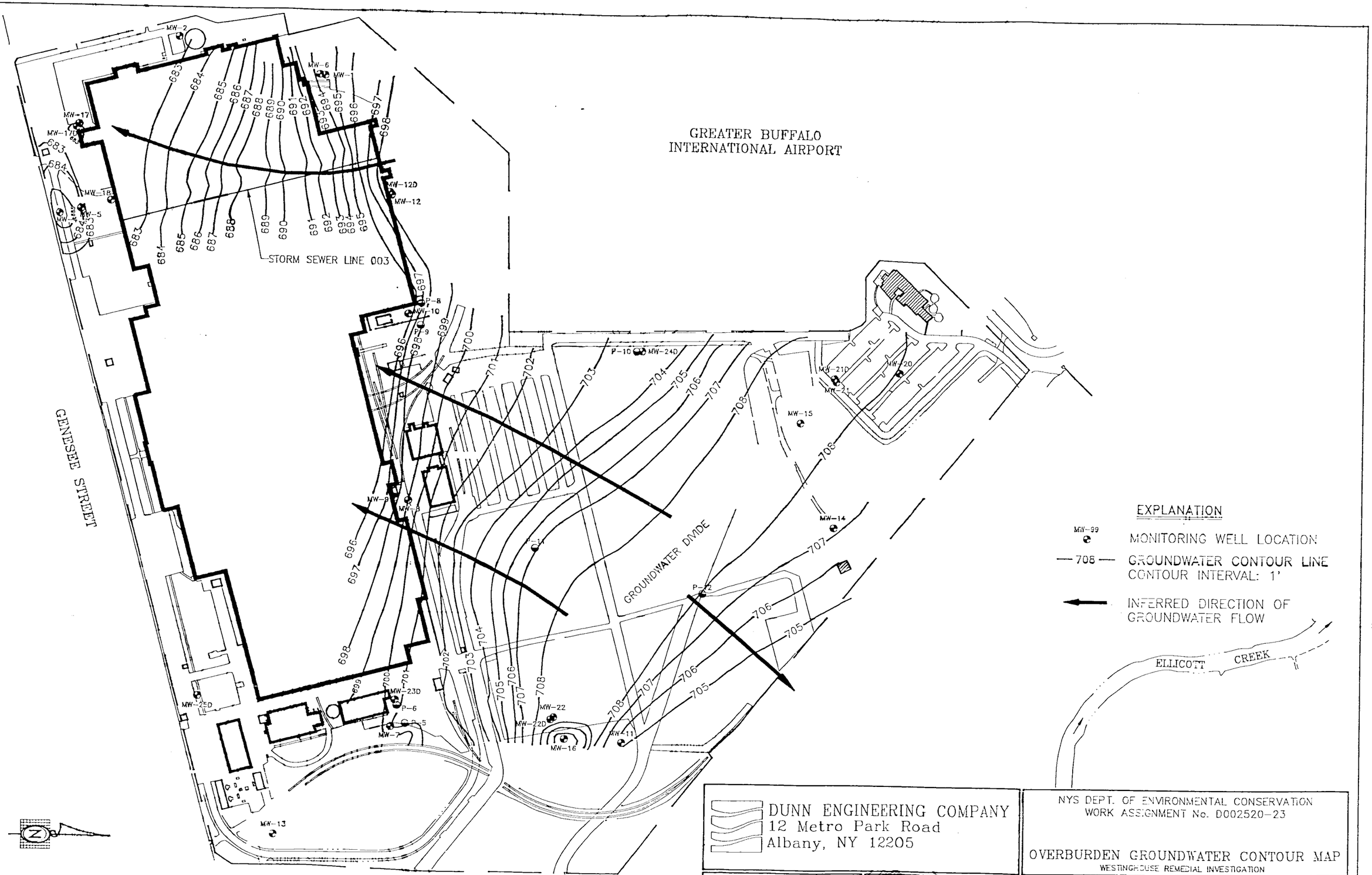
Inorganic analytical results of bedrock wells are indicated that with the exception of MW-24D, which contained elevated levels of chromium (65.6 ppb) and manganese (348 ppb), no other bedrock monitoring well location exceeded standards for any other metal constituent (excluding iron, magnesium and sodium).

Conclusions (Bedrock)

Based on hydrogeologic data obtained during this investigation, the bedrock unit can be characterized as a leaky, partially-confined aquifer that receives recharge from the overlying till confining unit under the influence of an overall downward hydraulic gradient. Groundwater flow in the bedrock aquifer is to the west-southwest at approximately 145 ft/yr to 275 ft/yr. The range in groundwater flow velocities is a result of increased bedrock conductivities in the western portion of the site.

Analytical data of bedrock groundwater indicated the presence of volatile organics, semi-volatile organics, pesticides and inorganics at concentrations exceeding NYS Groundwater Standards.

However, MW-23D which is located in Area I, is the only bedrock well that contains contaminant levels which may potentially be an environmental concern. As discussed in Section 4.8, contamination within the overburden extends to the top of bedrock and may be the source of bedrock contamination in Area I. Remedial measures should be considered for Area I to remove the source area and should be addressed in a focused Feasibility Study.



