Report for

Niagara Mohawk Power Corporation

300 Erie Boulevard West
Syracuse, New York 13202

Final

Preliminary Site Assessment/ Interim Remedial Measures Study for Troy (Water Street), New York (Area 2)

October 12, 1995

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GTI Project 011100037

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EXECUTIVE SUMMARY

Site Background

Area 2 of the Water Street manufactured gas plant (MGP) site is approximately 33 acres in area and is located in the City of Troy, Rensselear County, New York. The site had been used for the production of coke, steel, iron, and coal gas since 1849. In 1925, coke and water gas production from the Water Street facility for public use was begun by the Hudson Valley Coke and Products Corporation. In 1950 Niagara Mohawk Power Corporation (NMPC) was formed from the merger of several companies. NMPC operated the coke plant at this site from 1950 to 1951 at which time the plant was sold to Republic Steel. Republic Steel operated the coke plant until the 1960s. A majority of the site was sold by Republic Steel to King Fuels in the 1960s. Since then, King Fuels has operated a gasoline and fuel distribution company at the site.

Preliminary Site Assessment

In December 1992, NMPC signed an Order on Consent (Index No. DO-0001-9210) requiring them to investigate and, where necessary, to remediate environmental impacts resulting from the operation of the former MGP. A Preliminary Site Assessment/Interim Remedial Measures (PSA/IRM) study was conducted from July 1994 through February 1995 to identify potential site impacts from the former MGP operations.

Analyses for metals, cyanide, pesticides, polychlorinated biphenyls (PCBs), volatiles, and semivolatiles were conducted for groundwater, surface soils, subsurface soils, and Wynants Kill sediment and surface water samples.

Objectives

In accordance with the Order on Consent, the objectives of the Water Street PSA/IRM study were to collect sufficient environmental data to facilitate a preliminary evaluation of the following:

- the nature and presence of hazardous substances, including MGP by-products on-site
- whether such substances constitute a significant threat to public health or the environment
- the possible need for additional investigation

- the appropriateness of one or more interim remedial measures (IRMs) because of the nature and extent of MGP residuals and other contaminants found at the site

Hydrogeological Results

The results of the soil screening and classification performed during soil boring/monitoring well installations indicated that a majority of the surficial soils at the site have been disturbed through excavation, filling, or grading operations. The thickness of fill, which consists primarily of slag, cinders, ash and gravel, ranges from approximately 5 feet on the eastern portion of the site, to approximately 40 feet on the western portion. Below the fill, the overburden soils on site consist of interbedded alluvial, glacial outwash and glaciolacustrine deposits, with sporadic layers of glacial till. These unconsolidated deposits are underlain by shale bedrock.

Groundwater was found within the lower portions of the fill at depths from approximately 18 to 31 feet below grade.

Surface Soils Investigation Results

Thirteen surface soil samples were collected for laboratory analysis of volatiles, semivolatiles, metals, cyanide, pesticides, and PCBs. No pesticides, PCBs, volatile organics, or total semivolatile organics were detected above the NYSDEC guidance criteria. Although an investigation of background concentrations of metals in surrounding soils was not completed as part of the PSA, zinc was the only metal detected at concentrations exceeding published values for typical eastern USA soils.

Subsurface Soils Investigation Results

Sixty-nine subsurface soil samples were collected from five test pits, 10 soil borings, and five monitoring wells. Volatile compounds detected ranged from below detectable levels to 45 milligrams per kilogram (mg/kg) total volatiles. Total semivolatiles ranged from approximately 0.1 mg/kg to 185,340 mg/kg (inside a suspected tar well). Naphthalene, phenanthrene, pyrene, and fluoranthene appear to be the semivolatile compounds present in the highest concentrations.

Sediment Soils Investigation Results

Sampling of the Wynants Kill sediments indicated the presence of low concentrations of three pesticides: dieldrin, endrin, and endrin ketone. No PCBs were detected in either of the sediment samples. Toluene at 0.007 mg/kg was the only volatile compound detected. Approximately 1,716 mg/kg total semivolatiles were detected in the upstream sample, while 392 mg/kg were detected downstream.

Groundwater Investigation Results

Groundwater on site is not used as a potable water source. The two groundwater sampling events indicated that no semivolatile compounds, with the exception of phenol at the location of MW-4 (0.023 milligrams per liter [mg/L]), and only low concentrations of volatile organic compounds were detected. Pesticides and PCBs were not detected at any of the groundwater sampling locations.

Surface Water Investigation Results

No semivolatile organic compounds were detected above the NYSDEC Class C surface water standards in either the upstream or the downstream water samples. The only volatile organic detected was acetone, a suspected laboratory artifact in the downstream water sample. Additionally, pesticides and PCBs were not detected at either of the surface water sampling locations.

Preliminary Risk Evaluation

The potential for exposure of on-site workers and hypothetical future construction workers to subsurface soils was calculated based on information collected. The results show that the potential cancer risk to daily workers and construction workers are within the USEPA's target risk range of 10^{-4} to 10^{-6}. The potential non-cancer hazard indices are also below USEPA threshold values.

Fish and Wildlife Habitat Assessment — Step 1

Based on their locations and distances from the site, any state-regulated wetlands and rare plant locations would be unaffected by site-related activities. Any lack of plant or animal species appeared to be related to the lack of habitat, or the high level of physical disturbance and human activity, rather than industrial residuals.

Recommendations

Using existing information, the chemical nature of the site does not appear to pose an imminent danger to current workers, potential future construction workers, or wildlife. These data support the conclusion that IRMs are not warranted and that any future remediation should be completed in recognition of current and intended uses of the site. Potential IRM activities that are recommended include only non-emergency activities aimed at preventing further chemical impacts to the environment from existing site conditions.

Two IRMs have been identified which fit into this category. These potential IRMs include:

- analysis and removal of the contents of a 300,000 cubic feet gas relief holder
- closure of a suspected tar well

A focussed remedial investigation/feasibility study is necessary to fill site characterization data gaps and to evaluate the need for remedial measures.

Report Organization

A description of the PSA/IRM's purpose and objectives, along with the site history and location is included in section 1.0. A detailed description of the scope of work completed is included in section 2.0, with the results presented in section 3.0. A summary of the preliminary risk evaluation and fish and wildlife impact analysis reports are included in section 4.0. These full reports are included as attachments in the appendixes. Section 5.0 discusses observations made during field activities which represent contemporary site conditions not investigated as part of the PSA. Sections 6.0 and 7.0 discuss the two proposed IRMs and the conclusions that can be made from the data collected, respectively.

Because of the extent of the data collected, all data tables are included in the appendixes.

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APPENDIXES

1.0 INTRODUCTION

1.1 Purpose and Objectives

The objective of the PSA/IRM study undertaken at the King Fuels portion (Area 2) of the Water Street site was to collect sufficient environmental data to present a preliminary evaluation of the following:

- the presence and nature of hazardous substances, including MGP residuals
- whether such substances constitute a significant threat to public health or the environment
- the possible need for additional remedial investigation at the site
- the appropriateness of one or more IRMs because of the nature and extent of MGP residuals and other contaminants detected at the site

The scope of work completed to accomplish these objectives included the installation of test pits, soil borings, and monitoring wells, and the collection and analysis of soil and water samples from the surface and subsurface. Specific tasks completed during the PSA/IRM investigation are described below in section 2.0.

1.2 Site Location

The former Water Street MGP site is located adjacent to both the east and west banks of the Hudson River. The portion of the site located along the east bank of the river is located both in the City of Troy and the Town of North Greenbush, Rensselaer County, New York. The portion of the site located along the west bank is located in the Village of Menands, Albany County, New York. Figure 2-1, Site Location Map, identifies the general site location (USDOT, North Troy Quadrangle). This map, along with all maps and figures included in this PSA report, are located in the Figures appendix. The site comprises approximately 220 acres of land which border more than 2,000 feet of the Hudson River shoreline. Based on site-specific issues related to obtaining access from the current property owners, the New York State Department of Environmental Conservation (NYSDEC) in a letter received by NMPC on November 29, 1994, has granted permission to divide the site into four study areas. For the purposes of conducting the PSA/IRM investigation program, each area is being addressed as an individual project. A description of these individual areas include the following:

- **Area 1:** Includes the former island located on the west bank of the Hudson River formerly known as Breaker (Hillhouse) Island. This parcel is located in the Village of Menands and is approximately 111 acres in size. Most of the former island is occupied by an interchange of the Troy-Menands Bridge and Interstate Highway 787. NMPC currently has an easement on the property for accessing an existing gas pipeline valve station. A bike path constructed on this parcel in the 1980s lies between the highway and the river. This parcel contains the location of a former casting plant and a possible MGP residuals disposal area.

- **Area 2:** Area 2 is bordered by the Hudson River to the west, the New York Central Railroad to the east, the Chevron USA, Inc. (Chevron) property to the south. Area 2 extends approximately 50 feet north of a 2 million cubic feet gas holder, which is located just north of the Wynants Kill. This area of the site is currently owned by King Fuels, Inc. (King Fuels), a heating oil and gasoline distributor, and is the primary location of the former MGP facility. Within this area, NMPC owns a parcel of land, just south of the Wynants Kill confluence with the Hudson River, approximately 0.5 acre in size which contains a gas regulator station. Area 2 is approximately 33 acres in area with much of the site covered with pavement and buildings. Some unpaved areas are located along the river. Many of the buildings and tanks from the former MGP remain and several are currently in use by King Fuels. The local school district stores their school busses in a large parking area adjacent to the Hudson River. A beverage storage and distribution company occupies a facility just to the northeast of the parking area.

- **Area 3:** Includes the portion of the site located on the east side of the Hudson River situated under and south of the Troy-Menands Bridge. This 11-acre area is currently owned by Chevron and is operated as an asphalt batch plant and petroleum storage facility. This area was previously owned by the Barrett Company, a division of Allied Chemical and Dye Corporation which used, as one of its operations, coal by-products from the adjacent MGP facility for reprocessing and commercial sale. The property is bounded by the Hudson River to the west, the railroad to the east, and the King Fuels property to the north.

- **Area 4:** The southernmost area of the site is located approximately 0.5 mile south of the Troy-Menands Bridge in the Town of North Greenbush. A small portion of the northern end of the site is located within the City of Troy. This area of the site is currently owned by the Rensselaer County Sewer District and consists of a suspected disposal area. The site is bounded to the west by the Hudson River, to the east by the New York Central Railroad, to the south by the Rensselaer County Sewer District treatment facility, and to the north by the Chevron property. The site is an elongated hill that rises approximately 20 feet from the road, cresting quickly before dropping steeply to the shore of the Hudson River.

The four areas that constitute the Water Street site are depicted in figure 2-2, Site Plan. As discussed above, this report specifically addresses the PSA/IRM program conducted in Area 2. A Site Map detailing this area is included as figure 2-3. Former MGP structures, along with the locations of samples collected during the PSA/IRM field activities (discussed below) are included on this map.

For the purposes of this PSA/IRM Report, the Site will refer to the King Fuels parcel described above as Area 2.

1.3 Regional Settings

1.3.1 Regional Geology

According to the Surficial Geologic Map of New York, Hudson Mohawk Sheet (D. Cadwell, R. Dineen, 1987), the area of the site is generally located within the lacustrine silt and clay deposited in proglacial lakes. The underlying bedrock is a shale of Upper Ordovician age (Geologic Map of New York, Hudson Mohawk Sheet, D. Fisher, 1970).

The site is located on a small delta outwash deposit in the Hudson-Champlain Lowland (D. Fisher, 1984). The deposit sediments consist primarily of sand and gravel. Bedrock is of a thinly bedded, weathered, black shale. The black shale is inclined steeply toward the Hudson River. Depth to bedrock is observed to be nearly 70 feet adjacent to the river, but outcrops just a short distance east of the New York Central Railroad tracks. Regional geology suggests that this inclined, faulted and folded shale is likely either Normanskill or Snake Hill Shale. Significant portions of the site have been filled.

The unconsolidated materials that overlay the bedrock have been characterized as fill, alluvium, outwash, glaciolacustrine sediment and glacial till. Specifically, descriptions of these units include:

- Fill — slag, cinders, ash, brick, cinder, sand, and gravel — 4 to 25 feet thick.
- Alluvium — loose silt with sand, clay, and organic — 0 to 18 feet thick.
- Glacial outwash — stratified sand and gravel ranging from fine sand to coarse gravel with cobbles, and boulders — 9 to 40 feet thick.
- Glaciolacustrine — fine grain sediments of silt, clay, and fine sand — 0 to 15 feet thick.

- Glacial till — sand to boulders in a silty matrix — 2 to 3 feet thick.

1.3.2 Regional Hydrogeology

Based on historical hydrogeologic information collected by Rensselaer County from an area north of the site, the shallow aquifer is primarily found in the granular glacial outwash at between 15 to 25 feet below grade. The water-bearing formations consist primarily of sand and gravel deposits.

Permeability tests conducted by others at four monitoring wells installed on the former Burden Iron Works property (located north of the site) yielded permeability values between 4.1 x 10^{3} to 2.0 x 10^{3} cm/sec.[2] The calculated groundwater flow rate is approximately 0.1 feet/day (40 feet/year) because of the low groundwater gradient values in that area.

Groundwater flow in the overburden aquifer is west, toward the Hudson River. Groundwater is tidally influenced on the western part of the site by the Hudson River which fluctuates 4 to 6 feet daily.

The bedrock aquifer is located in the shale formation which can be characterized by low yields for water supply (O'Brien & Gere, 1994). Groundwater in the shale is usually hard, often cloudy, and frequently contains hydrogen sulfide (R. V. Cushman, 1950).

1.3.3 Groundwater Usage in Site Vicinity

According to an April 20, 1995, communication with the Rensselaer County Department of Health (Mr. Richard Kempner), the entire City of Troy is supplied by public water.

2.0 SCOPE OF WORK

Presented in the following sections is a description of the field methods and procedures used to collect the required samples. Field investigation activities commenced with a site reconnaissance visit on June 29, 1994, and were completed on January 20, 1995, with the collection of the second set of groundwater samples.

2.1 Introduction

Field work was conducted in accordance with the NYSDEC-approved *PSA/IRM Study for Troy (Water Street) Former MGP Site in Troy, New York* (Work Plan) dated May 1994, and associated

Quality Assurance and Project Plan (QAPjP), *Field Sampling Plan* (FSP), and *Health and Safety Plan* (HASP). All soil and water samples that were designated in the *Work Plan* were collected and sent to the contract laboratory for analysis. Several additional soil samples were collected and will be discussed in the appropriate section(s).

Laboratory analyses of environmental samples were conducted in accordance with NYSDEC ASP-CLP protocols. Data quality objective Level IV requirements were used whenever possible. Where not applicable, the NYSDEC ASP Category B deliverables were met.

2.2 Field Investigation

Field investigation activities at Area 2 included installation of 5 test pits, 10 soil borings, and the installation of 5 monitoring wells. In addition, surface soil sampling at 13 locations, sampling of upstream and downstream surface water and sediments, and inspection and sampling of two former gas relief holders was conducted. Air monitoring for volatile organic compounds (VOCs) and airborne particulates was conducted in accordance with the project HASP.

Field procedures for each activity are presented below.

2.2.1 Inspection of Large Gas Holder

On August 8, 1994, a Groundwater Technology technician and District Health and Safety Specialist performed an inspection of the former large (2,000,000 cubic feet) gas holder which is located immediately north of the Wynants Kill (figure 2-3). The inspection was performed by Groundwater Technology personnel after climbing to the top of the holder using a ladder (to climb to the bottom of existing stairs) and the existing stairs located on the side of the holder. To ensure personal safety, the investigators were tied off to the stairs on the tank with rock climbing equipment.

The inspection included opening a manhole on the top of the concave shaped roof which was located next to a mechanically operated manlift station. Natural lighting (from a skylight which existed in the roof) and battery operated spotlights were used to inspect the inside of the structure. Confined space entry into the gas relief holder was not attempted. The internal movable ceiling appeared to be resting at ground grade, however a measurement of the distance from the top of the floating roof to the manway was not made.

A detailed inspection of the base of the holder was performed to verify if there were any possible openings that could aid in the verification of the contents of the structure (if existing). No access points were identified. An inspection of the contents of the holder below the floating ceiling (if existing) could therefore not be made.

2.2.2 Inspection and Sampling of Small Gas Holder

During the same site visit on August 8, 1994, Groundwater Technology personnel visually inspected a former small (300,000 cubic feet) gas holder which is located within the northeastern corner of the King Fuels containment area (figure 2-3). The holder was found to contain approximately 5 to 6 feet of water and an unknown quantity of a hydrocarbon type sludge. Both the water and sludge were sampled and sent to the contract laboratory for analysis. The water in the holder is believed to originate from precipitation as the holder does not have a competent roof.

Samples of the water were collected using disposable polyethylene bailers through an opening which had been cut into the holder on the southwestern side by King Fuels, or one of its subcontractors. To enable the collection of sludge samples at the bottom of the gas holder, a 12-foot extension was attached to a polyethylene sludge sampler. The samples were analyzed at the contract laboratory for the full Target Compound List/Target Analyte List (TCL/TAL) parameters which included volatiles by NYSDEC 91-1, semivolatiles by NYSDEC 91-2, pesticides/PCBs by NYSDEC 91-3, TAL metals, cyanide, and waste characterization parameters (Toxicity Characteristic Leaching Procedure [TCLP] volatiles, TCLP semivolatiles, TCLP metals, corrosivity, reactive cyanide, reactive sulfide, and ignitability).

2.2.3 Surface Water and Sediment Sampling

On August 15, 1994, surface water and sediment samples were collected from the Wynants Kill at downstream and upstream locations, as indicated in figure 2-3. Samples were collected first in the downstream area of the Wynants Kill, and then upstream to avoid disturbing and transporting sediments between sample locations. At each location, surface water samples were collected first, followed by sediment sample collection.

Surface water samples were collected directly into appropriate sampling containers. The downstream samples were collected within the man-made concrete channel which was installed in 1930 to divert the stream. The upstream samples were collected in relatively shallow water, immediately west of the railroad crossing.

Sediment sampling in the downstream area was performed using a decontaminated, long-handled hand auger because the water was relatively deep and swift moving. At the upstream location, sediment samples were collected using a decontaminated, stainless steel trowel. The decontamination procedure consisted of Liquinox®/potable water wash, potable water rinse, methanol rinse and deionized water rinse.

All QA/QC samples were also collected as required by the *Work Plan*. Upon collection, all samples were sealed, labeled and placed on ice for overnight shipment to the contract laboratory for analysis of the full TCL/TAL parameters list.

2.2.4 Test Pit Excavation and Sampling

Five test pits (TP-1, TP-2, TP-3, TP-4, and TP-7) were excavated during the period from August 9 through August 12, 1994. As described in the *Work Plan*, the first four locations were selected to aid in the delineation of MGP residues near former MGP plant structures. An additional test pit location (TP-7) was added to the investigation program as a result of observations of a tar-like material in this area during a site walk which was performed on July 14, 1994. The test pit locations are presented in figure 2-3.

Excavation of test pits TP-1, TP-2, TP-3, and TP-4 was performed in Level D personal protective equipment. During excavation of TP-7, however, because of olfactory evidence of VOCs, utilization of respirators was required. PID measurements, however, did not indicate levels of VOCs above action limits.

The excavation of the test pits was completed using a backhoe operated by Aquifer Drilling and Testing (ADT), a Groundwater Technology subcontractor. A Groundwater Technology geologist and field technician were present during each test pit excavation to direct the excavation activities, perform air monitoring, and collect the required soil samples. Each test pit was approximately 2 feet wide and 10 feet deep with the exception of TP-7, which was installed to approximately 9 feet below grade.

Each test pit wall and the excavated soils were visually examined by the supervising geologist to document lithologic descriptions, horizontal and vertical extent of impacts, and the presence or absence of former MGP structures. A MicroTip Photoionization Detector (PID) was used to screen soil samples for the presence of VOCs.

Soil samples for laboratory analyses were collected from the bucket of the backhoe. Samples were immediately placed on ice, and sent via overnight courier to the contract laboratory for analyses. At least one depth interval was sampled at each test pit (8 samples were collected). Samples were analyzed for the full TCL/TAL parameters list, and selected samples (collected at the location of TP-7) were analyzed for waste characterization parameters. All QA/QC samples were collected as required by the *Work Plan.*

The backhoe bucket was decontaminated in the designated decontamination area with a steam cleaner between each excavation. Equipment blanks were collected from the backhoe bucket, as required by the *Work Plan*.

2.2.5 Surface Soil Sampling

During the period from August 9 through August 12, 1994, 13 surface soil samples and 2 blind duplicate samples were collected on the Site as depicted in figure 2-3. The samples were collected to characterize the chemical impacts, if any, to the surface soils across the Site. Depending on the sample location, the upper layer of asphalt or grass was removed prior to sampling. Samples were collected from an average depth of approximately 6 inches below grade. The samples were collected with a stainless steel trowel and a stainless steel bowl as required by the *Work Plan*. Samples were placed on ice, and sent via overnight courier to the contract laboratory for analyses. Samples were analyzed for MGP indicators (BTEX by EPA Method 8240, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270, and total cyanide by CLP-M) at 10 locations and full TCL/TAL parameters at three locations.

In addition to the samples identified in the work plan, three additional surface samples were collected at the request of King Fuels. The samples were collected in a location where electrical transformers had historically been observed and sent to the contract laboratory for analysis of PCBs.

Between each sampling location, sampling equipment was decontaminated using Liquinox®/potable water wash, potable water rinse, methanol rinse and deionized water rinse. Equipment blanks were also collected as required by the *Work Plan*.

2.2.6 Subsurface Soil Sampling

During the period from August 16 through September 6, 1994, after completion of the test pits, 10 soil borings were installed on site to provide further information about site geology and the vertical distribution of impacts, if any, resulting from industrial operations. The borings were advanced using one of two different hollow-stem Mobile drill rigs. The majority of the drilling was conducted using a Mobile B-57 drill rig with split-spoon sampling capabilities. Selected borings were completed using a Mobile-61 drill rig. Two-foot long, three-inch-diameter split-spoons were used during all drilling operations at the site. Split-spoon samples were collected continuously in accordance with ASTM Method D-1586-84.

A 4.25-inch (I.D.) auger was used for each boring. If visual hydrocarbon impacts or confining layers were encountered, carbon steel casing was installed to isolate those intervals. Where these situations occurred, the 4.25-inch augers were removed and the hole was redrilled to the same depth using 8-inch (I.D.) diameter augers and 6-inch steel casing was installed and grouted in place. Following installation of the steel casing, a drive and wash method was used to further advance the borehole and to collect split-spoon samples. All borings were advanced through the unconsolidated sediments until bedrock was reached. Depth to bedrock across the site ranged from approximately 13 feet (SB-14) to approximately 67 feet (SB-12).

All split-spoon samples were screened for VOCs using a PID. The soil samples were also described by the geologist using the Unified Soil Classification System (USCS). Moisture content, color, consolidation, lithology, grain size distribution, and sedimentary composition were also recorded. Drilling logs are included in appendix A.

Soil samples were packed on ice in coolers and sent by overnight courier to the contract laboratory for analyses. Up to five sample intervals per borehole were selected for laboratory analyses based on visual observations of hydrocarbon impacts and PID headspace screening results. At least three intervals were collected for laboratory analyses at each boring. Fifty-six soil samples were collected during soil boring installations.

A majority of the analyses conducted was performed for project MGP indicators (BTEX, PAHs and total cyanide). A minimum of 20 percent of the samples (at least one at each boring location) was analyzed for full TCL/TAL parameters list. Blind duplicate samples were also collected and submitted to the laboratory for analyses. Additionally, selected samples from various geologic units were analyzed for geotechnical parameters including percent moisture, bulk density, grain size, total organic carbon content, pH, and Atterberg limit. All geotechnical analyses reports are included in appendix C.

The split-spoons were decontaminated between each sampling interval to avoid cross contamination. A series of Liquinox®/potable water wash, potable water rinse, methanol rinse and deionized water rinse. Equipment blanks were also collected for analysis as required by the *Work Plan*.

Drill cuttings were segregated into visually impacted and visually non-impacted soils, and stockpiled on polyethylene sheeting during drilling. Contaminated cuttings were stored in a roll-off dumpster for later characterization sampling, removal, and proper disposal. Decontamination water was containerized on-site in two holding tanks for later characterization and disposal.

Upon completion, each of the soil borings were grouted back to the ground surface with a cement/bentonite slurry.

2.2.7 Monitoring Well Installation

In August 1994, five groundwater monitoring wells (MW-1 through MW-5) were installed at the Site to aid in evaluation of groundwater flow direction, gradient, and quality. Each monitoring well was drilled and sampled in accordance with the soil boring protocol using hollow-stem auger techniques and split-spoon sampling. The monitoring wells were installed as detailed in the *Work Plan*.

Monitoring wells were constructed of 15-foot-long, 2-inch-diameter, flush-joint polyvinyl chloride (PVC) screen (0.010-inch slot) and riser. A 2-foot sump was installed at the bottom of each well to provide a collection area for dense nonaqueous phase liquids (DNAPLs), if present. A sand pack (No. 1 Morie sand) was installed to approximately 2 feet above the screen. A bentonite seal and bentonite/cement grout were placed above the sand pack. At the location of well MW-5, the 15-foot screen interval was installed just above the bedrock in an attempt to evaluate vertical groundwater flow gradient, while at the remaining locations the screen interval was installed so they intercept the impacted zone and the water table (as determined during drilling). Well MW-5 was installed to a depth of 34.5 feet. The other wells were installed to depths ranging from 23 feet below grade (MW-2) to 53 feet below grade (MW-4).

Each well was secured with a locking gripper and either a guard pipe or a flush-mounted roadbox. Upon completion, all wells were developed by the drilling subcontractor using surging and pumping method to remove fine sediments from the well and the sand pack, and to improve hydraulic connection between the well and the surrounding aquifer.

Well construction details are included on the drilling logs which are included in appendix A.

2.2.8 Groundwater Gauging and Sampling

As required by the *Work Plan*, two groundwater gauging and sampling events were performed at the Site. The first event was performed during the period from December 19 through December 20, 1994. The second event was conducted during the period from January 18 through January 20, 1995.

Approximately one week prior to the first sampling event, all monitoring wells on-site were redeveloped by surging and pumping using dedicated submersible pumps. This redevelopment was required because several months had passed since the initial well development was performed. The well redevelopment was performed until water was visually free of sediments and measurement of other indicator parameters (temperature, conductivity, pH, and turbidity) indicated stabilized conditions.

The wells were allowed to equilibrate. Prior to sampling, depth to groundwater was gauged using an Interface Probe (IP) to provide elevation data for evaluation of local groundwater gradient. Subsequently, each well was purged of a minimum of three well volumes using a dedicated submersible pump. Groundwater samples were collected using disposable polyethylene bailers and then poured directly into the appropriate sampling containers. All samples were placed on ice and shipped by overnight courier to the contract laboratory for analysis for full TCL/TAL parameter list and conventional analyses (sulfide, sulfate, nitrate, chloride, hardness, total dissolved solids, BOD5, COD, pH, and oil and grease). Samples for volatile organics analysis were collected first, followed by samples for semivolatile organics and the remaining analytes. All required QA/QC samples were also collected and submitted to the laboratory for analysis.

2.2.9 Air Monitoring

Ambient air and perimeter air monitoring for VOCs and airborne particulates was conducted during each stage of the field work using portable instruments (PID and Miniram). All monitoring data was recorded on Groundwater Technology Vapor Monitoring Forms. Draeger tubes were used to monitor the breathing zone for cyanide. Additionally, during test pit excavation and soil boring installation at both the Site and the suspected disposal area (Area 4), eight air samples were collected in Tedlar bags and on filter cartridges using vacuum pumps. At each sampling location, upwind and downwind air samples were collected.

Air samples collected in Tedlar bags were analyzed for BTEX by NIOSH Method 1501. Samples collected on filter cartridges were analyzed for PAHs by NIOSH Method 5575. All samples were sent to the contract laboratory for analysis.

3.0 PRELIMINARY SITE ASSESSMENT RESULTS

Presented in this section are the results of the PSA/IRM investigation activities. Site geology and hydrogeologic characteristics are presented in section 3.1 followed by the results of the characterization of the two gas relief holders in section 3.2. Section 3.3 presents the results of the contamination assessment. The results of the ambient and community air monitoring are included in section 3.4.

Because of the volume of data collected, all data tables are presented at the end of the report in the Tables appendix. Summary discussions and conclusions of these results are presented in section 7.0.

3.1 Site Hydrogeology

3.1.1 Site Geology

Soil borings logs from the PSA drilling program are included in appendix A. Two geologic cross-sections were constructed along two different axes across the Site using all available soil data (figure 4-1 and figure 4-2). Figure 4-1 is a geologic cross-section along a north-south axis, and figure 4-2 is a geologic cross-section along a west-east axis.

The results from the soil screening and classification performed during the soil boring/monitoring well installations indicate that a majority of the surficial sediments at the Site have been disturbed through excavation or grading. The thickness of fill, which primarily consists of slag, cinders, ash, bricks and gravel, ranged from approximately 5 feet in the eastern part of the site (east of MW-2) to approximately 40 feet (near SB-16). It appears that debris and by-products from the former industrial operations have been used to fill low areas of the site. During redirection of the Wynants Kill to the north in 1930, it also appears that backfilling of the former channel with locally available fill occurred.

Below the fill, the overburden sediments on site consist of interbedded alluvial, glacial outwash, and glaciolacustrine deposits, with sporadic layers of glacial till. Alluvial deposits can be characterized as loose silt with sand and clay. Glacial outwash deposits consist of sand and gravel, and glaciolacustrine deposits consist of fine-grained sediments like silt, clay, and fine sand. Finally, the glacial till consists of silt with poorly sorted sand and gravel mixtures. The thickness of overburden sediments was determined to range from approximately 5 feet (east of MW-2) to approximately 70 feet (SB-12). Generally, the thickness of unconsolidated deposits is lower in the eastern part of the site, and increases toward the west, towards the Hudson River. No apparent continuous confining layers were determined to exist within the overburden on site.

The unconsolidated deposits on site are underlain by shale bedrock. Depth to bedrock ranges from approximately 5 feet (east of MW-2) to approximately 70 feet (identified at SB-12) and generally slopes toward the Hudson River and former Wynants Kill channel. The detailed evaluation of bedrock underlying the site was not included in the PSA program.

3.1.2 Hydrogeology

The groundwater within the overburden on site was found in the lower portions of the fill, and within the alluvial, glacial outwash, and glaciolacustrine deposits underlying the fill. The fill and underlying unconsolidated deposits are apparently hydraulically connected. Based on the close proximity of the Hudson River, it is likely that groundwater on-site may be influenced by tidal fluctuations.

Two groundwater gauging events were performed in conjunction with the two rounds of groundwater sampling (December 1994 and January 1995). During each gauging event, depth to water was measured from the top-of-casing of each well. Top-of-casing elevations were surveyed after well installation by a NMPC survey team. In December 1994, depth to water on site ranged from approximately 18 feet (at MW-2) to 31 feet below grade (at MW-4). In January 1995, depth to water ranged from 18 feet to 29 feet below grade, again at the locations of MW-2 and MW-4, respectively. Based on the two rounds of groundwater gaugings, the groundwater on-site was generally flowing toward the west to the Hudson River. The presence of the former Wynants Kill channel appears to affect the flow of groundwater by causing an apparent convergence toward the former channel.

Groundwater elevations determined based on the December 1994 and January 1995 groundwater gauging data, are included in figures 4-1 and 4-2, Geologic Cross-Sections, to further depict the location of groundwater table within the overburden on site.

3.2 Source Characterization

Source characterization included the inspection and sampling of two gas relief holders at the Site and characterization of soils collected from test pit TP-7. The large 2,000,000 cubic feet gas holder is located north of the Wynants Kill. The smaller 300,000 cubic feet holder is located adjacent to the south bank of the Wynants Kill within a concrete block secondary containment compound.

3.2.1 Large Gas Holder

The results of the visual inspection of the interior of the 2,000,000 cubic feet gas holder indicated that the holder was empty (dry). The floating ceiling appeared to be down to the bottom of the tank. No odors appeared to be emanating from the tank.

The gas relief holder appeared to be of triple wall construction. It was noted that some windows associated with the skylight were broken, and therefore may provide access to rainwater. No accumulated water, however, was observed at the bottom of the holder. The visual inspection of the exterior of the holder did not indicate any openings, access points or leaks existed.

3.2.2 Small Gas Holder

The results of TCL/TAL and waste characterization analysis (TCLP volatiles, TCLP semivolatiles, TCLP metals, corrosivity, reactive cyanide, reactive sulfide, ignitability) of the contents of the former small gas holder (water and sludge) are presented in tables 1-1, 1-2, 1-3, 1-4, and 7-1, which are included in the Tables appendix.

Results of TCL/TAL analyses of the water samples indicated dissolved concentrations of both volatile and semivolatile organic compounds. Several semivolatiles in the phenolic and naphthalene groups were flagged by the laboratory as exceeding the calibration range of the gas chromatograph/mass spectrometer (GC/MS) instrument for that analysis. The concentrations for those analytes were, therefore, qualified as estimated values. The concentration of total dissolved PAHs was 1.34 mg/L. The total dissolved BTEX concentration was 1.75 mg/L. Of the BTEX compounds, all but toluene exceeded the calibration limits of the GC/MS, and the concentrations were again reported as estimated.

Of the TAL metals analyses, only iron and manganese were detected in the water samples, at concentrations of 7.5 and 0.5 mg/L. Cyanide was detected at a concentration of 0.04 mg/L.

No pesticides or PCBs were detected in the samples.

The results of the waste characterization analyses for water from the small gas holder indicated that the benzene concentration in the TCLP extract was 0.58 mg/L, which exceeds the regulatory limit of 0.5 mg/L. The water in the holder is therefore likely to be classified as a hazardous waste by characteristic for this compound pending collection of a representative quantity of samples.

The results of the waste characterization analyses for the sludge from the gas holder indicated that concentrations of benzene in the TCLP extract were above the calibration range of the instrument and therefore had to be reported as an estimated value. The sludge is therefore also classified as a hazardous waste by characteristic for this compound pending collection of a representative quantity of samples. Additionally, barium, lead, and mercury were detected in the TCLP extract at the concentrations of 389, 160, and 0.33 mg/L, respectively, which exceed the respective regulatory levels of 100, 5.0 and 0.2 mg/L.

3.2.3 Soils From Test Pit TP-7

The results of the sampling for waste characterization parameters for the soils from test pit TP-7 are included in table 7-1. As indicated in the table, benzene concentrations in the TCLP extract at the location of TP-7 from soil samples collected from 3 and 9 feet below grade were 1.9 mg/L and 3.5 mg/L, respectively. These values exceed the regulatory limit of 0.5 mg/L. These soils are therefore likely to be classified as a hazardous waste by characteristic for benzene.

Concentrations of other analytes detected in TCLP extracts did not exceed the respective regulatory criteria.

3.3 PSA Contamination Assessment

In the following sections, the results of the metals, cyanide, pesticides, PCBs, volatiles, and semivolatiles analyses are presented. For each section below, a summary of the results for the soils analyses are presented, followed by a summary of the results for surface and groundwater.

For discussion purposes, guidance values and standards for each medium are presented in the data summary tables. These guidance values and standards for soils, sediments and groundwater are taken from the New York State Division Technical and Administration Guidance Memorandum *Determination of Soil Cleanup Objectives and Cleanup Levels* (TAGM 4046); the NYSDEC Division of Fish and Wildlife/Marine Resources *Technical Guidance for Screening Contaminated Sediments*, and the NYSDEC Division of Water, Technical and Operation Guidance Series, *Ambient Water Quality Standards and Guidance Values* (TOGS 1.1.1), respectively. Although several of these guidance values and standards may ultimiately not be applicable to the Water Street former MGP site, where they were exceeded, the reported values are presented in bold font in the tables.

The data tables include a summary of the target analytes detected for each analysis. For analyses that also report non-target analytes detected, these values are also included in the tables. Non-target analytes are compounds detected in samples that are not target compounds, internal standards, or surrogates, and are not positively identified during mass spectral library searches. Identification is only tentative because the chromatographic peaks have not been compared with analytical standards. Quantitation associated with non-target analytes should only be considered as an estimate of concentrations present, and could be in error by several orders of magnitude. In consideration of this, only target analytes will be used for discussion purposes.

3.3.1 Metals and Cyanide

All test pit soil samples, Wynants Kill surface water and sediment samples, selected surface soil and subsurface soil samples, and all groundwater samples were analyzed for TAL metals (31 soil samples and 12 water samples). Additionally, analyses for cyanide were conducted for all 82 surface and subsurface soil samples and 12 water samples collected during the PSA/IRM investigation.

The sampling results for various media sampled are presented in tables 1-1, 2-1, 3-1, 4-1, 5-1, and 6-1. All equipment rinseate sampling results are included in table 9-1. A discussion of the metals and cyanide in soils is presented, followed by a discussion of metals and cyanide in water. The distribution of cyanide in soils and water is presented in figures 4-3 through 4-8.

Metals and Cyanide in Soils

Generally, a majority of the TAL metals were detected at all sampled soil locations. NYSDEC TAGM HWR-94-4046 provides ranges of typical background concentrations of various heavy metals in eastern USA soils. These ranges may not, however, be indicative of heavily industrialized areas such as Troy, New York. An investigation of background metal concentrations in soils for the area surrounding the project site was not completed as part of the PSA study. These values (ranges) are, however, included in the tables, and will be referenced for discussion purposes. Soil samples which possess reported values exceeding the NYSDEC TAGM HWR-94-4046 typical ranges are presented on the tables in bold font.

The eight metals most likely to occur in high concentrations in soils or sediments from MGP operations include: arsenic, cadmium, chromium, copper, iron, lead, nickel, and zinc (*Handbook on Manufactured Gas Plant Sites*, Environmental Research & Technology, Inc., and Koppers Company, Inc., September 1994). The concentrations of metals detected in sediment samples collected from the Wynants Kill were compared to the two levels of risk presented in the *Technical Guidance for Screening Contaminated Sediments*. Generally, most metals detected were present in concentrations above the Lowest Effect Level (LEL) and below the Severe Effect Level (SEL). Silver and zinc were present at concentrations below the LEL. Only iron, in both up- and downstream samples exceeded the SEL.

Concentrations of these eight metals in the Wynants Kill sediment samples ranged from:

Analyte	Range (mg/kg)
arsenic	4.7 (S-1) to 9.0 (S-3)
cadmium	1.3 (S-1) to 2.4 (S-3)
chromium	19.7 (S-1) to 30.9 (S-3)
copper	85.5 (S-1) to 99 (S-3)
iron	29,400 (S-1) to 48,200 (S-3)
lead	103 (S-1) to 106 (S-3)
nickel	26.6 (S-1) to 33.4 (S-3)
zinc	164 (S-1) to 200 (S-3)

For all metals detected, concentrations were higher at the upstream sample location (S-3) than those detected at the downstream location (S-1). The downstream sample was collected from within the concrete channel constructed to divert the Wynants Kill, while the upstream sample was collected from the undisturbed portion of the Wynants Kill.