EXPLANATION

MW-99 — MONITORING WELL LOCATION

708 — GROUNDWATER CONTOUR LINE
CONTOUR INTERVAL: 1'

INFERRED DIRECTION OF GROUNDWATER FLOW

DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

OVERBURDEN GROUNDWATER CONTOUR MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb., 1993	450069SX	1"=300'	4-2

GREATER BUFFALO
INTERNATIONAL AIRPORT

GENESEE STREET

MW-2
MW-6
MW-1
MW-17
MW-17D
MW-18
MW-4
MW-5
MW-12D
MW-12
P-8
MW-10
P-9
P-10
MW-24D
MW-21D
MW-21
MW-20
MW-15
MW-14
MW-9
MW-8
P-11
P-12
MW-23D
P-6
P-7
MW-7
MW-25D
MW-22
MW-22D
MW-16
MW-11
MW-13

656 658 660 662 664 666 668 670 672 674 676 678 680 682 684 686

EXPLANATION

MW-99 — MONITORING WELL LOCATION

680 — GROUNDWATER CONTOUR LINE
CONTOUR INTERVAL: 2'

INFERRED DIRECTION OF GROUNDWATER FLOW

ELLICOTT CREEK

DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

BEDROCK GROUNDWATER CONTOUR MAP

WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Feb., 1994	4B0067SX	1"=300'	4-3

GREATER BUFFALO
INTERNATIONAL AIRPORT

GENESEE STREET

ELLICOTT CREEK

EXPLANATION

MW-99 MONITORING WELL LOCATION

656 TOP OF BEDROCK CONTOUR
CONTOUR INTERVAL: 2'

DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-23

TOP OF BEDROCK CONTOUR MAP
WESTINGHOUSE REMEDIAL INVESTIGATION

PROJECT NO.	DATE	DWG. NO.	SCALE	FIGURE NO.
35673	Nov., 1993	4E0067SX	1"=300'	4-4

TABLE 4-10

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF GROUNDWATER ELEVATION DATA

Monitoring Well	Ground Elev. (Feet)	Ref. Elev. Top of Casing (Feet)	Groundwater Elevations (Feet) Date of Measurement										
			2/28/91	4/12/91	5/5/93	6/16/93	7/15/93	8/10/93	9/13/93	10/13/93	11/17/93	12/22/93	2/2/94
MW1	703.04	705.65	--	695.01	695.25	695.05	695.05	695.06	698.05	694.75	694.93	695.15	695.10
MW2	688.39	689.26	--	682.70	683.36	683.76	682.66	680.46	681.37	682.48	683.74	683.54	684.11
MW3	688.64	688.64	--	672.40	672.84	--	672.14	673.24	672.80	672.84	671.85	672.83	672.65
MW4	688.99	691.32	--	684.74	684.72	684.92	684.22	682.85	682.46	685.11	685.33	685.70	686.41
MW5	689.58	692.77	--	686.39	686.17	685.57	685.17	685.02	685.37	684.90	686.92	686.96	687.15
MW6	697.38	704.93	--	690.00	690.63	690.33	690.63	690.56	690.58	690.40	690.20	690.38	689.94
MW7	702.10	704.96	700.24	701.29	701.44	701.46	700.36	699.55	699.28	701.27	701.28	701.48	701.57
MW8	701.90	704.14	696.88	696.97	697.44	697.64	698.34	698.76	699.14	698.98	698.79	698.77	Frozen
MW9	702.80	704.44	696.81	696.75	696.87	696.94	697.24	697.04	697.68	697.44	697.59	697.59	697.51
MW10	702.10	704.47	697.37	696.96	695.33	698.17	695.27	695.25	--	695.57	695.96	696.56	695.17
MW11	714.90	717.97	--	713.11	713.52	712.77	711.37	709.97	704.42*	705.06*	707.37*	711.25	712.47
MW12	702.30	704.67	698.47	698.53	698.37	698.42	698.47	698.31	698.33	698.23*	698.32	698.32	698.11
MW12D	702.64	704.87	--	--	--	--	--	--	663.06	663.25	663.66	663.93	664.37
MW13	707.70	710.43	706.35	705.25	702.22	700.93	704.33	699.73	687.28*	689.35*	694.19*	700.12	701.25
MW14	711.50	714.14	708.81	708.38	708.50	708.14	706.86	704.96	703.35	707.32	708.51	708.78	709.32
MW15	712.90	715.28	711.44	711.28	711.73	710.78	708.58	706.66	705.67	708.13	710.40	711.44	711.43
MW16	714.60	717.27	713.74	713.57	713.48	712.77	710.17	709.22	711.34	713.19	713.98	714.08	Frozen
MW17	686.50	688.78	685.34	683.51	683.81	683.78	682.18	682.78	683.08	683.82	684.59	684.79	684.28
MW17D	687.03	689.19	--	--	--	--	--	--	659.89	660.03	660.42	660.63	660.71
MW18	687.90	690.26	679.89	682.18	681.97	681.36	684.16	680.26	675.56*	677.79*	680.41*	682.70	683.11
MW19	702.21	702.21	--	--	--	--	684.81*	693.26*	697.49	697.99	697.33	697.44	Frozen
MW20	709.54	709.07	--	--	--	--	--	701.84*	704.02*	705.23	705.51	705.75	Frozen
MW21	711.62	711.21	--	--	--	--	--	706.41*	708.39	709.21	709.47	709.57	709.56
MW21D	711.53	711.12	--	--	--	--	711.12	706.32	680.79	680.74	681.01	680.80	Frozen
MW22	714.14	716.47	--	--	--	--	--	--	702.88*	710.30*	712.44	712.98	712.85
MW22D	714.21	716.31	--	--	--	--	716.31	716.31	674.46	674.89	675.71	677.22	676.36
MW23D	702.31	704.73	--	--	--	--	704.73	693.50	693.90	693.36	686.75	694.31	693.78
MW24D	710.14	712.39	--	--	--	--	--	--	666.02	666.21	666.79	666.99	667.36
MW25D	702.05	704.28	--	--	--	--	--	--	674.28	674.72	675.65	677.13	676.86
P-1	688.91	688.91	--	--	--	--	679.81*	682.13	682.58	682.56	682.55	682.71	682.55
P-2	702.21	702.21	--	--	--	--	688.61	688.57	688.60	688.55	688.61	688.63	688.51
P-3	702.24	702.24	--	--	--	--	--	687.40*	692.08	693.95	693.99	694.42	694.07
P-4	702.36	702.36	--	--	--	--	--	682.83*	684.41	684.83	684.89	684.96	684.88
P-5	702.38	704.83	--	--	--	--	--	697.67*	699.36	699.93	699.87	700.05	699.70
P-6	702.36	704.82	--	--	--	--	--	700.57	700.39	700.28	700.10	700.36	700.22
P-7	702.38	702.00	--	--	--	--	--	683.30	689.52	693.01	700.74**	Frozen	Frozen
P-8	702.31	704.59	--	--	--	--	--	684.32*	690.59*	695.25	696.98	697.19	696.04
P-9	702.45	704.62	--	--	--	--	--	697.22	698.23	698.27	698.38	698.96	698.65
P-10	709.95	712.47	--	--	--	--	--	--	697.38*	703.22	703.36	703.67	703.77
P-11	710.80	713.01	--	--	--	--	--	--	697.15*	707.01	706.96	707.31	706.36
P-12	712.18	714.29	--	--	--	--	--	--	696.91*	708.29	708.95	709.29	708.69