Soils from three surface locations were analyzed for TAL metals. In the surface soil samples, concentrations of these metals, and cyanide, ranged from:

Analyte	Range (mg/kg)
arsenic	5.4 (SS-4) to 8.7 (SS-6)
cadmium	ND to 1.2 (SS-6)
chromium	15.1 (SS-4) to 35.3 (SS-10)
copper	21.5 (SS-6) to 45.2 (SS-10)
iron	22,700 (SS-6) to 40,600 (SS-10)
lead	50.1 (SS-6) to 503 (SS-10)
nickel	22.6 (SS-6) to 25.2 (SS-4)
zinc	90.3 (SS-4) to 105 (SS-6)
cyanide (total)	ND to 49.5 (SS-10)

Concentrations of total cyanide in surface soils were detected in 3 of 13 samples analyzed. Concentrations of other metals detected at various soil sampling locations can be found in table 3-1.

Only zinc was detected above eastern USA background levels as reported in the NYSDEC TAGM HWR-94-4046 at all three sampling locations, while magnesium was detected above these reference levels at two locations.

Twenty-three subsurface soil samples were collected for metals analysis during test pit, soil boring, and monitoring well installations. In the subsurface soil samples, concentrations of these same eight metals and cyanide ranged from:

Analyte	Range (mg/kg)
arsenic	2.6 (MW-4) to 42.8 (SB-16)
cadmium	ND to 5.1 (TP-2)
chromium	ND (TP-1) to 95.7 (SB-12)
copper	ND to 501 (SB-16)
iron	13,900 (MW-3) to 331,000 (TP-2)
lead	ND to 316 (TP-4)
nickel	ND to 45.1 (SB-14)
zinc	ND to 267 (SB-13)
cyanide (total)	ND to 7.2 (TP-1)

Concentrations of cyanide in subsurface soils were detected at only 6 of the 20 sampling locations including test pits TP-1, TP-3, TP-4, and in soil borings SB-13, SB-15, and SB-18.

Values that exceeded the NYSDEC TAGM HWR-94-4046 typical ranges for eastern USA soils are printed on the tables included in the appendixes in bold font. A random or inconsistent pattern of occurrence and concentration appears to exist for most metals exceeding these values in the subsurface soils.

Metals and Cyanide in Water

Results of the surface water sampling event for metals and cyanide are included in table 1-1. At the two surface water sampling locations, of the metals which are most likely to occur at former MGP sites, only iron at concentrations of 0.594 mg/L and 0.684 mg/L was detected (upstream and downstream, respectively). Cadmium and zinc were each detected in one sample, but data validation indicated that these metals were also detected in the associated blanks. Aluminum was the only metal detected in the surface water samples that exceeded the NYSDEC Class C surface water standards (TOGS 1.1.1., *Ambient Water Quality Standards and Guidance Values*). Here again, a data validation qualifier indicated that aluminum was also detected in the associated blank.

The December 1994 and January 1995 groundwater sampling indicated that highest detected concentrations of arsenic were 0.115 mg/L and 0.142 mg/L (MW-4), chromium concentrations were 0.007 mg/L (MW-2) and 0.006 mg/L (MW-3), copper concentrations were 0.017 mg/L (MW-2) and 0.017 mg/L (MW-3), and lead concentrations were 0.007 (MW-1) and 0.005 (MW-3).

In December 1994, cyanide was detected at the locations of MW-1, MW-3, and MW-4, at concentrations of 0.05 mg/L, 0.05 mg/L, and 0.066 mg/L, respectively. In January 1995, detected cyanide concentrations were 0.04 mg/L, 0.04 mg/L, and 0.06 mg/L, at the same well locations, respectively.

During the December 1994 sampling event, the only VOCs detected above groundwater standards were chloroform (at MW-1 and MW-5) and benzene (at MW-4). Similar results were obtained during the January 1995 sampling event. Additionally, ethylbenzene (0.007 mg/L) and xylenes (0.006 mg/L) exceeded the groundwater standards (0.005 mg/L) during the January 1995 event. A data validation qualifier, however, indicated that these two reported values were estimated.

3.3.2 Pesticides and PCBs

Analyses for pesticides and PCBs were conducted for 32 soil samples and 12 water samples. Specifically, all eight test pit soil samples, two Wynants Kill surface water and sediment samples, seven selected surface soil and 15 subsurface soil samples, and all 10 groundwater samples were analyzed for pesticides and PCBs. The sampling results for various sampled media are presented in tables 1 through 6.

A summary of the analytical results of the pesticides and PCBs in soils are presented below, followed by the results for pesticides and PCBs in water.

Pesticides and PCBs in Soils

The results from the surface soil sampling and analysis are included in table 3-2. The results indicated that selected pesticides were detected in two of the four sample locations (SS-6 and SS-10). At the location of SS-6, the following three pesticides were found: 4,4-DDE (0.003 mg/kg), 4,4-DDT (0.007 mg/kg), and endrin aldehyde (0.029 mg/kg). The only other pesticide detected in surface soils was endrin ketone, detected at 0.15 mg/kg in SS-10. These detected levels were all below the recommended soil cleanup objectives provided in the NYSDEC TAGM HWR-94-4046.

The only PCB detected in the analyzed surface soil samples was aroclor-1260, which was found in the three soil samples collected near the King Fuels office, at concentrations ranging from 0.056 mg/kg to 0.13 mg/kg. These 3 locations were taken in the area of a former electrical transformer. At all these locations, aroclor-1260 was below the recommended soil cleanup objective presented in the NYSDEC TAGM HWR-94-4046.

Sampling of the Wynants Kill sediments indicated the presence of dieldrin and endrin in the downstream sample, at the concentrations of 0.023 mg/kg and 0.14 mg/kg, respectively (table 2-1).

Pesticides detected in the upstream sample were endrin (0.008 mg/kg) and endrin ketone (0.006 mg/kg). Assuming a default organic content of the sediment at 1%, none of the pesticides exceeded either the wildlife or human health bioaccumulation sediments criterias provided in the *Technical Guidance for Screening Contaminated Sediments*.

No PCBs were detected in any of the sediment samples.

Subsurface soil sampling results indicated the presence of pesticides at 11 of the 23 locations sampled. Eight different pesticides were identified including:

Pesticide	Concentration (mg/kg)
heptachlor	0.003 (SB-19)
heptachlor epoxide	0.006 (SB-15)
endrin	0.011 (MW-5) to 0.72 (TP-1)
alpha chloradane	0.008 (SB-15)
4,4'-DDD	0.004 (SB-19)
4,4'-DDT	0.004 (MW-1) to 0.220 (TP-1)
gamma-BHC/lindane	0.007 (MW-5)
endrin aldehyde	0.006 (MW-2) to 0.030 (SB-19)

Pesticides were not detected above the NYSDEC TAGM HWR-94-4046 recommended cleanup objectives with the exception of dieldrin (0.047 mg/kg) and endrin (0.39 and 0.72 mg/kg) at the location of test pit TP-1.

PCBs were not detected at any of the subsurface soil sampling locations.

Pesticides and PCBs in Water
Pesticides and PCBs were not detected at any of the groundwater or surface water sampling locations.

3.3.3 Volatiles
Analysis for VOCs were conducted on all media sampled during the PSA/IRM program. Samples collected from test pit excavations, surface water, sediment, soil borings and groundwater were analyzed for either full TCL Volatiles list (in conjunction with full TCL/TAL parameter list) or BTEX (in conjunction with MGP Indicators parameter list). Twenty-nine soil samples and 13 water samples were analyzed for the full TCL volatiles list (NYSDEC Method 91-1). Fifty-three samples were

analyzed for BTEX by EPA Method 8240. The sampling results for both analyses are presented in tables 1-3, 2-3, 3-3, 4-3, 5-3, 6-1, and 6-2.

Consistent with the previous sections, the results for soils are presented first, followed by the results for surface and groundwater.

Volatiles in Soils

As indicated in table 2-3, the only target analyte detected during the sediment sampling event was toluene. This compound was detected in the downstream Wynants Kill sediment sample (S-1) at the concentration of 0.007 mg/kg.

Table 3-3 presents the results of the volatiles analyses conducted on surface soils. Target VOCs were not detected at any of the surface soil sampling locations.

Sampling of soils from the test pits (table 4-3) indicated that volatile organics were found at all eight test pit sampling locations. Total BTEX concentrations ranged from below detectable levels (TP-3, TP-4) to 45 mg/kg (TP-7). Total volatiles at concentrations over the NYSDEC TAGM HWR-94-4046 cleanup objective of 10 mg/kg were detected in one sample (TP-7/9 feet). Additionally, at test pit TP-1, benzene and xylene exceeded individual cleanup objectives of the sample collected from 6 feet below grade.

Table 5-3 presents the results of the volatiles analyses conducted on subsurface soils collected during soil boring and monitoring well installation. Concentrations of total BTEX ranged from below detectable levels (SB-14, SB-20, MW-4) to 34.6 mg/kg (SB-19/23 to 25 feet). The elevated levels of total BTEX were also detected at the location of SB-15/32 to 34 feet (22.86 mg/kg), SB-13/16 to 17 feet (18.24 mg/kg) and SB-19/25 to 27 feet (6.72 mg/kg).

Besides BTEX, miscellaneous volatiles were detected in several samples analyzed for full TCL/TAL list. The compound detected at highest concentration was methylene chloride at SB-15/32 to 34 feet (0.4 mg/kg). Of 58 subsurface soil samples collected, only four samples possessed total volatiles exceeding the NYSDEC TAGM HWR-94-4046 recommended cleanup objective of 10 mg/kg.

In addition to TCL/TAL and MGP Indicators analyses, five selected samples were analyzed by GC Gas/GC Fuel analyses. These selected samples included:

Location	Depth (feet)
SB-12	18 to 20
SB-15	24 to 26
SB-19	23 to 25
SB-20	24 to 26
MW-5	26 to 28

These samples were selected based on olfactory evidence of petroleum hydrocarbons at these five locations during subsurface investigations.

As indicated in table 5-5, gasoline was identified in all six soil samples, at concentrations ranging from 0.3 mg/kg (SB-12) to 4,300 mg/kg (SB-15). The next highest gasoline concentration was found at the location of SB-19 (3,100 mg/kg). No. 2 fuel oil also was detected at all the sample locations except SB-12 at concentrations ranging from 2,100 mg/kg (MW-5) to 40,000 mg/kg (SB-15).

Volatiles in Water

The analyses of the Wynants Kill surface water indicated that the only VOC found in the surface water was acetone, which was detected in the downstream sample at the concentration of 0.018 mg/L (table 1-3). A data validation qualifier was affixed to this result indicating that the reported value was estimated.

Two groundwater sampling events were performed at the site approximately one month apart. Tables 6-1 and 6-2 present the December 1994 and January 1995 sampling data, respectively. As indicated in table 6-1, in December 1994 total BTEX concentrations in groundwater ranged from not detected (MW-1, MW-2, MW-3 and MW-5) to 0.065 mg/L (MW-4). Benzene was the only BTEX compound detected at the location of MW-4.

In January 1995, total BTEX concentrations ranged again from not detected (MW-1, MW-2, MW-3 and MW-5) to 0.064 mg/L (MW-4).

Besides BTEX, the only VOCs detected at any of the monitoring well locations during both sampling events were chloroform (MW-1 and MW-5) at concentrations ranging from 0.019 to 0.038 mg/L, and 1,1-dichloroethane (MW-2 and MW-4) at concentrations of 0.003 mg/L.

During both sampling events chloroform exceeded the NYSDEC groundwater standard at monitoring wells MW-1 and MW-5. Benzene exceeded the groundwater standard at only one location (MW-4) during both sampling events.

3.3.4 Semivolatiles

Eighty-two soil samples were collected and sent for laboratory analysis of semivolatiles by either EPA Method 8270 for PAHs or Method 91-2 for TCL semivolatiles. These samples were collected during installation of the 10 soil borings, 5 monitoring wells, 5 test pits, and 13 surface soil sampling and 2 sediment sampling locations on Area 2 as described above in section 3.0. Twelve water samples also were collected (2 surface water samples from the Wynants Kill and two rounds of groundwater samples from the five monitoring wells on site) and sent to the contract laboratory for analysis of semivolatiles by TCL/TAL.

Results from the laboratory analyses are presented in tables 1-4, 2-4, 3-4, 4-4, 5-4, 6-1, and 6-2 in the Tables appendix.

Presented in the following two sections is a brief summary of the results of the sampling for semivolatiles. A discussion of the semivolatiles in soils is presented, followed by a discussion of semivolatiles in surface and groundwater.

Semivolatiles consist of both straight chained aliphatics and multi-ringed aromatics which share similar chemical properties, specifically vapor pressure. PAHs are a subgroup of the semivolatiles, which consist of approximately 18 commonly recognized multi-ringed, aromatic compounds. These PAH compounds, because of their physical and chemical characteristics, are commonly targeted as identifiers for discussion, where appropriate.

Semivolatiles in Soils

<u>Sediment Samples</u>

The locations from which the two sediment samples were collected are shown on figure 2-3, Area 2 Site Map, which is included in the Figures appendix. As shown in table 2-4, the upstream sample (S-3) possessed approximately four times higher concentrations of total semivolatiles (approximately 2,231 mg/kg) than did the downstream (S-1) location (approximately 498 mg/kg). Seven analytes (fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo (a) anthracene, and chrysene) exceeded the upper detection limits of the GC/MS instrument in the upstream sample, requiring the samples to be diluted and reanalyzed. The results from the diluted samples were similar to the undiluted results. For discussion purposes, the reported results from the diluted samples will be used.

Of the semivolatiles detected in the diluted samples at both sampling locations, phenanthrene was present in the highest concentrations (480 mg/kg upstream, 110 mg/kg downstream), followed by pyrene (300 mg/kg upstream, 99 mg/kg downstream) and fluoranthene (460 mg/kg upstream, 9.8 mg/kg downstream). The same distribution occurred in the undiluted samples.

A duplicate of the downstream sample was collected (S-2) and sent to the laboratory for analysis. This sample possessed approximately 26 mg/kg total semivolatiles. Phenanthrene, pyrene, and fluoranthene were again the analytes in the highest concentrations.

Surface Soil Samples

As mentioned above, surface soil samples were collected from 13 locations on the King Fuels property and sent for analysis of semivolatiles. These results are presented in table 3-4, Surface Soil Sampling Results, which is included in the Tables appendix. The table also includes the results from the two duplicate samples collected (SS-14 and SS-15).

Semivolatile hydrocarbons were detected in all the surface samples collected with total concentrations ranging from 0.037 mg/kg (at surface sample SS-13) to 266.5 mg/kg (at SS-10). Surface soil sample SS-10 was located near the former Tar/Lime/Coke tank farm, but the sample was collected from directly under the asphalt pavement and therefore may not be representative of industrial impacts, but rather leaching from the current asphalt cover.

Surface soil sampling locations are presented on figure 4-4, Surface Soil Sampling Results. None of the locations sampled possessed total semivolatiles exceeding the 500 mg/kg recommended soil cleanup objective presented in the NYSDEC TAGM HWR-94-4046.

Fluoranthene and pyrene were the analytes present in the highest relative concentrations.

Subsurface Soil Samples

Subsurface soil samples were collected from 5 test pits, 10 soil boring locations, and 5 monitoring well locations as described in section 3.0. The results of the laboratory analyses for semivolatiles are presented in tables 4-4 and 5-4.

Eight samples were collected from the five test pits installed in Area 2 for semivolatiles analysis. Semivolatiles were present at all sample locations ranging from approximately 0.1 mg/kg at test pit TP-3 to 185,340 mg/kg at test pit TP-7. Soils from test pits TP-2 (located outside the NMPC gas regulator station) and TP-3 (located behind the former water gas plant) exhibited very low concentrations of semivolatiles (less than 3.5 mg/kg).

Based on observation during installation, test pit TP-7 is believed to have been installed inside a suspected former tar well. The extract from this soil sample had to be diluted by the contract laboratory to keep all the semivolatile analytes within the detection limits of the instrument.

A soil sample collected at 6 feet below grade from test pit TP-1 (located in the area formerly occupied by oxide purifier boxes where King Fuels currently stages used storage tanks), contained approximately 550 mg/kg total semivolatiles. The soil sample collected from approximately 2 feet below grade, however, possessed only 0.13 mg/kg total semivolatiles.

Naphthalene, phenanthrene and fluoranthene appear to be present in the highest relative concentrations in the soil samples from the test pits.

Fifty-nine soil samples were collected during the installation of the 10 soil borings and 5 monitoring wells and were sent for analysis of semivolatiles. The total semivolatiles detected on the soil samples ranged from non-detectable (at 14 locations) to 10,667 mg/kg at SB-13. Of these soil samples, five possessed total semivolatile concentrations greater than 500 mg/kg. A total of 39 samples possessed total semivolatile concentrations less than 5 mg/kg.

Phenanthrene, pyrene, and fluoranthene were the PAH analytes present in the highest relative concentrations with the exception of SB-19 at 25 to 27 feet below grade (at the water table) and at SB-13 where naphthalene was present in high relative concentrations. Soil boring SB-19 is located immediately downgradient of the underground storage tanks operated by King Fuels, and SB-13 is located in the former Wynants Kill Creek channel. The soil sample from SB-19 does not show the presence of heavier PAHs (greater than carbon number C16) which were present at the other locations. Additionally, the geologist recorded a distinct fuel oil odor at this location.

For each location where a soil sample was collected and sent for semivolatiles analysis (surface soils, subsurface soils, test, and sediment soils), the location is highlighted on figure 4-5. The seven locations (two test pits and five soil borings) where subsurface soils possessed greater than 500 mg/kg total semivolatiles are also indicated on figure 4.5.

<u>Semivolatiles in Water</u>

As previously mentioned, one upstream (S-3) and one downstream (S-1) surface water sample was collected from the Wynants Kill. Table 1-4, Former Gas Holder and Surface Water Sampling Results, summarizes the results of the analyses for semivolatiles.

As shown on the table, no dissolved levels of target semivolatiles were detected in either sample.

A duplicate surface water sample (S-2) was collected from the downstream location. Here again, no dissolved semivolatiles were detected.

As shown on table 6-1 of the five groundwater samples collected during the first sampling event from MW-1, MW-2, MW-3, MW-4, and MW-5, phenol was the only target analyte present. Phenol was detected in one monitoring well (MW-4) at a concentration of 0.002 mg/L which exceeded the NYSDEC Class GA groundwater standard of (0.001 mg/L). A data validation qualifier indicated that the reported value is an estimated value.

The second sampling round (table 6-2) was similar, where again in all monitoring wells, no detectable levels of semivolatiles were present, except at MW-3 and MW-4 where approximately 0.002 mg/L of acenaphthene and 0.023 mg/L of phenol were detected, respectively.

Bis (2-ethylhexyl) phthalate, believed to be a sampling artifact, was detected at one location during each event (at different monitoring wells).

As shown on the tables, the NYSDEC Class GA groundwater quality standards were exceeded at only one monitoring well location (MW-4) by one semivolatile analyte (phenol).

3.4 Air Monitoring Results

The results of laboratory analysis of air samples are presented in table 8-1. The complete laboratory analytical reports are included in appendix C. Table 8-1 contains the results of air sampling performed during both the Area 2 and the Area 4 investigation since the field work was performed simultaneously in these areas.

As indicated in the table, BTEX compounds were not detected in any of the analyzed air samples. Naphthalene was the only PAH compound detected in the analyzed air samples, at concentrations ranging from 0.005 micrograms per liter (μg/L) to 0.44 μg/L.

3.5 Data Validation

The data validation for the PSA at the site was performed by Chemworld Environmental, Inc. of Rockville, Maryland. The validation process followed the guidelines included in the US EPA Region

II Data Validation Checklists (January 1992) and the CLP portion of the NYSDEC Analytical Service Protocols (ASP), (December 1991), where applicable.

Data validation reports were prepared, which included a narrative listing the results of data validation and summary tables indicating all appropriate data validation qualifiers. The PSA/IRM laboratory analytical results tables (tables 1 through 7), which are presented in the Tables appendix, include the validated analytical data with all pertinent data qualifiers.

According to the data validation report, all data is considered to be valid and usable with the exception of the following samples:

- cyanide in sediment samples S-1 and S-3
- TCL semivolatiles in subsurface soil sample SB-15 from 32-34 feet below grade
- equipment blank GT-15A for TCL semivolatiles

This unusable data is noted by an "R" qualifier in the data summary tables.

4.0 RISK EVALUATION AND HABITAT-BASED ASSESSMENT

A preliminary risk evaluation and a fish and wildlife impact analysis were conducted for the Area 2 site. The purpose was to determine if potential concerns regarding imminent threats to human health or the environment existed as a result of site conditions. Groundwater Technology's Risk Assessment Services group performed the preliminary risk evaluation, while Environmental Design & Research, P.C. (EDR) performed the habitat assessment. The reports from both of these studies are included as appendixes to this report, and additionally are summarized below.

4.1 Preliminary Risk Evaluation

A preliminary risk evaluation was performed for Area 2 by Groundwater Technology's Risk Assessment Services group. The purpose of this evaluation was to determine whether MGP or other contemporary industrial residuals in surface or subsurface soils pose an imminent hazard to human health in the short term. Potential exposure to daily workers and construction workers to soils was quantitatively evaluated.

A copy of the *Preliminary Risk Evaluation — Area 2* report is included as appendix D. The preliminary risk evaluation included an evaluation of the following:

- Data Evaluation
- Potential Exposure Pathways
- Exposure Parameters
- Toxicity Values
- Risk Characterization

As a screening mechanism to determine the compounds of concern for the imminent hazard evaluation portion of the PSA, compounds were limited to those meeting the following criteria:

- detected more than twice in either surface or subsurface soils
- the average concentration was more than twice the NYSDEC cleanup objective or background level identified for the compound
- readily available toxicity values

Surface water and sediment soils were not included in the risk evaluation because the potential for exposure to these media was judged to be insignificant compared with the exposure to surface and subsurface soils in the short term (workers are more likely to be exposed to site soil than to wade in the sediment and water). Likewise, data for groundwater was not evaluated because groundwater is not used as a drinking water supply at or downgradient of the site.

Potential exposure pathways included dermal contact and incidental ingestion of soil. The potential for exposure to on-site workers and potential for exposure of hypothetical future construction and maintenance workers to subsurface soils used a five-year period when calculating risk. The results show that the potential cancer risks to daily workers (3×10^{-6}) and construction workers (8×10^{-5}) are within the USEPA's target risk range of 1×10^{-4} to 1×10^{-6}. Likewise, the potential non-cancer hazard indices for the daily workers (0.004) and construction workers (0.16) are also below the USEPA threshold value of 1.0.

4.2 Fish and Wildlife Impact Analysis

A *Fish and Wildlife Impact Analysis — Step 1* report was prepared by EDR to determine the impact of MGP and other industrial residuals on the fish and wildlife resources at the Site. The report is included as appendix E. The impact analysis includes a description of the site, the methods used to collect data, the fish and wildlife resources present at the site including the species and ecological communities and habitats present, observations of stress, and also a discussion of the value of the resources and of pertinent regulatory criteria.

The following sub-sections present a brief summary of the results of the report. The report was prepared in conformance with the NYSDEC document titled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites*, dated 1994.

4.2.1 Objectives

The objectives of the *Fish and Wildlife Impact Analysis — Step 1* report was to identify the fish and wildlife resources on, and in the vicinity of, the site identified as Area 2 (King Fuels property) that could be affected by site-related contaminants.

To identify the resources present at the site, a variety of existing data sources were used along with a field survey of the site and the surrounding area. The field survey was conducted on December 9, 1994. The purpose of the site visit was to document all the plant and animal species and natural communities that occur within a 0.5-mile radius of the site. The field survey activities included walking and driving the entire site and surrounding area, visual and auditory field identification of plant and animal wildlife, and collection of plant species for follow-up classification with taxonomic keys.

4.2.2 Habitat Characterization

Information provided by the New York Natural Heritage Program indicated that the following resources exists within a 2.0-mile radius of the site:

- five state regulated wetlands
- two significant coastal fish and wildlife habitats
- three documented rare plant locations

The only wetlands that occur in the study area are well removed from the project site. The closest wetland is located across the Hudson River, west of Route 787, approximately 1,300 feet from the Site. Burdens Pond is an impoundment/wetland on the Wynants Kill, approximately 0.5 mile upstream of the project area. Given their locations, these wetlands would be unaffected by site-related conditions.

Both significant coastal fish and wildlife habitats (Menands Marsh and Poestenkill Creek) are more than 1 mile from the subject site.

The locations of the rare plants are located on the west side of the Hudson River, more than 1.5 miles from the site.

A total of 69 different plant species (including trees, shrubs, and herbs), and 23 species of wildlife were observed on or surrounding the site during the December 9, 1994 site visit. However, existing data sources estimate that approximately 163 different wildlife species and 77 species of fish are likely to occur within a 0.5-mile radius of the site. The difference could be, in part, attributed to the timing of the field survey; observed species were limited to those that were on-site and active during the winter months. Breeding and migratory species of birds were not present, nor were any reptiles or amphibians (which would be hibernating). The species likely to occur in the study area include:

Birds: Of the breeding birds documented in the area, none are on the state or federal lists of endangered or threatened species. Two species, however, the eastern bluebird and the common nighthawk, are listed as Special Concern by the NYSDEC.

Mammals: Documentation indicated the likely presence of at least 37 mammal species of which 8 were observed during the field survey. No rare or unusual mammal species were observed, or considered likely to inhabit the area.

Reptiles and Amphibians: No reptiles or amphibians were observed because of the time of year the field survey took place. However, based on the type of habitat available, it was estimated that at least 17 species of reptiles and amphibians could exist in the area. No rare species are anticipated to occur in the area based on the lack of available habitat.

Fish: Studies indicate that approximately 77 species of fish occur in the upper Hudson River reservoir. This area of the river does provide habitat for one listed endangered fish, the short nose sturgeon.

Seven separate terrestrial and aquatic communities were identified on or within a 0.5-mile radius of the project site. These communities included:

- Old Field
- Shrub Upland
- Deciduous Forest
- Developed/Disturbed
- Wetland
- Midreach Stream
- Tidal River

The Site and surrounding area appear to have a wildlife community typical of an urban industrial/residential setting in terms of both abundance and diversity. There were no observations of physical stress that appeared to be related to site contamination. However, because plants were dormant at the time of field review, any abnormalities in size or coloration of foliage could not be documented. Any lack of species appeared to be related to the lack of a particular habitat, or the high level of physical disturbance and human activity, rather than industrial residuals.

4.2.3 Habitat-Based Value Assessment

The diversity of cover types in the study area provides habitat for common aquatic, forest, and early successional species. However, human development and the associated disturbance and loss of habitat, severely limits the habitat value of terrestrial communities in this area.

The aquatic habitat, despite being in an urban setting, appears to support a healthy and abundant fish population. Any limitations in fish abundance and diversity are probably results of water temperature and dissolved oxygen content, along with the less than ideal cover availability.

Although there is no significant commercial fishing, the Hudson River supports high-quality recreational fishing for smallmouth bass, northern pike, and other warm-water species. These recreational activities are limited on the eastern shore of the river because of a steep sloping shoreline and lack of public access. While providing good recreational opportunities, the river's value is limited because of the concern over potentially high PCB levels in fish inhabiting this portion of the river. A NYS Health Department advisory against eating most species of fish caught in this area exists.

Along with providing habitat for a variety of warm-water fish species, the open water of the Hudson is used by migratory and wintering water foul. However, shallow-water habitat is extremely limited in the area of the Site because of the lack of emergent vegetation. Consequently, the shoreline provides little, if any, wetland habitat beyond limited foraging by shorebirds. Nesting habitat for waterfowl also appears to be limited by the steep shoreline, lack of thick shoreline vegetation, and absence of suitable tree cavities. The shoreline does harbor abundant insects, invertebrates, frogs, and fish, which serve as important food sources for terrestrial species.

4.2.4 Regulatory Criteria

The Hudson River and the Wynants Kill are considered "waters of the United States," and, as such, are protected under the Clean Water Act of 1977, Sections 401 and 404. Based on the current lack of use of these waters by the current site activities, limited regulatory criteria are applicable. The following New York State regulations could potentially be applicable:

- **6NYCRR PART 700-705**: Water Quality Regulations for Surface Waters and Groundwaters; includes New York State's stream classification system; establishes best use of the Hudson and Wynants Kill; establishes physical, chemical, and biological ambient water quality standards and guidance values and permitted discharge requirements.

- **6NYCRR PART 608**: Requires acquisition of a permit to conduct disturbance activities in the bed or banks of protected streams.

5.0 FIELD OBSERVATIONS

During field activities, Groundwater Technology personnel observed and documented conditions at the site that were not part of the PSA study, but may represent potential environmental concerns. As stated, evaluation of these conditions was not completed. The presence of these conditions however, may speak to the current general conditions and environmental practices at the site.

These conditions include:

- **Unidentified Drums**: Numerous unidentified drums were observed on the King Fuels property during the site activities and during site reconnaissance visits. An inventory of the quantity, or contents, of the drums was not conducted, however. Several locations of the drums include:

  - two under the former coke screening station
  - six inside the building near monitoring well MW-4
  - three near the fuel transfer line to Chevron near the wooden dock on the eastern side of the site
  - three near the fuel transfer line, between MW-4 and MW-5

Additionally, an unidentified quantity of drums was observed half-buried in the ground during field work conducted in the fall of 1994 in the portion of the site used for parking school busses. Specifically, the drums were located near the fuel transfer line and between MW-4 and MW-5. These drums were not observed during the most recent site visit, and regrading of the area appears to have occurred.

These drums are of a more contemporary origin than can be associated with historical MGP operations.

- **Relocation of Purifier Box Waste**: During the PSA site activities, oxide boxes that were historically used by water gas and coke oven plants as a final gas purification step for removing hydrogen sulfide from the manufactured gas were observed intact. These boxes were observed to be filled with spent oxide waste. Spent oxide wastes are typically high in sulfur and also contain significant amounts of various cyanides and heavy metals. Oxide box waste is not a RCRA hazardous waste, but might fail the RCRA reactivity test based on its cyanide and/or sulfide content.

  During a final site reconnaissance visit conducted in April 1995, it was observed that the oxide boxes had been razed and the contents relocated and used as construction fill by King Fuels, or its subcontractors, on the south side of the 2,000,000 cubic feet holder (between the gas holder and the Wynants Kill).

- **Suspected Asbestos:** Several buildings on the study area appeared to contain asbestos insulation in a deteriorated state. Recently, lack of maintenance on these buildings has allowed them to deteriorate. In a deteriorated state, asbestos particles/fibers can become airborne and potentially impact human receptors such as site workers.

6.0 IRM EVALUATION

The site conditions in Area 2, excluding those identified in section 5.0, were evaluated to determine if an imminent danger to health or the environment exists, or conditions exist which may lead to an imminent danger, which warrants proceeding with one or more IRMs. An IRM is considered a discrete set of activities to address both emergency and non-emergency site conditions, which can be undertaken without extensive investigation and evaluation, to prevent, mitigate, or remedy environmental damage. This evaluation consisted of the review of the chemical data collected, the *Preliminary Risk Evaluation* report, and the *Fish and Wildlife Impact Analysis — Step 1* report, combined with observations gathered during site reconnaissance visits.

The preliminary risk evaluation did not indicate unacceptable risks to human health based on the current usage. Several compounds and metals in surface soils were above NYSDEC cleanup guidance values for hazardous waste sites. However, these guidance values are intended as objectives for cleanup for unrestricted property uses. The subject property is zoned and used as industrial property. There is no residential use of the property. Therefore, the NYSDEC Guidance Values are not applicable as IRM trigger levels.

Based on the above criteria, the chemical nature of the site does not pose an imminent danger to current workers, potential future construction workers, or wildlife. These data support the conclusion that IRMs are not warranted and that any remediation should be completed in recognition of current and intended uses of the site. Therefore, potential IRM activities include only non-emergency activities aimed at preventing further chemical impacts to the environment.

Two IRMs have been identified which fit into this category. These potential IRMs include:

- **300,000 Cubic Feet Gas Relief Holder:** The current contents of the former gas holder is leaking through a hole (approximately 2 feet in diameter) cut into the side of the holder. The roof of the holder has apparently rusted away. Lack of maintenance on the gas holder has allowed rainwater to fill the holder to the hole and flow out freely into concrete vaults adjacent to the tank. From the vaults, the water apparently seeps into the ground.

  As presented in section 3.2.2 of this report, both the water and an undetermined quantity sludge in the holder is likely to be classified as a RCRA hazardous waste by characteristic for benzene.

  The contents of the holder should be analyzed to determine if the material is MGP- or petroleum-related.

  The gas holder should then be emptied of the sludge and accumulated water and cleaned. The contents should be properly transported for off-site disposal.

- **Closure of Suspected Tar Well:** A suspected tar well exists in the area of test pit TP-7 (near the former tar/lime/creosote tank farm). The contents of the tar well should be excavated and properly transported for off-site disposal. The tar well structure should be cleaned in place, or also removed for proper disposal.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The objective of this section is to summarize the conclusions of the field investigation. These conclusions are based on the geologic and hydrogeologic information collected combined with the preliminary risk evaluation and the fish and wildlife impact analysis.

To be concise, the conclusions are presented in a "bulleted" format.

7.1 Conclusions

Based on the PSA/IRM Study, the following conclusions may be drawn.

Site Setting

- Area 2 is approximately 33 acres in area and is located in an area of Troy characterized by industrial and commercial land use. The site is bounded to the west by the Hudson River, to the east by the New York Central Railroad, to the south by the Chevron asphalt batch plant, and extends approximately 50 feet north of the remains of a 2 million cubic feet gas holder.

- The site is currently owned by King Fuels, a heating oil and gasoline distributor. Much of the site is covered with pavement, buildings, and industrial structures. Many of the buildings and tanks from the former MGP remain, and several are currently in use by King Fuels.

- A majority of the surficial soils at the site has been disturbed through excavation or grading. The thickness of fill, which consists primarily of slag, cinders, ash, bricks, and gravel, ranges from approximately 5 feet on the eastern portion of the site, to approximately 40 feet on the western portion.

- Groundwater was found at depths ranging from 18 to 31 feet below grade. The groundwater flows primarily to the west, toward the Hudson River. A portion of the groundwater flow appears to converge toward the former Wynants Kill channel.

- An inventory of both the number and contents of the unlabeled drums which exist across the site should be conducted, including verification that drums have not been inadvertently buried under the fill which appears to be present in the vicinity of the school bus parking area. Because the more recent origin of these drums indicates they are not associated with the former MGP operations, this inventory should be conducted by the current site operators.

Source Characterization

- Inspection of the former 2,000,000 cubic feet gas holder from an access manway in the roof indicated that it appeared to be empty. Due to the absence of access at grade, the investigation was indeterminent in verifying that there were no contents below the floating ceiling.

- Inspection of the former 300,000 cubic feet gas holder and sampling and laboratory analysis of its contents indicated that both the water and sludge may be considered a RCRA hazardous waste by characteristic.

- Results from the waste characterization sampling of the tar-like material encountered at the location of test pit TP-7 indicated that the material is considered a RCRA hazardous waste by characteristic. The location of TP-7 is suspected to be located within a former tar well.

- An evaluation of the spent oxide waste and any impacts of its recent disposal by King Fuels should be conducted.

Surface Soils

- No pesticides, PCBs, or VOCs were detected above the USEPA Health Based or NYSDEC Recommended Cleanup Objectives presented in TAGM HWR-94-4046.

- Total semivolatiles were not detected above the 500 mg/kg Recommended Cleanup Objective presented in TAGM HWR-94-4046. Total semivolatiles ranged from 0.037 to 266.5 mg/kg. The soil sample collected from sample location SS-10, where the highest concentration of semivolatiles was detected (266.5 mg/kg), was collected directly beneath asphalt and may not be representative of MGP impacts.

- An investigation of the background metals concentrations in soils for the area surrounding the project site was not completed as part of the PSA study. Recommended Cleanup Objectives for metals presented in NYSDEC TAGM HWR-94-4046 may not be representative of heavily industrialized areas such as Troy, New York, but have been included for discussion purposes only.

- Generally, a majority of the TAL metals was detected at most sampling locations. Only zinc was detected at all three sampling locations above Eastern USA Background Concentrations as reported in TAGM HWR-94-4046.

- A random pattern appears to exist for most metals detected, which therefore does not form a pattern that can be used to determine the source of the metals (MGP, other more contemporary residuals, or background levels).

Sediment Samples

- No PCBs were detected.

- No pesticides were detected above the Recommended Cleanup Objective presented in TAGM HWR-94-4046 with the exception of endrin in the downgradient sample.

- No VOCs were detected above the Recommended Cleanup Objective presented in TAGM HWR-94-4046.

- The sediment soil sample collected at the upgradient (eastern) boundary of the study area exceeded the Recommended Cleanup Objective of 500 mg/kg presented in TAGM HWR-94-4046 for total semivolatiles (2,231 mg/kg); the downgradient sediment sample, collected from the area where the Wynants Kill deposits into the Hudson River (498 mg/kg), did not exceed the Recommended Cleanup Objective.

- The concrete lining of the area from which the downgradient sample was collected may explain the apparent disparity between downgradient and upgradient SVOC concentrations.

- A random pattern appears to exist for most metals detected which therefore does not form a pattern which can be used to determine the source of metals (MGP, other more contemporary residuals, or background levels).

Subsurface Soils

- The principal contaminants of concern identified were VOCs and semivolatiles. VOC concentrations ranged from below detectable levels to 44.8 mg/kg. Semivolatile concentrations ranged from less than 1.0 to 185,340 mg/kg (in the suspected tar well).

- Of the 67 soil samples collected for analysis of VOCs, only four of the soil samples exceeded the Recommended Cleanup Objective of 10 mg/kg total VOCs presented in TAGM HWR-94-4046 (SB-13, SB-15, SB-19, and TP-7).

- The highest concentrations of total semivolatiles in subsurface soils were encountered at the location of the suspected tar well (TP-7) and at two soil borings located in the former creek channel (SB-13 and SB-15).

- Of the 20 locations on the site at which soil borings, monitoring wells, or test pits were installed (total of 67 soil samples collected for analysis), 7 locations had at least one soil sample (total of 7 soil samples) which possessed total semivolatile concentrations exceeding the Recommended Cleanup Objective of 500 mg/kg presented in TAGM HWR-94-4046 (TP-1, TP-7, MW-2, MW-5, SB-13, SB-15, and SB-18).

- The relative distribution of semivolatiles which was detected at soil boring SB-19 appeared to be different from the relative distribution of semivolatiles in other areas of the site (a higher percentage of lighter, less condensed semivolatiles existed in the SB-19 sample). The GC Gas/GC Fuel Oil analysis performed on this sample (table 5-5) indicated the soil contained 3,100 mg/kg TPH as gasoline and 14,000 mg/kg No. 2 fuel oil. Additionally, the GC Gas/GC Fuel Oil analysis performed on the soil sample from SB-15 indicated the soil contained 4,300 mg/kg TPH as gasoline and 40,000 mg/kg No. 2 fuel oil. The highest BTEX impacts in subsurface soils (outside the suspected tar well) were also found at these locations. These soil borings are located downgradient of underground storage tanks associated with the King Fuels operation and may be evidence that more than one source of hydrocarbon impacts exits.

- A random or inconsistent pattern appears to exist for most metals detected. A correlation between the presence of these metals and historical MGP, or more contemporary activities, could not be made.

Surface Water

- No pesticides or PCBs were detected.

- No VOC concentrations were detected that exceeded the NYSDEC Class C surface water standards as presented in the TOGS 1.1.1.

- No semivolatile concentrations were detected that exceeded the NYSDEC Class C surface water standards as presented in the TOGS 1.1.1.

- Aluminum was the only metal detected with a concentration exceeding the NYSDEC Class C surface water standards as presented in the TOGS 1.1.1.

Groundwater

- No pesticides or PCBs were detected during either sampling event.

- During both sampling events, two of the five monitoring wells did not possess any VOCs.

- Chloroform (at MW-1 and MW-5) and benzene (at MW-4) were the only analytes to exceed NYSDEC Class GA groundwater standards during the first sampling event. Similar results were obtained from the second sampling event. Monitoring well MW-4 appears to be downgradient of the underground storage tanks associated with the King Fuels operations.

- Phenol was the only semivolatile analyte detected above NYSDEC Class GA groundwater standards during either sampling event (MW-4).

- Five metals were present in concentrations exceeding NYSDEC Class GA groundwater standards during the two sampling events.

Preliminary Risk Evaluation

- Based on dermal contact and incidental ingestion, the potential cancer risks to daily workers (3×10^{5}) and construction workers (8×10^{5}) was within the EPA's target risk range of 1×10^{4} to 1×10^{6}. Likewise, the potential non-cancer hazard indices for daily workers (0.004) and construction works (0.16) was below the EPA's threshold value of 1.0. Based on existing information, therefore, the site does not pose an imminent danger to human health in the short term.

Fish and Wildlife Impact Analysis

- The five state-regulated wetlands, two significant coastal fish and wildlife habitats, and three documented rare plant locations which exist within a 2-mile radius of the site appear to be unaffected by site-related activities.

- Any lack of plant or animal species appeared to be related to human and industrial development and the associated loss of habitat rather than industrial residuals.

7.2 Recommendations

MGP and other industrial related impacts are present on site. A focussed remedial investigation/feasibility study is necessary to fill site characterization data gaps and to evaluate the need for potential remedial measures. The following list presents recommended additional assessment tasks which, when combined with the information collected during the PSA study, will more fully characterize the project site:

- Evaluate the quality and organic content of Wynants Kill soil sediments and surface water upstream from the Site by collection of appropriate samples.

- Collection of Hudson River sediment samples from within the zone of tidal influence to evaluate if significant impacts from MGP residuals exist. Samples should be collected upstream and downstream of the project site to assist in differentiating between background conditions and site impacts (if any).

- Continue the on-site subsurface soil and groundwater sampling program with the following objectives:

  - delineate/differentiate the extent of subsurface impacts associated with historical MGP operations and contemporary site operations

  - characterize subsurface soil and groundwater downgradient of the 2,000,000 cubic feet gas relief holder

  - characterize subsurface soil and groundwater around the 300,000 cubic feet gas relief holder

  - better understand groundwater flow direction and gradient on the southern and central portions of the site and determine the influence of the former Wynants Kill channel on groundwater flow by the installation of piezometers

- Collect information on background concentrations of metals in area soils by conducting literature searches and/or performing surface soil sampling.

- Locate and review engineering design drawings of the 2,000,000 cubic feet gas relief holer for details of construction. These details are required to aid in developing a safe plan to access the holder to verify the contents below the floating ceiling.

8.0 REFERENCES

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6. Geologic Map of New York, Hudson Mohawk Street, D. Fisher, 1970.

7. "Exposure to Carcinogenic PAHs in the Environment," Menzie, Potocki, and Sanodonato, *Environmental Science & Technology*, Vol. 26, 1992.

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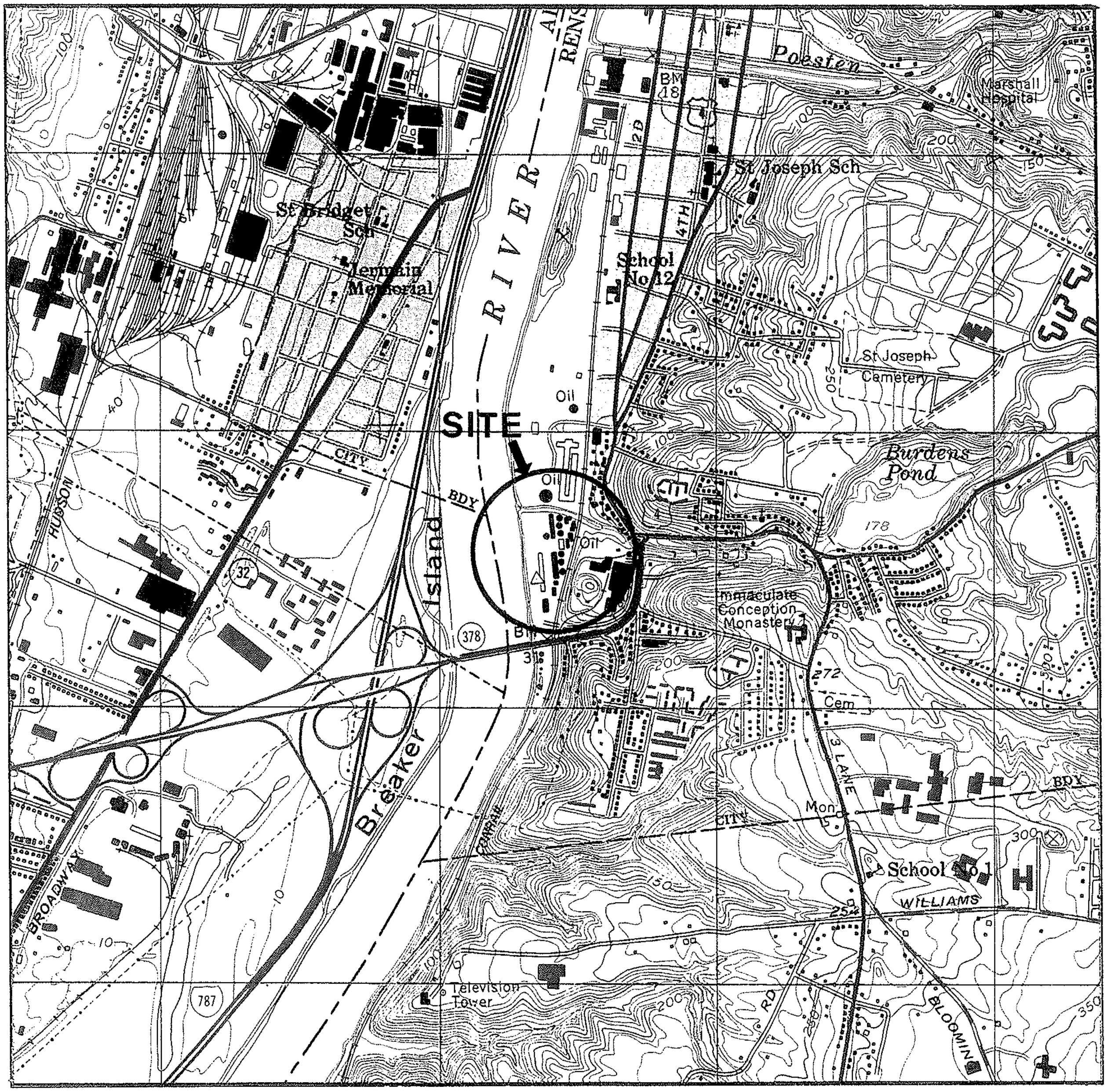
9. Environmental Research & Technology, Inc. and Koppers Company, Inc., *Handbook on Manufactured Gas Plant Sites,* prepared for Utility Solid Waste Activities Group, September 1994.

10. NYSDEC Division of Hazardous Waste Remediation, Division of Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-92-4046, January 1994.

FIGURES



SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
TROY SOUTH, NY QUADRANGLE
7.5 MINUTE SERIES
DATE: 1953
PHOTOREVISED: 1980

QUAD LOCATION

SCALE 1:24,000

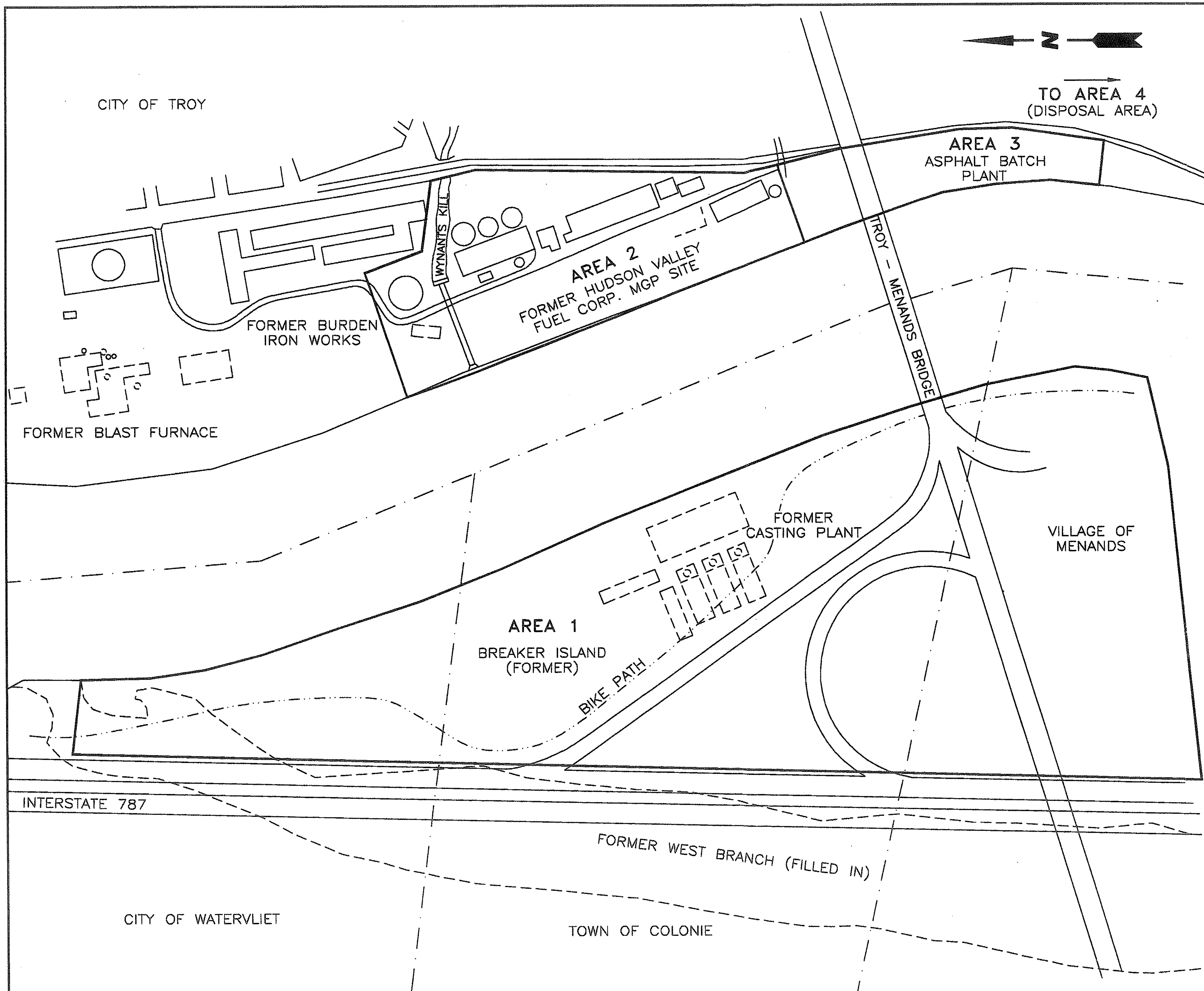
0 2,000 4,000
SCALE FEET

N

GROUNDWATER TECHNOLOGY

1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

DESIGNED:	SITE LOCATION MAP	
TMM		
DETAILED: DEO	CLIENT: NIAGARA MOHAWK POWER CORPORATION	DRAWING DATE: 4/24/95
CHECKED:	LOCATION: WATER STREET TROY, NEW YORK	FIGURE: 2-1



LEGEND

FORMER STRUCTURES

0 500 1000

SCALE FEET

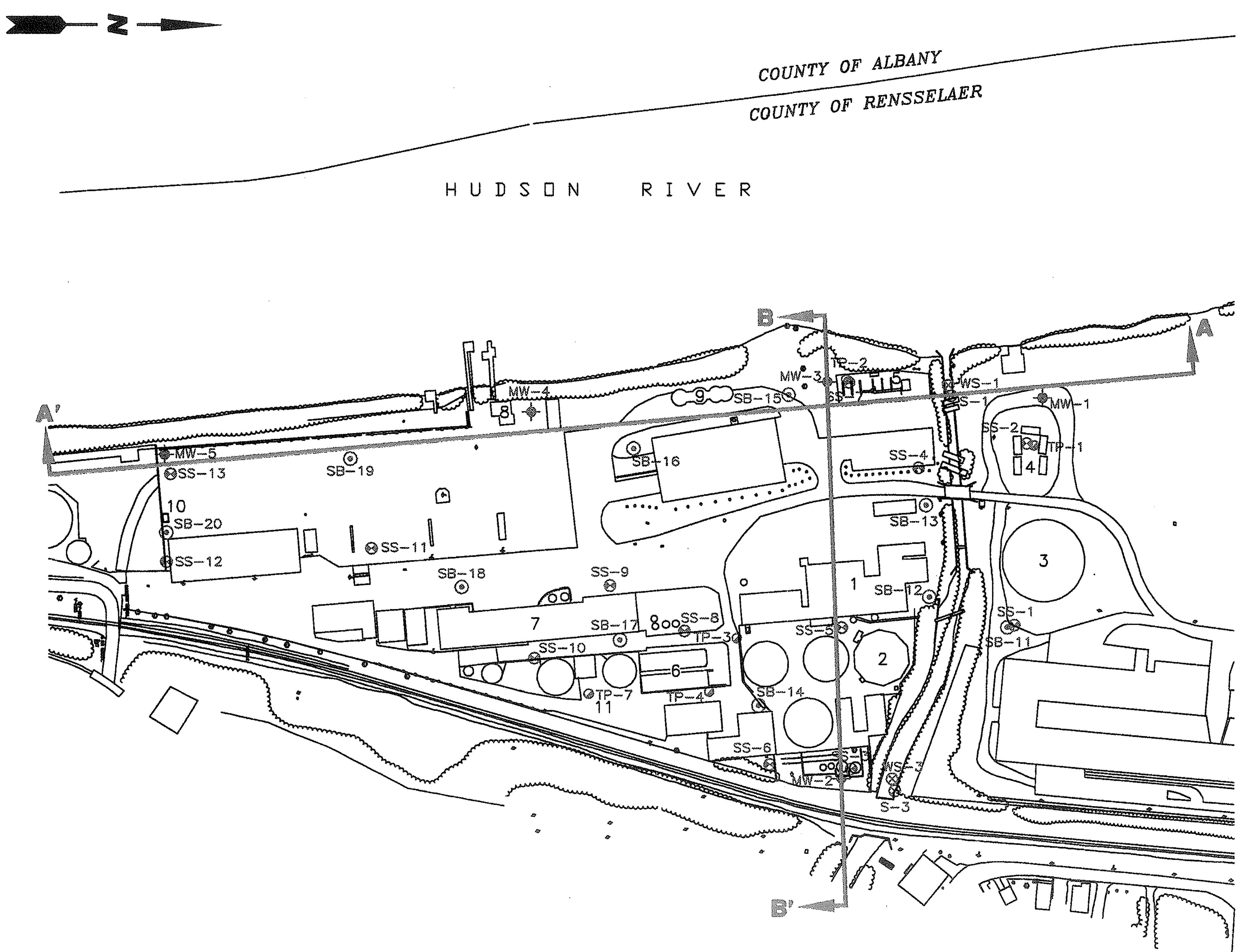
GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.:	DRAWING DATE: 4/25/95	ACAD FILE: 0037-STP

SITE PLAN

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM

DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
---	DEO	01110-0037	2-2



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE

A — A' LOCATION OF GEOLOGIC CROSS-SECTION (MW-1 TO MW-5)

B — B' LOCATION OF GEOLOGIC CROSS-SECTION (MW-3 TO MW-2)

BASE MAP SOURCE: NMPC SURVEY

0 200 400

SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

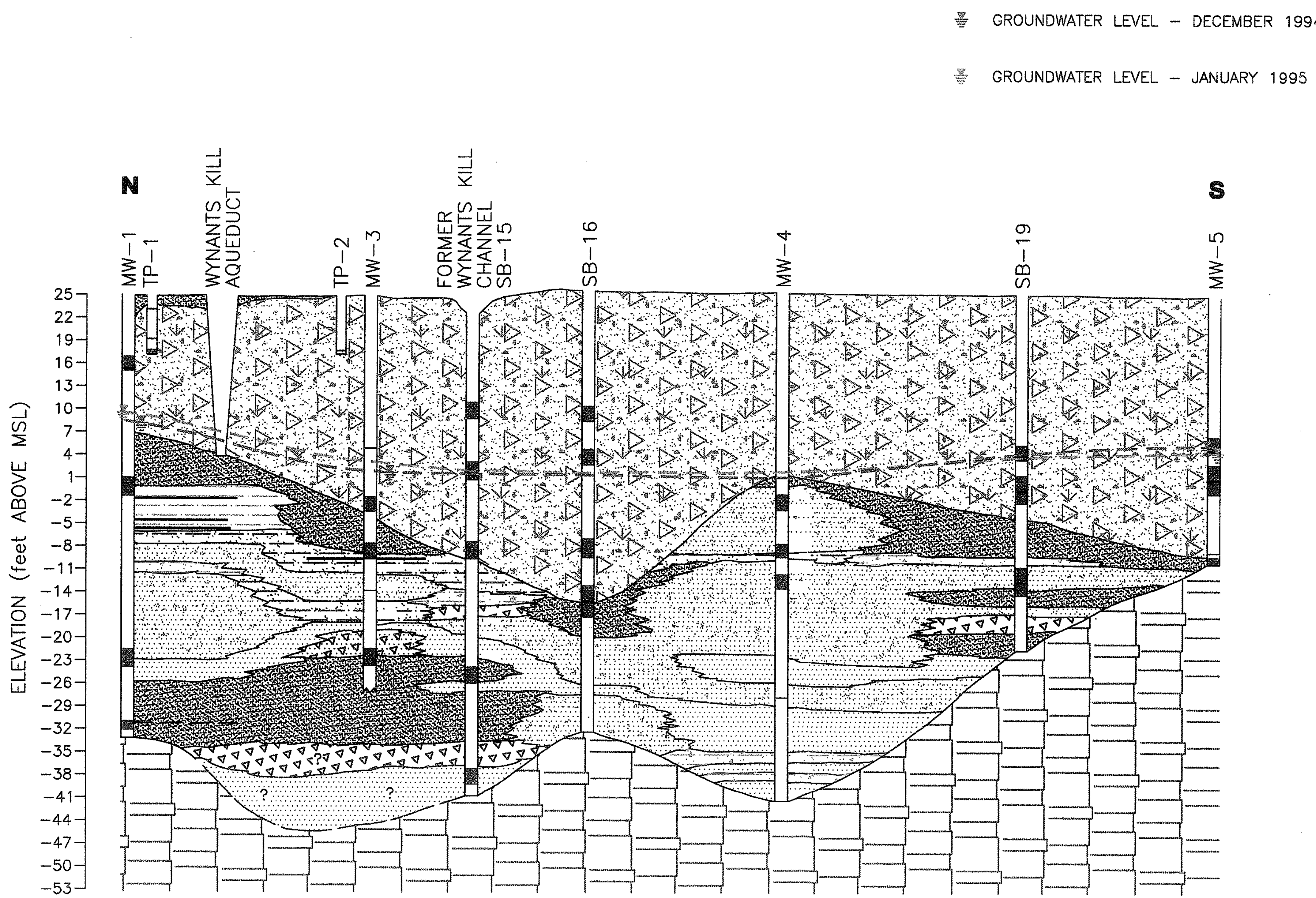
GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-ST1

AREA 2 SITE MAP

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM

DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
---	DEO/GMC	01110-0037	**2-3**



LEGEND

- FINE SAND
- SLAG
- SHALE BEDROCK
- CLAY
- COARSE SAND
- CLAY AND SILT or CLAY AND FINE SAND
- CLAY WITH GRAVEL or CLAY WITH GRAVEL AND SAND
- GRAVEL
- SAND AND GRAVEL MIXTURES
- SAND WITH COBBLES
- PEAT

SB SOIL BORING

TP TEST PIT

MSL MEAN SEA LEVEL

R DATA UNUSABLE

VERTICAL SCALE: AS NOTED

HORIZONTAL SCALE:

0 300 600

SCALE FEET

GROUNDWATER TECHNOLOGY

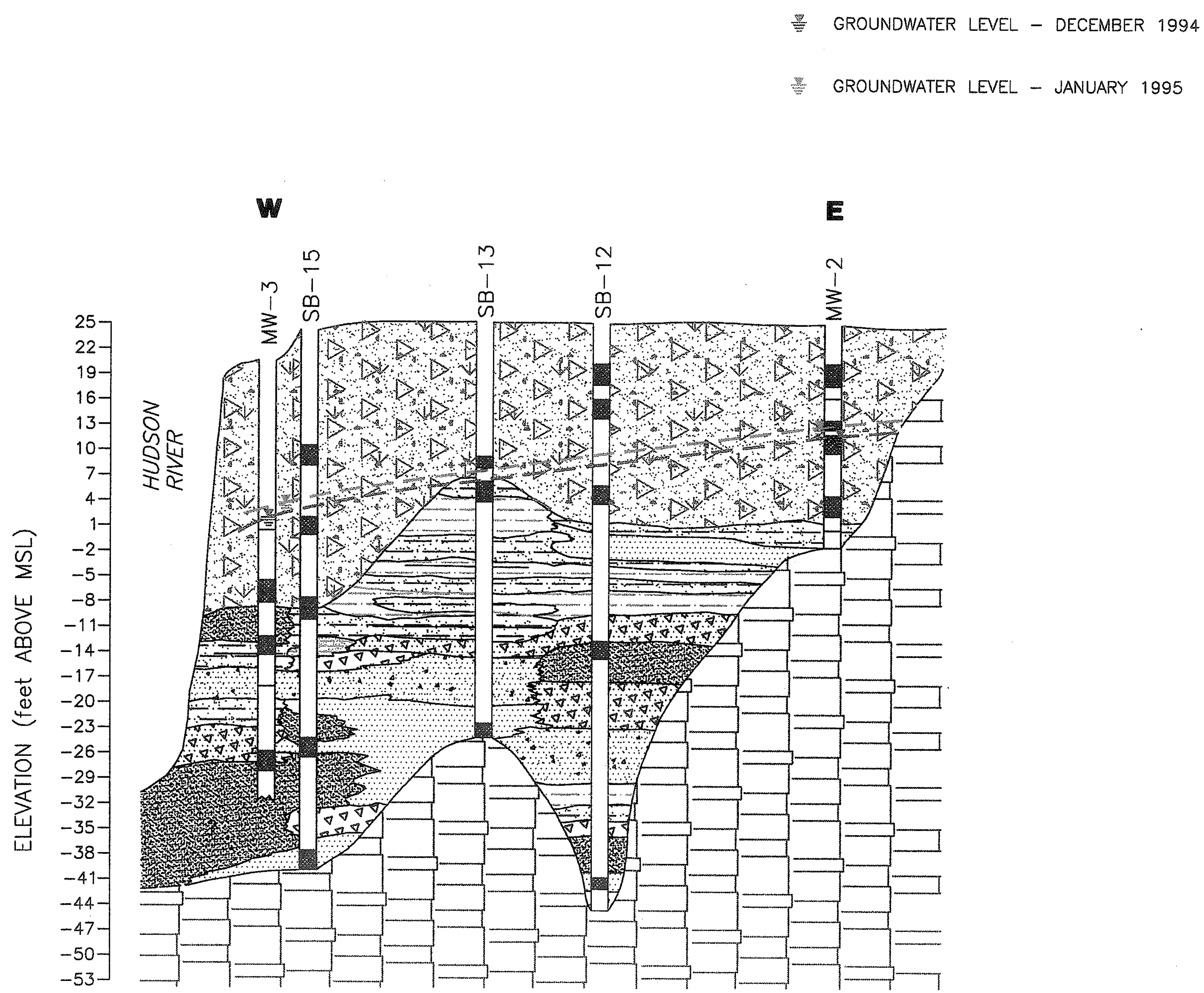
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370–5631

REV. NO.:	DRAWING DATE: 6/14/95	ACAD FILE: 0037–X1

DISTRIBUTION CROSS-SECTION [MW-1 TO MW-5]

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM

DESIGNED:	DETAILED:	PROJECT NO.:	DRAWING:
SJT	GMC	01110–0037	4–1



LEGEND

- FINE SAND
- SLAG
- SHALE BEDROCK
- CLAY
- COARSE SAND
- CLAY AND SILT or CLAY AND FINE SAND
- CLAY WITH GRAVEL or CLAY WITH GRAVEL AND SAND
- GRAVEL
- SAND AND GRAVEL MIXTURES
- SAND WITH COBBLES
- PEAT

SB SOIL BORING

MW MONITORING WELL

MSL MEAN SEA LEVEL]

R DATA UNUSABLE

VERTICAL SCALE: AS NOTED

HORIZONTAL SCALE:

0 300 600

SCALE FEET

GROUNDWATER TECHNOLOGY

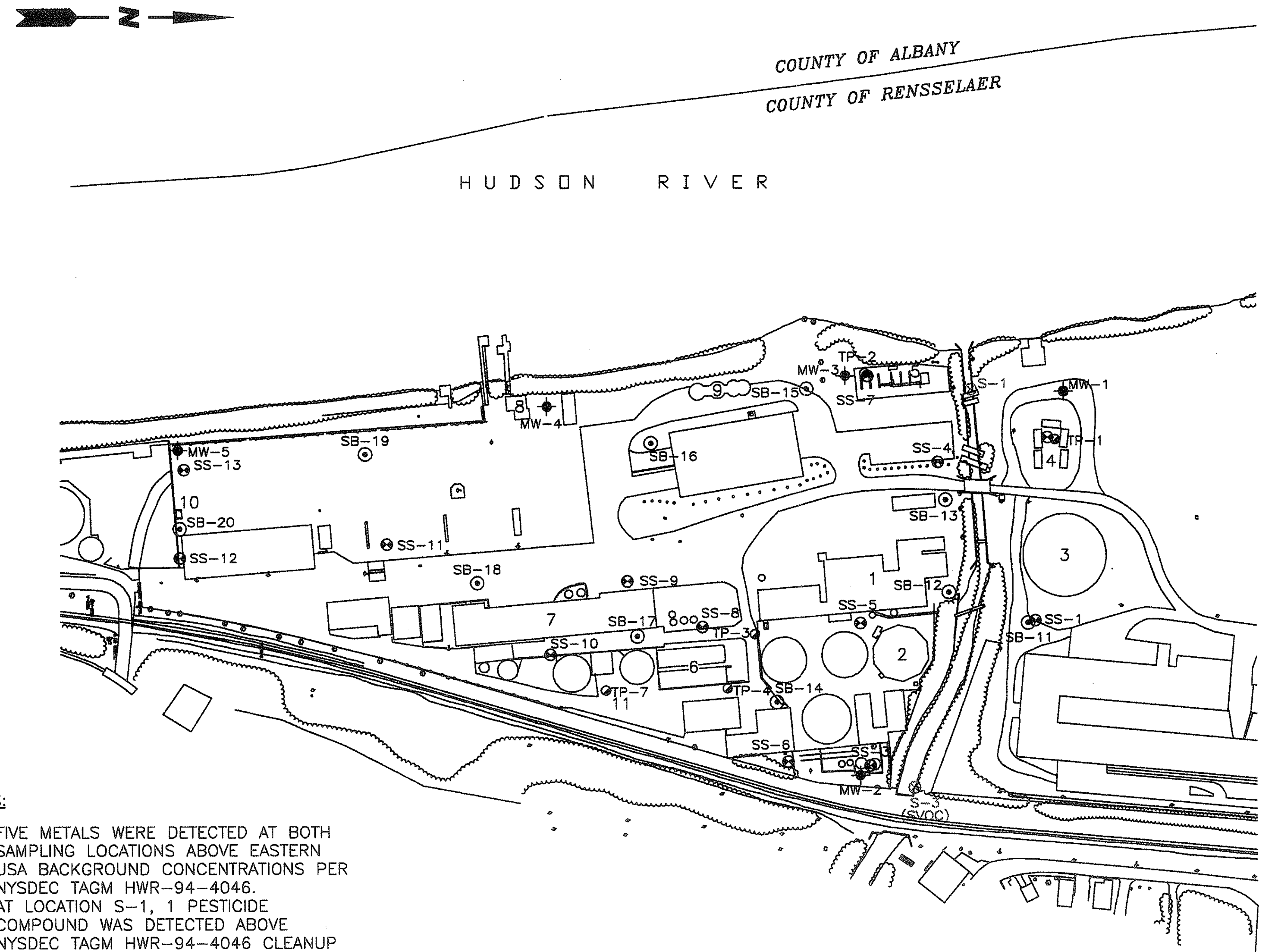
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/13/95	ACAD FILE: 0037-X2

GEOLOGIC CROSS-SECTION MW-3 TO MW-2

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM

DESIGNED:	DETAILED:	PROJECT NO.:	DRAWING:
SJT	GMC	01110-0037	4-2



LEGEND

⊕	MONITORING WELL
⊙	SOIL BORING
●	TEST PIT
⊗	SURFACE SOILS SAMPLE
⊗	SURFACE SEDIMENT/WATER SAMPLE
(SVOC)	CONCENTRATION OF TOTAL SVOCs > 500 mg/kg

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

NOTES:

1. FIVE METALS WERE DETECTED AT BOTH SAMPLING LOCATIONS ABOVE EASTERN USA BACKGROUND CONCENTRATIONS PER NYSDEC TAGM HWR-94-4046.
2. AT LOCATION S-1, 1 PESTICIDE COMPOUND WAS DETECTED ABOVE NYSDEC TAGM HWR-94-4046 CLEANUP OBJECTIVES.
3. SEDIMENT SAMPLE LOCATIONS ARE IDENTIFIED IN BLUE.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
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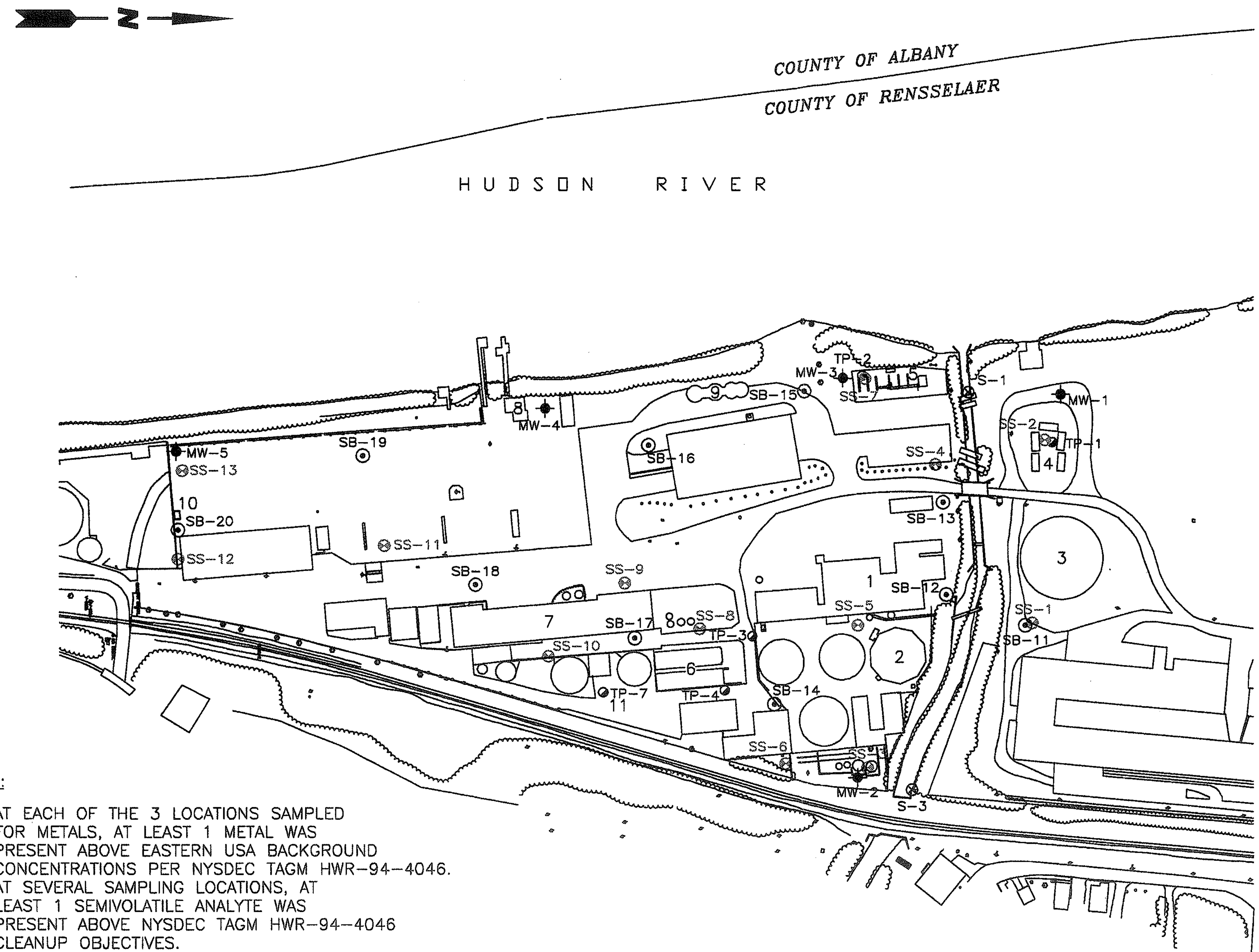
REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-SS1

SEDIMENT SAMPLING RESULTS

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM

DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
TMM	DEO\GMC	01110-0037	4-3



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1. WATER GAS PLANT
2. 300,000 ft^3 GASHOLDER(EXISTING)
3. 2-MILLION ft^3 GASHOLDER(EXISTING)
4. USED STORAGE TANKS
5. NMPC GAS REGULATOR
6. OXIDE PURIFIERS
7. KING FUELS OFFICE BUILDING AND GARAGE
8. COKE SCREENING STATION
9. COKE SILOS
10. LOCATION OF FORMER CREOSOTE OIL TANK
11. TAR/LIME/CREOSOTE TANK FARM

NOTES:

1. AT EACH OF THE 3 LOCATIONS SAMPLED FOR METALS, AT LEAST 1 METAL WAS PRESENT ABOVE EASTERN USA BACKGROUND CONCENTRATIONS PER NYSDEC TAGM HWR-94-4046.
2. AT SEVERAL SAMPLING LOCATIONS, AT LEAST 1 SEMIVOLATILE ANALYTE WAS PRESENT ABOVE NYSDEC TAGM HWR-94-4046 CLEANUP OBJECTIVES.
3. SEDIMENT SAMPLE LOCATIONS ARE IDENTIFIED IN BLUE.
4. NO SURFACE SOIL SAMPLES POSESSED TOTAL SVOCs OR TOTAL VOCs ABOVE NYSDEC TAGM HWR-94-4046 CLEANUP OBJECTIVES.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
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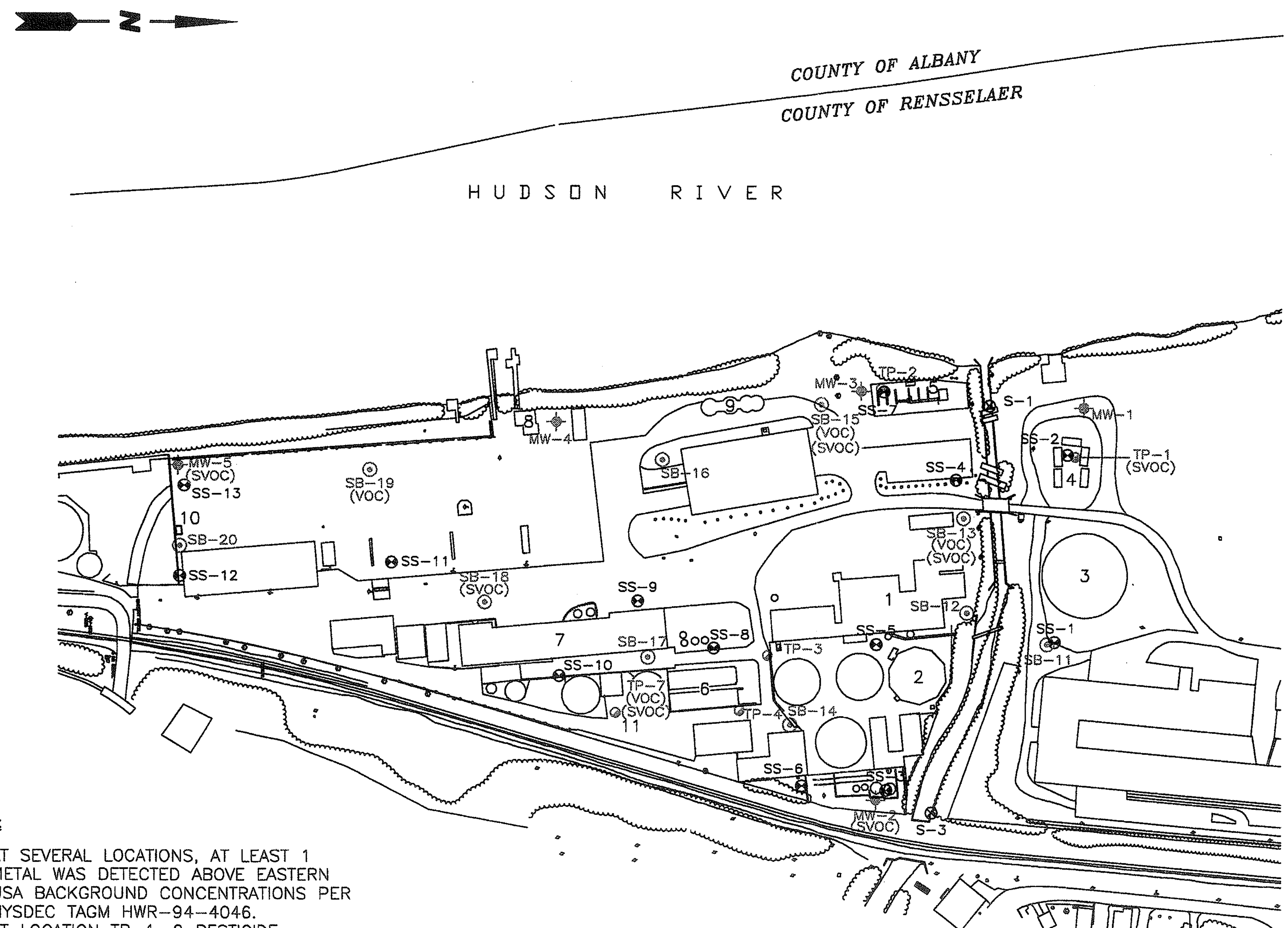
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-SSR