* Indicates that water level was not static

** Indicates surface water entered well

TABLE 4-11

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF OVERBURDEN HYDRAULIC PARAMETERS

Site Region	Hydraulic Gradient (ft/ft)	Characteristic Hydraulic Conductivity(cm/sec)	Seepage Velocity (ft/yr)
North of Divide(NC)	0.010	5.68E-06	0.29
South of Divide(SC)	0.019	5.50E-07	0.05
Beneath Building(SW)	0.020	4.47E-06	0.46

TABLE 4-12

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF HORIZONTAL SATURATED HYDRAULIC CONDUCTIVITIES
OF SELECTED OVERBURDEN WELLS

Monitoring Well	Area of Investigation	Stratigraphic Unit Screened	Hydraulic Conductivity(cm/sec)
WEC-MW1*	--	Fill/Till	2.00E-03
WEC-MW2*	--	Till	2.00E-05
WEC-MW4*	C	Till	1.00E-05
WEC-MW5*	C	Till	1.00E-05
WEC-MW7	I	Till	2.15E-07
WEC-MW8	J	Till	1.41E-06
WEC-MW9	J	Fill/Till	2.89E-04
WEC-MW10	K	Fill/Till	1.71E-05
WEC-MW11	Q	Till	1.18E-06
WEC-MW12	M	Till	8.70E-06
WEC-MW13	F	Till	2.69E-07
WEC-MW14	O	Till	7.57E-05
WEC-MW15	O	Till	2.05E-06
WEC-MW16	Q	Fill/Till	1.28E-03
WEC-MW17	R	Till/Fill	3.35E-04
WEC-MW18	C	Till	4.43E-07
WEC-MW19	M	Till	2.01E-06
WEC-MW21	P	Till	3.28E-07

* Denotes wells installed by Malcolm Pirnie

TABLE 4-13

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES
(Concentration Values in ug/l - ppb)

ANALYTES	OVERBURDEN MONITORING WELL IDENTIFICATION AND LOCATION										NYS GW Standard* or Guidance Value
	WEC-MW-1 --	WEC-MW-2 --	WEC-MW-3 Area A	WEC-MW-5 Area C	WEC-MW-7 Area I	WEC-MW-8 Area J	WEC-MW-9 Area J	WEC-MW-10 Area K	WEC-MW-11 Area Q	WEC-MW-12 Area M	
Volatile Organics											
Vinyl Chloride	ND	ND	ND	ND	ND	29000	ND	61 J	ND	ND	2.0
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	81 J	ND	ND	5.0
1,1-Dichloroethane	ND	160	ND	ND	ND	ND	ND	1300	ND	ND	5.0
1,2-Dichloroethene(total)	ND	ND	1 J	ND	1400 J	170000	1 J	180	ND	ND	5.0
2-Butanone	ND	ND	ND	ND	ND	6300 J	ND	ND	ND	ND	50.0**
1,1,1-Trichloroethane	ND	13	ND	ND	ND	ND	ND	310	ND	ND	5.0
Trichloroethene	ND	ND	28	ND	43000	1600 J	ND	37	130	ND	5.0
Benzene	4 J	ND	ND	ND	ND	ND	2 J	ND	5 J	ND	0.7
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	3100 J	ND	ND	ND	ND	50.0**
Toluene	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	22	ND	ND	2 J	5.0
Ethylbenzene	ND	ND	ND	ND	ND	ND	24	ND	ND	ND	5.0
Total Xylenes	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	5.0
Total Volatiles	4	175	29	0	44400	210000	63	1969	135	2	-
Total Volatle TICs	ND	8 J	ND	ND	ND	ND	ND	ND	ND	ND	-