SURFACE SOIL SAMPLING RESULTS

CLIENT: NIAGARA MOHAWK POWER CORPORATION		PM: BWA
LOCATION: WATER STREET TROY, NEW YORK		SM: TMM
DESIGNED: ---	DETAILED: GMC	PROJECT NO.: 01110-0037	FIGURE: 4-4



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE
- (VOC) CONCENTRATION OF TOTAL VOCs > 10 mg/kg
- (SVOC) CONCENTRATION OF TOTAL SVOCs > 500 mg/kg

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

NOTES:

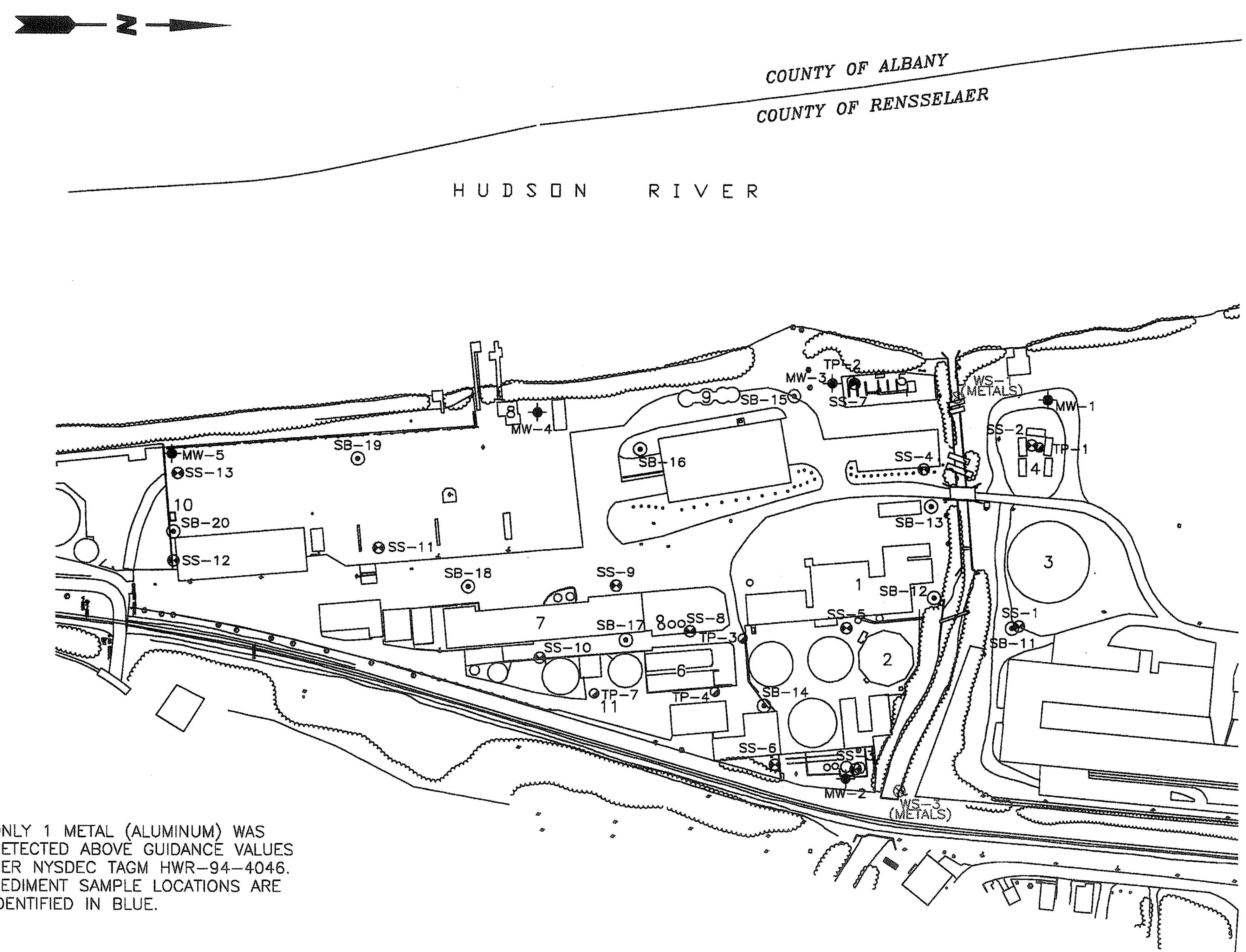
1. AT SEVERAL LOCATIONS, AT LEAST 1 METAL WAS DETECTED ABOVE EASTERN USA BACKGROUND CONCENTRATIONS PER NYSDEC TAGM HWR-94-4046.
2. AT LOCATION TP-1, 2 PESTICIDE COMPOUNDS WERE DETECTED ABOVE NYSDEC TAGM HWR-94-4046 CLEANUP OBJECTIVES.
3. SEDIMENT SAMPLE LOCATIONS ARE IDENTIFIED IN BLUE.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-PS1

SUBSURFACE SOIL SAMPLING RESULTS

CLIENT: NIAGARA MOHAWK POWER CORPORATION		PM: BWA
LOCATION: WATER STREET TROY, NEW YORK		SM: TMM
DESIGNED: TMM	DETAILED: GMC	PROJECT NO.: 01110-0037
FIGURE: 4-5		



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE
- (METALS) SELECTED METALS DETECTED ABOVE NYSDEC CLASS C SURFACE WATER STANDARDS OR GUIDANCE VALUES

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

NOTE:

1. ONLY 1 METAL (ALUMINUM) WAS DETECTED ABOVE GUIDANCE VALUES PER NYSDEC TAGM HWR-94-4046.
3. SEDIMENT SAMPLE LOCATIONS ARE IDENTIFIED IN BLUE.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
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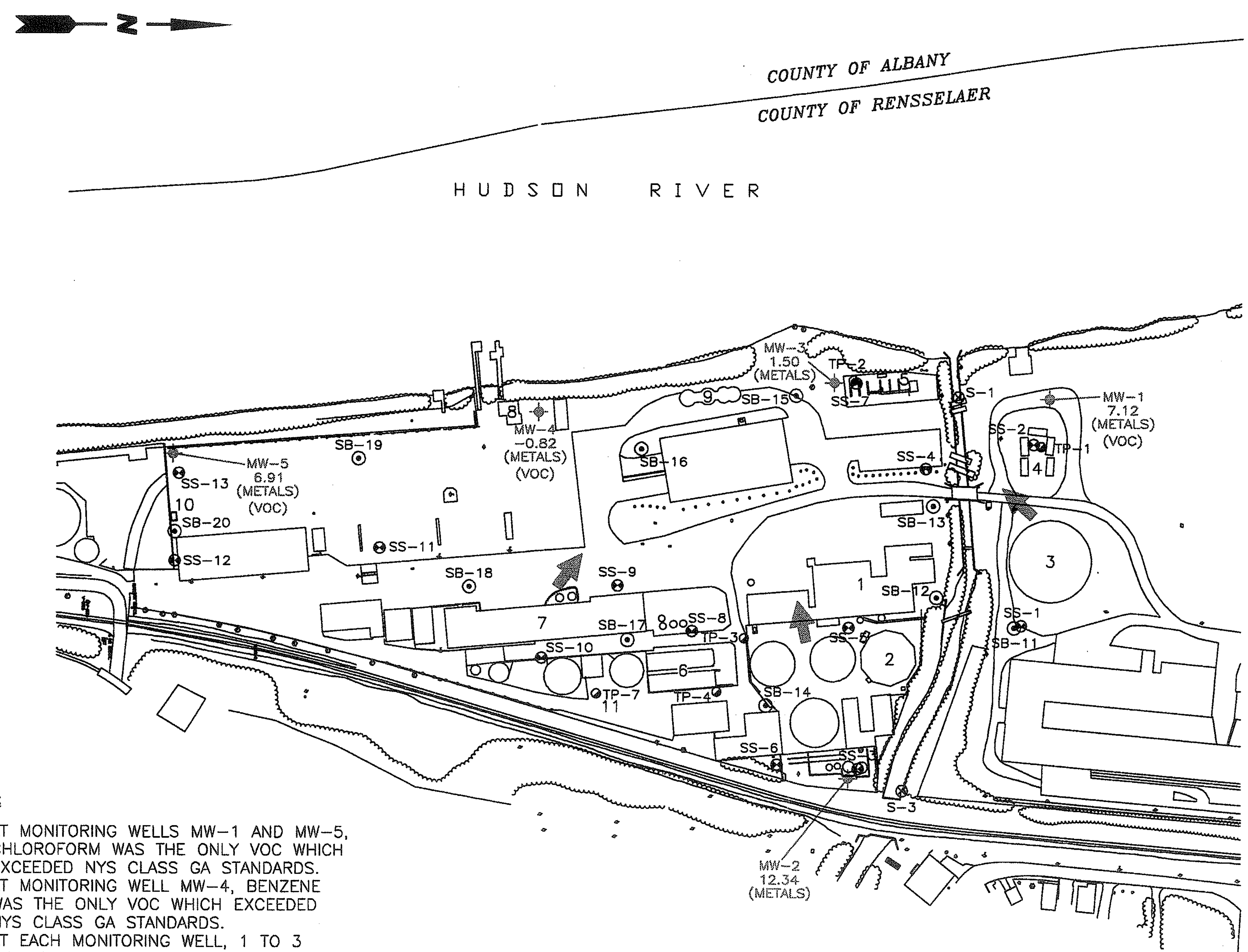
REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-SWS

SURFACE WATER SAMPLING RESULTS

CLIENT:	NIAGARA MOHAWK POWER CORPORATION	PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK	SM: TMM
DESIGNED: ---	DETAILED: GMC	PROJECT NO.: 01110-0037	FIGURE: 4-6



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE
- DIRECTION OF GROUNWATER FLOW
- 7.12 GROUNDWATER ELEVATION (feet)
- (METALS) SELECTED METALS DETECTED ABOVE NYSDEC CLASS GA GROUNDWATER STANDARDS OR GUIDANCE VALUES
- (VOC) SELECTED VOCs DETECTED ABOVE NYSDEC CLASS GA GROUNDWATER STANDARDS OR GUIDANCE VALUES

MONITORING DATE: 12/19/94

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

NOTES:

1. AT MONITORING WELLS MW-1 AND MW-5, CHLOROFORM WAS THE ONLY VOC WHICH EXCEEDED NYS CLASS GA STANDARDS.
2. AT MONITORING WELL MW-4, BENZENE WAS THE ONLY VOC WHICH EXCEEDED NYS CLASS GA STANDARDS.
3. AT EACH MONITORING WELL, 1 TO 3 SEMIVOLATILE ANALYTES EXCEEDED NYS CLASS GA STANDARDS.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
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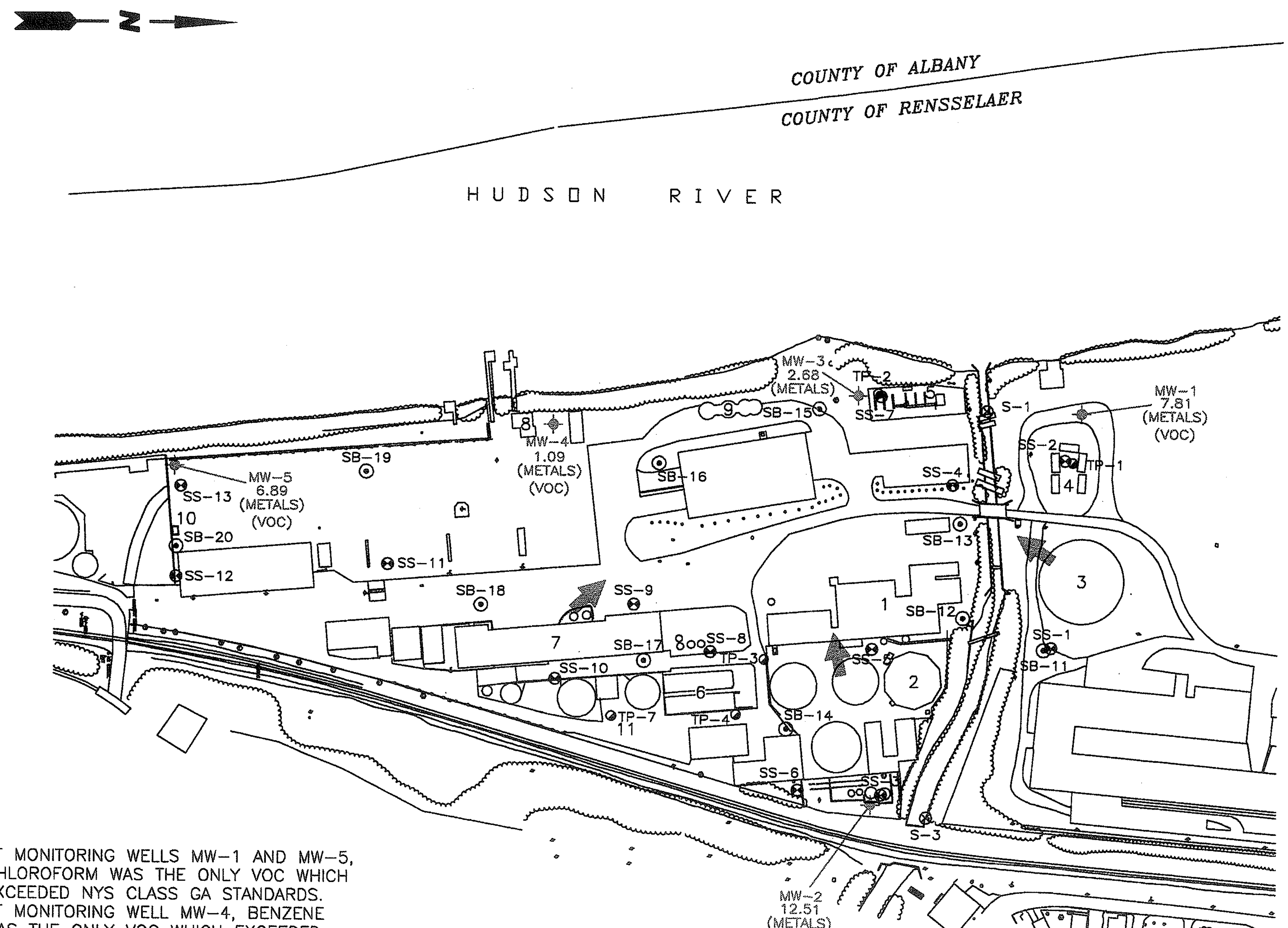
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/12/95	ACAD FILE: 0037-W1B

SUMMARY OF GROUNDWATER MONITORING RESULTS (DECEMBER 1994)

CLIENT:	NIAGARA MOHAWK POWER CORPORATION		PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK		SM: TMM
DESIGNED: TMM	DETAILED: DEO\GMC	PROJECT NO.: 01110-0037	FIGURE: 4-7



LEGEND

- MONITORING WELL
- SOIL BORING
- TEST PIT
- SURFACE SOILS SAMPLE
- SURFACE SEDIMENT/WATER SAMPLE
- DIRECTION OF GROUNWATER FLOW
- 7.81 GROUNDWATER ELEVATION (feet)
- (METALS) SELECTED METALS DETECTED ABOVE NYSDEC CLASS GA GROUNDWATER STANDARDS OR GUIDANCE VALUES
- (VOC) SELECTED VOCs DETECTED ABOVE NYSDEC CLASS GA GROUNDWATER STANDARDS OR GUIDANCE VALUES

MONITORING DATE: 1/18/95

BASE MAP SOURCE: NMPC SURVEY

0 200 400
SCALE FEET

BUILDINGS AND STRUCTURE KEY:

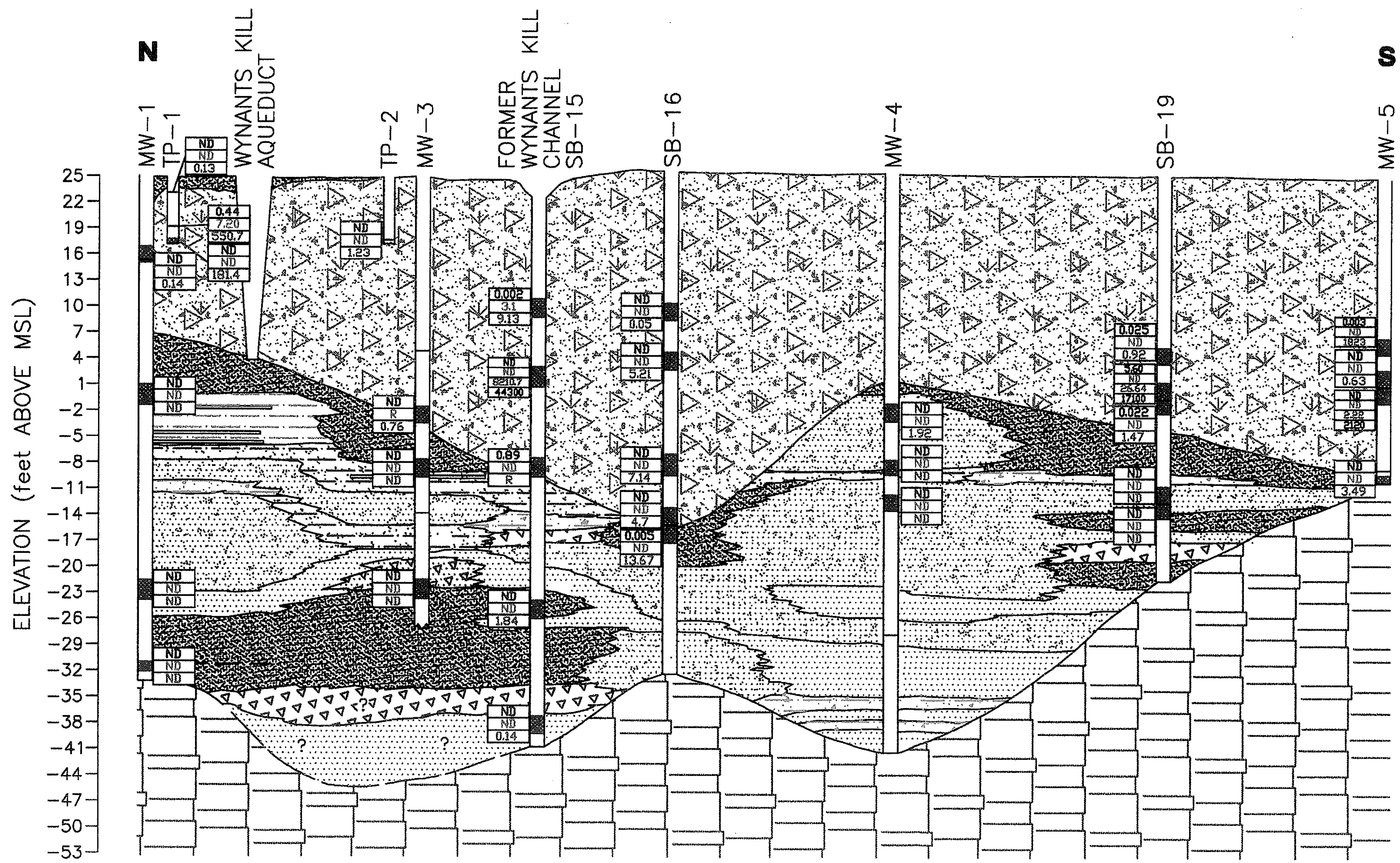
1 WATER GAS PLANT
2 300,000 ft^3 GASHOLDER(EXISTING)
3 2-MILLION ft^3 GASHOLDER(EXISTING)
4 USED STORAGE TANKS
5 NMPC GAS REGULATOR
6 OXIDE PURIFIERS
7 KING FUELS OFFICE BUILDING AND GARAGE
8 COKE SCREENING STATION
9 COKE SILOS
10 LOCATION OF FORMER CREOSOTE OIL TANK
11 TAR/LIME/CREOSOTE TANK FARM

NOTES:

1. AT MONITORING WELLS MW-1 AND MW-5, CHLOROFORM WAS THE ONLY VOC WHICH EXCEEDED NYS CLASS GA STANDARDS.
2. AT MONITORING WELL MW-4, BENZENE WAS THE ONLY VOC WHICH EXCEEDED NYS CLASS GA STANDARDS.
3. AT EACH MONITORING WELL, 1 TO 3 SEMIVOLATILE ANALYTES EXCEEDED NYS CLASS GA STANDARDS.

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.:	DRAWING DATE: 6/13/95	ACAD FILE: 0037-W1C	
SUMMARY OF GROUNDWATER MONITORING RESULTS [JANUARY, 1995]			
CLIENT:	NIAGARA MOHAWK POWER CORPORATION		PM: BWA
LOCATION:	WATER STREET TROY, NEW YORK		SM: TMM
DESIGNED: TMM	DETAILED: DEO\GMC	PROJECT NO.: 01110-0037	FIGURE: 4-8



0.44	BENZENE (ppm)
3.1	CYANIDE (ppm)
2120	PAHs (ppm)
2120	GASOLINE & #2 FUEL OIL (ppm)

LEGEND

- FINE SAND
- SLAG
- SHALE BEDROCK
- CLAY
- COARSE SAND
- CLAY AND SILT or CLAY AND FINE SAND
- CLAY WITH GRAVEL or CLAY WITH GRAVEL AND SAND
- GRAVEL
- SAND AND GRAVEL MIXTURES
- SAND WITH COBBLES
- PEAT

SB SOIL BORING

TP TEST PIT

MSL MEAN SEA LEVEL

R DATA UNUSABLE

VERTICAL SCALE: AS NOTED

HORIZONTAL SCALE:

0 300 600

SCALE FEET

GROUNDWATER TECHNOLOGY

1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

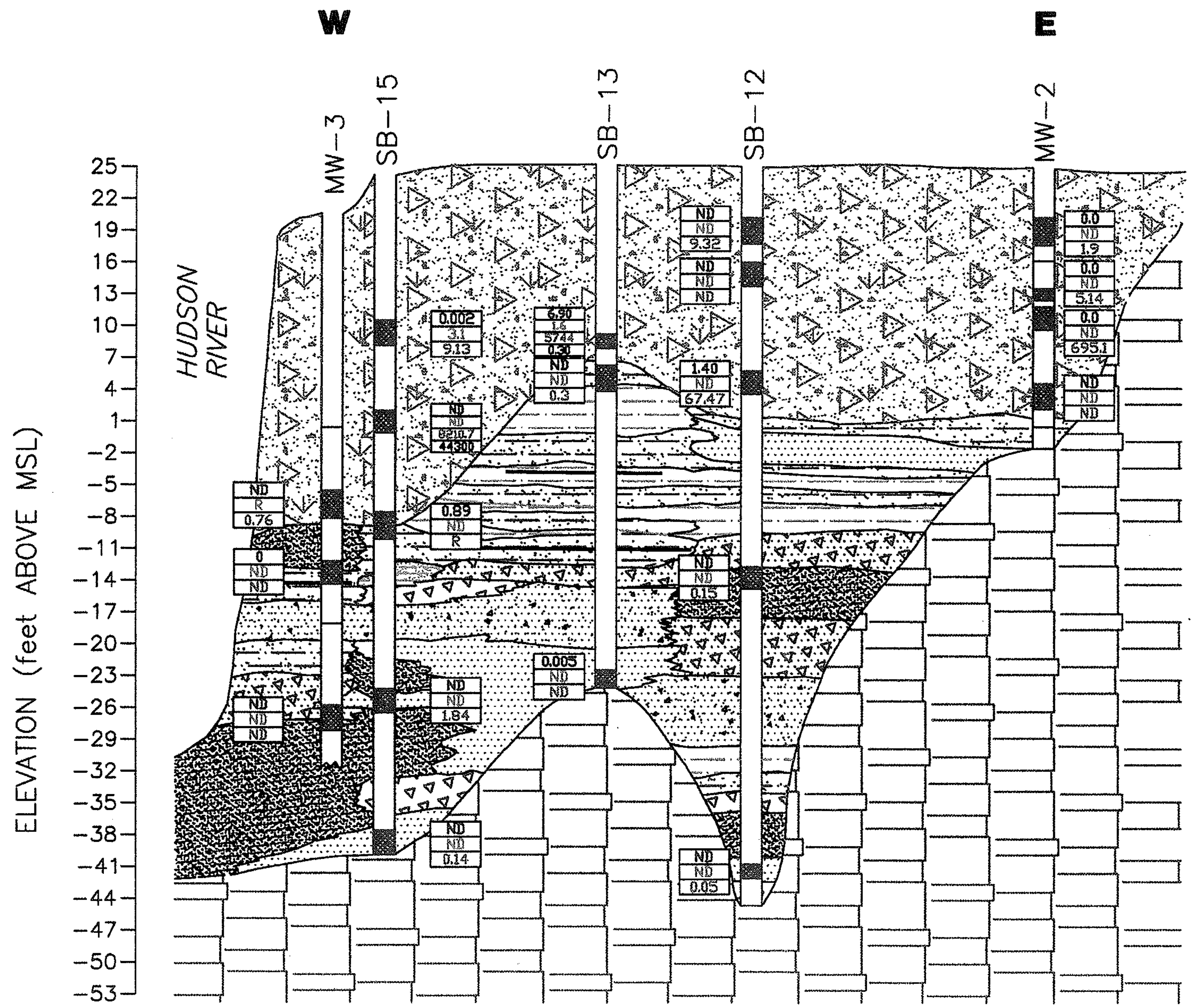
REV. NO.: | DRAWING DATE: 6/14/95 | ACAD FILE: 0037-HY1

HYDROCARBON DISTRIBUTION CROSS-SECTION (MW-1 TO MW-5)

CLIENT: NIAGARA MOHAWK POWER CORPORATION | PM: BWA

LOCATION: WATER STREET TROY, NEW YORK | SM: TMM

DESIGNED: TMM | DETAILED: GMC | PROJECT NO.: 01110-0037 | DRAWING: 4-9



6.90	BENZENE (ppm)
1.60	CYANIDE (ppm)
53.47	PAHs (ppm)
0.30	GASOLINE & #2 FUEL OIL (ppm)

LEGEND

- FINE SAND
- SLAG
- SHALE BEDROCK
- CLAY
- COARSE SAND
- CLAY AND SILT or CLAY AND FINE SAND
- CLAY WITH GRAVEL or CLAY WITH GRAVEL AND SAND
- GRAVEL
- SAND AND GRAVEL MIXTURES
- SAND WITH COBBLES
- PEAT

SB SOIL BORING

MW MONITORING WELL

MSL MEAN SEA LEVEL]

R DATA UNUSABLE

VERTICAL SCALE: AS NOTED

HORIZONTAL SCALE:

0 300 600

SCALE FEET

GROUNDWATER TECHNOLOGY

1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

REV. NO.: | DRAWING DATE: 6/13/95 | ACAD FILE: 0037-HY2

HYDROCARBON DISTRIBUTION CROSS-SECTION [MW-3 TO MW-2]

CLIENT: NIAGARA MOHAWK POWER CORPORATION | PM: BWA

LOCATION: WATER STREET TROY, NEW YORK | SM: TMM

DESIGNED: TMM | DETAILED: GMC | PROJECT NO.: 01110-0037 | DRAWING: 4-10

TABLES

Date Validation Qualifiers:

- J - Indicates an estimated value. The flag is used either when estimating concentration where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less then the sample quantitation limit.
- JN - Tentatively identified analyte with approximated concentration.
- B - This flag is used when the analyte is found in the associated blank as well as the sample. It indicates possible/probable blank concentration and warns the data user to take appropriate action. This flag is used for a TIC as well as for a positively identified target compound.
- E - This flag identifies compounds whose concentrations exceeded the calibration range of the GC/MS instrument for that specific analysis.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- DL - diluted sample
- RE - return analysis
- ND - not detected
- NT - not tested
- R - Reported value is unusable and rejected due to variance from quality control limits.

TABLE 1-1

Former Gas Holder and Surface Water Sampling Results
TAL Metals and Cyanide (mg/l)

ANALYTE	Analytical Method	Surface Water Standard (mg/l)*	Sample Location			
			STT-1	WS-1	WS-2	WS-3
Aluminum	CLP-M**	0.1	ND	0.173B	0.20	0.176B
Antimony	CLP-M**	NA	ND	0.053B	ND	ND
Arsenic	CLP-M**	0.19	ND	ND	ND	ND
Barium	CLP-M**	NA	ND	0.1B	0.104B	0.97B
Beryllium	CLP-M**	-(1)	ND	ND	ND	ND
Cadmium	CLP-M**	-(2)	ND	0.005B	ND	ND
Calcium	CLP-M**	NA	ND	41.7	41.3	44.8
Chromium	CLP-M**	0.011	ND	ND	0.009B	0.006B
Cobalt	CLP-M**	0.005	ND	ND	ND	ND
Copper	CLP-M**	-(3)	ND	ND	ND	ND
Iron	CLP-M**	NA	7.55	0.684	0.7	0.594
Lead	CLP-M**	-(4)	0.008	ND	ND	ND
Magnesium	CLP-M**	NA	ND	8.79	8.72	9.57
Manganese	CLP-M**	NA	0.483	0.179	0.165	0.156
Mercury	CLP-M**	0.2 (GV)	ND	ND	ND	ND
Nickel	CLP-M**	-(5)	ND	ND	ND	ND
Potassium	CLP-M**	NA	ND	3.09B	3.20B	2.52B
Selenium	CLP-M**	0.001	ND	ND	ND	ND
Silver	CLP-M**	0.0001	ND	ND	ND	ND
Sodium	CLP-M**	NA	ND	25.3	26.1	24.1
Thallium	CLP-M**	0.008	ND	ND	ND	ND
Vanadium	CLP-M**	0.014	ND	ND	ND	ND
Zinc	CLP-M**	-(6)	ND	0.015B	ND	ND
Total Cyanide	CLP-M**	0.005	0.038	ND	ND	ND

* - NYSDEC DIVISION OF WATER TECHNICAL AND OPERATIONAL GUIDANCE SERIES (1.1.1), "AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES", OCTOBER 22, 1993

** - CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

STT - tank water (from small former gas holder)

WS-1 -downstream surface water sample

WS-2 -duplicate of downstream water sample

WS-3 -upstream surface water sapmle

WSMET.WK3

GV - Guidance Value

(1) 0.011 IF HARDNESS < or = 75 ppm
1.1 IF HARDNESS > 75 ppm

(2) exp (0.752 [ln (ppm hardness)] -3.49)

(3) exp (0.8545[ln(ppm hardness)]-1.465)

(4) exp (1.266[ln(ppm hardness)]-4.661)

(5) exp (0.76[ln(ppm hardness)]+1.06)

(6) exp (0.85[ln(ppm hardness)]+0.50)

NOTE: WYNANTS KILL IS A CLASS C STREAM

TABLE 1-2

Former Gas Holder and Surface Water Sampling Results
Pesticides and PCBs (mg/l)

ANALYTE	Analytical Method	Surface Water Standard (mg/l)*	Sample Location STT-1	WS-1	WS-2	WS-3
alpha-BHC	NYSDEC 91-3	NA	ND	ND	ND	ND
beta-BHC	NYSDEC 91-3	NA	ND	ND	ND	ND
delta-BHC	NYSDEC 91-3	NA	ND	ND	ND	ND
gamma-BHC (Lindane)	NYSDEC 91-3	NA	ND	ND	ND	ND
Heptachlor	NYSDEC 91-3	0.000001	ND	ND	ND	ND
Aldrin	NYSDEC 91-3	0.000001 (TOTAL ALDRIN & DIELDRIN)	ND	ND	ND	ND
Heptachlor epoxide	NYSDEC 91-3	0.000001	ND	ND	ND	ND
Endosulfan I	NYSDEC 91-3	0.000009	ND	ND	ND	ND
Dieldrin	NYSDEC 91-3	0.000001 (TOTAL ALDRIN & DIELDRIN)	ND	ND	ND	ND
4,4'-DDE	NYSDEC 91-3	0.000001 (TOTAL DDT, DDD & DDE)	ND	ND	ND	ND
Endrin	NYSDEC 91-3	0.000002	ND	ND	ND	ND
Endosulfan II	NYSDEC 91-3	0.000009	ND	ND	ND	ND
4,4'-DDD	NYSDEC 91-3	0.000001 (TOTAL DDT, DDD & DDE)	ND	ND	ND	ND
Endosulfan sulfate	NYSDEC 91-3	NA	ND	ND	ND	ND
4,4'-DDT	NYSDEC 91-3	0.000001 (TOTAL DDT, DDD & DDE)	ND	ND	ND	ND
Methoxychlor	NYSDEC 91-3	0.00003	ND	ND	ND	ND
Endrin ketone	NYSDEC 91-3	NA	ND	ND	ND	ND
Endrin aldehyde	NYSDEC 91-3	NA	ND	ND	ND	ND
alpha-Chlordane	NYSDEC 91-3	0.000002 (GV)	ND	ND	ND	ND
gamma-Chlordane	NYSDEC 91-3	0.000002	ND	ND	ND	ND
Toxaphene	NYSDEC 91-3	0.000005	ND	ND	ND	ND
Aroclor-1016	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	0.000001 (TOTAL PCBs)	ND	ND	ND	ND

* – NYSDEC DIVISION OF WATER TECHNICAL AND OPERATIONAL GUIDANCE SERIES (1.1.1), "AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES", OCTOBER 22, 1993

STT – tank water (from small former gas holder)

WS-1 –downstream surface water sample

WS-2 –duplicate of downstream water sample

WS-3 –upstream surface water sapmle

GV – Guidance Value

WSMET.WK3

TABLE 1-3

Summary of Former Gas Holder and Surface Water Sampling Results

TCL Volatiles (mg/l)

Analyte	Analytical Method	Surface Water Standards (mg/l) *	Sample Location				
			STT-1	STT-1DL	WS-1	WS-2	WS-3
Methylene Chloride	NYSDEC 91-1	NA	ND	ND	ND	ND	ND
Acetone	NYSDEC 91-1	NA	0.009J	0.048DJ	0.018J	0.016J	ND
2-Butanone	NYSDEC 91-1	NA	0.003J	NDJ	NDJ	NDJ	NDJ
Benzene	NYSDEC 91-1	0.006 (GV)	0.820E	0.670D	ND	ND	ND
Toluene	NYSDEC 91-1	NA	0.058	0.043D	ND	ND	ND
Ethylbenzene	NYSDEC 91-1	NA	0.400E	0.360D	ND	ND	ND
Xylene (total)	NYSDEC 91-1	NA	0.470E	0.430D	ND	ND	ND
Ethyl Methyl Benzene Isomer	NYSDEC 91-1	NA	0.066	ND	ND	ND	ND
Trimethyl Benzene Isomer	NYSDEC 91-1	NA	0.120	0.067D	ND	ND	ND
Aromatic TICs	NYSDEC 91-1	NA	0.859	0.625D	ND	ND	ND
Other TICs	NYSDEC 91-1	NA	ND	ND	ND	ND	ND
Total BTEX	NYSDEC 91-1	NA	1.75	1.5	ND	ND	ND

* – NYSDEC Division of Water Technical and OpEQ-BLK –equipment blank
Water Quality Standards and Guidance values", October 22, 1993

GV – Guidance Value

STT – tank water (from small former gas holder)

WS-1 – downstream surface water sample

WS-2 – duplicate of downstream water samle

WS-3 – upstream surface water sample

SWVOC.WK3

TABLE 1-4
Former Gas Holder and Surface Water Sampling Results
TCL Semi-Volatiles (mg/l)

ANALYTE	Analytical Method	Surface Water Standards (mg/l)*	Sample Location				
			STT-1	STT-1DL	WS-1	WS-2	WS-3
Phenol	NYSDEC 91-2	0.005 (TOTAL PHENOLS)	0.090E	0.067DJ	ND	ND	ND
2-Methylphenol	NYSDEC 91-2	0.005	0.070	0.069DJ	ND	ND	ND
4-Methylphenol	NYSDEC 91-2	0.005	0.057	0.050DJ	ND	ND	ND
2,4-Dimethylphenol	NYSDEC 91-2	0.005	0.093E	0.082DJ	ND	ND	ND
Naphthalene	NYSDEC 91-2	NA	0.510E	0.610D	ND	ND	ND
2-Methylnaphthalene	NYSDEC 91-2	NA	0.230E	0.200D	ND	ND	ND
Acenaphthylene	NYSDEC 91-2	NA	0.100E	0.082DJ	ND	ND	ND
Acenaphthene	NYSDEC 91-2	NA	0.007J	ND	ND	ND	ND
Dibenzofuran	NYSDEC 91-2	0.000000001	ND	ND	ND	ND	ND
Fluorene	NYSDEC 91-2	NA	0.061J	0.045DJ	ND	ND	ND
Phenanthrene	NYSDEC 91-2	NA	0.079J	ND	ND	ND	ND
Anthracene	NYSDEC 91-2	NA	ND	ND	ND	ND	ND
Carbazole	NYSDEC 91-2	NA	ND	ND J	ND	ND	ND
Fluoranthene	NYSDEC 91-2	NA	ND	ND	ND	ND	ND
Pyrene	NYSDEC 91-2	NA	ND	ND	ND	ND	ND
Aromatic TICs	NYSDEC 91-2	NA	0.576	0.455D	ND	ND	ND
Other TICs	NYSDEC 91-2	NA	0.010	0.067D	0.064	ND	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2	NA	ND	ND	0.001J	0.002J	0.002J
Total PAHs	NYSDEC 91-2	NA	1.34	1.28	ND	ND	ND

* – NYSDEC DIVISION OF WATER TECHNICAL AND OPERATIONAL GUIDANCE SERIES (1.1.1), "AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES", October 22, 1993

TICs = Tentatively Identified Compounds

STT – tank water (from small former gas holder)

WS-1 – downstream surface water sample

WS-2 – duplicate of downstream water sample

WS-3 – upstream surface water sample

WSSEMI.WK3

TABLE 2-1

Sediment Sampling Results
Metals and Cyanide (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Sediment Criteria *		Sample Location		
		Lowest Effect Level	Severe Effect Level	S-1	S-2	S-3
Aluminum	CLP-M**			9400	7520	13300
Antimony	CLP-M**	2.0	25.0	13.9J	8.1J	17.1J
Arsenic	CLP-M**	6.0	33.0	4.7	11.3	9
Barium	CLP-M**			143	70.7	203
Beryllium	CLP-M**			ND	2.9	ND
Cadmium	CLP-M**	0.6	9.0	1.3	2.9	2.4
Calcium	CLP-M**			11500	20700	12700
Chromium	CLP-M**			19.7	24.6	30.9
Cobalt	CLP-M**			9.1B	13.4	17.9
Copper	CLP-M**	16.0	110.0	85.5	28.8	99
Iron	CLP-M**	2%	4%	29400	133000	48200
Lead	CLP-M**	31.0	110.0	103	71.3	106
Magnesium	CLP-M**			5730	4310	6640
Manganese	CLP-M**	460	1100	533J	3810J	2390J
Mercucy	CLP-M**	0.15	1.3	ND	ND	ND
Nickel	CLP-M**	16.0	50.0	26.6	12	33.4
Potassium	CLP-M**			679B	692B	1790
Selenium	CLP-M**			ND	ND	ND
Silver	CLP-M**	1.0	2.2	ND	ND	ND
Sodium	CLP-M**			ND	ND	ND
Thallium	CLP-M**			ND	ND	ND
Vanadium	CLP-M**			24.2	129	38.6
Zinc	CLP-M**	120.0	270.0	164	91.4	200
Total Cyanide	CLP-M**			R	R	R