* Represents 6NYCRR Part 703

** Represents 10NYCRR Part 5

TABLE 4-14

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF SEMI-VOLATILE ORGANIC AND PCB COMPOUNDS
GROUNDWATER SAMPLES
(Concentration Values in ug/l - ppb)

ANALYTES	OVERBURDEN MONITORING WELL IDENTIFICATION AND LOCATION										NYS GW Standard* or Guidance Value
	WEC-MW-1 --	WEC-MW-2 --	WEC-MW-3 Area A	WEC-MW-5 Area C	WEC-MW-7 Area I	WEC-MW-8 Area J	WEC-MW-9 Area J	WEC-MW-10 Area K	WEC-MW-11 Area Q	WEC-MW-12 Area M	
Semi-Volatile Organics											
1,2-Dichlorobenzene	-	-	ND	ND	ND	3 J	2 J	ND	ND	ND	4.7
2-Methylphenol	-	-	ND	ND	ND	1 J	ND	ND	ND	ND	5.0
Naphthalene	-	-	ND	ND	ND	1 J	ND	ND	ND	ND	**10.0**
Acenaphthene	-	-	ND	ND	ND	ND	3 J	ND	ND	ND	**20.0**
Dibenzofuran	-	-	ND	ND	ND	ND	5 J	ND	ND	ND	5.0
Fluorene	-	-	ND	ND	ND	ND	8 J	ND	ND	ND	**50.0**
Phenanthrene	-	-	ND	ND	ND	ND	7 J	ND	ND	ND	**50.0**
Anthracene	-	-	ND	ND	ND	ND	2 J	ND	ND	ND	**50.0**
Carbazole	-	-	ND	ND	ND	ND	9 J	ND	ND	ND	-
Di-n-butylphthalate	-	-	ND	ND	1 J	1 J	ND	ND	ND	ND	50.0
Fluoranthene	-	-	ND	ND	ND	ND	2 J	ND	ND	ND	**50.0**
Bis(2-Ethylhexyl) Phthalate	-	-	ND	ND	ND	ND	ND	ND	ND	3 J	50.0
Total Semi-Volatiles	-	-	0	0	1	6	38	0	0	3	-
Total Semi-Volatile TICs	-	-	131 J	84 J	83 J	80 J	386 J	172 J	53 J	103 J	-
PCBs											
All PCBs	-	-	ND	ND	-	-	-	-	-	-	0.10

* Represents 6NYCRR Part 703

TABLE 4-15

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE AND PESTICIDES/PCB COMPOUNDS
GROUNDWATER SAMPLES
(Concentration Values in ug/l- ppb)

ANALYTES	OVERBURDEN MONITORING WELL IDENTIFICATION AND LOCATION										NYS GW Standard* or Guidance Value
	WEC-MW-13 Area F	WEC-MW-15 Area O	WEC-MW-16 Area Q	DUP3GW MW-16	WEC-MW-17 Area R	WEC-MW-18 Area C	WEC-MW-19 Area M	WEC-MW-20 Area P	WEC-MW-21 Area P	WEC-MW-22 Area Q	
Volatile Organics											
Vinyl Chloride	ND	4 J	ND	ND	ND	ND	ND	ND	12000	ND	2.0
Methylene Chloride	ND	ND	340 BJ	ND	ND	ND	ND	ND	ND	ND	5.0
Acetone	ND	6 JS	ND	ND	ND	ND	16	ND	ND	ND	50.0
1,2-Dichloroethene(total)	ND	ND	1900 J	2000	ND	ND	2 J	ND	22000	ND	5.0
Trichloroethene	ND	ND	30000	27000 D	ND	3 J	1 J	ND	13000	30	5.0
Benzene	6 J	ND	ND	ND	ND	1 J	ND	ND	ND	ND	0.7
Bromoform	ND	ND	ND	160 J	ND	ND	ND	ND	ND	ND	50.0
4-Methyl-2-Pentanone	ND	ND	ND	1800	ND	ND	ND	ND	ND	ND	50.0**
2-Hexanone	ND	ND	ND	2500	ND	ND	ND	ND	ND	ND	50.0
1,1,2,2-Tetrachloroethane	ND	ND	ND	440 J	ND	ND	ND	ND	ND	ND	5.0
Toluene	ND	ND	ND	150 J	ND	ND	4 J	ND	1200	ND	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ND	2 J	ND	ND	ND	5.0
Ethylbenzene	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	5.0
Xylene(total)	ND	ND	ND	ND	ND	ND	79	ND	ND	ND	5.0
Total Volatiles	6	12	32240	34050	0	4	123	ND	48200	30	-
Total Volatile TICs	ND	ND	ND	1600 J	ND	ND	ND	ND	ND	ND	-
Semi-Volatile Organics											
Phenol	ND	ND	ND	ND	ND	ND	550	ND	ND	ND	1.0
2-Methylphenol	ND	ND	ND	ND	ND	ND	710	ND	24	ND	5.0
4-Methylphenol	ND	ND	ND	ND	ND	ND	24000 D	ND	ND	ND	50.0
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	1500 JD	ND	ND	ND	-
Bis(2-Ethylhexyl)Phthalate	1 JS	ND	ND	ND	ND	ND	ND	ND	ND	ND	50.0
Total Semi-Volatiles	1	0	0	0	0	0	26760	0	24	ND	-
Total Semi-Volatile TICs	160 J	113 J	40 J	4 J	178 J	10 J	1360 J	19 J	86 J	78 J	-
Pest./PCBs											
Gamma-BHC	ND	-	-	-	-	-	ND	ND	0.013 JP	-	ND
Heptachlor	ND	-	-	-	-	-	ND	0.0072 JP	ND	-	ND
Dieldrin	ND	-	-	-	-	-	ND	0.014 JP	ND	-	ND
Endosulfan I	ND	-	-	-	-	-	0.015 J	ND	ND	-	0.10
Endrin Aldehyde	ND	-	-	-	-	ND	ND	0.014 JP	ND	-	-
Aroclor-1260	ND	-	-	-	-	5.8	ND	ND	ND	-	0.10

* Represents 6NYCRR Part 703 **Represents 10NYCRR Part 5

TABLE 4-16

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF VOLATILE, SEMI-VOLATILE AND PESTICIDE/PCB COMPOUNDS
GROUNDWATER SAMPLES
(Concentrations in ug/l - ppb)

ANALYTES	BEDROCK MONITORING WELL IDENTIFICATION AND LOCATION							NYS GW Standard* or Guidance Value
	WEC-MW-12D Area M	WEC-MW-17D Area R	WEC-MW-21D Area P	WEC-MW-22D Area Q	WEC-MW-23D Area I	WEC-MW-24D Area N	WEC-MW-25D --	
Volatile Organics								
Methylene Chloride	ND	ND	1 J	ND	ND	ND	ND	5.0
Acetone	ND	ND	ND	ND	190	26	ND	50.0
1,1 Dichloroethane	ND	ND	ND	ND	12	ND	ND	5.0
1,2-Dichloroethene(total)	ND	ND	2 J	ND	ND	ND	ND	5.0
Chloroform	11	5 J	ND	ND	ND	9 J	ND	7.0
1,1,1-Trichloroethane	ND	ND	ND	ND	5 J	ND	ND	5.0
Trichloroethene	ND	ND	2 J	ND	9 J	ND	ND	5.0
Benzene	ND	1 J	ND	ND	ND	2 J	ND	0.7
Toluene	1 J	3 J	1 J	ND	ND	4 J	ND	5.0
Xylene(total)	ND	ND	ND	ND	ND	6 J	ND	5.0
Total Volatiles	12	9	6	0	216	47	0	-
Total Volatile TICs	ND	7 NJ	7 NJ	ND	21 NJ	ND	ND	-
Semi-Volatile Organics								
Phenol	ND	ND	ND	ND	ND	6 J	ND	1.0
Bis 2-ethlyhexylPhthalate	33	120	37	11	11	190	12 S	50.0
Di-n-octyl phthalate	3	7 J	2 J	ND	ND	3 J	ND	50.0
Total Semi-Volatiles	36	127	39	11	11	199	12	-
Total Semi-Volatile TICs	68 J	84 J	40 J	ND	9 J	21 J	29 J	-
Pest/PCBs								
Endosulfan I	ND	ND	0.0063 J	ND	0.0061 J	0.0078 J	ND	0.10
Methoxychlor	ND	ND	ND	ND	ND	ND	0.12 J	35.0
4,4' - DDD	ND	ND	ND	ND	ND	0.011 J	ND	ND
4,4' - DDT	ND	0.060 J	0.023 J	ND	ND	0.014 J	ND	ND
Endrin Ketone	ND	0.13 J	0.018 J	ND	ND	ND	ND	-
Endrin Aldehyde	ND	ND	ND	ND	ND	0.036 J	ND	-
Gamma-Chlordane	0.0056 J	0.0072 J	0.0084 J	ND	ND	ND	ND	-

* 6NYCRR Part 703

TABLE 4-17

WESTINGHOUSE ELECTRIC CORPORATION SITE
SUMMARY TABLE OF INORGANIC PARAMETERS
GROUNDWATER SAMPLES
(Concentration Values in ug/l - ppb)

ANALYTES	NEWLY INSTALLED MONITORING WELL IDENTIFICATION AND LOCATION										NYS GW Standard* or Guidance Value
	WEC-MW-12D Area M	WEC-MW-17D Area R	WEC-MW-19 Area M	WEC-MW20 Area P	WEC-MW21 Area P	WEC-MW-21D Area P	WEC-MW-22D Area Q	WEC-MW-23D Area I	WEC-MW-24D Area N	WEC-MW25D --	
Aluminum	104 B	86 B	519	786	700	724	925	142 B	321	126 B	-
Arsenic	3.1 J	ND	3.4 B	ND	ND	ND	ND	ND	2.5 J	ND	25.0
Barium	12 B	16 B	109 B	95 B	553	134 B	29 B	25 B	39 B	48 B	1000
Cadmium	ND	ND	14.8	ND	ND	5.6	ND	ND	ND	ND	10.0
Calcium	12200	13200	61900	142000	281000	96600	78200	138000	45700	49500	-
Chromium	ND	15.6	ND	ND	ND	4.1 B	6.4 B	ND	65.6	ND	50.0
Cobalt	ND	7.8 B	ND	ND	ND	ND	ND	5.8 B	ND	ND	-
Copper	21.6B	8.9 B	4.8 B	5.4B	8.5 B	9.2 B	7.8 B	ND	81.2	ND	200
Iron	18900	17000	1310	1600	1500	42400	3970	11900	41500	14500	300
Lead	7.4J	2.5 J	3.6J	ND	1.9 B	ND	ND	ND	3.2J	ND	15.0
Magnesium	7930	5380	48900	115000	186000	42000	31700	76000	3790 B	39300	35000
Manganese	173	180	126	139J	278J	268	38.6	142	348	134J	300
Mercury	ND	ND	ND	ND	0.72J	ND	ND	ND	ND	ND	2.0
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	17.2 B	ND	-
Potassium	22500	4440 B	6730	4590B	10600	4580 B	3300 B	5650	21200	3140B	-
Sodium	23700	33000	18400	18000	93100	39900	69300	80700	21600	76300	20000
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.9B	4.0
Zinc	18.8 B	25.9	36.8	13.7 B	22.3	18.1 B	11.3 B	12.5 B	100	15.5 B	300
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100