* – NYSDEC Technical Guidance for Screening Contaminated Sediments, July 1994
(absence of Sediment Criteria value indicates metal not reported in guidance document)

** – CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

S-1 – downstream sample

S-2 – duplicate of S-1

S-3 – upstream sample

SMETAL.WK3

TABLE 2-2

Sediment Sampling Results
Pesticides and PCBs (ug/kg)

ANALYTE	Analytical Method	Sediment Criteria (ug/kg) *				Sample Location		
		Human Health Bioaccum.	Benthic Org. Acute Toxicity	Benthic Org. ChronicToxicity	Wildlife Bioaccum.	S-1	S-2	S-3
alpha-BHC	NYSDEC 91-3					ND	ND	ND
beta-BHC	NYSDEC 91-3					ND	ND	ND
delta-BHC	NYSDEC 91-3					ND	ND	ND
gamma-BHC (Lindane)	NYSDEC 91-3					ND	ND	ND
Heptachlor	NYSDEC 91-3	0.008	131	1.0	0.3	ND	ND	ND
Aldrin	NYSDEC 91-3	1.0			7.7	ND	ND	ND
Heptachlor epoxide	NYSDEC 91-3	0.008	131	1.0	0.3	ND	ND	ND
Endosulfan I	NYSDEC 91-3		7.8	0.3		ND	ND	ND
Dieldrin	NYSDEC 91-3	1.0		90	7.7	0.023JN	ND	ND
4,4'-DDE	NYSDEC 91-3	0.1			10	ND	ND	ND
Endrin	NYSDEC 91-3	8		40	8	0.14JN	0.009JN	0.008JN
Endosulfan II	NYSDEC 91-3		7.8	0.3		ND	ND	ND
4,4'-DDD	NYSDEC 91-3	0.1			10	ND	ND	ND
Endosulfan sulfate	NYSDEC 91-3					ND	ND	ND
4,4'-DDT	NYSDEC 91-3	0.1	11000	10	10	ND	ND	ND
Methoxychlor	NYSDEC 91-3			6.0		ND	ND	ND
Endrin ketone	NYSDEC 91-3					ND	0.009JN	0.006JN
Endrin aldehyde	NYSDEC 91-3					ND	ND	ND
alpha-Chlordane	NYSDEC 91-3	0.01	14	0.3	0.06	ND	ND	ND
gamma-Chlordane	NYSDEC 91-3	0.01	14	0.3	0.06	ND	ND	ND
Toxaphene	NYSDEC 91-3	0.2	32	0.1		ND	ND	ND
Aroclor-1016	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	0.008 (TOTAL)	27608 (TOTAL)	193 (TOTAL)	14 (TOTAL)	ND	ND	ND

* – NYSDEC Technical Guidance for Screening Contaminated Sediments, July 1994
** – Assumes a 1% organic carbon content in sediment soils
S-1 –downstream sample
S-2 –is a duplicate of S-1
S-3 –upstream sample

TABLE 2-3
Sediment Sampling Results
TCL Volatiles (mg/kg)

ANALYTE	Analytical Method	Sediment Criteria (ug/kg) *				Sample Location		
		Human Health Bioaccum.**	Benthic Org. Acute Toxicity**	Benthic Org. ChronicToxicity**	Wildlife Bioaccum.**	S-1	S-2	S-3
Toluene	NYSDEC 91-1					0.007J	ND	ND
Benzene Isomer	NYSDEC 91-1	6.0 (BENZENE)				ND	0.065J	ND
Other TICs	NYSDEC 91-1					ND	ND	0.107J
Total BTEX	NYSDEC 91-1	6.0 (BENZENE)				0.007	ND	ND
Total Volatiles***	NYSDEC 91-1					0.007	ND	ND

NOTE: only detected analytes reported in table
* – NYSDEC Technical Guidance for Screening Contaminated Sediments, July 1994
(absence of Sediment Criteria value indicates organic compound not reported in guidance document)
** – Assumes a 1% organic carbon content in sediment soils
*** – Total Volatiles do not include unknown, Non-target compounds
S-1 –downstream sample
S-2 –is a duplicate of S-1
S-3 –upstream sample
Other TICs: Non-aromatic TICs

TABLE 2-4
Sediment Sampling Results
TCL Semi-Volatiles (mg/kg)

ANALYTE	Analytical Method	Sediment Criteria *				Sample Location				
		Human Health Bioaccum.	Benthic Org. Acute Toxicity	Benthic Org. Chronic Toxicity	Wildlife Bioaccum.	S-1	S-1DL	S-2	S-3	S-3DL
Phenol	NYSDEC 91-2			5.0 (TOTAL)		0.52J	ND	ND	ND	ND
4-Methylphenol	NYSDEC 91-2			5.0 (TOTAL)		1.7J	ND	2.7J	ND	ND
Fluorene	NYSDEC 91-2					16	21D	0.71J	87E	110D
Phenanthrene	NYSDEC 91-2			1,200		65E	110D	4.4J	350E	480D
Anthracene	NYSDEC 91-2					23	32D	0.94J	88E	120D
Carbazole	NYSDEC 91-2					6.3	8.8JD	NDJ	24	24JD
Fluoranthene	NYSDEC 91-2			10,200		51E	9.8D	5	230E	460D
Pyrene	NYSDEC 91-2					62E	99D	6.2	280E	300D
Naphthalene	NYSDEC 91-2					14	18JD	ND	25	25JD
2-Methylnaphthalene	NYSDEC 91-2					6.1	7.9JD	ND	43	48JD
Benzo (a) anthracene	NYSDEC 91-2	13				28	37D	2J	99E	150D
Chrysene	NYSDEC 91-2	13				30	42D	2.2J	110E	130D
Acenaphthylene	NYSDEC 91-2					2.4J	2.9JD	ND	ND	ND
Acenaphthene	NYSDEC 91-2				7.7	16	22D	ND	84	110D
Dibenzofuran	NYSDEC 91-2					10	14JD	ND	70	89JD
Benzo (b) fluoranthene	NYSDEC 91-2	13				21	25D	1.6J	79	76JD
Benzo (k) fluoranthene	NYSDEC 91-2	13				14	14JD	1.2J	48	44JD
Benzo (a) pyrene	NYSDEC 91-2	13				19	24D	1.6J	71	65JD
Indeno (1,2,3-cd) pyrene	NYSDEC 91-2	13				11	11JD	ND	49	ND
Dibenz (a,h) anthracene	NYSDEC 91-2					4.1J	ND	ND	12	ND
Benzo (g,h,i) perylene	NYSDEC 91-2					9.4	ND	ND	37	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2					1.7J	ND	1.2J	ND	ND
Aromatic TICs	NYSDEC 91-2					35.2J	140.9	8.1J	100.8J	138JD
Other TICs	NYSDEC 91-2					39.16J	143.9	34.29J	4.9J	23JD
Total PAHs	NYSDEC 91-2					392	489.6	25.85	1716	2118
Total Semivolatiles**	NYSDEC 91-2					412.2	498.4	29.75	1786	2231

* – NYSDEC Technical Guidance for Screening Contaminated Sediments, July 1994
(absence of a Sediment Criteria value indicates SVOC not reported in guidance document)
(assumes a 1% organic carbon content in sediment soils)
** – TOTAL SEMIVOLATILES do not include TICs
S-1 –downstream sample
S-2 –is a duplicate of S-1
S-3 –upstream sample
TIC = Tentatively Identified Compound

SSEMI.WK3

TABLE 3-1
Surface Soil Sampling Results
TAL Metals and Cyanide (mg/kg)

ANALYTE	Analytical Method	Eastern USA Background (mg/kg)*	Sample Location SS-4	SS-6	SS-10	SS-14 SS-4 DUP
Aluminum	CLP-M**	33000	11200	10000	10000	9560
Antimony	CLP-M**	NA	ND	ND	ND	ND
Arsenic	CLP-M**	3-12	5.4J	8.7J	6.2	5.9 J
Barium	CLP-M**	15-600	86.3	68.4	61.2	58.8
Beryllium	CLP-M**	0-1.75	ND	ND	ND	ND
Cadmium	CLP-M**	0.1-1	ND	**1.2**	0.77B	ND
Calcium	CLP-M**	130-35000	23100	1670	8850	**48300**
Chromium	CLP-M**	1.5-40	15.1	17.3	35.3	14.3
Cobalt	CLP-M**	2.5-60	8.5B	8.5B	10.7B	8.0B
Copper	CLP-M**	1-50	22.6J	21.5J	45.2	15.3J
Iron	CLP-M**	2000-550000	23400	22700	40600	19400
Lead	CLP-M**	200-500	124	50.1	**503**	89.4
Magnesium	CLP-M**	100-5000	**5780**	3360	**7120**	**5060**
Manganese	CLP-M**	50-5000	739	580	494	480
Mercury	CLP-M**	0.001-0.2	ND	0.15	**0.23**	0.11
Nickel	CLP-M**	0.5-25	**25.2**	22.6	22.9	20.8
Potassium	CLP-M**	8500-43000	1020B	1320	1300	1040
Selenium	CLP-M**	0.1-3.9	ND	ND	ND	ND
Silver	CLP-M**	NA	R	R	ND	R
Sodium	CLP-M**	6000-8000	ND	ND	ND	ND
Thallium	CLP-M**	NA	ND	ND	ND J	ND
Vanadium	CLP-M**	1-300	23.7	27.5	34.7	20.7
Zinc	CLP-M**	9-50	**90.3**	**105**	**97.2**	**68.2**
Total Cyanide	CLP-M**	NA	NDJ	NDJ	49.5J	NDJ

* – NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994

** – CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

SSPEST.WK3

TABLE 3–1 (continued)
Surface Soil Sampling Results
Cyanide (mg/kg)

ANALYTE	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location								
			SS–1	SS–2	SS–3	SS–4	SS–5	SS–6	SS–7	SS–8	SS–9
Total Cyanide	CLP–M		ND	ND	ND	ND	ND	ND	2.2	ND	1.2

ANALYTE	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location					
			SS–10	SS–11	SS–12	SS–13	SS–14	SS–15
Total Cyanide	CLP–M		49.5	ND	ND	ND	ND	ND

SS–14 – duplicate of SS–4
SS–15 – duplicate of SS–12

SSVOLAT.WK3

TABLE 3-2
Surface Soil Sampling Results
Pesticides and PCBs (mg/kg)

ANALYTE	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location						
			SS-4	SS-6	SS-10	SS-14	1-SOIL	2-SOIL	3-SOIL
alpha-BHC	NYSDEC 91-3	0.11	ND	ND	ND	ND	NT	NT	NT
beta-BHC	NYSDEC 91-3	0.2	ND	ND	ND	ND	NT	NT	NT
delta-BHC	NYSDEC 91-3	0.3	ND	ND	ND	ND	NT	NT	NT
gamma-BHC (Lindane)	NYSDEC 91-3	0.06	ND	ND	ND	ND	NT	NT	NT
Heptachlor	NYSDEC 91-3	0.1	ND	ND	ND	ND	NT	NT	NT
Aldrin	NYSDEC 91-3	0.041	ND	ND	ND	ND	NT	NT	NT
Heptachlor epoxide	NYSDEC 91-3	0.1	ND	ND	ND	ND	NT	NT	NT
Endosulfan I	NYSDEC 91-3	0.9	ND	ND	ND	ND	NT	NT	NT
Dieldrin	NYSDEC 91-3	0.044	ND	ND	ND	ND	NT	NT	NT
4,4'-DDE	NYSDEC 91-3	2.1	ND	0.003JN	ND	ND	NT	NT	NT
Endrin	NYSDEC 91-3	0.1	ND	ND	ND	ND	NT	NT	NT
Endosulfan II	NYSDEC 91-3	0.9	ND	ND	ND	ND	NT	NT	NT
4,4'-DDD	NYSDEC 91-3	2.8	ND	ND	ND	ND	NT	NT	NT
Endosulfan sulfate	NYSDEC 91-3	1.0	ND	ND	ND	ND	NT	NT	NT
4,4'-DDT	NYSDEC 91-3	2.1	ND	0.007JN	ND	ND	NT	NT	NT
Methoxychlor	NYSDEC 91-3	NA	ND	ND	ND	ND	NT	NT	NT
Endrin ketone	NYSDEC 91-3	NA	ND	ND	.15JN	ND	NT	NT	NT
Endrin aldehyde	NYSDEC 91-3	NA	ND	0.029 P	ND	ND	NT	NT	NT
alpha-Chlordane	NYSDEC 91-3	NA	ND	ND	ND	ND	NT	NT	NT
gamma-Chlordane	NYSDEC 91-3	0.54	ND	ND	ND	ND	NT	NT	NT
Toxaphene	NYSDEC 91-3	NA	ND	ND	ND	ND	NT	NT	NT
Aroclor-1016	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	1 (TOTAL PCBs)	ND	ND	ND	ND	0.13	0.061J	0.056J

* - NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994

SAMPLES COLLECTED NEAR KING FUELS OFFICE BUILDING:

1-SOIL
2-SOIL
3-SOIL

SSPEST.WK3

TABLE 3–3
Surface Soil Sampling Results
TCL Volatiles (mg/kg)

ANALYTE	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location									
			SS–1 (BTEX)	SS–1RE (BTEX)	SS–2 (BTEX)	SS–2RE (BTEX)	SS–3 (BTEX)	SS–4 TCL	SS–5 (BTEX)	SS–6 TCL	SS–7 (BTEX)	SS–7RE (BTEX)
Benzene	NYSDEC 91–1 OR EPA 8240**	0.06	ND J	ND J	ND J	ND J	ND	ND	ND	ND	ND	ND
Toluene	NYSDEC 91–1 OR EPA 8240**	1.5	ND J	ND J	ND J	ND J	ND	ND	ND	ND	ND	ND
Ethylbenzene	NYSDEC 91–1 OR EPA 8240**	5.5	ND J	ND J	ND J	ND J	ND	ND	ND	ND	ND	ND
Xylene (total)	NYSDEC 91–1 OR EPA 8240**	1.2	ND J	ND J	ND J	ND J	ND	ND	ND	ND	ND	ND
Aromatic TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	NT	NT	NT	ND	NT	ND	NT	NT
Other TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	NT	NT	NT	0.008J	NT	0.014J	NT	NT
Total BTEX (mg/kg)	NYSDEC 91–1 OR EPA 8240**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatiles ***	NYSDEC 91–1 OR EPA 8240**	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ANALYTE	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location									
			SS–8 (BTEX)	SS–8RE TCL	SS–9 (BTEX)	SS–10 TCL	SS–11 (BTEX)	SS–12 (BTEX)	SS–12R (BTEX)	SS–13 (BTEX)	SS–14 TCL	SS–15 (BTEX)
Benzene	NYSDEC 91–1 OR EPA 8240**	0.06	ND	ND J	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	NYSDEC 91–1 OR EPA 8240**	1.5	ND J	ND J	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	NYSDEC 91–1 OR EPA 8240**	5.5	ND J	ND J	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (total)	NYSDEC 91–1 OR EPA 8240**	1.2	ND J	ND J	ND	ND	ND	ND	ND	ND	ND	ND
Aromatic TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	NT	0.008J	NT	NT	NT	NT	ND	NT
Other TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT
Total BTEX (mg/kg)	NYSDEC 91–1 OR EPA 8240**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatiles ***	NYSDEC 91–1 OR EPA 8240**	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* – NYSDEC TAGM HWR–94–4046, JANUARY 24, 1994
** – EPA METHOD 8240 USED FOR INDICATOR PARAMETERS (BTEX) ANALYSIS
*** – TOTAL VOLATILES DO NOT INCLUDE UNKNOWN, NON–TARGET COMPOUNDS
SS–14 – duplicate of SS–4
SS–15 – duplicate of SS–12

SSVOLAT.WK3

TABLE 3-4

Surface Soil Sampling Results
TCL Semivolatiles (mg/kg)

ANALYTE	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	Sample Location															
			SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-15DL
			PAHs	PAHs	PAHs	TCL	PAHs	TCL	PAHs	PAHs	PAHs	TCL	PAHs	PAHs	PAHs	TCL	PAHs	PAHs
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	ND	ND	0.49J	ND	ND	0.052J	ND	ND	0.49J	ND	0.042J	1.4J	ND	ND	0.64J	ND
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	NT	NT	NT	ND	NT	0.051J	NT	NT	NT	ND	NT	NT	NT	ND	NT	NT
Fluorene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	1.1J	ND	0.77J	ND	0.093J	ND	ND	1.5J	ND	2.1J	ND	ND	3.2J	2.0JD
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	7.2	0.1J	3.7J	0.27J	1.8	1.4J	1.3J	13.0	0.13J	14.0	ND	0.4J	28.0	20.0D
Anthracene	NYSDEC 91-2 or EPA 8270**	50	3.7J	ND	1.6J	ND	1.3J	0.04J	0.34J	0.48J	0.78J	2.0J	0.041J	3.4J	ND	0.095J	10.0	6.8JD
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	ND	0.07J	7.8	0.18J	5.4	0.39	4.1	3.1J	2.7J	45.0	0.24J	20.0	37J	0.76	38.0E	36.0D
Pyrene	NYSDEC 91-2 or EPA 8270**	50	3.2J	0.074J	6.1	0.24J	6.9	0.34J	3.6	5.0	2.9J	36.0	0.2J	17.0	ND	0.76	42.0E	30.0D
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	2.9J	ND J	1.4J	0.045J	2.5J	0.038J	0.065J	1.0J	2.1J	3.4J	0.067J	1.4J	ND	0.13J	4.5	2.7JD
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.78J	ND	ND	2.0J	1.3JD
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	ND	3.6J	0.11J	4.1	0.2J	2.9	2.6J	1.9J	26.0	0.14J	11.0	ND	0.41J	31.0E	20.0D
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	ND	ND	3.4J	0.14J	4.3	0.26J	2.8	3.0J	1.8J	31.0	0.15J	10.0	ND	0.43J	22.0	19.0D
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	2.8J	0.15J	3.9	0.22J	3.1	ND	2.5J	27.0	0.17J	9.0	ND	0.44J	26.0J	13.0D
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	4.1J	0.16J	4.2	0.21J	1.4	ND	3.4J	21.0	0.2J	7.9J	ND	0.42J	21.0J	9.5DJ
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	ND	ND	2.7J	0.13J	4.3	0.19J	2.2J	2.6J	2.4J	22.0	0.12J	8.3J	ND	0.38J	19.0J	12.0DJ
Indeno (1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	ND	0.89J	0.052J	1.4J	0.12J	1.0J	ND	0.97J	16.0	0.086J	3.7J	ND	0.14J	4.5J	4.4JD
Dibenz (a,h) anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	ND	ND	ND	0.042J	0.22J	ND	ND	6.6J	ND	0.5J	ND	ND	0.68J	ND
Benzo (g,h,l) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	0.83J	0.048J	1.5J	0.11J	0.97J	ND	0.97J	16.0	0.08J	3.2J	ND	0.11J	3.7J	3.6JD
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	NT	NT	NT	ND	NT	0.13J	NT	NT	NT	ND	NT	NT	NT	ND	NT	NT
Butylbenzylphthalate	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	0.078J	NT	NT	NT	ND	NT	NT	NT	ND	NT	NT
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	.11J	NT	0.41J	NT	NT	NT	91.3	NT	NT	NT	1.55J	NT	NT
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	5.547JE	NT	15.709JB	NT	NT	NT	8.6J	NT	NT	NT	11.11JB	NT	NT
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	9.8	0.14	43.52	1.36	44.27	2.43	24.61	19.18	23.72	266.5	1.62	112.28	0.037	4.48	256.22	177.3
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	9.8	0.14	43.52	1.36	44.27	2.74	24.61	19.18	23.72	266.5	1.62	112.28	0.037	4.48	256.22	177.3

* - NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994
** - EPA METHOD 8270 USED FOR INDICATOR PARAMETERS (PAHs) ANALYSIS
*** - TOTAL SEMIVOLATILES DO NOT INCLUDE UNKNOWN, NON-TARGET ANALYTES
SS-14 - duplicate of SS-4
SS-15 - duplicate of SS-12

SSSEMI.WK3

TABLE 4-1

Test Pit Sampling Results

TAL Metals and Cyanide (mg/kg)

ANALYTE	Analytical Method	Eastern USA Background (mg/kg)*	Sample Location							
			TP-1			TP-2	TP-3		TP-4	TP-7
Sampling Depth (in feet)			2	6	10	9	4	10	10	9
Aluminum	CLP-M**	33000	16900	3720	10300	5220	3820	17500	10500	1550
Antimony	CLP-M**	NA	ND	ND	ND	10.8B	ND	ND	ND	ND
Arsenic	CLP-M**	3-12	6.5	**32.5**	**25.8**	**30.2**	**14.2**	5.2	**20**	**19.4**
Barium	CLP-M**	15-600	145	67.3B	ND	28.4B	31.5B	115	109	15.1B
Beryllium	CLP-M**	0-1.75	1.5J	ND	ND	**2.5**	1.1J	1.2J	1.0J	ND
Cadmium	CLP-M**	0.1-1	0.81B	ND	ND	**5.1**	**2.5**	0.86B	**3.6**	**2**
Calcium	CLP-M**	130-35000	**50000**	12100	ND	12500	4640	**37500**	18500	2700
Chromium	CLP-M**	1.5-40	17.5	18	ND	**41.6**	22.9	22.7	31	2.4
Cobalt	CLP-M**	2.5-60	12.7	10.4B	14.3B	48.6	10.9B	15.9	16.7	ND
Copper	CLP-M**	1-50	25.8	**146**	ND	12.5J	**51**	28.3	**73.4**	39
Iron	CLP-M**	2000-550000	27700	17100	ND	331000	87200	33700	72100	3430
Lead	CLP-M**	200-500	50.6	94.6	ND	45	47.3	16.9	316	90.4
Magnesium	CLP-M**	100-5000	**9200**	2200	ND	1060B	1130	**11500**	**44100**	ND
Manganese	CLP-M**	50-5000	1730	540	ND	2530	1510	875	2790	28.2
Mercury	CLP-M**	0.001-0.2	0.12	**2.6**	ND	ND	**0.31**	ND	ND	**0.33**
Nickel	CLP-M**	0.5-25	20.5	17.1	ND	**39.6**	14.1J	22.4	23.3	ND
Potassium	CLP-M**	8500-43000	2440	ND	1130B	728B	ND	2650	1620	ND
Selenium	CLP-M**	0.1-3.9	ND	ND	ND	ND	ND	ND	ND	2.3
Silver	CLP-M**	NA	ND	ND	ND	R	ND	ND	ND	ND
Sodium	CLP-M**	6000-8000	ND	ND	940B	ND	ND	ND	ND	ND
Thallium	CLP-M**	NA	ND J	ND J	ND J	ND	ND J	ND J	ND J	31.4J
Vanadium	CLP-M**	1-300	31.2	12.8B	ND	298	65.5	36.4	70.7	ND
Zinc	CLP-M**	9-50	**85.4**	36.9	ND	**103**	27.6	**77.4**	**113**	**155**
Total Cyanide	CLP-M**	NA	ND J	7.2J	ND J	ND J	0.55 J	ND J	0.73 J	ND J

* – NYSDEC TAGM HWR-94-4046, January 24, 1994

** – CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

TPMET.WK3

TABLE 4-2

Test Pit Sampling Results

Pesticides and PCBs (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location							
			TP-1			TP-2	TP-3		TP-4	TP-7
			2	6	10	9	4	10	10	9
alpha-BHC	NYSDEC 91-3	0.11	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	NYSDEC 91-3	0.20	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	NYSDEC 91-3	0.3	ND	ND	0.081	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	NYSDEC 91-3	0.06	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	NYSDEC 91-3	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	NYSDEC 91-3	0.041	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	NYSDEC 91-3	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	NYSDEC 91-3	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	NYSDEC 91-3	0.044	ND	0.17JN	**0.047JN**	0.004JN	ND	ND	ND	ND
4,4'-DDE	NYSDEC 91-3	2.1	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	NYSDEC 91-3	0.1	ND	**0.72JN**	**0.39JN**	ND	ND	ND	ND	ND
Endosulfan II	NYSDEC 91-3	0.9	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	NYSDEC 91-3	2.9	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	NYSDEC 91-3	1.0	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	NYSDEC 91-3	2.1	ND	0.22JN	0.22JN	ND	ND	ND	ND	ND
Methoxychlor	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	NYSDEC 91-3	NA	ND	ND	ND	0.004JN	0.005JN	ND	ND	ND
Endrin aldehyde	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NYSDEC 91-3	0.54	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1016	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND

* – NYSDECTAGM HWR-94-4046, JANUARY 24, 1994

TPPEST.WK3

TABLE 4–3
Test Pit Sampling Results
TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location							
			TP–1			TP–2	TP–3		TP–4	TP–7
			2	6	10	9	4	10	10	9
2–Butanone	NYSDEC 91–1	0.3	NDJ	NDJ	NDJ	NDJ	NDJ	0.004	ND	ND
Benzene	NYSDEC 91–1	0.06	ND	**0.44J**	ND	ND	ND	ND	ND	**15**
Toluene	NYSDEC 91–1	1.5	ND	0.33J	ND	ND	ND	ND	ND	**12**
Ethylbenzene	NYSDEC 91–1	5.5	ND	1.4J	ND	0.002J	ND	ND	ND	0.39J
Xylene (total)	NYSDEC 91–1	1.2	ND	**3.8**	0.33J	ND	ND	ND	ND	**13**
Styrene	NYSDEC 91–1	NA	ND	1.2J	0.45J	ND	ND	ND	ND	4.4
Trimethyl Benzene Isomer	NYSDEC 91–1	NA	ND	ND	15.8J	ND	ND	ND	ND	10.3J
Ethyl Dimethyl Benzene Isomer	NYSDEC 91–1	NA	ND	ND	44J	ND	ND	ND	ND	ND
Tetramethyl Benzene Isomer	NYSDEC 91–1	NA	ND	82J	64J	ND	ND	ND	ND	ND
Aromatic TICs	NYSDEC 91–1	NA	ND	198	46.7J	ND	0.185J	ND	ND	115
Other TICs	NYSDEC 91–1	NA	ND	ND	40J	ND	ND	0.074J	0.061J	18.3J
Total BTEX	NYSDEC 91–1	NA	ND	5.37	0.33	0.002	ND	ND	ND	40.39
Total Volatiles**	NYSDEC 91–1	10	ND	7.17	0.78	0.002	ND	0.004	ND	**44.79**

* – NYSDEC TAGM HWR–94–4046, January 24, 1994
** – TOTAL VOLATILES do not include TICs

TPVOLAT.WK3

TABLE 4–4
Test Pit Sampling Results
TCL Semivolatiles (mg/kg)

ANALYTE Sampling depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location TP–1 2	TP–1 6	TP–1 6DL	TP–1 10	TP–2 9	TP–2 9RE	TP–3 4	TP–3 10	TP–4 10	TP–4 10DL	TP–7 9	TP–7 9DL
Phenol	NYSDEC 91–2	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3600J**	**3300JD**
2–Methylphenol	NYSDEC 91–2	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1000J**	ND
4–Methylphenol	NYSDEC 91–2	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2800J**	**2600JD**
Fluorene	NYSDEC 91–2	50	ND	29J	28JD	4.2J	ND	ND	ND	ND	6.4	6.4JD	**9600**	**9300D**
2,4–Dimethylphenol	NYSDEC 91–2	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	80J	ND
Phenanthrene	NYSDEC 91–2	50	ND	46	**53JD**	16	0.11J	0.1J	0.4J	ND	25E	41D	**27000**	**29000D**
Anthracene	NYSDEC 91–2	50	ND	ND	ND	2.4J	ND	ND	ND	ND	8.4	91D	**6400**	**6200JD**
Carbazole	NYSDEC 91–2	NA	ND	ND	ND	NDJ	ND	ND	ND	ND	1.1J	1.1JD	2200J	2200JD
Fluoranthene	NYSDEC 91–2	50	0.062J	16	10JD	20	0.15J	0.15J	0.6J	0.056J	33E	49D	**17000**	**19000D**
Pyrene	NYSDEC 91–2	50	0.063J	18	15JD	19	0.14J	0.14J	0.5J	0.044J	30E	36D	**12000**	**11000D**
Naphthalene	NYSDEC 91–2	13	ND	**240E**	**220D**	**24**	ND	ND	0.13J	ND	0.88J	0.94JD	**46000E**	**54000D**
2–Methylnaphthalene	NYSDEC 91–2	36.4	ND	**170E**	**210D**	21	ND	ND	ND	ND	0.6J	ND	**9300**	**8700JD**
Benzo (a) anthracene	NYSDEC 91–2	0.224	ND	**6.8J**	**5.8JD**	**9J**	0.097J	0.1J	**0.35J**	ND	**22E**	**24D**	**6100**	**5800JD**
Chrysene	NYSDEC 91–2	0.4	ND	**8.4J**	**7.9JD**	**10J**	0.16J	0.16J	0.36J	ND	**20E**	**21D**	**5100**	**4900JD**
Acenaphthylene	NYSDEC 91–2	41	ND	ND	ND	ND	ND	ND	ND	ND	4	4.1JD	**5500**	**5600JD**
Acenaphthene	NYSDEC 91–2	50	ND	ND	ND	ND	ND	ND	ND	ND	0.78J	ND	**960J**	**940JD**
Dibenzofuran	NYSDEC 91–2	6.2	ND	ND	ND	ND	ND	ND	ND	ND	3.4	3.3JD	**7200**	**6900JD**
Benzo (b) fluoranthene	NYSDEC 91–2	1.1	ND	**4.6J**	ND	**7.6J**	0.14J	0.14J	0.27J	ND	**20E**	**18D**	**3800J**	**3500JD**
Benzo (k) fluoranthene	NYSDEC 91–2	1.1	ND	**4.1J**	ND	**8.5J**	0.12J	0.12J	0.23J	ND	**10**	**16D**	**4200J**	**4100JD**
Benzo (a) pyrene	NYSDEC 91–2	0.061	ND	**1.8J**	ND	**5.9J**	**0.086J**	**0.086J**	**0.21J**	ND	**18E**	**19JD**	**4800J**	**4500JD**
Indeno (1,2,3–cd) pyrene	NYSDEC 91–2	3.2	ND	3.1J	ND	**5.4J**	0.11J	0.1J	0.15J	ND	**9.3**	**9.1D**	**2100J**	**2000JD**
Dibenz (a,h) anthracene	NYSDEC 91–2	0.014	ND	ND	ND	**2.1J**	ND	ND	ND	ND	**4J**	**3.2**	**750J**	ND
Benzo (g,h,i) perylene	NYSDEC 91–2	50	ND	2.9J	ND	4.7J	0.12J	0.12J	0.15J	ND	6.8J	6.7JD	**2000J**	**1800JD**
Aromatic TICs	NYSDEC 91–2	NA	ND	1203J	940JD	218	0.21J	0.17J	1.39J	ND	39.28J	97.2JD	**34830J**	**14900JD**
Other TICs	NYSDEC 91–2	NA	21.4JAB	3678J	3740JD	558	19.35JB	19.71JB	9.18J	11.68J	3J	3JABD	ND	ND
Total PAHs	NYSDEC 91–2	NA	0.13	550.7	549.7	181.4	1.23	1.13	3.4	0.1	219.16	263.54	162610	170340
Total Semivolatiles**	NYSDEC 91–2	500	0.13	**550.7**	**549.7**	181.4	1.23	1.13	3.4	0.1	220.26	264.64	**179490**	**185340**

* – NYSDEC TAGM HWR–94–4046, JANUARY 24, 1994
** – TOTAL SEMIVOLATILES do not include TICs

TPSEMI.WK3

TABLE 5-1

Soil Sampling Results (soil boring and monitoring well locations)

TAL Metals and Cyanide (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Eastern USA Background (mg/kg)*	Sample Location													
			SB-11	SB-12		SB-13	SB-14	SB-15	SB-16	SB-17	SB-19	SB-20	MW-1	MW-2	MW-3	MW-4	MW-5
			42-44	20-22	66-67	16-17	11-13	32-34	20-22	2-4	23-25	22-24	8-10	12-13	26-28	32-34	24-26
Aluminum	CLP-M**	33000	10800	3550	10100	9560	16900	7810	4140	5180	3270	2770	2010 J	7330	7550	9170	2610
Antimony	CLP-M**	NA	ND	ND	ND	ND	ND	13.8	ND	44.6	ND	10.4J	8.5B	14.4 J	11.9B	8.6B	18.6 J
Arsenic	CLP-M**	3-12	1.5B	4	5.5	**40.6**	**15.3**	10.4	**42.8**	**16.4 J**	**19.5**	11.5	3.2	**12.7 J**	1.7B	2.6	10.4
Barium	CLP-M**	15-600	92.3	19.1B	84.1	56.5	144	37.9B	35.0B	42.7B	25.7B	20.1B	20.2B	48.4	35.7B	30.2B	33.4B
Beryllium	CLP-M**	0-1.75	ND	ND	ND	ND	1.1	1.1B	ND	1.6 J	ND	1.5	1.3 J	ND	ND	ND	ND
Cadmium	CLP-M**	0.1-1	ND	**1.2 J**	**1.2 J**	**4 J**	0.62B	**5**	**1.2**	**2.2 J**	ND	**2.2**	**2.1 J**	**2 J**	ND	ND	ND
Calcium	CLP-M**	130-35000	1780	3680	19100	11800	3040	12300	5700	8060	2410	6670	6190	21800	1910	6890	1960
Chromium	CLP-M**	1.5-40	14.3 J	**95.7 J**	16.9	**61.3 J**	26	39.6	11.9	41.6 J	16.4	31.5	30.4	22.5	7 J	10.1 J	39.8
Cobalt	CLP-M**	2.5-60	8.4B	12.2	15.2	19	25.1	16.3	82.8	18.5	10.6B	15.2	ND	13.9	6.3B	9.4B	8.0B
Copper	CLP-M**	1-50	18.8	47	25.6	**129**	49.8	46.3	**501**	122	32.1	ND	45.9	ND	4.8B	11.1	14.1
Iron	CLP-M**	2000-550000	19800	96700	25600	128000	43700J	130000	116000J	169000	56000J	137000	56200	115000	13900	20400	56100
Lead	CLP-M**	200-500	11.8	2	8.6	70.8	42	20.4	7.2	52.1	17.3	5.4	60.1	7.4	3.6	7.6	16
Magnesium	CLP-M**	100-5000	4810	ND	**8420**	3150	**7150**	2390	ND	1450	1220	ND	ND	1360	3420	3920	ND
Manganese	CLP-M**	50-5000	294	**7710**	790	1390	1200J	4330	**5530J**	3100	2060J	2600J	1190	1760	176	1270	**9630J**
Mercucy	CLP-M**	0.001-0.2	ND	ND	ND	**1.1**	ND	0.19	ND	**0.21**	ND	ND	ND	ND	ND	ND	ND
Nickel	CLP-M**	0.5-25	21.5	18.8	**28.7**	**33.2**	**45.1**	16.2	19.3	17.5	11.1	10.4J	ND	18.6	15	22.7	13.6J
Potassium	CLP-M**	8500-43000	1450	ND	1380	1000B	1770	659B	ND	520B	ND	379B	ND	760B	783B	1010B	ND
Selenium	CLP-M**	0.1-3.9	ND	ND	ND	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND J	ND	2.8
Silver	CLP-M**	NA	ND J	ND J	ND	ND J	ND J	ND	ND J	ND J	ND J	ND J	ND	ND J	ND	ND J	ND J
Sodium	CLP-M**	6000-8000	ND	ND	ND	712B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	CLP-M**	NA	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	92.7
Vanadium	CLP-M**	1-300	21.6	131	23.5	107	38.2	125	48.3	179	44	134	115	64.5	13.2	20.9	9.5
Zinc	CLP-M**	9-50	**61.7**	14.4	**98.7**	**267**	**132**	**52.2**	**67.6**	27.7	32.3	24.9	12.7	20.7	48.6	**67.2**	ND
Total Cyanide	CLP-M**	NA	ND J	ND J	ND	1.6 J	ND	ND	ND	ND J	ND	ND	ND	ND J	R	ND J	ND

* - NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994

** - CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

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TABLE 5-1 (continued)
Soil Sampling Results
(Samples Collected for MGP Indicators)
Cyanide (mg/kg)

ANALYTE	Analytical Method	Eastern USA Background (mg/kg)*	Sample Location														
			SB-11		SB-12			SB-13		SB-15				SB-16			
			12-14	18-20	6-8	10-12	38-40	19-21	47-49	14-16	22-24	48-50	62-62	14-16	32-34	38-40	40-42
Total Cyanide	CLP-M**	NA	ND	ND	ND	ND	ND	ND	ND	3.1	ND	ND	ND	ND	ND	ND	ND

ANALYTE	Analytical Method	Eastern USA Background (mg/kg)*	Sampling Location													
			SB-17		SB-18			SB-19					SB-20			
			14-16	16-18	5-7	9-11	11-13	19-21	23-25	25-27	35-37	37-39	18-20	20-22	26-28	28-30
Total Cyanide	CLP-M**	NA	ND	ND	ND	ND	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND

ANALYTE	Analytical Method	Eastern USA Background (mg/kg)*	Sampling Location														
			MW-1				MW-2			MW-3		MW-4			MW-5		
			24-26	46-48	56-57	97-99	6-8	14-16	22-24	32-34	46-48	26-28	36-38	38-40	18-20	22-24	34-35
Total Cyanide	CLP-M**	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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* – NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994
** – CLP ANALYTICAL METHOD AS PER DOCUMENT ILM03.0

TABLE 5-2

Soil Sampling Results (soil boring and monitoring well locations)
Pesticides and PCBs (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location SB-11 42-44	SB-12 20-22	 66-67	SB-13 16-17	SB-14 11-13	SB-15 32-34	SB-16 20-22	SB-17 2-4	SB-19 23-25	SB-20 22-24	DUP OF 22-24 37-39	MW-1 8-10	MW-2 12-13	MW-3 26-28	MW-4 32-34	MW-5 24-26
alpha-BHC	NYSDEC 91-3	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	NYSDEC 91-3	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	NYSDEC 91-3	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	NYSDEC 91-3	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.007
Heptachlor	NYSDEC 91-3	0.1	ND	ND	ND	ND	ND	ND	ND	ND	0.003JN	ND	ND	ND	ND	ND	ND	ND
Aldrin	NYSDEC 91-3	0.041	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	NYSDEC 91-3	0.1	ND	ND	ND	ND	ND	0.006J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	NYSDEC 91-3	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	NYSDEC 91-3	0.044	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	NYSDEC 91-3	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	NYSDEC 91-3	0.1	ND	ND	ND	0.031JN	ND	0.042JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.011
Endosulfan II	NYSDEC 91-3	0.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	NYSDEC 91-3	2.8	ND	ND	ND	ND	ND	ND	ND	ND	0.004JN	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	NYSDEC 91-3	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	NYSDEC 91-3	2.1	ND	ND	ND	ND	ND	0.037JN	ND	ND	ND	ND	ND	0.004JN	ND	ND	ND	ND
Methoxychlor	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
End. in aldehyde	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	0.012JN	ND	0.020JN	0.030JN	ND	ND	0.007JN	0.006JN	ND	ND	ND
alpha-Chlordane	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	0.008JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	NYSDEC 91-3	0.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	NYSDEC 91-3	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1016	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	10 (TOTAL PCBs)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* – NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994