* 6NYCRR Part 703

5.0 SUMMARY AND CONCLUSIONS

In order to simplify the discussion of the overall findings of the Remedial Investigation, the site will be divided into two sections based on contaminated media. Operable Unit 1 encompasses subsurface and surficial soils as well as sump sediments. The following Areas of Investigation are incorporated in Operable Unit 1: Areas B, C, F, G, I, J, K, L, M, O, P, Q and R. Operable Unit 2 encompasses surface water and associated sediments. The following Areas of Investigation are incorporated in Operable Unit 2: Areas A, E and N. It should be noted that contaminated groundwater identified on-site is included within areas in which subsurface soil contamination was detected (Operable Unit 1). In addition, contaminated groundwater has been detected within and beneath the main building structure. Due to the impact this contamination may pose to the storm sewer system, groundwater will be addressed as part of Operable Unit 2.

5.1 Nature and Extent of Contamination Identified in Each Area

5.1.1 Operable Unit 1

Area B - Storm Sewer Line 003 - Bedding Material

The presence of contamination within the storm sewer line 003 bedding material was identified in this investigation. However, the contamination levels detected were neither extensive or severe and appeared to be confined to localized random areas. Based on the investigation results, it appears that the bedding material is not considered to be a significant source area for the contamination detected in storm sewer line 003. No remedial action is presently recommended with regard to the bedding material, however, should the storm sewer line be removed in the future, remedial measures may be warranted.

Area C - Electrical Manhole Sump 5A (EM Sump 5A)

Significantly elevated concentrations of VOCs and PAHs were detected within the sediment collected from EM Sump 5A. The contaminated sediments are an environmental concern, however, they do not pose an immediate threat as there is no available migration pathway. It is, therefore, recommended that remedial measures be performed in this area and addressed in a focused Feasibility Study.

Area F - Transformer Area

The results of this investigation did not indicate the presence of any significant levels of PCBs within the surface or subsurface soils in the transformer area. No further action is recommended in this area.

Area G - East Fill/Mound Area

The results of this investigation did not indicate the presence of any significant levels of contaminants within the subsurface soils in Area G. No further action is recommended in this area.

Area H - Boiler House

No activities were performed in this area during this investigation. However, it was determined that an oil spill which occurred in this area has impacted the storm sewer system (Line 001). It should be noted that no investigative activities were performed with regard to the underground fuel oil storage tanks located due east of the boiler house. Remediation of the petroleum contamination in this area should be addressed by the respective responsible party.

Area I - Oil Storage Building

Significantly elevated levels of VOCs were detected in both the subsurface soil and groundwater in Area I. The source of the contamination is confined in an isolated area associated with the former underground storage tanks. The overburden contamination in the source area was determined to extend to the top of bedrock and has impacted the bedrock aquifer. In addition, the contamination in Area I has infiltrated into the nearby storm sewer line (001) lateral and is migrating off-site.

It is therefore recommended that the source area in Area I undergo remedial action. Remedial alternatives should be addressed in a focused Feasibility Study. In addition, an IRM should be performed to "close off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.

Area J - Underground Solvent Tank Area

Significantly elevated levels of VOCs were detected in both the subsurface soil and groundwater in Area J. The source of contamination is confined in an isolated area associated with the former/abandoned underground storage tanks and and is not extensive either vertically or laterally. An additional investigation was subsequently performed to delineate the extent and severity of contamination beneath the former railroad tracks; the results will be presented in the Final RI report. It appears that the contamination in Area J has infiltrated into the nearby storm sewer line (001) lateral and is migrating off-site. It is therefore recommended that an Interim Remedial Measure (IRM) be performed in Area J to "close off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants. Remedial alternatives for the source area should be addressed in a focused Feasibility Study.

Area K - Hazardous Waste Storage Area

Significantly elevated levels of VOCs, and to a lesser extent semi-volatile organics, were detected in both the subsurface soil and groundwater in Area K. The source of contamination is confined to an isolated area associated with the abandoned underground storage tank pit and is not extensive either vertically or laterally. In addition, the contamination in Area K has infiltrated the nearby storm sewer line (002) and is migrating off-site. It is therefore recommended that an IRM be performed in Area K to "close-off" the nearby storm sewer in order to preclude any additional off-site migration of contaminants. Remedial alternatives for the source area should be addressed in a focused Feasibility Study.

Area L - Railroad Transfer/Unloading Platform

Contamination of the subsurface soil located adjacent to the former railroad transfer area has been documented in this investigation. However, the contamination detected was neither extensive or severe and may be attributed to incidental spillage near the fill port. No further action is presently considered warranted in Area L. However, it should be noted that isolated pockets of contaminated soil may be encountered if any future construction activities are conducted in Area L or along the former railroad spur.

Area M - Underground Mixing Room

Significantly elevated levels of semi-volatile organics, primarily phenolic compounds, were detected in both the subsurface soil and groundwater beneath the floor slab of the main building. The type of contaminants detected beneath the building correspond to the contaminants detected in Sump No. 4 during the PSA. It appears likely that Sump No. 4 and its associated plumbing may be a source area of contamination. In addition, it appears that the contamination in Area M has infiltrated into the nearby storm sewer line (003) and is migrating off-site. An additional investigation in Area M has been completed in order to delineate the extent and severity of contamination beneath the building. The results of the additional investigation will be presented in the Final RI report. Remedial alternatives for the subsurface soils and Sump No. 4 should be addressed in a focused Feasibility Study. It is also recommended that an IRM be performed to "close off" the nearby storm sewer lateral in order to preclude any additional off-site migration of contaminants.

Area O - Gunnery Range

The analytical results obtained during this investigation did not indicate the presence of any significantly elevated levels of contaminants in either the subsurface soils or groundwater in Area O. However, field observations, GC headspace screening results and previous analyses performed during the PSA indicate that contamination of the subsurface soil is present at levels which pose an environmental concern. Strong solvent and/or petroleum odors were encountered during the excavation of numerous test pits in Area O. The area of contamination was determined to be widespread laterally, however, the vertical extent was no greater than six feet below grade. It is recommended that remedial action be undertaken in Area O. The remedial alternatives should be addressed in a focused Feasibility Study.

Area P - Flying Tigers Area

Significantly elevated levels of VOCs were detected in both the subsurface soils and groundwater in Area P. An additional investigation in Area P has been completed in order to better define the extent of subsurface contamination; the results will be presented in the Final RI report. It is recommended that remedial action subsequently be undertaken in Area P. The remedial alternatives should be addressed in a focused Feasibility Study.

Area Q - Former Railroad Track Area/Western Parking Lot

Significantly elevated levels of VOCs (namely TCE) were detected in both the subsurface soils and groundwater in Area Q. The contamination appears to be confined to an isolated pocket

of sandy fill, which is limited in horizontal and vertical extent. It is recommended that remedial aciton be undertaken in Area Q. The remedial alternatives should be addressed in a focused Feasibility Study.

Low levels of contaminants were detected within surficial waste piles located in Area Q. The types and concentrations of contaminants detected are not considered to be a significant environmental concern given the industrial history of the site. Given the relatively small quantity of the waste piles (est. 20 cu. yds), it may be prudent to include the treatment of the surficial waste piles with the subsurface soil remediation.

Area R - Southwest Corner/Storage Tank Area

Low levels of volatile and semi-volatile organic compounds were detected in the subsurface soil in Area R. However, the levels detected were not considered to be an environmental concern and therefore no further action is recommended in Area R.

5.1.2 Operable Unit 2

Area A - Fan Room/Tunnels/Transformer Vaults

Elevated levels of TCE were detected within the water collected from the flooded tunnel located beneath the main building. It is presumed that the water in the tunnel represents groundwater which has infiltrated into the building subsequent to the termination of the operation of the building's sump pump system. Analytical results obtained from MW-3, which is located adjacent to Area A, confirmed the presence of elevated levels of TCE within the groundwater beneath the building.

Additional sampling of the flooded areas within the main building indicated the presence of elevated levels of PCBs within the water collected from four transformer vaults (TV-1, 5, 7 & 12).

The presence of contaminated water within the building poses an environmental concern due to the potential for off-site migration of contaminants through the existing storm sewer system, sanitary sewer system and/or other utility trenches. It is recommended that remedial measures should be performed in this area. The remedial alternatives should be addressed in a focused Feasibility Study.

The decommissioning of the transformers within the vault areas should be addressed by the respective responsible parties.

Area E - Storm Sewer System/Sanitary Sewer System/U-Crest Ditch

Elevated levels of contaminants were detected throughout the storm sewer system (lines 001, 002 & 003) in both surface water and sediment. Several source areas were identified in this investigation which contributed contaminants to the storm sewer lines. Area I (Oil Storage Building) and Area J (Under Solvent Tank Area) were identified as contaminant source areas which have impacted line 001. Area K (Hazardous Waste Storage Area) was identified as a contaminant source area which has impacted line 002. There were no significant contaminant source areas identified as having impacted line 003, although Area M (Underground Mixing Room) was determined to have a limited impact.

It is apparent from the results of this investigation that surface water discharges from the Westinghouse site are adversely impacting environmental conditions in the U-Crest ditch. The types of contaminants (VOAs, PAHs & Metals) detected in the surface water and sediments of the U-Crest ditch correspond to the contaminants identified within the storm sewer system. Remediation of the sediments within the U-crest ditch and its associated discharge lines is recommended and should be addressed in a focused Feasibility Study.

This investigation also confirmed the presence of contamination (VOAs, metals & PCBs) within the surface waters of the sanitary sewer lines.

In the long term, it is recommended that the storm/sanitary sewer systems should be remediated and/or decommissioned in order to prevent continued off-site migration of contaminants within the surface water. Remedial alternatives should be addressed in a

focused Feasibility Study. In the short term, it is recommended that an IRM be performed to "close off" the storm sewer line laterals which have been identified as significant contributors of contaminants to the main sewer lines.