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TABLE 5–3

Soil Sampling Results (soil boring and monitoring well locations)
TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location								
			SB–11			SB–12					
			12–14 (BTEX)	18–20 (BTEX)	42–44 TCL	6–8 (BTEX)	10–12 (BTEX)	20–22 TCL	38–40 (BTEX)	66–67 TCL	66–67RE TCL
Methylene Chloride	NYSDEC 91–1 OR EPA 8240**	0.1	NT	NT	ND	NT	NT	ND	NT	ND	ND
Acetone	NYSDEC 91–1 OR EPA 8240**	0.2	NT	NT	ND	NT	NT	ND	NT	ND	ND
2–Butanone	NYSDEC 91–1 OR EPA 8240**	0.3	NT	NT	ND	NT	NT	ND	NT	ND	ND
2–Hexanone	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	ND	NT	NT	ND	NT	ND	ND
Benzene	NYSDEC 91–1 OR EPA 8240**	0.06	**0.1**	ND	ND	ND	ND	**1.4J**	ND	ND	ND
4–Methyl–2–Pentanone	NYSDEC 91–1 OR EPA 8240**	1.0	NT	NT	ND	NT	NT	ND	NT	ND	ND
Toluene	NYSDEC 91–1 OR EPA 8240**	1.5	0.003J	ND	0.003J	ND	ND	ND	ND	0.003J	ND
Ethylbenzene	NYSDEC 91–1 OR EPA 8240**	5.5	0.008J	ND	ND	ND	ND	0.260J	ND	ND	ND
Xylene (total)	NYSDEC 91–1 OR EPA 8240**	1.2	0.015J	ND	ND	ND	ND	0.790J	ND	ND	ND
Styrene	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	ND	NT	NT	ND	NT	ND	ND
Benzene Isomers	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	ND	NT	NT	16.60J	NT	ND	ND
Aromatic TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	0.008J	NT	NT	59.30J	NT	0.006J	ND
Napthalene Isomers	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	ND	NT	NT	ND	NT	ND	ND
Other TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	NT	0.027J	NT	NT	ND	NT	ND	ND
Total BTEX	NYSDEC 91–1 OR EPA 8240**	NA	0.13	ND	0.003	ND	ND	2.45	ND	0.003	ND
Total Volatiles***	NYSDEC 91–1 OR EPA 8240**	10	0.13	ND	0.003	ND	ND	2.45	ND	0.003	ND

* – NYSDEC TAGM HWR–94–4046, January 24, 1994

** – EPA Method 8240 used for Indicator Parameters (BTEX) Analysis

*** – TOTAL VOLATILES do not include TICs

TABLE 5-3 (continued)

Soil Sampling Results (soil boring and monitoring well locations)*

TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location										
			SB-13			SB-14	SB-15						SB-16
			16-17	19-21	47-49	11-13	14-16	22-24	32-34	48-50	62-64	62-64RE	14-16
			TCL	(BTEX)	(BTEX)	TCL	(BTEX)	(BTEX)	TCL	(BTEX)	(BTEX)	(BTEX)	(BTEX)
Methylene Chloride	NYSDEC 91-1 OR EPA 8240**	0.1	ND	NT	NT	0.020	NT	NT	**0.400JB**	NT	NT	NT	NT
Acetone	NYSDEC 91-1 OR EPA 8240**	0.2	ND	NT	NT	0.012B	NT	NT	ND	NT	NT	NT	NT
2-Butanone	NYSDEC 91-1 OR EPA 8240**	0.3	ND	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT
2-Hexanone	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT
Benzene	NYSDEC 91-1 OR EPA 8240**	0.06	**6.90**	ND	0.005J	ND	0.002J	ND	**0.890J**	ND	ND	ND	ND
4-Methyl-2-Pentanone	NYSDEC 91-1 OR EPA 8240**	1.0	ND	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT
Toluene	NYSDEC 91-1 OR EPA 8240**	1.5	**3.70**	ND	ND	ND	ND	ND	0.470J	ND	ND	ND	ND
Ethylbenzene	NYSDEC 91-1 OR EPA 8240**	5.5	0.440J	ND	ND	ND	0.003J	0.004J	**13.00**	ND	ND	ND	ND
Xylene (total)	NYSDEC 91-1 OR EPA 8240**	1.2	**7.20**	ND	ND	ND	0.009J	0.001J	**8.50**	ND	ND	ND	ND
Styrene	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT
Benzene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	0.840J	NT	NT	ND	NT	NT	32.00J	NT	NT	NT	NT
Aromatic TICs	NYSDEC 91-1 OR EPA 8240**	NA	9.96J	NT	NT	0.017J	NT	NT	99.60J	NT	NT	NT	NT
Napthalene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	ND	NT	NT	ND	NT	NT	NT	NT
Other TICs	NYSDEC 91-1 OR EPA 8240**	NA	2.08J	NT	NT	0.186J	NT	NT	9.20J	NT	NT	NT	NT
Total BTEX	NYSDEC 91-1 OR EPA 8240**	NA	18.24	ND	0.005	ND	0.014	0.005	22.86	ND	ND	ND	ND
Total Volatiles***	NYSDEC 91-1 OR EPA 8240**	10	**18.24**	ND	0.005	ND	0.032	0.005	**23.26**	ND	ND	ND	ND

TABLE 5-3 (continued)
Soil Sampling Results (soil boring and monitoring well locations)*
TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location									
			SB-16				SB-17			SB-18		
			20-22	32-34	38-40	40-42	2-4	14-16	16-18	5-7	9-11	11-13
			TCL	(BTEX)	(BTEX)	(BTEX)	TCL	(BTEX)	(BTEX)	(BTEX)	(BTEX)	(BTEX)
Methylene Chloride	NYSDEC 91-1 OR EPA 8240**	0.1	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Acetone	NYSDEC 91-1 OR EPA 8240**	0.2	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
2-Butanone	NYSDEC 91-1 OR EPA 8240**	0.3	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
2-Hexanone	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Benzene	NYSDEC 91-1 OR EPA 8240**	0.06	ND	ND	ND	0.005J	0.005J	ND	0.004J	ND	ND	ND
4-Methyl-2-Pentanone	NYSDEC 91-1 OR EPA 8240**	1.0	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Toluene	NYSDEC 91-1 OR EPA 8240**	1.5	ND	ND	ND	0.005J	0.007J	ND	0.004J	0.050J	ND	ND
Ethylbenzene	NYSDEC 91-1 OR EPA 8240**	5.5	ND	ND	ND	ND	ND	ND	ND	0.028J	0.002J	ND
Xylene (total)	NYSDEC 91-1 OR EPA 8240**	1.2	ND	ND	ND	ND	ND	ND	0.001J	0.400	ND	ND
Styrene	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Benzene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Aromatic TICs	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Napthalene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Other TICs	NYSDEC 91-1 OR EPA 8240**	NA	16J	NT	NT	NT	0.128J	NT	NT	NT	NT	NT
Total BTEX	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	0.01	0.012	ND	0.009	0.48	0.002	ND
Total Volatiles***	NYSDEC 91-1 OR EPA 8240**	10	ND	ND	ND	0.01	0.012	ND	0.009	0.48	0.002	ND

TABLE 5-3 (continued)
Soil Sampling Results (soil boring and monitoring well locations)*
TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location										
			SB-19						SB-20				
			19-21 (BTEX)	23-25 TCL	25-27 (BTEX)	25-27DL (BTEX)	35-37 (BTEX)	37-39 (BTEX)	18-20 (BTEX)	20-22 (BTEX)	22-24 TCL	26-28 (BTEX)	28-30 (BTEX)
Methylene Chloride	NYSDEC 91-1 OR EPA 8240**	0.1	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
Acetone	NYSDEC 91-1 OR EPA 8240**	0.2	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
2-Butanone	NYSDEC 91-1 OR EPA 8240**	0.3	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
2-Hexanone	NYSDEC 91-1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
Benzene	NYSDEC 91-1 OR EPA 8240**	0.06	0.025J	**5.60**	0.022J	**0.960JD**	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	NYSDEC 91-1 OR EPA 8240**	1.0	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
Toluene	NYSDEC 91-1 OR EPA 8240**	1.5	0.029J	**4.90**	ND	0.710JD	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	NYSDEC 91-1 OR EPA 8240**	5.5	0.052J	**6.10**	0.200	1.30JD	ND	ND	ND	ND	ND	ND	ND
Xylene (total)	NYSDEC 91-1 OR EPA 8240**	1.2	0.260	**18.00**	**6.50E**	**4.20D**	ND	ND	ND	ND	ND	ND	ND
Styrene	NYSDEC 91-1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
Benzene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	NT	229J	NT	NT	NT	NT	NT	NT	ND	NT	NT
Aromatic TICs	NYSDEC 91-1 OR EPA 8240**	NA	NT	118J	NT	NT	NT	NT	NT	NT	2.10J	NT	NT
Napthalene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	NT	NT	NT	ND	NT	NT
Other TICs	NYSDEC 91-1 OR EPA 8240**	NA	NT	17J	NT	NT	NT	NT	NT	NT	14.40J	NT	NT
Total BTEX	NYSDEC 91-1 OR EPA 8240**	NA	0.37	34.6	6.72	7.17	ND	ND	ND	ND	ND	ND	ND
Total Volatiles***	NYSDEC 91-1 OR EPA 8240**	10	0.37	**34.6**	6.72	7.17	ND	ND	ND	ND	ND	ND	ND

TABLE 5-3 (continued)

Soil Sampling Results (soil boring and monitoring well locations)

TCL Volatiles (mg/kg)

ANALYTE	Analytical	Recommended	DUP OF	Sample Location				DUP OF				
			22-24	MW-1				24-26	MW-2			
Sampling Depth (in feet)	Analytical	Soil Cleanup	37-39	8-10	8-10RE	24-26	46-48	56-57	97-99	6-8	6-8RE	12-13	14-16
	Method	Objective (mg/kg)*	TCL	TCL	TCL	(BTEX)	(BTEX)	(BTEX)	(BTEX)	(BTEX)	(BTEX)	TCL	(BTEX)
Methylene Chloride	NYSDEC 91-1 OR EPA 8240**	0.1	ND	ND	0.002JB	NT	NT	NT	NT	NT	NT	ND	NT
Acetone	NYSDEC 91-1 OR EPA 8240**	0.2	ND	0.012JB	0.024B	NT	NT	NT	NT	NT	NT	ND	NT
2-Butanone	NYSDEC 91-1 OR EPA 8240**	0.3	ND	0.006JB	ND	NT	NT	NT	NT	NT	NT	ND	NT
2-Hexanone	NYSDEC 91-1 OR EPA 8240**	NA	ND	0.001J	ND	NT	NT	NT	NT	NT	NT	ND	NT
Benzene	NYSDEC 91-1 OR EPA 8240**	0.06	ND	ND	ND	ND	ND	ND	ND	0.018	0.012J	0.040	**0.070**
4-Methyl-2-Pentanone	NYSDEC 91-1 OR EPA 8240**	1.0	ND	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Toluene	NYSDEC 91-1 OR EPA 8240**	1.5	ND	ND	ND	ND	ND	ND	ND	0.011J	0.011J	0.015	0.024
Ethylbenzene	NYSDEC 91-1 OR EPA 8240**	5.5	ND	ND	ND	0.003J	ND	ND	ND	ND	ND	0.002J	0.002J
Xylene (total)	NYSDEC 91-1 OR EPA 8240**	1.2	ND	ND	ND	0.003J	ND	ND	ND	0.007J	0.010J	ND	0.018
Styrene	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Benzene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Aromatic TICs	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Napthalene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Other TICs	NYSDEC 91-1 OR EPA 8240**	NA	17.50J	ND	ND	NT	NT	NT	NT	NT	NT	ND	NT
Total BTEX	NYSDEC 91-1 OR EPA 8240**	NA	ND	ND	ND	0.006	ND	ND	ND	0.04	0.04	0.06	0.12
Total Volatiles***	NYSDEC 91-1 OR EPA 8240**	10	ND	0.019	0.026	0.006	ND	ND	ND	0.04	0.04	0.06	0.12

TABLE 5–3 (continued)
Soil Sampling Results (soil boring and monitoring well locations)
TCL Volatiles (mg/kg)

ANALYTE	Analytical	Recommended	Sample Location							DUP OF			
			MW–2	MW–3			MW–4			36–38	MW–5		
Sampling Depth (in feet)		Soil Cleanup	22–26	26–28	32–34	46–48	26–28	32–34	36–38	38–40	18–20	18–20RE	22–24
	Method	Objective (mg/kg)*	(BTEX)	TCL	(BTEX)	(BTEX)	(BTEX)	TCL	(BTEX)	(BTEX)	(BTEX)	(BTEX)	(BTEX)
Methylene Chloride	NYSDEC 91–1 OR EPA 8240**	0.1	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Acetone	NYSDEC 91–1 OR EPA 8240**	0.2	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
2–Butanone	NYSDEC 91–1 OR EPA 8240**	0.3	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
2–Hexanone	NYSDEC 91–1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Benzene	NYSDEC 91–1 OR EPA 8240**	0.06	ND	ND	ND	ND	ND	ND	ND	ND	0.003J	0.004J	ND
4–Methyl–2–Pentanone	NYSDEC 91–1 OR EPA 8240**	1.0	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Toluene	NYSDEC 91–1 OR EPA 8240**	1.5	ND	ND	ND	ND	ND	ND	ND	ND	0.006J	0.006J	0.002J
Ethylbenzene	NYSDEC 91–1 OR EPA 8240**	5.5	ND	ND	ND	ND	ND	ND	ND	ND	0.005J	0.006J	0.004J
Xylene (total)	NYSDEC 91–1 OR EPA 8240**	1.2	ND	0.001J	ND	ND	ND	ND	ND	ND	0.002J	0.005J	ND
Styrene	NYSDEC 91–1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Benzene Isomers	NYSDEC 91–1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Aromatic TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	0.251J	NT	NT	NT	ND	NT	NT	NT	NT	NT
Napthalene Isomers	NYSDEC 91–1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	ND	NT	NT	NT	NT	NT
Other TICs	NYSDEC 91–1 OR EPA 8240**	NA	NT	ND	NT	NT	NT	3.53J	NT	NT	NT	NT	NT
Total BTEX	NYSDEC 91–1 OR EPA 8240**	NA	ND	0.001	ND	ND	ND	ND	ND	ND	0.02	0.02	0.006
Total Volatiles***	NYSDEC 91–1 OR EPA 8240**	10	ND	0.001	ND	ND	ND	ND	ND	ND	0.02	0.02	0.006

TABLE 5-3 (continued)
Soil Sampling Results (soil boring and monitoring well locations)
TCL Volatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil Cleanup Objective (mg/kg)*	Sample Location MW-5 24-26 TCL	Sample Location MW-5 34-35 (BTEX)
Methylene Chloride	NYSDEC 91-1 OR EPA 8240**	0.1	ND	NT
Acetone	NYSDEC 91-1 OR EPA 8240**	0.2	ND	NT
2-Butanone	NYSDEC 91-1 OR EPA 8240**	0.3	ND	NT
2-Hexanone	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT
Benzene	NYSDEC 91-1 OR EPA 8240**	0.06	ND	ND
4-Methyl-2-Pentanone	NYSDEC 91-1 OR EPA 8240**	1.0	ND	NT
Toluene	NYSDEC 91-1 OR EPA 8240**	1.5	0.002J	ND
Ethylbenzene	NYSDEC 91-1 OR EPA 8240**	5.5	0.004J	ND
Xylene (total)	NYSDEC 91-1 OR EPA 8240**	1.2	ND	ND
Styrene	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT
Benzene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT
Aromatic TICs	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT
Napthalene Isomers	NYSDEC 91-1 OR EPA 8240**	NA	ND	NT
Other TICs	NYSDEC 91-1 OR EPA 8240**	NA	1.82J	NT
Total BTEX	NYSDEC 91-1 OR EPA 8240**	NA	0.008	ND
Total Volatiles***	NYSDEC 91-1 OR EPA 8240**	10	0.008	ND

TABLE 5-4
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	Sample Location											
			SB-11				SB-12					SB-13		
			12-14	18-20	18-20RE	42-44	6-8	10-12	20-22	38-40	66-67	16-17	16-17DL	19-21
			PAHs	PAHs	PAHs	TCL	PAHs	PAHs	TCL	PAHs	TCL	TCL	TCL	PAHs
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	NT	NT	NT	ND	NT	NT	ND	NT	ND	2.3J	ND	NT
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
2,4-Dinnitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	NT	NT	NT	ND	NT	NT	ND	NT	ND	2.2J	ND	NT
2,4-Dimethlyphenol	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	ND	0.076J	0.068J	ND	ND	ND	5.6	0.15J	0.049J	800E	1300D	0.079J
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	NT	NT	NT	ND	NT	NT	4.1J	NT	ND	280E	420D	NT
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	ND	ND	ND	ND	0.33J	ND	1.4J	ND	ND	140	210JD	ND
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	ND	12.0	ND	ND	92.0	140JD	ND
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	NT	NT	ND	NT	NT	ND	NT	ND	8.6J	ND	NT
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	NT	NT	NT	ND	NT	NT	1.4J	NT	ND	280E	460D	NT
Fluorene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	0.089J	ND	5.8	ND	ND	440E	830D	ND
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	0.61J	ND	14.0	ND	ND	1200E	2100D	0.092J
Anthracene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	0.2J	ND	4.3	ND	ND	340E	500D	0.076J
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	ND	NT	ND	53.0	120JD	NT
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	ND	0.059J	0.056J	ND	1.2	ND	3.0J	ND	ND	220E	1300	ND
Pyrene	NYSDEC 91-2 or EPA 8270**	50	1.5J	0.27J	0.21J	ND	1.3	ND	5.5	ND	ND	260E	1200D	0.049J
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	0.073J	0.064J	ND	0.82	ND	2.7J	ND	ND	360E	500D	ND
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	0.52J	0.094J	0.080J	ND	0.83	ND	3.2J	ND	ND	380E	490D	ND
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	0.58J	0.05J	0.12J	ND	1.9J	ND	1.5J	ND	ND	290E	330JD	ND
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	0.047J	0.044	ND	0.86J	ND	0.97J	ND	ND	300E	31.0JD	ND
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	ND	0.045J	ND	ND	0.73J	ND	2.0J	ND	ND	280E	410D	ND
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	ND	ND	ND	0.24J	ND	ND	ND	ND	170E	160JD	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	ND	ND	ND	ND	ND	ND	ND	62.0J	46.0JD	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	0.21J	ND	ND	ND	ND	130J	120JD	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2 or EPA 8270**	50	NT	NT	NT	ND	NT	NT	ND	NT	ND	ND	ND	NT
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	NT	NT	NT	NT	NT	NT	ND	NT	ND	ND	ND	NT
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	NT	NT	NT	NT	NT	NT	ND	NT	ND	ND	ND	NT
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	ND	NT	NT	154.1J	NT	ND	3106.2J	3432JD	NT
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	1.199J	NT	NT	52.8J	NT	11.454JB	27.1J	ND	NT
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	2.6	0.71	0.64	ND	9.32	ND	67.47	0.15	0.05	5744	10087	0.30
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	2.6	0.71	0.64	ND	9.32	ND	67.47	0.15	0.05	6090.1	10667	0.30

* - NYSDEC TAGM HWR-94-4046, JANUARY 24, 1994
** - EPA METHOD 8270 USED FOR INDICATOR PARAMETERS (PAHs) ANALYSIS
*** - TOTAL SEMIVOLATILES DO NOT INCLUDE UNKNOWN, NON-TARGET ANALYTES

TABLE 5-4 (continued)
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE	Analytical	Recommended	Sample Location											
			SB-13	SB-14	SB-15			SB-15			SB-16			
Sampling Depth (in feet)		Soil CLeanup	47-49	11-13	14-16	22-24	22-24DL	32-34	48-50	62-64	14-16	20-22	20-22DL	32-34
	Method	Objective (mg/kg)*	PAHs	TCL	PAHs	PAHs	PAHs	TCL	PAHs	PAHs	PAHs	TCL	TCL	PAHs
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
2,4-Dinitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
2,4-Dimethylphenol	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	ND	ND	ND	17.0J	ND	R	0.33J	0.09J	ND	0.6J	0.62JD	0.44
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	NT	ND	NT	NT	NT	R	NT	NT	NT	2.1	2.0D	ND
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	ND	ND	0.16J	120	94.0JD	R	ND	ND	ND	ND	ND	0.19J
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	4.7J	ND	R	0.54	ND	ND	0.26J	0.23JD	0.49
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	NT	ND	NT	NT	NT	R	NT	NT	NT	0.32J	0.31JD	ND
Fluorene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	42.0J	ND	R	0.063J	ND	ND	0.49J	0.39JD	0.45
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	0.8J	1500E	1600D	R	0.27J	0.05J	0.048J	0.28J	0.28JD	0.92
Anthracene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	0.17J	220	230JD	R	0.05J	ND	ND	0.11J	ND	0.37J
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	1.7	1200E	1700D	R	0.17J	ND	ND	0.43J	0.4JD	1.2
Pyrene	NYSDEC 91-2 or EPA 8270**	50	ND	0.088J	1.7	2100E	1200D	R	0.15J	ND	NDJ	0.4J	0.26JD	1.1
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	ND	1.1	580E	710D	R	0.068J	ND	ND	0.1J	ND	0.4J
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	ND	0.053J	1.4	630E	620D	R	0.062J	ND	ND	0.12J	ND	0.48
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	1.0J	420E	550D	R	0.043J	ND	ND	ND	ND	0.47
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	0.56J	320	480D	R	0.046J	ND	ND	ND	ND	0.27J
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	ND	ND	0.54J	380E	450JD	R	0.047J	ND	ND	ND	ND	0.36J
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	ND	ND	320	320JD	R	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	ND	87.0	ND	R	ND	ND	ND	ND	ND	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	270	250JD	R	ND	ND	ND	ND	ND	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2 or EPA 8270**	50	NT	3.1J	NT	NT	NT	R	NT	NT	NT	8.3E	4.4JD	ND
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	NT	ND	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	ND	NT	NT	NT	R	NT	NT	NT	5.2J	14.19JD	ND
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	8.1J	NT	NT	NT	R	NT	NT	NT	ND	ND	ND
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	ND	0.14	9.13	8210.7	8204	R	1.84	0.14	0.05	5.21	4.49	7.14
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	ND	3.21	9.13	8210.7	8204	R	1.84	0.14	0.05	13.51	8.89	7.14

TABLE 5-4 (continued)
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	Sample Location											
			SB-16		SB-17			SB-18				SB-19		
			38-40	40-42	2-4	14-16	16-18	5-7	9-11	9-11RE	11-13	19-21	23-25	23-25DL
			PAHs	PAHs	TCL	PAHs	PAHs	PAHs	PAHs	PAHs	PAHs	PAHs	TCL	TCL
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	ND	NT	0.38	NT	NT	NT	NT	NT	NT	NT	ND	ND
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
2,4-Dinitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	R	ND
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
2,4-Dimethlyphenol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	0.19J	0.13J	0.38	ND	0.27J	89.0	11.0	8.3	0.45	0.81	4.1E	6.8JD
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	ND	NT	0.055J	NT	NT	NT	NT	NT	NT	NT	ND	ND
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	0.12J	0.4	0.064J	ND	0.33J	9.3J	1.2J	0.97J	0.11J	ND	ND	3.4JD
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	0.13J	0.21J	ND	ND	ND	19.0J	2.8J	2.8J	0.1J	ND	1.8	ND
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	ND	NT	0.045J	NT	NT	NT	NT	NT	NT	NT	1.7J	3.2JD
Fluorene	NYSDEC 91-2 or EPA 8270**	50	0.29J	0.8	0.067J	ND	ND	66.0	11.0	10.0	0.4	ND	4.6E	7.8JD
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	0.76	2.2	0.67	ND	0.21J	170	28.0	25.0	1.5	0.041J	9.5E	11.0D
Anthracene	NYSDEC 91-2 or EPA 8270**	50	0.25J	0.73	0.19J	ND	ND	45.0	7.4	6.8	0.37J	ND	0.26J	ND
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	0.92	2.3	1.2	45J	0.24J	130	18.0	17.0	1.2	ND	2.0J	1.3JD
Pyrene	NYSDEC 91-2 or EPA 8270**	50	0.7J	2.5J	1.7J	ND	0.25J	150	20.0J	25.0J	1.4	ND	0.66J	1.7JD
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	0.28J	0.85	0.56	ND	ND	80.0	12.0J	10.0J	0.71	ND	0.36J	ND
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	0.32J	1.1	0.69	ND	0.19J	71.0	9.6J	9.0	0.72	0.067J	0.51J	ND
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	0.32J	0.84	0.74	ND	0.32J	53.0	6.6	3.6J	0.45	ND	0.26J	NDJ
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	0.16J	0.52J	0.34J	ND	0.39J	23.0J	4.1	7.4	0.45	ND	0.32J	ND
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	0.26J	0.8	0.6	ND	0.34J	48.0	6.9	6.6	0.51	ND	0.26J	ND
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	0.29J	0.45	ND	0.5J	18.0J	2.8J	3.1J	0.24J	ND	0.17J	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	0.074J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	0.41J	0.055J	0.63J	12.0J	2.3J	2.5J	0.2J	ND	0.14J	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2 or EPA 8270**	50	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	33.0E	59.0D
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	1.492J	NT	NT	NT	NT	NT	NT	NT	6.06J	263JD
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	4.7	13.67	8.23	0.1	3.67	983.3	143.7	138.07	8.81	0.92	26.64	32.0
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	4.7	13.67	8.73	0.1	3.67	983.3	143.7	138.07	8.81	0.92	59.64	94.2

TABLE 5-4
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	Sample Location										DUP	
			SB-19			SB-20							OF 22-24	
			25-27	35-37	37-39	18-20	20-22	20-22RE	22-24	22-24DL	26-28	28-30	37-39	37-39DL
			PAHs	PAHs	PAHs	PAHs	PAHs	PAHs	TCL	TCL	PAHs	PAHs	TCL	TCL
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
2,4-Dinitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
2,4-Dimethlyphenol	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	4.5F	ND	ND	0.07J	0.39	0.34J	ND	ND	0.28J	ND	0.77	0.96JD
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	1.2	ND
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1J	ND
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	1.4J	ND	ND	0.043J	0.17J	0.26J	1.3J	1.8JD	0.21J	ND	ND	1.4JD
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	NT	NT	NT	NT	NT	NT	1.2J	1.6JD	NT	NT	1.1J	1.5JD
Fluorene	NYSDEC 91-2 or EPA 8270**	50	3.1J	ND	ND	0.095J	0.51J	0.56J	3.3E	4.5JD	0.78J	ND	2.8J	3.3JD
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	1.7	ND
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	4.0J	ND	ND	0.11J	0.86J	0.88J	4.5E	6.6JD	1.3J	0.051J	4.7E	5.7JD
Anthracene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	ND	ND	ND	0.58'	ND	ND	ND
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	0.8J	ND	ND	0.078J	0.054J	0.077J	ND	ND	0.99J	ND	0.37J	ND
Pyrene	NYSDEC 91-2 or EPA 8270**	50	0.9J	ND	ND	0.090J	.13J	0.14J	0.34J	ND	1.0J	0.05J	0.36J	ND
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	ND	ND	0.056J	ND	0.052J	0.15J	ND	0.78J	ND	0.17J	ND
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	ND	ND	ND	0.082J	0.089J	0.073J	0.27J	ND	0.78J	ND	0.29J	ND
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	ND	ND	ND	ND	ND	ND	0.53J	ND	ND	ND
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	NDJ	ND	ND	ND	ND	ND	ND	ND	0.57J	ND	ND	ND
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	NDJ	NDJ	NDJ	ND	ND	ND	ND	ND	0.57J	0.21J	ND	ND
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	NDJ	NDJ	NDJ	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	NDJ	NDJ	NDJ	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	NDJ	NDJ	NDJ	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2 or EPA 8270**	50	NT	NT	NT	NT	NT	NT	46.0E	48.0D	NT	NT	30.0E	24.0D
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	4.2J	140.7JD	NT	NT	ND	156.6JD
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	ND	ND
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	14.7	ND	ND	0.624	2.2	2.38	11.06	14.5	8.37	0.31	14.56	11.36
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	14.7	ND	ND	0.624	2.2	2.38	57.06	62.5	8.37	0.31	44.56	36.86

TABLE 5-4 (continued)
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	Sample Location				DUP OF								
			MW-1				24-26	MW-2				MW-3			
			8-10	24-26	46-48	56-57	97-99	6-8	12-13	14-16	22-24	26-28	32-34	46-48	26-28
			TCL	PAHs	PAHs	PAHs	PAHs	PAHs	TCL	PAHs	PAHs	TCL	PAHs	PAHs	PAHs
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
2,4-Dinnitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	ND	NT	NT	NT	NT	NT	ND	NT	NT	R	NT	NT	NT
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
2,4-Dimethlyphenol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	ND	ND	ND	ND	ND	0.043J	0.07J	12.0J	ND	ND	ND	ND	0.041J
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	ND	NT	NT	NT	NT	NT	0.067J	NT	NT	ND	NT	NT	NT
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	ND	ND	ND	ND	ND	0.054J	0.13J	30.0	ND	ND	ND	ND	0.06J
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	ND	ND	3.5J	ND	0.76	ND	ND	0.059J
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	ND	NT	NT	NT	NT	NT	0.045J	NT	NT	ND	NT	NT	NT
Fluorene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	0.07J	0.09J	51.0	ND	ND	ND	ND	0.17J
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	0.054J	ND	ND	ND	ND	0.3J	0.75	110	ND	ND	ND	ND	0.11J
Anthracene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	0.067J	0.12J	45.0	ND	ND	ND	ND	0.054J
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	0.33J	1.1	100	ND	ND	ND	ND	0.37J
Pyrene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	0.21J	0.72	75.0	ND	ND	ND	ND	0.4J
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	ND	ND	ND	ND	0.15J	0.4	60.0	ND	ND	ND	ND	0.11J
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	0.082J	ND	ND	ND	ND	0.18J	0.39	48.0	ND	ND	ND	ND	0.17J
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	ND	ND	ND	0.14J	0.33J	54.0	ND	ND	ND	ND	0.14J
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	ND	ND	ND	0.13J	0.34J	35.0	ND	ND	ND	ND	0.13J
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	ND	ND	ND	ND	0.17J	0.11J	0.24J	41.0	ND	ND	ND	ND	0.11J
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	ND	ND	ND	ND	0.063J	0.16J	17.0	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	ND	ND	ND	ND	0.074J	2.6J	ND	ND	ND	ND	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	0.052J	0.11J	11.0J	ND	ND	ND	ND	ND
bis(2-ethylhexylphthalate)	NYSDEC 91-2 or EPA 8270**	50	ND	ND	NT	NT	NT	NT	0.061J	NT	NT	ND	NT	NT	NT
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	ND	NT	NT	NT	NT	NT	0.27J	NT	NT	ND	NT	NT	NT
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	0.293J	NT	NT	NT	NT	NT	2.003J	NT	NT	0.23J	NT	NT	NT
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	NT	ND	NT	NT	ND	NT	NT	NT
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	0.14	ND	ND	ND	0,17	1.9	5.14	695.1	ND	0.76	ND	ND	1.92
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	0.14	ND	ND	ND	0.17	1.9	5.47	695.1	ND	0.76	ND	ND	1.92

TABLE 5-4
Soil Sampling Results (soil borings and monitoring well locations)
TCL Semivolatiles (mg/kg)

ANALYTE Sampling Depth (in feet)	Analytical Method	Recommended Soil CLeanup Objective (mg/kg)*	DUP OF Sample Location							
			MW-4		36-38	MW-5	MW-5			
			32-34	36-38	38-40	18-20	22-24	24-26	24-26DL	34-35
			TCL	PAHs	PAHs	PAHs	PAHs	TCL	TCL	PAHs
Phenol	NYSDEC 91-2 or EPA 8270**	0.3	ND	NT	NT	NT	NT	ND	ND	NT
2-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	NT	NT	NT	ND	ND	NT
1,4-Dichlorobenzene	NYSDEC 91-2 or EPA 8270**	8.5	ND	NT	NT	NT	NT	ND	ND	NT
N-Nitroso-di-n-propylamine	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
1,2,4-Trichlorobenzene	NYSDEC 91-2 or EPA 8270**	3.4	ND	NT	NT	NT	NT	ND	ND	NT
4-Chloro-3-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.24	ND	NT	NT	NT	NT	ND	ND	NT
2,4-Dinnitrotoluene	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
Pentachlorophenol	NYSDEC 91-2 or EPA 8270**	1.0	ND	NT	NT	NT	NT	ND	ND	NT
4-Methylphenol	NYSDEC 91-2 or EPA 8270**	0.9	ND	NT	NT	NT	NT	ND	ND	NT
2,4-Dimethlyphenol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
Naphthalene	NYSDEC 91-2 or EPA 8270**	13	ND	ND	ND	150	ND	ND	ND	0.4J
2-Methylnaphthalene	NYSDEC 91-2 or EPA 8270**	36.4	ND	NT	NT	NT	NT	ND	ND	NT
Acenaphthylene	NYSDEC 91-2 or EPA 8270**	41	ND	ND	ND	140	ND	ND	ND	0.08J
Acenaphthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	9.0J	ND	ND	ND	0.085J
4-Nitrophenol	NYSDEC 91-2 or EPA 8270**	0.1	ND	NT	NT	NT	NT	ND	ND	NT
Dibenzofuran	NYSDEC 91-2 or EPA 8270**	6.2	ND	NT	NT	NT	NT	ND	ND	NT
Fluorene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	150	ND	ND	ND	0.27J
N-Nitrosodiphenylamine (1)	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
Phenantherene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	430	0.13J	ND	ND	0.73
Anthracene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	140	ND	ND	ND	0.2J
Carbazol	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
Fluoranthene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	260	0.16J	0.36J	ND	0.29J
Pyrene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	170J	0.13J	0.89J	1.3JD	0.27J
Benzo (a) anthracene	NYSDEC 91-2 or EPA 8270**	0.22	ND	ND	ND	110	0.095J	0.27J	ND	0.29J
Chrysene	NYSDEC 91-2 or EPA 8270**	0.4	ND	ND	ND	94.0	0.11J	0.7J	ND	0.32J
Benzo (b) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	ND	56.0J	ND	ND	ND	0.25J
Benzo (k) fluoranthene	NYSDEC 91-2 or EPA 8270**	1.1	ND	ND	ND	54.0J	ND	ND	ND	0.12J
Benzo (a) pyrene	NYSDEC 91-2 or EPA 8270**	0.061	ND	ND	ND	60.0J	ND	ND	ND	0.18J
Indeno(1,2,3-cd) pyrene	NYSDEC 91-2 or EPA 8270**	3.2	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	NYSDEC 91-2 or EPA 8270**	0.014	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i) perylene	NYSDEC 91-2 or EPA 8270**	50	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-ethylhexyiphthalate)	NYSDEC 91-2 or EPA 8270**	50	ND	NT	NT	NT	NT	34.0E	43.0D	NT
Di-n-butylphthalate	NYSDEC 91-2 or EPA 8270**	8.1	ND	NT	NT	NT	NT	ND	ND	NT
Diethylphthalate	NYSDEC 91-2 or EPA 8270**	2.0	ND	NT	NT	NT	NT	ND	ND	NT
Aromatic TICs	NYSDEC 91-2 or EPA 8270**	NA	0.17J	NT	NT	NT	NT	ND	44.0JD	NT
Other TICs	NYSDEC 91-2 or EPA 8270**	NA	ND	NT	NT	NT	NT	ND	ND	NT
Total PAHs	NYSDEC 91-2 or EPA 8270**	NA	ND	ND	ND	1823	0.63	2.22	1.3	3.49
Total Semivolatiles***	NYSDEC 91-2 or EPA 8270**	500	ND	ND	ND	1823	0.63	36.22	44.3	3.49

SOILSEMI.WK3

TABLE 5–5
SUMMARY OF GC GAS/GC FUEL SOIL SAMPLING RESULTS
(all results expressed in mg/kg)

ANALYTE	Sampling Location				
	SB–12	SB–15	SB–19	SB–20	MW–5
Sampling Depth (in feet)	18–20	24–26	23–25	24–26	26–28
TPH as Gasoline	0.3	4300	3100 (gasoline)	160	20
#2 Fuel Oil	ND	40000	14000	4700	2100
#6 Fuel Oil	ND	ND	ND	ND	ND
Lubricating Oil	ND	ND	ND	ND	ND
Kerosine	ND	ND	ND	ND	ND

GCGAS.WK3

TABLE 6-1
Groundwater Gauging and Sampling Results (December, 1994)
(ALL RESULTS EXPRESSED IN MG/L)