Area N - Parking Lot Area/North Storm Sewer System/Ellicott Creek

There were no significant levels of contamination detected in the subsurface soil in the parking lot area. In addition, there were no significantly elevated levels of contaminants detected in the north storm sewer drainage system in either the surface water or sediments. Finally, there was no evidence to indicate that storm water discharge from the northern storm sewer system has adversely impacted Ellicott Creek. Therefore, no further action is recommended in any portion of Area N.

5.2 Summary of Recommendations

This section presents a summary of the recommendations made for each of the various Areas of Investigation. The recommended courses of action are based on the findings of the Remedial Investigation as well as previous investigations.

The following areas are not considered to pose an environmental concern and therefore no further action is presently considered warranted:

Operable Unit 1:
- Area B - Storm Sewer Line 003 - Bedding Material
- Area F - Transformer Area
- Area G - East Fill/Mound Area
- Area L - Railroad Transfer/Unloading Platform
- Area R - Southwest Corner/Storage Tank Area

Operable Unit 2:
- Area N - Parking Log Area/North Storm Sewer System/Ellicott Creek

It has been determined that several areas have adversely impacted the storm sewer system which has resulted in the off-site migration of contaminants in the surface water. Interim Remedial Measures (IRMs) should be performed in the following areas in order to preclude the continued off-site migration of contaminants:

- Area I - Oil Storage Building
- Area J - Underground Solvent Tank Area
- Area K - Hazardous Waste Storage Area
- Area M - Underground Mixing Room

The following areas are considered to pose a significant environmental threat to human health and/or the environment and remedial alternatives for these areas should be addressed in focused Feasibility Studies:

Operable Unit 1:
- Area C - Electrical Manhole Sump 5A
- Area I - Oil Storage Building
- Area J - Underground Solvent Tank Area
- Area K - Hazardous Waste Storage Area
- Area M - Underground Mixing Room/Sump No. 4
- Area O - Gunnery Range
- Area P - Flying Tigers Area
- Area Q - Former Railroad Track Area/Western Parking Lot

Operable Unit 2:
- Area A - Tunnels/Transformer Vaults (Groundwater Within the Building)
- Area E - Storm/Sanitary Sewer Systems/U-Crest Ditch Groundwater

It should be noted that a Phase II RI program was completed in order to delineate the extent

of subsurface contamination in the Flying Tigers' parking lot (Area P), beneath the main building (Areas A and M), and along the former railroad tracks (Area J).

Given the past heavy industrial use of the facility and the documented presence of numerous manufacturing process-related features (e.g., catch basins, scale bits, oil/grease pits, collection sumps, tanks) within and beneath the main building structure, it can be assumed that subsurface contamination may exist at various localized portions of the building. In consideration of this possibility, the area beneath the building structure may be a source area for contamination.

The remediation of the petroleum contamination detected in Area H - Boiler House as well as the decommissioning of the transformers within the main building will have to be addressed by the respective responsible parties.

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7.0 GLOSSARY OF TERMS

ASTM -American Society for Testing and Materials

BACA -Buffalo Airport Center Associates

Cd -Cadmium

DCA -Dichloroethane

DCE -Dichloroethene

D&M -Dames & Moore

DUNN -Dunn Engineering Company

ECDEP -Erie County Department of Environment and Planning

ECIDA -Erie County Industrial Development Agency

ERM -Environmental Resources Management-Northeast

Full CLP ParametersTarget Compound List Volatile Organic Analyses (TCL VOA); TCL Base Neutral Acid Extractables (TCL BNA); TCL PCBs/Pesticides; Target Analyte List Metals (TAL Metals).

FS -Feasibility Study

HASP -Health and Safety Plan

HNU -Brandname of Photoionization Organic Vapor Meter

IRM -Interm Remedial Measure

MCL -Maximum Contaminant Level

MS/MSD -Matrix Spike/Matrix Spike Duplicate

MW -Designation for Monitoring Well Locations

NFTA -Niagara Frontier Transportation Authority

NYCRR -New York Codes, Rules and Regulations

NYSDEC -New York State Department of Environmental Conservation

NYSDEC-ASP-CLP New York State Department of Environmental Conservation-Analytical Services Protocol-Contract Laboratory Protocol

NYSDOH -New York State Department of Health

NYS TOGS -New York State Technical Operations Guidance Series

NTU -Nephelometric Turbidity Units

NUS -Nuclear Utility Service Corporation

PAHs -Polynuclear Aromatic Hydrocarbons

PCBs -Polychlorinated Biphenols

pH -Unit of Hydrogen Ion Concentration

ppm -Parts per Million (also ug/g; mg/l; mg/kg)

ppb -Parts per Billion (also ug/l; ug/kg)

PSA -Preliminary Site Assessment

PVC -Polyvinyl Chloride

RSCO -Recommended Soil Cleanup Objectives

QAPP -Quality Assurance Project Plan

QA/QC -Quality Assurane/Quality Control

RI -Remedial Investigation

SB -Designation for Soil Boring Locations

SP -Designation for Sump Locations

SS -Designation for Surface Sample Locations

TAL -Target Analyte List

TCA -Trichloroethane

TCE -Trichloroethene

TCL -Target Compound List

TICs -Tentatively Identified Compounds

TOC -Total Organic Carbon

TP -Designation for Test Pit Locations

USEPA -United States Environmental Protection Agency

VC -Vinyl Chloride

VOA -Volatile Organic Analyses

VOC -Volatile Organic Compounds

WEC -Westinghouse Electric Corporation Designation for Site Location on All Samples

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