ANALYTE	ANALYTICAL METHOD	NYSDEC GROUNDWATER STANDARD/GUIDANCE VALUE*	Sampling Location								
			Groundwater Elevation (ft)								
			MW-1	MW-2	MW-3	MW-4	MW-4RE	MW-5	MW-5RE	MW-50	MW-60
			7.12	12.34	1.5	-0.82	–	6.91	–	–	–
TCL Volatiles										MW-5 DU	EQ BLANK
Methylene Chloride	NYSDEC 91-1	0.005	ND JB	ND JB	ND	ND JB	NS	ND JB	NS	ND	ND
Acetone	NYSDEC 91-1	0.050	ND	ND	ND	ND	NS	ND	NS	ND	9 J
1,1-Dichloroethane	NYSDEC 91-1	0.005	ND	ND	ND	0.003 J	NS	ND	NS	ND	ND
Chloroform	NYSDEC 91-1	0.007	**0.022**	ND	ND	ND	NS	**0.038**	NS	**0.036**	ND
Benzene	NYSDEC 91-1	0.0007	ND	ND	ND	**0.06**	NS	ND	NS	ND	ND
Toluene	NYSDEC 91-1	0.005	ND	ND	ND	0.001 J	NS	ND	NS	ND	ND
Ethylbenzene	NYSDEC 91-1	0.005	ND	ND	ND	0.003 J	NS	ND	NS	ND	ND
Xylene (total)	NYSDEC 91-1	0.005	ND	ND	ND	0.001 J	NS	ND	NS	ND	ND
Unknown Hydrocarbon	NYSDEC 91-1	NA	ND	ND	ND	0.024 J	NS	ND	NS	ND	ND
TICs	NYSDEC 91-1	NA	ND	ND	ND	0.98 J	NS	ND	NS	ND	ND
Total BTEX	NYSDEC 91-1	NA	ND	ND	ND	0.065	ND	ND	NS	ND	ND
TCL Semivolatiles											
Phenol	NYSDEC 91-2	0.001	ND	ND	ND	**0.002 J**	**0.002 J**	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NYSDEC 91-2	0.050	ND	0.002 J	ND	ND	ND	ND	ND	0.001	0.001 J
Aromatic TICs	NYSDEC 91-2	NA	ND	ND	0.022 J	0.007 J	0.007J	0.005 J	0.005 J	ND	ND
Other TICs	NYSDEC 91-2	NA	0.009 J	0.008 J	0.035 J	0.042 J	0.04 J	0.002 J	0.002 J	ND	ND
Pesticides/PCBs											
	NYSDEC 91-3		None detected in any samples.								
TAL Metals											
Aluminum	CLP-M**	NA	1.13	2.29	0.125 B	0.0395 B	NS	0.048 B	NS	ND	ND
Antimony	CLP-M**	0.003 GV	ND	ND	ND	ND	NS	ND	NS	ND	ND
Arsenic	CLP-M**	0.025	ND	ND	0.006 B	**0.115 J**	NS	ND	NS	ND	ND
Barium	CLP-M**	1.0	0.034 B	0.082 B	0.056 B	0.151 B	NS	0.011 B	NS	0.0093 B	ND
Beryllium	CLP-M**	0.003	0.001 B	ND	ND	ND	NS	ND	NS	ND	ND
Cadmium	CLP-M**	0.010	ND	ND	ND	ND	NS	ND	NS	ND	0.0044 J
Calcium	CLP-M**	NA	51.3	128	109	135	NS	26.6	NS	25.5	ND
Chromium	CLP-M**	0.050	ND	0.0068 B	ND	ND	NS	ND	NS	ND	ND
Cobalt	CLP-M**	0.11	ND	ND	ND	ND	NS	ND	NS	ND	ND
Copper	CLP-M**	0.20	ND	0.017 B	ND	ND	NS	ND	NS	ND	0.0061 B
Iron	CLP-M**	0.30	**4.72**	**6.71**	**28.9**	**26**	NS	**0.339**	NS	0.08 B	ND
Lead	CLP-M**	0.025	0.0065	0.0064	ND	ND	NS	ND	NS	ND	ND
Magnesium	CLP-M**	35	8.24	**81.3**	13.3	16.3	NS	3.4 B	NS	3.15 B	ND
Manganese	CLP-M**	0.3	0.085	**3.89**	**2.2**	**4.08**	NS	0.127	NS	0.061	ND
Mercury	CLP-M**	0.002	ND	ND	ND	ND	NS	ND	NS	ND	ND
Nickel	CLP-M**	NA	ND	ND	ND	ND	NS	ND	NS	ND	ND
Potassium	CLP-M**	NA	3.99 B	4.14 B	6.55	10.2	NS	1.13 B	NS	0.753 B	ND
Selenium	CLP-M**	0.010	ND	ND	ND	ND	NS	ND	NS	ND	ND
Silver	CLP-M**	0.050	ND	ND	ND	ND	NS	ND	NS	ND	ND
Sodium	CLP-M**	20	17.6	**32.8**	**32.8**	**47.9**	NS	8.5	NS	8.03	ND
Thallium	CLP-M**	0.004 GV	ND J	ND J	ND J	ND J	NS	ND J	NS	ND J	ND J
Vanadium	CLP-M**	NA	ND	ND	ND	ND	NS	ND	NS	ND	ND
Zinc	CLP-M**	0.30	0.028	0.019 B	0.039	0.0199 B	NS	0.022	NS	0.038	ND
Total Cyanide											
Total Cyanide	CLP-M**	0.100	0.05	ND	0.05	0.066	NS	0.068	NS	ND	ND

TABLE 6–1 (continued)
Groundwater Gauging and Sampling Results (December, 1994)
(ALL RESULTS EXPRESSED IN MG/L)

			Sampling Location								
			Groundwater Elevation (ft)								
ANALYTE	ANALYTICAL	NYSDEC GROUNDWATER	MW–1	MW–2	MW–3	MW–4	MW–4RE	MW–5	MW–5RE	MW–50	MW–60
	METHOD	STANDARD/GUIDANCE VALUE	7.12	12.34	1.5	–0.82	–	6.91	–	–	–
Conventional Analyses:			Note: Results expressed in mg/l								
Biochemical Oxygen Demand	405.1	NA	ND	ND	ND	ND	NS	ND	NS	ND	NS
Chemical Oxygen Demand	410.1	NA	8 J	16	14	27 J	NS	29 J	NS	31 J	NS
Chloride	325	NA	28	26	53	84	NS	15	NS	15	NS
Hardness	242.1	NA	144	621	298	370	NS	75	NS	77	NS
Nit ate, Nitrogen	353.2	10	2.74	1.22	1.1	1.2	NS	1.39	NS	1.34	NS
Oil & Grease	413.1	NA	2 J	9 J	4	5 J	NS	5 J	NS	4 J	NS
Sulfate	375.2	250	75	210	128	59	NS	18	NS	18	NS
Sulfide	376	0.050 GV	ND J	ND J	ND	ND J	NS	ND J	NS	ND J	NS
Tot. l Dissolved Solids	160.1	NA	275	787	447	598	NS	118	NS	118	NS

GV – GUIDANCE VALUE
* – NYSDEC, DIVISION OF WATER TECHNICAL AND OPERATIONAL GUIDANCE SERIES (1.1.1), "AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES", OCTOBER 22, 1993
** – CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0

GROUND.WK3

TABLE 6-2
Groundwater Gauging and Sampling Results (January, 1995)
(All Results Expressed in mg/l)

ANALYTE	ANALYTICAL METHOD	NYSDEC GROUNDWATER STANDARD/GUIDANCE VALUE	Sample Location						
			Groundwater Elevation (ft)						
			MW-1	MW-2	MW-3	MW-4	MW-5	MW-50	MW-60
			7.81	12.51	2.68	1.09	6.89	–	–
TCL Volatiles								MW-5 DUP	EQ BLANK
Methylene Chloride	NYSDEC 91-1	0.005	ND JB	ND JB	ND JB	ND JB	ND	ND	ND
Acetone	NYSDEC 91-1	0.050	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	NYSDEC 91-1	0.005	ND	0.003 J	ND	ND	ND	ND	ND
Chloroform	NYSDEC 91-1	0.007	0.019	ND	ND	ND	0.033	0.035	ND
Benzene	NYSDEC 91-1	0.0007	ND	ND	ND	0.049	ND	ND	ND
Toluene	NYSDEC 91-1	0.005	ND	ND	ND	0.002 J	ND	ND	ND
Ethylbenzene	NYSDEC 91-1	0.005	ND	ND	ND	0.007 J	ND	ND	ND
Xylene (total)	NYSDEC 91-1	0.005	ND	ND	ND	0.006 J	ND	ND	ND
Unknown Hydrocarbon	NYSDEC 91-1	NA	ND	ND	ND	ND	ND	ND	ND
TICs	NYSDEC 91-1	NA	ND	ND	ND	0.795 J	ND	ND	ND
Total BTEX	NYSDEC 91-1	NA	ND	ND	ND	0.064	ND	ND	ND
TCL Semivolatiles									
Acenapthene	NYSDEC 91-2	0.020 GV	ND	ND	0.002 J	ND	ND	ND	ND
Phenol	NYSDEC 91-2	0.001	ND	ND	ND	0.023	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NYSDEC 91-2	0.050	ND	ND	ND	0.002 J	ND	ND	ND
Aromatic TICs	NYSDEC 91-2	NA	ND	0.002	0.023 J	ND	0.007	ND	ND
Unknown Hydrocarbons	NYSDEC 91-2	NA	ND	0.011 J	ND	ND	ND	ND	ND
Unknown Siloxane	NYSDEC 91-2	NA	NR	0.019 J	NR	NR	NR	ND	ND
Other TICs	NYSDEC 91-2	NA	0.004 J	0.015 J	0.061 J	0.043 J	0.004	ND	ND
Pesticides/PCBs									
	NYSDEC 91-3	NA	None detected in any samples.						
TAL Metals									
Aluminum	CLP-M*	NA	0.748 J	1.02 J	1.44 J	0.268 J	ND	0.0399 J	ND
Antimony	CLP-M*	0.003 GV	ND	ND	ND	ND	ND	ND	ND
Arsenic	CLP-M*	0.025	ND	ND	0.007 J	0.142 J	ND	ND	ND
Barium	CLP-M*	1.0	0.023 B	0.064 B	0.0726 B	0.168 B	0.0159	0.0159 B	ND
Beryllium	CLP-M*	0.003	ND	ND	ND	ND	ND	ND	ND
Cadmium	CLP-M*	0.010	ND	ND	ND	0.0035 B	ND	0.0026 B	ND
Calcium	CLP-M*	NA	45	150	110	130	49.4	49.3	ND
Chromium	CLP-M*	0.050	ND	ND	0.0058 B	ND	ND	0.0356	ND
Cobalt	CLP-M*	0.11	ND	ND	ND	ND	ND	0.0368 B	ND
Copper	CLP-M*	0.20	0.007 B	ND	0.0017 B	0.0047 B	ND	0.0379	ND
Iron	CLP-M*	0.30	3.21	3.28	41	29.5	0.485	0.666	ND
Lead	CLP-M*	0.025	0.003	ND	0.0052	ND	ND	ND	ND
Magnesium	CLP-M*	35	7.4	66.7	13.9	16.3	6.4	6.74	ND
Manganese	CLP-M*	0.3	0.0698	2.4	2.47	4.08	0.277	0.289	ND
Mercury	CLP-M*	0.002	0.00038	0.00082	0.00059	0.00027	0.00022	0.00024	ND
Nickel	CLP-M*	NA	ND	ND	ND	ND	ND	0.0284 B	ND
Potassium	CLP-M*	NA	ND	ND	7.14	12.7	ND	12.9	1.09 B
Selenium	CLP-M*	0.010	R	R	R	R	R	R	R
Sodium	CLP-M*	20	18.1	53.4	32	46.5	33.8	34.7	ND
Vanadium	CLP-M*	NA	ND	ND	0.0217 B	ND	ND	0.0196 B	ND
Zinc	CLP-M*	0.3	0.0099	0.0077 B	0.0208	ND	ND	ND	ND
Total Cyanide									
Total Cyanide	CLP-M*	0.1	0.04	ND	ND	0.06	ND	ND	ND

TABLE 6-2 (continued)
Groundwater Gauging and Sampling Results (January, 1995)
(All Results Expressed in mg/l)

ANALYTE	ANALYTICAL METHOD	NYSDEC GROUNDWATER STANDARD/GUIDANCE VALUE	Sample Location						
			Groundwater Elevation (ft)						
			MW-1	MW-2	MW-3	MW-4	MW-5	MW-50	MW-60
			7.81	12.51	2.68	1.09	6.89	–	–
Conventional Analyses:			Note: Results expressed in mg/l						
Biochemical Oxygen Demand	405.1	NA	ND	ND	ND	ND	ND	ND	NS
Chemical Oxygen Demand	410.1	NA	11 J	14 J	36 J	40 J	51	49 J	NS
Chloride	325	NA	51	42	30	82	95	96	NS
Hardness	242.1	NA	133	637	310	372	142	147	NS
Nitrate, Nitrogen	353.2	10	0.87	0.6	0.25	0.2	0.53	0.59	NS
Oil & Grease	413.1	NA	ND	ND	2	ND	4	2	NS
Sulfate	375.2	250	61	246	159	26	35	37	NS
Sulfide	376	0.050 GV	ND	ND	ND	ND	ND	ND	NS
Total Dissolved Solids	160.1	NA	267	906	575	550	289	285	NS

GV – GUIDANCE VALUE
* – CLP ANALYTICAL METHODS FOR METALS AS PER DOCUMENT ILM03.0
NR – NOT REPORTED

GROUND2.WK3

TABLE 7–1
Summary of Waste Characteristics Analysis

ANALYSIS/PARAMETER	Sampling Location/Inberval (in feet)						
	SMALL TANK SLUDGE (STB–1/STS–1)	SMALL TANK SLUDGE STB–1 DL	SMALL TANK WATER (STT–1)	TP–7 3	TP–7 3 DL	TP–7 9	TP–7 9 DL
TCLP Volatiles (mg/l)							
Benzene	E	48 J D	0.58	1.9 E	0.86 J D	3.5 E	1.1 J D
1,2–Dichloroethane	ND J	ND J	ND J	ND J	ND	0.05	ND J
Trichloroethylene	ND J	ND J	ND J	ND J	ND	ND J	ND J
TCLP Semi–Volatiles (mg/l)							
Cresol	ND	–	ND	E	31 D	E	37 D
Pyridine	ND	–	ND J	0.7	1.3 D	0.5	0.8 D
TCLP Metals (mg/l)							
Arsenic	ND	–	ND	ND	–	ND	–
Barium	389	–	0.12 B	0.12 B	–	0.14 B	–
Cadmium	ND	–	ND	ND	–	ND	–
Chromium	ND	–	ND	0.01	–	ND	–
Lead	160	–	ND	ND	–	ND	–
Mercury	0.33	–	ND	ND	–	0.0002	–
Silver	ND	–	ND	ND	–	0.008 B	–
Corrosivity (inch/year)							
Corrosivity	ND	–	ND	ND	–	ND	–
Reactive Cyanide (ppm)							
Reactive Cyanide	ND	–	ND	ND	–	ND	–
Ignitability (f)							
Ingitability	212 E	–	212 E	212 E	–	212 E	–
Reactive Sulfide (ppm)							
Reactive Sulfide	ND	–	ND	ND	–	ND	–

WASTE.WK3

Table 8-1
Air Analytical Results

Sample ID	Sampling Location	Sampling Results (ug/sampling tube)
BTEX by NIOSH Method 1501		
TP2U-F	TP2 upwind	ND
TP2D-F	TP2 downwind	ND
TP5U-F	TP5 upwind	ND
TP5D-F	TP5 downwind	ND
TP6U-F	TP6 upwind	ND
TP6D-F	TP6 downwind	ND
TP2U-B	TP2 upwind	ND
TP2D-B	TP2 downwind	ND
TP5U-B	TP5 upwind	ND
TP5D-B	TP5 downwind	ND
TP6U-B	TP6 upwind	ND
TP6D-B	TP6 downwind	ND

Key:
F = front filter
B = back tube

Sample ID	Sampling Location	Sampling Results (ug/tube)	Flow Rate (liters/min)	Time of Sampling (minutes)	Total Air Value (liters)	Concentration (ug/L)
PAHs by NIOSH Method 5575						
AS1-F	SB-28 (southern)	Naphthalene 10 B	2	331	662	0.02
AS2-F	SB-28 (eastern)	170 EB	2	331	662	0.26
AS2-FDL	SB-28 (eastern)	290 BD	2	331	662	0.44
AS3-F	SB-28 (western)	8 JB	2	331	662	0.01
AS4-F	SB-28 (northern	6 JB	2	331	662	0.01
AS1-B	SB-28 (southern)	3 JB	2	331	662	0.005
AS2-B	SB-28 (eastern)	38 B	2	331	662	0.06
AS3-B	SB-28 (western)	3 JB	2	331	662	0.005
AS4-B	SB-28 (northern)	3 JB	2	331	662	0.005

Key:
F = front filter
B = back tube
ug = microgram

B = analyte also detected in blank sample
J,E = estimated value
D = diluted sample

Note: Blank samples indicated concentration of naphthalene were present at up to 8 μg/tube.

TABLE 9-1
Equipment Rinseate Sampling Results
TAL Metals and Cyanide (mg/l)

ANALYTE	ANALYTICAL METHOD	Sample Location					
		EQ-BLK (GT-2)	EQ-BLK (GT-4)	EQ-BLK (GT-7)	EQ-BLK (GT-15)	EQ-BLK (GT-15A)	EQ-BLSS (GT-2A)
Aluminum	CLP-M*	ND	ND	ND	ND	ND	ND
Antimony	CLP-M*	0.064J	ND	ND	ND	ND	ND
Arsenic	CLP-M*	ND	ND	ND	ND	ND	ND
Barium	CLP-M*	ND	ND	ND	ND	ND	ND
Beryllium	CLP-M*	ND	ND	ND	ND	ND	ND
Cadmium	CLP-M*	ND	ND	ND	ND	ND	ND
Calcium	CLP-M*	ND	ND	ND	ND	ND	ND
Chromium	CLP-M*	ND	ND	ND	ND	ND	ND
Cobalt	CLP-M*	ND	ND	ND	ND	ND	ND
Copper	CLP-M*	ND	ND	0.402	ND	ND	ND
Iron	CLP-M*	ND	ND	ND	ND	ND	ND
Lead	CLP-M*	ND	0.004	ND	ND	ND	ND
Magnesium	CLP-M*	ND	ND	ND	ND	ND	ND
Manganese	CLP-M*	ND	ND	ND	0.005B	ND	ND
Mercury	CLP-M*	ND	ND	ND	ND	ND	ND
Nickel	CLP-M*	ND	ND	ND	ND	ND	ND
Potassium	CLP-M*	ND	ND	ND	ND	ND	ND
Selenium	CLP-M*	ND	ND	ND	ND	ND	ND
Silver	CLP-M*	ND	ND	ND	ND	ND	ND
Sodium	CLP-M*	ND	ND	ND	ND	ND	ND
Thallium	CLP-M*	ND	ND	ND	ND	ND	ND
Vanadium	CLP-M*	ND	ND	ND	ND	ND	ND
Zinc	CLP-M*	ND	ND	ND	ND	ND	ND
Cyanide	CLP-M*	ND	ND	ND	ND	0.00006J	ND

* – CLP Analytical Method for Metals as per Document ILM03.0
EQ-BLK – equipment blank
(GT-2) – Sample Delivery Group (SDG) number
EQ-BLSS – equipment blank collected during surface soil sampling

WSBMET.WK3

TABLE 9-2
Equipment Rinseate Sampling Results
Pesticides and PCBs (mg/l)

ANALYTE	ANALYTICAL METHOD	Sample Location				
		EQ-BLK (GT-2)	EQ-BLK (GT-4)	EQ-BLK (GT-7)	EQ-BLK (GT-15)	EQ-BLSS (GT-2A)
alpha-BHC	NYSDEC 91-3	ND	ND	ND	ND	ND
beta-BHC	NYSDEC 91-3	ND	ND	ND	ND	ND
delta-BHC	NYSDEC 91-3	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	NYSDEC 91-3	ND	ND	ND	ND	ND
Heptachlor	NYSDEC 91-3	ND	ND	ND	ND	ND
Aldrin	NYSDEC 91-3	ND	ND	ND	ND	ND
Heptachlor epoxide	NYSDEC 91-3	ND	ND	ND	ND	ND
Endosulfan I	NYSDEC 91-3	ND	ND	ND	ND	ND
Dieldrin	NYSDEC 91-3	ND	ND	ND	ND	ND
4,4'-DDE	NYSDEC 91-3	ND	ND	ND	ND	ND
Endrin	NYSDEC 91-3	ND	ND	ND	ND	ND
Endosulfan II	NYSDEC 91-3	ND	ND	ND	ND	ND
4,4'-DDD	NYSDEC 91-3	ND	ND	ND	ND	ND
Endosulfan sulfate	NYSDEC 91-3	ND	ND	ND	ND	ND
4,4'-DDT	NYSDEC 91-3	ND	ND	ND	ND	ND
Methoxychlor	NYSDEC 91-3	ND	ND	ND	ND	ND
Endrin ketone	NYSDEC 91-3	ND	ND	ND	ND	ND
Endrin aldehyde	NYSDEC 91-3	ND	ND	ND	ND	ND
alpha-Chlordane	NYSDEC 91-3	ND	ND	ND	ND	ND
gamma-Chlordane	NYSDEC 91-3	ND	ND	ND	ND	ND
Toxaphene	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1016	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1221	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1232	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1242	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1248	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1254	NYSDEC 91-3	ND	ND	ND	ND	ND
Aroclor-1260	NYSDEC 91-3	ND	ND	ND	ND	ND

EQ-BLK – equipment blank
(GT-2) – Sample Delivery Group (SDG) number
EQ-BLSS – equipment blank collected during surface soil sampling

WSBMET.WK3

TABLE 9-3

Equipment Rinseate Sampling Results

TCL Volatiles (mg/l)

ANALYTE	ANALYTICAL METHOD	Sample Location						
		EQ-BLK (GT2)	EQ-BLKRE (GT2)	EQ-BLK (GT4)	EQ-BLK (GT7)	EQ-BLK (GT-15)	EQ-BLK (GT16)	EQ-BLSS (GT-2A)
Methylene Chloride	NYSDEC 91-1	0.002B	0.002B	0.002B	ND	ND	NT	0.003B
Acetone	NYSDEC 91-1	ND	ND	ND	ND	ND J	NT	ND
2-Butanone	NYSDEC 91-1	ND	ND	ND	ND	ND	NT	ND
Benzene	NYSDEC 91-1	ND	ND	ND	ND	ND	ND	ND
Toluene	NYSDEC 91-1	0.002	0.002	ND	ND	ND	ND	0.003
Ethylbenzene	NYSDEC 91-1	ND	ND	ND	ND	ND	ND	ND
Xylene (total)	NYSDEC 91-1	0.007	0.006	ND	ND	ND	ND	ND
Ethyl Methyl Benzene Isomer	NYSDEC 91-1	ND	ND	ND	ND	ND	NT	ND
Trimethyl Benzene Isomer	NYSDEC 91-1	ND	ND	ND	ND	ND	NT	ND
Aromatic TICs	NYSDEC 91-1	0.008	0.019	ND	ND	ND	NT	ND
Unknown Siloxane	NYSDEC 91-1	ND	ND	ND	ND	0.232J	NT	ND
Other TICs	NYSDEC 91-1	0.077	ND	0.306	0.010	ND	NT	0.321

EQ-BLK -equipment blank

(GT2) - Sample Delivery Group (SDG) number

EQ-BLSS - equipment blank collected during surface soil sampling

WSBVOLAT.WK3

TABLE 9-4

Equipment Rinseate Sampling Results

TCL Semivolatiles (mg/l)

ANALYTE	ANALYTICAL METHOD	Sample Location							
		EQ-BLK (GT 2)	EQ-BLK (GT 4)	EQ-BLK (GT-4A)	EQ-BLK (GT 7)	EQ-BLK (GT-15A)	EQ-BLK (GT-16)	EQBLK (GT-16A)	EQ-BLSS (GT-2A)
Phenol	NYSDEC 91-2	ND	ND	ND	ND	R	NT	ND J	ND
2-Methylphenol	NYSDEC 91-2	0.001J	ND	ND	ND	R	NT	ND J	ND
4-Methylphenol	NYSDEC 91-2	0.002J	ND	ND	ND	R	NT	ND J	ND
2,4-Dimethylphenol	NYSDEC 91-2	ND	ND	ND	ND	R	NT	ND J	ND
Naphthalene	NYSDEC 91-2	0.017J	ND	ND	ND	R	ND	ND J	ND
2-Methylnaphthalene	NYSDEC 91-2	0.004J	ND	ND	ND	R	NT	ND J	ND
Acenaphthylene	NYSDEC 91-2	0.004J	ND	ND	ND	R	ND	ND J	ND
Acenaphthene	NYSDEC 91-2	ND	ND	ND	ND	R	ND	ND J	ND
Dibenzofuran	NYSDEC 91-2	0.005J	ND	ND	ND	R	NT	ND J	ND
Fluorene	NYSDEC 91-2	0.007J	ND	ND J	ND	R	ND	ND J	ND
Phenanthrene	NYSDEC 91-2	0.014	ND	ND	ND	R	ND	ND J	ND
Anthracene	NYSDEC 91-2	0.003J	ND	ND	ND	R	ND	ND J	ND
Carbazole	NYSDEC 91-2	0.002J	ND	ND J	ND	R	NT	ND J	ND
Fluoranthene	NYSDEC 91-2	0.003J	ND	ND	ND	R	ND	ND J	ND
Pyrene	NYSDEC 91-2	0.002J	ND	ND	ND	R	ND	ND J	ND
Aromatic TICs	NYSDEC 91-2	ND	ND	ND	ND	R	NT	ND J	ND
Other TICs	NYSDEC 91-2	0.007	0.005	ND	0.019	R	NT	ND J	0.022
Diethylphthalate	NYSDEC 91-2	ND	ND	0.002J	ND	R	ND	ND J	ND

EQ-BLK – equipment blank

(GT 2) – Sample Delivery Group (SDG) number

EQ-BLSS – equipment blank collected during surface soil sampling WSBSEMI.WK3

APPENDIX A

DRILLING LOGS

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well MW-1

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *57.4 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial *30 ft.* Static *21.1 ft.*
Screen: Dia *2 in.* Length *15 ft.* Type/Size *PVC .010 in.*
Casing: Dia *2 in.* Length *9 ft.* Type *PVC*
Fill Material *#0 Morie Sand* Rig/Core *Mobile B-61/B-57*
Drill Co. *ADT* Method *HSA – Driven Casing*
Driller *Bowers & Harrington* Log By *S. Tice & J. Bishop* Date *8/30-9/2/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

** = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators e = Sample sent for geotechnicals*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0			Concrete	0'-2': Concrete
2	0	50% 4-4-6-6	Fill	2'-4': Dry, brown FINE SAND, trace silt, trace clay, trace coarse sand
4	0	2% 5-5-6-7	Fill	4'-6': Same as above with trace fine gravel, trace sticks, trace charred wood, loose
6			Fill	6'-8': No sample
8	1.7	50% 8-10-12-13	Slag	*8'-10': Dry, gray-black, medium-coarse sand sized, trace fine-medium gravel sized SLAG, trace brick, trace metal (fill)
10	1.8	30% 7-8-9-7	Slag	10'-12': Same as above, slightly moist
12	0	5% 7-7-8-10	Slag	12'-14': Same as above, 3 cobble sized SLAG chunks
14	0.6	0.5% 8-10-11-11	Slag	14'-16': Wet, trace recovery, same as above
16	0.6	65% 10-9-8-7	Slag	e16'-18': Wet, Top of sample: SLAG, same as above; Bottom: Brown, fine medium SAND, trace fine gravel, loose, acetate sample
18	0	10% 6-7-7-8	SP	e18'-20': Wet, brown, FINE-MEDIUM SAND, trace fine gravel, loose
20	0	80% 6-10-12-22	SP / MH	20'-22': Wet, Top of sample: Gray-brown, FINE-MEDIUM-COARSE SAND, some fine medium coarse gravel, slightly compact; Middle of sample: Orange brown FINE-MEDIUM SAND, loose; Bottom of sample: Moist, dark gray, SILT, little-trace clay, slightly compact
22	0	5% 10-11-13-18	SP	22'-24': Wet, gray, FINE SAND
24	0	85%	ML	

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-1

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 01110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	0	85% 8-8-9-11	ML, SP, Pt	**24'-26': Wet, Top quarter of sample: Medium gray-orange brown, CLAY and SILT, pliable; Bottom of sample: Medium-dark, gray FINE SAND, some silt, trace clay, semi-compact (NOTE: Some brown peat and trace clay in sample bottom 4") Field duplicate taken.
26	0	80% 10-11-11-10	SM, MH	26'-28': Moist, medium-dark gray; Top 3": FINE SAND and SILT, little clay, loose; Bottom: CLAY, little-some silt, trace organics (thin stems), stiff
28	0.1	10-12-13-15	CL, Pt	28'-30': Slightly moist, medium-dark gray (micro varved), CLAY, trace silt, trace fine gravel (dropstones), little peat (like) organics (one seed pod) stiff
30	0	20% =55-75	CL, SP, Pt	30'-32': Top of sample: Same as above; Bottom of sample: Wet, green, gray, FINE SAND, little silt, loose; Sample shoe: Black, rich in organics stems, seed pods.
32	0.2	50%	GP	32'-34': Wet, medium gray, COARSE SAND and FINE-MEDIUM COARSE GRAVEL, some medium sand, little-trace clay, trace organics, loose
34	0	5% 6-6-8-6	GC	34'-36': Wet, gray/multicolored, loose/slightly pliable, CLAY and FINE GRAVEL, little cobbles, little fine sand, little coarse sand, trace silt
36	0	70% 7-8-7-8	SW	36'-38': Wet, gray, loose, FINE SAND and SILT, same as above, but little/some fine gravel, trace cobbles, trace clay little coarse sand
38	0	90% 12-10-15-17	SP	38'-40': Wet, gray, loose, FINE SAND, some coarse sand, little silt, trace clay and cobbles, trace/little fine gravel
40		8% 22-27-19-18	SP	40'-42': Same as above, but trace/little clay
42	0	20% 7-19-17-19	SP	42'-44': Same as above but little/some gravel
44	0	8% 29-10-10-12	GP	44'-46': Wet, multicolored, loose, COARSE SAND and FINE GRAVEL, trace little fine sand, trace medium sand
46	0	70% 7-8-7-9	SW	**46'-48': Wet, gray, loose, COARSE SAND and FINE SAND, little fine gravel, trace silt, trace coarse gravel
48	0	10% 26-19-19-16	GC	48'-50': Wet, gray, loose to slightly pliable COARSE SAND, little clay, little/some gravel, little cobbles, little fine sand, minor shale chips (approx 2mm)
50	0	50% 47-12-10-12	SP	50'-52': Wet, gray, loose, FINE SAND, trace/little coarse sand, trace fine gravel, trace silt
52	0	100% 6-11-14-16	SP	52'-54': Same as above, but gray/brown, no coarse sand, no silt, trace clay in tip
54	0	45% 10-9-7-16	SP	54'-56': Same as above, but no gravel, varve near bottom (dark gray below varve)
56	0	100%		

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well **MW-1**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56		0	100% 4-52-100/4		SP	**56'-58': Same as above, but little cobbles
58						End of boring. Refusal, casing would not advance with 375 pound hammer.
60						
62						
64						
66						
68						
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72						
74						
76						
78						
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82						
84						
86						
88						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-2

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 01110-0037
Surface Elev. ______ Total Hole Depth 26.2 ft. Diameter 8 in.
Top of Casing ______ Water Level Initial 12.2 ft. Static 16.2 ft.
Screen: Dia 2 in. Length 15 ft. Type/Size PVC .010 in.
Casing: Dia ______ Length ______ Type ______
Fill Material #0 Morie Sand Rig/Core ATV B-57
Drill Co. ADT Method HSA
Driller M. Harrington Log By J. Bishop Date 9/6/94 Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

* – TCL/TAL ** – MGP Indicators

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		0	35% 2-14-12-20			0'-2': Dry, slightly moist at bottom, light brown, loose to slightly compact, FINE SAND, little cobbles, trace fine gravel (SLAG)
2		12.3	40% 11-6-7-8			2'-4': Same as above, but brown/red, trace cobbles
4		2	55% 10-27-53-60			4'-6': Same as above, medium gravel, black at top
6		46.9	50% 2-12-20-15			**6'-8': Same as above, but trace clay (* MGP)
8		0	60% 2-12-20-15			8'-10': Same as above, little clay at top
10		0	40% 6-17-23-37		Slag/Fill	10'-12': Same as above, but trace cobbles (one slag, 3" diameter brick in tip)
12		5.3	15% 60-50/1			*12'-14': Dry, red, loose FINE-COARSE SAND (SLAG), (**TCL/TAL) little fine gravel (slag)
14		0	20% 17-29-20-13			**14'-16': Same as above, but wet, red/blue, loose (* MGP)
16		0	15% 8-9-11-13			16'-18': Wet, dark gray, pliable, CLAY, trace fine sand, trace coarse sand, little cobbles (slag)
18		0	95% 6-5-6-10			18'-20': Same as above, but gray/tan, no cobbles, no sand, trace silt
20		0	90% 4-6-7-9			20'-22': Same as above
22		0	100% 9-11-9-15		SM	**22'-24': Same as above, but mottled tan/orange; Bottom half: SAND, little silt, stiff/leathery (* MGP)
24			100%		ML	

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-2**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24 – 26			100% 6-12-13-35		ML	24'-26': Moist, tan, stiff, CLAY and SILT, little fine sand at bottom, bedrock (shale) at 26'
26						End of boring.
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-3**

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *50 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial *20 ft.* Static *23 ft.*
Screen: Dia *2 in.* Length *20 ft.* Type/Size *PVC .010 in.*
Casing: Dia *2 in.* Length *19 ft.* Type *PVC*
Fill Material *#0 Morie Sand* Rig/Core *ATV B-57*
Drill Co. *ADT* Method *HSA*
Driller *M. Harrington* Log By *J. Bishop* Date *8/23/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

** = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators. M = Sample sent for MS/MSD. Running sands filled to 39.3'.*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0	0	30% 21-20	Fill	0'-2': Dry, slightly moist, loose, FINE SAND and COBBLES (fill), trace medium sand, trace coarse sand
2	14.3	20% 18-15-11-8	Slag	2'-4': Same as above, but brown/red color, slag, trace fine gravel
4	11	25% 5-5-5-50/3		4'-6': Same as above, but some cobbles, slightly moist
6				8'-10': Same as above, but some medium sand
8	3	50% 21-29-51-44		
10	4	8% 18-23-15-28		10'-12': Same as above, but fine sand, and cobbles
12	8.2	30% 37-50/3		12'-12.8': Same as above
14	8.7	85% 36-35-20-28		14'-16': Same as above, but some coarse sand, little cobbles
16	9.3	80% 10-7-8-15		16'-18': Dry/slightly moist, black/red, loose, MEDIUM SAND and COBBLES, little coarse sand, little fine gravel, slag
18	14.8	85% 14-15-11-20		18'-20': Same as above, but trace/little cobbles, FINE SAND and MEDIUM SAND, trace gypsum
20	11.2	5% 12-18-13-17		20'-22': Same as above, but wet
22	9.8	3% 18-12-8-12		22'-24': Wet, black/red, loose, COBBLES, trace fine gravel, trace fine sand, cobble stuck in spoon
24	3.5	80%		

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-3**

Project *NIMO – Troy* Owner *Niagara Mohawk*

Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		3.5	80% 4-18-18-23		Slag	24'–26': Wet, black, loose, FINE SAND, little/some cobbles, trace coarse sand, fine sand at tip
26		23	55% 1 8-19-20-20		SP	*26'–28': Wet, gray, loose, FINE SAND, trace/little fine gravel (rounded), trace silt (* TCL/TAL, MS/MSD)
28		18.4	85% 7-13-11-11		SP	28'–30': Same as above, but trace cobbles
30		5.9	80% 10-15-18-18		SP	30'–32': Same as above, but trace/little coarse sand, fining upward interval
32		1.8	80% 0-18-18-25		SP / ML	**32'–34': Top: Same as above; Bottom: Wet, gray, pliable, CLAY and SILT, little fine sand, little organics, layered clay/organics/ fine sand-silt
34		0.2	80% 0-10-18-27		CL / ML	34'–36': Same as above (bottom)
36		1.8	70% 13-14-11-12		GP	36'–38': Wet, gray, loose, FINE SAND and COBBLES, trace fine gravel
38			0% 2 -22-32-28		GP	38'–40': No recovery
40		9.3	5% 7-27-21-28		SC	40'–42': Same as above, but FINE SAND and CLAY
42		5.8	50% 14-15-21-15		GP	42'–44': Same as 36'–38', but some cobbles, little/some coarse sand
44		7.9	5% 28-22-13-14		GP	44'–46': Same as above, cobble stuck in spoon
46		10.5	55% 13-8-7-10		SW	**46'–48': Wet, gray, loose, FINE SAND, trace coarse sand, trace fine gravel (* MGP)
48		9.7	80% 14-7-7-10		SW	48'–50': Same as above
50						End of boring.
52						
54						
56						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-4

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *66 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial *35 ft.* Static *27.3 ft.*
Screen: Dia *2 in.* Length *15 ft.* Type/Size *PVC .010 in.*
Casing: Dia *2 in.* Length *36 ft.* Type *PVC*
Fill Material *#0 Morie Sand* Rig/Core *B-61*
Drill Co. *ADT* Method *HSA*
Driller *D. Bowers* Log By *S. Tice* Date *8/22-23/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

* – Indicates sample sent for TCL/TAL ** – sample sent for MGP *** – Sample for Geotechnocals Indicators B – Field duplicate sent

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0	1.2	1% 29-23-24-18		0'-2': Dry/moist, light brown, SLAG, little to some medium sand, trace organics (soil)
2				2'-4': No recovery, drilled through concrete fill material
4	13.8	55% 17-12-8-8		4'-6': Dry, dark red-brown SLAG, trace brick (medium sand to coarse gravel sized)
6		0% 2-18-18-25		6'-8': No recovery
8	9.3	5% 8-8-5-4		8'-10': Same as 4'-6'
10	2.4	7-8-8-7	Slag	10'-12': Dry/moist, same as above, little cream-buff colored SLAG
12	18	5-7-7-7		12'-14': Same as above, some very coarse gravel sized chunks, SLAG
14		50-50/0"		14'-16': No recovery
16	38	1% 50/4"		Auger refusal at 16', moved and re-drilled 16'-18': Same as 12'-14', difficult to drill
18				
20	78	2% 15-28-28-30		20'-22': Dry, dark brown, SLAG, moist medium-coarse sand sized chunks, little coarse gravel, sized SLAG chunks
22		5% 8-10-12-12	SC	22'-24': Top: Same as above; Bottom: Moist, medium gray, FINE SAND, little-trace clay, little coarse sand, trace fine gravel
			GP	
24	135	2%	GC	

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-4**

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	135	2% 8-10-6/2"	GC	24'-26': Wet, black, GRAVEL, some sand
26	26.8	50%	GC	*26'-28': Wet, dark gray, FINE-MEDIUM GRAVEL, some clay (clay is dark brown), trace organic (small pieces of twigs), loose
28	60.1	20% 10-12-15-13	SP	***28'-30': Wet, FINE to MEDIUM SAND, some coarse sand and fine gravel; Sampled acetate for density
30	48.8	60% 10-12-15-13	SP	30'-32': Wet, medium-dark gray, MEDIUM-FINE SAND, some coarse sand to fine gravel (as a layer 4") thick in mid spoon well rounded various lithologies, loose
32	75	20% 8-11-10-8	SP	**32'-34': Same as above, no apparent layering however, loose
34	22	70% 4-5-8-5	GW	34'-36': Wet, medium-dark gray, MEDIUM to FINE SAND and FINE GRAVEL, grade to pure gray CLAY later 5" thick grades back to above, near sample shoe, clay is stiff, with trace silt, sand is loose
36	2.7	85%	GC	*36'-38': Wet, medium-dark gray, MEDIUM SAND, and fine-medium GRAVEL, little clay, trace silt, loose
38			GC	*38'-40': No sample taken due to loss and retrieval of sampler above plus 10 feet of rod (NOTE: Sent duplicate of above sample 36'-38' for analysis labeled as 38'-40')
43	9.2	5% 4-5-4-6	GC	43'-45': Wet, gray, MEDIUM-FINE GRAVEL, some coarse sand, trace silt, little-trace clay, loose
45	1.3	5%	GW	45'-47': Same as above
47	6.35	8-11-10-10	SW	***47'-49': Wet, gray, COARSE-MEDIUM SAND, trace fine gravel, trace silt, loose
49	3.9	80% 13-10-9-10	SW	***49'-51': Same as above
51	5.1	10%	SW	51'-53': Wet, same as above, little to trace fine-coarse gravel
53	2.3	13-18-17-21	SW	53'-55': Wet, gray, COARSE SAND, trace fine gravel, trace clay loose
54	12	23-5-23-20	SW	54'-56': Same as above
56	8.8		SC	

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well MW-4

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count/ / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56		8.8	33-37-24-38			56'-58': Wet, gray, COARSE SAND, little fine gravel, some clay, loose- compact
58		12.6	5%		SC	58'-60': Same as above, but trace coarse gravel also loose
60		12.3	5%		GC	60'-62': Wet, gray, COARSE SAND (little-some medium sand) some fine-coarse gravel, little to some clay, loose
62		15.1	5%		SW	62'-64': Wet, gray, MEDIUM-COARSE SAND, trace silt, trace clay, trace fine coarse gravel
64						64'-66': SHALE chips
66						Auger Refusal End of boring.
68						
70						
72						
74						
76						
78						
80						
82						
84						
86						
88						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-5**

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *34.5 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial *22.01 ft.* Static *19.6 ft.*
Screen: Dia *2 in.* Length *15 ft.* Type/Size *PVC .010 in.*
Casing: Dia *2 in.* Length *17 ft.* Type *PVC*
Fill Material *#0 Morie Sand* Rig/Core *Mobile B-57*
Drill Co. *ADT* Method *HSA*
Driller *M. Harrington* Log By *J. Bishop* Date *8/19/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

** – Sample sent for TCL/TAL. ** – Sample sent for MGP indicators. M – Sample sent for MS/MSD. T – Sample sent for TPH analysis*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0	1.8	5% 5-16-36-39	Fill	0'-2': Moist, gray/tan, loose, FINE SAND and COARSE SAND, little fine gravel, little cobbles, fill trace organics (soil)
2		0% 33-11-33-29	Fill	2'-4': No recovery
4	1.7	40% 8-12-10-13	Fill	4'-6': Dry, black, loose, FINE and MEDIUM SAND, little fine gravel, trace cobbles, trace coarse sand (brick and slag), fill
6	4.7	55% 9-13-9-6	Slag	6'-8': Same as above, but no brick
8	2.6	50% 8-6-5-5	Slag	8'-10': Moist, tan/gray, pliable, CLAY and COARSE SAND, little fine gravel, trace cobble, fill
10	2.5	65% 5-2-4-5	Slag	10'-12': Top: Same as above; Bottom: Dry, black, loose, FINE SAND and COARSE SAND, little fine gravel, trace/little cobbles, slag, fill and trace brick
12	18.7	10% 6-6-5-5	Slag	12'-14': Same as above (bottom)
14	22.9	40% 10-6-7-5	Slag	14'-16': Moist, tan/brown (mottled), pliable, CLAY and SILT, some coarse gravel, trace cobbles, fill
16	12.4	35%	Slag	16'-18': Top: same as above, but some fine sand; Bottom: Dry, black/ red, loose, FINE SAND, little fine gravel, little coarse sand, slag, fill
18	17.3	50% 34-29-50/2"	Slag	**18'-20': Same as above, but little cobbles, trace fine gravel (fill)
20	37.5	60% 27-26-20-20	Slag	20'-22': Same as above, but moist, trace clay at top
22	72.9	60% 7-11-12-12	Slag	**22'-24': Same as above, but wet, no clay
24	232	70%		

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-5**

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *0110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	232	70% 4-4-5-9	Slag	*24'-26': Wet, black, loose, FINE and COARSE SAND, some fine to little gravel, trace cobble, SLAG, fill, saturated with heating oil
26	2258	30% 5-12-21-20	Slag	T*M26'-28': Same as above, but little-fine sand, COARSE SAND and FINE GRAVEL, trace clay, strong odor-saturated
28	94.5	10% 9-9-8-7	Slag	28'-30': Same as above, cinder block gravel and SLAG
30	120	10% 12-11-8-7	Slag	30'-32': Same as above, but some cobbles
32	71.4	5% 8-9-6-7	Slag	32'-34': Wet, gray, loose, COBBLES and COARSE SAND, some fine/medium sand, little fine gravel, cinder block cobbles (fill)
34		25% 77-100/1"	SM	**34'-34.5': Top: Wet, gray, loose, FINE SAND and SILT; Bottom: Gray, shale – bedrock
				End of boring.

Depth scale: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-11

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *62 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core *Mobil B-57*
Drill Co. *ADT* Method *HSA*
Driller *M. Harrington* Log By *J. Bishop* Date *8/24/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

** - Sample sent for TCL/TAL. ** - Sample sent for MGP Indicators. Ə - Sample sent for geotechnicals. M - Sample sent for MS/MSD. A - Sample sent for atterberg limits.*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0		5% 14-50/3"		SP	0'-2': Dry, dark brown, loose, FINE SAND, little fine gravel, trace coarse sand, trace cobble
2	5.9	20% 14-9-1-3		SP	2'-4': Same as above, but no cobbles
4	9.1	5% 6-14-10		Slag	4'-6': Same as above, but some cobbles (SLAG)
6	7.2	2% 12-10-10-18		Slag	6'-8': Same as above
8	18.2	50% 2-7-9-8		Slag	8'-10': Slightly moist, black/red, loose, FINE SAND, some cobbles, trace medium sand, trace coarse sand, slag
10	6.2	8% 17-15-8-10		Slag	10'-12': Same as above, but wet
12	2.3	15% 6-4-5-6		Slag	**12'-14': Wet, black/red, loose, MEDIUM SAND and COARSE SAND, little fine gravel, trace cobbles, trace fine sand, slag (* MGP)
14	11.6	5% 9-8-7-6		Slag	14'-16': Same as above, but little fine sand
16		10% 5-4-5-5		Slag	16'-18': Same as above, but trace/little clay
18	1.6	15% 3-2-1-2		CL	**18'-20': Wet, dark gray, pliable, CLAY and FINE SAND, trace silt trace cobbles, trace organics
20	1.9	85% 5-10-7-5		SC	20'-22': Wet, dark gray, slightly pliable, FINE SAND and CLAY, little fine rounded gravel, trace cobbles, trace organics
22	1.4	100% 4-5-4-4		SC	22'-24': Same as above, but clay slightly mottled, (green and brown)
24	1.7	50%		CL	

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-11

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 01110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	1.7	50% 5-8-5-4		CL	24'-26': Wet, dark gray, pliable, CLAY, trace silt, trace organics
26	2	100% 3-5-5-8		CL	@26'-28': Wet, dark gray, slightly pliable, CLAY and FINE SAND, little silt, some fine gravel
28	2.3	40% 18-20-19-17		CL	A28'-30': Wet, dark gray, pliable, CLAY and SILT, little fine sand, trace cobbles
30	2.1	50% 12-13-14-15		SC	@30'-32': Wet, gray, loose, FINE SAND, some clay, little fine gravel, trace/little cobbles (acetate liner)
32	8.8	100% 11-15-15-18		SC	32'-34': Wet, gray, loose, COARSE SAND and CLAY, some fine sand, trace fine gravel (rounded)
34	10.4	5% 7-10-9-12		GP	34'-36': Wet, gray, loose, COBBLES and FINE SAND, little fine gravel, trace coarse sand
36	9.8	90% 14-21-27-25		SP	36'-38': Wet, gray, loose, FINE SAND and MEDIUM SAND, some cobbles, little fine gravel (rounded), trace coarse sand
38	7.4	3% 27-45-27-25		SP	38'-40': Wet, gray, loose, FINE SAND and FINE GRAVEL, trace cobbles
40	10.2	40% 18-25-18-13		SP	40'-42': Wet, gray, loose, FINE SAND and FINE GRAVEL, little cobbles, trace coarse sand
42	11.8	90% 11-10-8-11		SP	*M42'-44': Wet, gray, loose, FINE SAND and MEDIUM SAND, little coarse sand, little fine gravel (* TCL/TAL, MS/MSD)
44	2.9	90% 12-8-7-9		SP / CH	44'-46': Top: Wet, gray, loose, FINE SAND, trace fine gravel, trace coarse sand; Bottom: Wet, gray, pliable, clay, trace silt
46	4.2	100% 4-7-12-5		SP / CH	46'-48': Top: Wet, gray, loose, FINE SAND, trace fine gravel, trace cobbles; Bottom: Moist, gray, pliable, CLAY (leathery)
48	-	0% 19-18-15-38		CH	48'-50': No recovery
50	4.2	100% 12-28-34-38		CL	50'-52': Moist, gray, pliable, CLAY, some fine gravel (rounded), some fine sand, trace cobbles, leathery
52	3.7	100% 80		SC	52'-54': Wet, light gray, slightly pliable, SILT, some clay, little fine sand, little fine gravel (mostly angular – shale), trace cobble
54	4.1	70% 28-28-55-43		SC / SM	54'-56': Top: Same as above; Bottom: Wet, gray, loose, FINE SAND and SILT, trace fine gravel
56		3%		SP	

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-11**

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 0110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56		3% 20-27-27-27		SP	56'-58': Wet, gray, loose, FINE SAND and COARSE SAND, little fine gravel, trace clay, trace silt
58		30% 44-60-67-50		SP	58'-60': Same as above, but trace coarse gravel
60		30% 54-50/3" 5%		ML	60'-62': Same as above, but very compact
62					End of boring, auger refusal. End of boring.
64					
66					
68					
70					
72					
74					
76					
78					
80					
82					
84					
86					
88					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-12**

Project NIMO - Troy   Owner Niagara Mohawk
Location Water Street, Troy, New York   Proj. No. 0110-0037
Surface Elev. ____   Total Hole Depth 66.8 ft.   Diameter 8 in.
Top of Casing ____   Water Level Initial 16 ft.   Static ____
Screen: Dia ____   Length ____   Type/Size ____
Casing: Dia ____   Length ____   Type ____
Fill Material ____   Rig/Core Mobil B-61/Mobile B-57
Drill Co. ADT   Method HSA/DRIVE CASING
Driller D. BOWERS/M. Harrington   Log By S. TICE/J. Bishop   Date 8/25-30/94   Permit # ____
Checked By ____   License No. ____

See Site Map For Boring Location

COMMENTS:

* - Sample sent for TCL/TAL. ** - Sample sent for MGP indicators. @ - Sample sent for geotechnicals. M - Sample sent for MS/MSD. A - Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0	1.3		10% 2-5-5-7		SW	0'-2': Dry, Top of sample: 2" of dark brown/black, FINE SAND (organic rich soil) Bottom of sample: Medium-coarse sand sized SLAG from gravel sized SLAG
2	1.6		15% 3-7-7-5			2'-4': Dry, black coarse sand sized to medium gravel sized SLAG, loose
4	3.2		65% 7-6-8-10			4'-6': Dry, Top 3/4 of sample: Same as above, Bottom 1/4: Medium brown FINE SAND, little-some fine gravel, trace coarse SAND
6	2.7		50% 10-10-12-23			**6'-8': Dry, black coarse sand sized to medium gravel sized SLAG, little brick
8	39.4		2% 6-6-7-7			8'-10': Same as above, SLAG cobble in sampler shoe (no sample)
10	49.2		100% 6-10-18-22			**10'-12': Black and orange brown, same as above
12	27		80% 3-3-7-8		Slag	12'-14': Dry to moist, black to orange brown medium to coarse sand sized SLAG and fine to medium gravel sized SLAG, little to trace medium brown medium-fine sand (soil), loose
14	44.2		5% 5-7-8-12			14'-16': Moist, same as above with trace slag cobbles
16	23.4		5% 5-10-11-11			16'-18': Wet, medium-coarse gravel sized SLAG, petroleum odor (fuel oil impacted soils)
18	40.6		5% 10-8-20-21			@18'-20': Wet, same as above
20	63.1		25% 10-10-5-7			*20'-22': Wet, black (stained), medium-coarse sand sized SLAG, strong petroleum odor
22	27.3		80% 6-6-5-7		SC	22'-24': Wet, Top of sample: Black (stained) coarse sand sized to medium gravel sized SLAG; Middle: Clay coated coarse SLAG cobble; Bottom: Medium gray medium-coarse SAND, little-some clay, trace fine gravel, well rounded, loose, petroleum odor
24	35.6		80%		SP	

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-12**

Project *NIMO – Troy* Owner *Niagara Mohawk*

Location *Water Street, Troy, New York* Proj. No. *0110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	35.6	80% 5-5-6-6		SP	24'-26': Wet, gray black, MEDIUM-COARSE SAND, trace silt, trace fine gravel, well rounded to slightly angular, various lithologies
26	3.7	5-6-7-6		SP	26'-28': Wet, dark gray, FINE-MEDIUM-COARSE SAND, trace-little CLAY trace fine-coarse gravel, loose
28	1.3			CL	28'-30': Acetate plastic sampled. Gray wet, CLAY, trace coarse sand
30	3.1			SC	30'-32': Wet, green gray CLAY and SILT and FINE SAND, little-trace fine-medium gravel.
32				GS	
34				GS	
36	0	8% 32-30-35-33		GS	36'-38': Wet, gray, loose, FINE SAND and COBBLES, trace/little silt, trace coarse sand, trace fine gravel, trace clay
38	0.2	70% 37-24-19-14		GW	**38'-40': Same as above but, trace/little cobbles, trace/little clay no sheen
40	0.2	7% 27-33-22-33		GC	40'-42': Same as above, but little clay, trace cobbles
42	0	40% 25-15-12-30		GC	42'-44': Same as above
44	0	60% 26-26-26-26		GW	44'-46': Gray, wet, loose, FINE SAND, some cobbles, trace fine gravel trace silt, trace coarse sand, trace clay
46	0	50% 13-18-11-9		SW	46'-48': Same as above, but trace cobbles, little fine gravel (rounded)
48	0	70% 8-12-9-14		GS	48'-50': Wet, gray, loose, FINE SAND and FINE GRAVEL, little coarse sand, trace to medium sand, trace cobbles
50	0	60% 15-20-20-17		GS	50'-52': Same as above, but little cobbles, gravel is fine to coarse
52	0	45% 10-8-11-12		CL	52'-54': Top 1": Same as above; Bottom: Wet, gray, pliable/stiff, CLAY, trace silt
54	0	80% 4-7-7-12		CL	54'-56': Same as above, but moist, some to little silt, trace coarse sand
56	0	90%			

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-12**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *0110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56	0	90% 8-8-7-11		CL	56'-58': Same as above
58		2% 100/5"		GP	58'-58.5': Wet, multicolored, loose, gravel and cobble
		85% 75-33-28-80		SW	58.5'-60': Wet, gray, compact, FINE SAND, little fine gravel, trace clay
60	1	100% 40-44-53-81		SW	60'-62': Same as above, but trace cobbles, sh chips
62	1.4	100% 40-23-37-34		SW	62'-64': Same as above, but trace medium sand, trace coarse sand
64	1.7	100% 18-30-30-72		SW	64'-66': Same as above, but moist, very compact
66	1.7	50% 67-100/3"		SW	*66'-66.8': Same as above, shale, cobbles and gravel at tip
					End of boring
68					
70					
72					
74					
76					
78					
80					
82					
84					
86					
88					

10/11/1995 lithlog-mar93

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-13

Project NIMO – Troy   Owner Niagara Mohawk
Location Water Street, Troy, New York   Proj. No. 01110-0037
Surface Elev. ____   Total Hole Depth 49.3 ft.   Diameter 12 in.
Top of Casing ____   Water Level Initial 25 ft.   Static ____
Screen: Dia ____   Length ____   Type/Size ____
Casing: Dia ____   Length ____   Type ____
Fill Material ____   Rig/Core Mobil B-61/Mobile B-57
Drill Co. ADT   Method HSA/DRIVE CASING
Driller D. BOWERS/M. Harrington   Log By S. TICE/J. Bishop   Date 8/24/94   Permit # ____
Checked By ____   License No. ____

See Site Map
For Boring Location

COMMENTS:

* = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators. @ = Sample sent for geotechnicals. M = Sample sent for MS/MSP. A = Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0				
1	4	50% 5-5-7-8		1'-3': Top of sample: Dry, dark brown, MEDIUM FINE SAND, trace fine gravel; Bottom: red, brown fine-medium SAND (slag) to fine gravel (slag)
3	0	85% 5-6-7-6		3'-5': Dry, dark, red brown fine-medium sand size SLAG, some fine- medium gravel sized slag, trace brick, loose
5	10	10-10-12-8		5'-7': Dry, dark brown to black, fine-coarse sand, sized SLAG, trace fine gravel sized slag, loose
7	10	7-15-18-16		7'-9': Slightly moist, same as above, little fine-coarse gravel sized SLAG
9	8	20-17-13-15	Slag	9'-11': Same as above
11				11'-13': Very resistant, no sample taken, auger through – hit void at 11.4' to 16'
16	750	50% 5-5-50/2"		*16'-17: Dry/moist, Top of sample: Same as above, little brick; Bottom: Stiff TAR impacted soils, slightly, metallic appearance, slight sheen, hydrocarbon odor (MGP impacted soils)
17	2.8	20% 9-9-7-6		17'-19': Top of sample: Wet, gray, coarse sand sized SLAG and SAND, trace fine gravel sized SLAG, little brick, loose; Bottom: Moist, green-gray, CLAY, little-trace silt, stiff
19	0.8	80% 6-6-4-4		**19'-21': Moist, same as above, trace thin shale chips, micaceous
21	0.8	100% 5-4-5-4	CL	21'-23': Same as above
23				***23'-25': Acetate liner sample
24				

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-13**

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 0110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26	0.5	100% 2-3-3-3	CL	***25'-27': Wet, green/gray, Top: Same as above; Bottom: CLAY and SILT, little-some fine sand, semi stiff-pliable
26–28	0.8	100% 3-3-3-4	SC	27'-29': Green/gray, Top of sample: CLAY and SILT, little-some fine sand, loose to pliable; Middle of sample: Same as above with wood; Bottom of sample: Moist, pliable to stiff, CLAY
28–30	0.9	100%	CL	29'-31': Dry to moist, green-gray, CLAY, some silt, trace to little fine sand, stiff trace organics
30–32	1.1		CL	31'-33': Same as above
32–34	2.6	100%	SW / CL	33'-35': Dry to moist, green gray CLAY, little silt except for a 4" thick layer of FINE SAND (wet), little silt near the sample shoe, trace organics
34–36	3.2	100%	ML / Pt	35'-37': Top of sample: Wet, green gray, FINE SAND and SILT and CLAY, loose; Bottom of sample: Dry, brown, PEAT and green gray SILT and CLAY, trace fine sand
36–38	0	8% 32-30-35-33		37'-39': No recovery
38–40	0.2	70% 37-24-19-14		39'-41': Wet, gray, loose, FINE SAND and COBBLES (rounded), some coarse sand/fine gravel, trace clay, trace brick fragments
40–42	0.2	7% 27-33-22-33		41'-43': Wet, gray, multicolored, loose, FINE GRAVEL, some coarse sand, little fine sand, little coarse gravel
42–44	0	40% 25-15-12-30		43'-45': Same as above
44–46	0	60% 26-26-26-26		45'-47': Wet, gray, loose, MEDIUM SAND and COARSE SAND, little fine gravel, little fine sand, little cobbles (some sh)
46–48	0	50% 13-18-11-9		**47'-49': Same as above
48–50	0	70% 8-12-9-14		49'-49.3': Shale chips (bedrock) End of boring
50–52	0	60% 15-20-20-17		
52–54	0	45% 10-8-11-12		
54–56	0	80% 4-7-7-12		

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-14**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *12.5 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core *Mobil B-57*
Drill Co. *ADT* Method *HSA*
Driller *M. Harrington* Log By *J. Bishop* Date *8/18/94* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

** - Sample sent for TCL/TAL. ** - Sample sent for MGP indicators. B - Sample sent for geotechnicals. M - Sample sent for MS/MSP. A - Sample sent for Atterberg limits. Heavy downpour.*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0		20% 8-8-14		Fill	0.5'-2': Dry, gray, loose, MEDIUM GRAVEL and COARSE GRAVEL (angular), little fine gravel, fill (gravel)
2		17-18-7-27			2'-4': Lost spoon
4	8.8	10% 18-20-9-9		SLAG	5'-7': Brown, loose, COARSE SAND and MEDIUM GRAVEL, slag fill
6	3.7	10%			7'-9': Same as above
8	3.3	25% 12-18-12-17		SC	9'-11': Top: Same as above; Bottom: Moist, gray, pliable, CLAY AND FINE SAND
10	3.2	80% 14-25-64			*11'-12.5': Dark gray to tan (mottled), weathered SHALE bedrock
12					End of boring
14					
16					
18					
20					
22					
24					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-15**

Project NIMO - Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 0110-0037
Surface Elev. ______ Total Hole Depth 64.5 ft. Diameter 12 in.
Top of Casing ______ Water Level Initial 24 ft. Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core Mobile B-61/Mobil B-57
Drill Co. ADT Method HSA/Drive Casing
Driller D. Bowers/M. Harrington Log By S. Tice/J. Bishop Date 8/26-29/94 Permit # ______
Checked By ______ License No. ______

See Site Map
For Boring Location

COMMENTS:

* = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators. G = Sample sent for geotechnicals. M = Sample sent for MS/MSP. A = Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	1.6	75% 7-5-5-5		SP	0'-2': Dry, Top: Grass, soil with roots; Bottom: Medium brown FINE-MEDIUM-COARSE SAND, little to some fine medium coarse gravel, trace slag near shoe
2	1.3	50% 3-4-3-4		FILL	2'-4': Same as above, with trace-little clay near middle of sampler
4	2.1	60% 6-6-5-6		FILL	4'-6': Top: Moist, brown, FINE-MEDIUM-COARSE SAND, little fine-coarse gravel; Bottom: Moist, green-gray mottled, CLAY, trace little slag (fill)
6	1.9	5% 3-4-4-3		FILL	6'-8': Same as above
8	2.3	2% 6-5-3-4		SLAG	8'-10': Moist to wet, green gray mottled CLAY and fine-medium sand sized black SLAG
10	0.8	4-4-5-5		SLAG	10'-12': Moist, green-yellow to green gray-black fine-coarse sand sized to fine gravel sized SLAG, trace clay
12	0	80% 4-4-5-4		SLAG	12'-14': Moist to dry, black-gray, fine-coarse sand sized SLAG, loose
14	0.7	25% 2-3-3-2		SLAG	**14'-16': Same as above
16	0.5	40% 4-4-6-5		SLAG	16'-18': Top: Same as above; Bottom: Dry, yellow/orange, fine-medium sand sized SLAG, little fine brick, loose
18	29.3	20% 4-4-6-6		SLAG	18'-20': Moist, gray-black, SLAG, trace-little clay, loose
20	63.7	10% 10-11-14-28		SLAG	20'-22': Moist-wet, gray-black medium-coarse sand sized fine gravel sized SLAG
22	126			SLAG	**22'-24': Same as above, hydrocarbon odor
24	206	5%			

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-15**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *0110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	206	5% 4-4-7-5		SLAG	@24'-26': Wet, black (stained), fine-medium-coarse sand sized SLAG, trace coarse sand, strong petroleum odor, obvious petroleum content, sheen visible
26					
28					28'-30': No recovery
30		40% 6-6-8-6			30'-32': Acetate density sample, same as above
32	337	10% 5-6-6-7			*32'-34': Wet, black (stained) medium-coarse sand sized and fine gravel sized SLAG, Note: Fine SAND and SILT in sample tip, heavy petroleum contamination
34		0% 7-7-9-7		CL	34'-36': Wet, trace recovery, gray, CLAY, some fine-medium sand in sample tip, petroleum present
36					
38	72	75% 6-6-7-6			38'-40': Wet, gray, CLAY, little trace silt, layer at bottom of spoon of CLAY, little fine gravel (well rounded), stiff, slightly to pliable
40	36	70% 10-12-14-17		GC	40'-42': Wet, gray, FINE-MEDIUM-COARSE GRAVEL, some clay, trace medium-coarse sand, trace silt, trace (one) cobble, stiff to slightly compact
42	3.1	4% 37-33-31-28		GP	42'-44': Wet, multicolored, loose, FINE GRAVEL, some medium gravel, cave-in
44	3.5	6% 54-33-39-21		GW	44'-46': Wet, gray, loose, FINE SAND and FINE GRAVEL, little coarse sand, little silt, trace cobbles
46	0	15% 20-9-17-16		SP	46'-48': Wet, gray, loose, FINE SAND and COARSE SAND, little cobbles, trace fine gravel, trace silt
48	0	100% 35-55-73-38			**48'-50': Same as above, but little fine gravel, trace cobbles, trace clay, trace medium sand
50	0	90% 37-48-47-63		GW	50'-52': Wet, gray, loose, MEDIUM SAND and COARSE SAND, some fine gravel, little fine sand, trace silt
52	0	80% 50-53-52-31			52'-54': Same as above, but FINE SAND, little coarse sand, trace/ little clay
54	0	80% 52-100/4"		SP	54'-54.8': Wet, gray, loose (semi-pliable at bottom), FINE SAND, little coarse sand, trace CLAY, trace silt, trace fine gravel
	0	30% 100/5"		GP	54.8'-55.3': Same as above, but trace coarse sand, trace/little clay at bottom
56					

GROUNDWATER TECHNOLOGY

Drilling Log

Soil Boring **SB-15**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *0110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56					
58	0	3% 50-53-47-71		GP	58'-60': Wet, multi colored, loose, FINE GRAVEL, trace medium sand, trace cobble (one)
60	0	15% 72-66-66-70		GP	60'-62': Same as above, but some cobbles, no medium sand, also sh cobbles
62	0	20% 44-66-60-100		SP	**62'-64': Wet, gray, loose, FINE SAND and COARSE SAND, little fine-medium gravel (sh), trace/little sh cobbles
64	0	10% 100/5"		SP	64'-64.5': Same as above, weathered sh
					End of boring, cement/bentonite groute to surface
66					
68					
70					
72					
74					
76					
78					
80					
82					
84					
86					
88					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-16**

Project NIMO - Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 0110-0037
Surface Elev. ____ Total Hole Depth 58 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 20 ft. Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core Mobil B-57
Drill Co. ADT Method HSA
Driller M. Harrington Log By J. Bishop Date 8/19-22/94 Permit # ____
Checked By ____ License No. ____

See Site Map
For Boring Location

COMMENTS:

* - Sample sent for TCL/TAL. ** - Sample sent for MGP indicators. G - Sample sent for geotechnicals. M - Sample sent for MS/MSP. A - Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	1.7	70% 11-5-4-19		SP	0'-2': Top: Moist, tan, loose, FINE and MEDIUM SAND, little fine gravel; Bottom: Slightly moist, black, loose, FINE and COARSE SAND, little medium sand, little fine gravel, trace cobbles (concrete)
2	0	40% 11-12-9-9			2'-4': Dry, tan and gray, loose, FINE and MEDIUM SAND, some fine gravel, trace cobbles, slag fill and concrete
4	4	40% 7-9-13-14			4'-6': Dry/slightly moist, red/brown, loose, FINE SAND, little medium sand, little fine gravel, trace cobbles, oxidized silt
6		0% 2-WH-WH-WH			6'-8': No recovery
8	5.8	5%			8'-10': Slightly moist, red and brown, loose, COBBLE (brick) and MEDIUM SAND, trace fine sand, trace fine gravel, trace coarse sand
10	1.9	50% 7-11-13-16			10'-12': Top: Dry, buff, loose, FINE and MEDIUM SAND, little cobbles/ brick; Bottom: Dry, black, loose, cobbles (slag), little fine gravel, little fine sand
12	2.6	60% 10-12-19-19		Slag	12'-14': Top: Wet, brown, loose, FINE SAND and MEDIUM SAND, trace coarse sand, trace clay, little cobbles; Bottom: Wet, black, loose, medium and coarse sand, trace fine sand, trace fine gravel
14	77	50% 9-21-27-18			**14'-16': Same as above (brown), but moist, gray at bottom
16	67.4	10% 11-50/1"			16'-18': Same as above, but red/brown, trace/little clay
18	80	0% 5-5-9-4			18'-20': No recovery, septic smell
20	1478	30% 2-2-3-4			*20'-22': Wet, black, loose, FINE GRAVEL (angular) and fine sand, little coarse sand, strong heating oil odor
22	1076	25% 1-1-1-1			22'-24': Top: Same as above; Bottom: Wet, black, pliable, FINE SAND and CLAY, little/some fine gravel, organic rich (wood)
24		15%		TR	

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-16**

Project NIMO – Troy　　Owner Niagara Mohawk
Location Water Street, Troy, New York　　Proj. No. 01110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		15% 35-50/1"		24'-26': Wet, blue, loose, WOOD/LUMBER and FINE SAND, acetate liner
26				
28				
30	15.3	5% 30-20-20-28		30': Drilled to 30.5 (tree) 30.5'-32.5': No recovery, through tree, acetate liner, sewage odor
32	22.1	20% 3-12-8-12	TR	**32.5'-34.5': Wet, gray, loose, FINE SAND, trace/little fine gravel silt, trace coarse gravel, trace clay, sewage odor, acetate liner
34	8.7	15% 7-9-9		34.5-36.5': Wet, gray, pliable, CLAY, trace silt, trace fine sand, little organics, sewage odor, acetate linen, preserved
36		75% 9-8-8-11		36.5'-38.5': Same as above, but little/some fine sand
38	31	80% 8-18-22-31		**38'-40': Top: Wet, dark gray, pliable, CLAY, little/some organics, trace silt, trace fine sand; Middle: Wet, medium gray, loose, FINE SAND; Bottom: Same as above, but some fine gravel (rounded), crushed rock, fining up sequence
40	12	70% 44-39-34-25		**40'-42': Wet, gray loose, FINE SAND and medium coarse gravel (rounded) little fine gravel (angular), trace clay
42	10	85%		42'-44': Top: Wet, gray, loose, FINE SAND and MEDIUM SAND; Bottom: Wet, gray, loose, MEDIUM SAND and FINE SAND, little fine gravel (rounded) trace cobbles
44	8	30% 10-12-14-12		44'-46': Same as above (bottom), but some fine gravel (rounded)
46	10	50% 12-25-50		46'-47.2': Same as above, but little cobbles, augered to 48'
48	13	75% 8-18-24-51	SP	48'-50': Same as above, but trace medium sand
50	11	75% 27-27-23		50'-52': Wet, gray, loose, MEDIUM SAND and GRAVEL (fine to coarse), little cobbles, little fine sand, trace coarse sand
52	10	70% 9-21-23-13		52'-54': Same as above, but little/some cobbles
54		20% 34-31-13-20	SC	54'-56': Wet, gray, loose, FINE SAND and COBBLES, some clay (weathering product), trace fine gravel (sh chips), one large cobble
56	4	100%		

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-16**

Project NIMO - Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 01110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56	4	100% 37-40-40-38		SC	56'-58': Weathered shale bedrock
58					End of boring
60					
62					
64					
66					
68					
70					
72					
74					
76					
78					
80					
82					
84					
86					
88					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-17

Project NIMO – Troy Owner Niagara Mohawk

Location Water Street, Troy, New York Proj. No. 0110-0037

Surface Elev. ____ Total Hole Depth 18.3 ft. Diameter 8 in.

Top of Casing ____ Water Level Initial ____ Static ____

Screen: Dia ____ Length ____ Type/Size ____

Casing: Dia ____ Length ____ Type ____

Fill Material ____ Rig/Core Mobil B-57

Drill Co. ADT Method HSA

Driller M. Harrington Log By J. Bishop Date 8/24/94 Permit # ____

Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

* = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators. @ = Sample sent for geotechnicals. M = Sample sent for MS/MSP. A = Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	0.7	30% 23-37-50/3"			0.5'-2': Top: Dry, black, loose, FINE SAND and FINE GRAVEL, asphalt: Bottom: Dry, light brown, loose, FINE SAND, little coarse sand little cobbles
2	81	45% 10-16-16-10		Slag	*2'-4': Dry/slightly moist, blue/red, loose, FINE SAND, little/some fine gravel (slag), trace tar
4	0	60% 4-7-11-14			4'-6': Moist, gray, pliable, CLAY, little organics, trace fine sand (top), mottled, organic layer
6	0	70% 9-12-12-7			6'-8': Same as above, but no organics, mottled brown/gray
8	0	85% 5-7-8-12		Fill	8'-10': Same as above, but trace cobbles (fill), brick fragments, slight moisture (leathery)
10	15.1	80% 4-5-8-13			10'-12': Same as above, but no cobbles
12	2.5	80% 15-16-11-17			12'-14': Same as above, but trace fine gravel (slag and fill), fine sand at bottom
14	7.1	50% 5-8-13-50/7"		Slag	**14'-16': Top: Same as above, but clay and cobbles (brick), gray, slightly moist, loose, fine sand; Bottom: Weathered shale rock
16	98.3	70% 35-35-24-28		Fill	**16'-18': Dry, gray, loose, COBBLES, (weathered silt), little fine sand, little fine gravel (shale), hydrocarbon odor
18	438	5% 50/3"			18'-18.3': Crushed SHALE, hydrocarbon oder End of boring, cement/bentonite grout to surface
20					
22					
24					

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-18

Project: NIMO - Troy   Owner: Niagara Mohawk
Location: Water Street, Troy, New York   Proj. No. 01110-0037
Surface Elev. ____   Total Hole Depth: 30 ft.   Diameter: 8 in.
Top of Casing ____   Water Level Initial: 29 ft.   Static ____
Screen: Dia ____   Length ____   Type/Size ____
Casing: Dia ____   Length ____   Type ____
Fill Material ____   Rig/Core: Mobil B-57
Drill Co.: ADT   Method: HSA
Driller: M. Harrington   Log By: J. Bishop   Date: 8/17/94   Permit # ____
Checked By ____   License No. ____

See Site Map For Boring Location

COMMENTS:

* - Sample sent for TCL/TAL. ** - Sample sent for MGP indicators. G - Sample sent for geotechnicals. M - Sample sent for MS/MSD. A - Sample sent for Atterberg limits. NOTE: The folowing day, approximately 1/2" tar seeped on grout surface, which had settled to a depth of 5' in borehole.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0	0	50% 37-22-14	Fill	0.5'-2': Dry, red/tan, loose, FINE SAND and COBBLE (brick fill), trace/little fine gravel, trace coarse sand
2	0.5	50% 8-8-8-7	Fill	2'-4': Slightly moist, black/brown, loose to semi pliable, FINE and MEDIUM SAND, little coarse sand, trace/little fine gravel, trace clay
4		10% 4-50-100/1"	Fill	4'-4.5': Moist, tan, pliable, CLAY and COBBLES, little fine sand, trace/little silt, one large cobble (fill)
				Auger refusal at 5', redrill
	4.6	45% 7-9-6-7	Fill	**5'-7': Moist, brown, pliable, FINE SAND and CLAY, some cobbles (fill), trace coarse sand, hydrocarbon odor (MGP impacted soils), tar strands
	1.6	3-3-5-13	Fill	7'-9': Moist, brown, pliable, FINE SAND, some clay, trace/little fine gravel (fill-brick) trace cobbles (fill), hydrocarbon odor (MGP impacted soils)
	15.2	16-25-65-29	Fill	**9'-11': Dry, red and tan, loose, COBBLES (fill - brick) and FINE SAND
	3.1	60% 36-28-12-10		**11'-13': Top: Dry, gray, loose, COBBLES and FINE to COARSE GRAVEL (fill); Middle: Slightly moist, black/brown, loose, FINE SAND and COBBLES (slag), trace medium sand, trace clay; Bottom: Slightly moist, tan, pliable, CLAY, trace fine sand, trace silt
	2.7	70% 8-7-8-8	Fill	13'-15': Moist, tan/gray, pliable, CLAY (heterogeneous fill)
	2.4	70% 3-9-8-8	Fill	15'-17': Same as above, but little coarse sand (fill - cinder block)
	3.3	85% 3-5-8-8	Fill	17'-19': Same as above (fill)
	1.1	100% 3-3-4-5	CL	19'-21': Same as above, but no fill obvious, appears natural, undisturbed
	2.6	100% 4-7-7-8	CL	21'-23': Same as above, but trace fine gravel, trace coarse sand, mottled, appears indegenous slump
	3	100% 3-3-5-7	CL	23'-25': Same as above
24				

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-18**

Project NIMO – Troy Owner Niagara Mohawk
Location Water Street, Troy, New York Proj. No. 01110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24				
25–27	3.3	100% WH-5-5-7	CL	25'-27': Same as above
27–29	3.1	100% 5-8-8-13	CL	27'-29': Same as above, spoon wet
29–30	2.8	100% 3-100/4"	SC	29'-30': Top: Same as above; Middle: Same as above, but black with little fine sand; Bottom: SHALE bedrock, black fissile
30				End of boring, cement/bentonite grout to surface

Depth scale: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-19

Project: NIMO – Troy
Owner: Niagara Mohawk
Location: Water Street, Troy, New York
Proj. No.: 01110-0037
Surface Elev.:
Total Hole Depth: 47 ft.
Diameter: 8 in.
Top of Casing:
Water Level Initial: 24.8 ft.
Static:
Screen: Dia:
Length:
Type/Size:
Casing: Dia:
Length:
Type:
Fill Material:
Rig/Core: Mobil B-57
Drill Co.: ADT
Method: HSA
Driller: M. Harrington
Log By: J. Bishop
Date: 8/16/94
Permit #:
Checked By:
License No.:

See Site Map For Boring Location

COMMENTS:

* = Sample sent for TCL/TAL. ** = Sample sent for MGP indicators. G = Sample sent for geotechnicals. M = Sample sent for MS/MSP. A = Sample sent for Atterberg limits.

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
1–3	0		30% 30-22-37		Fill	1'-3': Top: Dry, tan, loose, MEDIUM and COARSE SAND, little gravel (fill); Bottom: Dry, black/dark brown, loose, fine sand, little cobbles, (cobbles = FILL brick, slag)
3–5	2.9		5% 48-69-47		Slag	3'-5': Dry, tan, loose, FINE SAND, some fine gravel
5–7	12.2		40% 19-40-29-30		Slag	5'-7': Dry, black/brown, loose, FINE SAND, little fine to coarse gravel (fill), moist at tip, mottled oxide color
7–9			15% 25-28-41-45		Slag	7'-9': Moist, black/brown, loose, MEDIUM SAND, little coarse sand/ fine gravel, little cobbles, buff colored in tip
9–11	8		40% 18-20-20-12		Slag	9'-11': Moist, black/brown, loose, MEDIUM and COARSE SAND, trace fine gravel, trace cobbles, largely slag and brick fill, oxidized, odor
11–13	18		30% 10-14-18-21		Slag	11'-13': Moist, black/brown, loose, MEDIUM SAND, little to some fine gravel, some cobbles, slag fill
13–15	79		40% 21-21-15-15		Slag	13'-15': Moist/wet, black/brown, loose, MEDIUM and COARSE SAND, little -some fine gravel, cobbles (slag, fill)
15–17			50% 7-10-50		Slag	15'-17': Top: Moist/wet, dark gray, loose, MEDIUM and COARSE SAND, trace/little fine gravel (slag, fill); Bottom: Black/brown, same as top half
17–19	273		80% 14-12-11-11		Slag	17'-19': Moist, brown/black, loose, MEDIUM SAND, little coarse sand, little fine/medium cobbles (slag, fill), trace cobbles (slag, fill), odor
19–21	445		80% 5-7-11-10		Slag	**19'-21': Top: Moist, dark brown, loose, MEDIUM SAND, little-fine gravel, trace medium gravel (slag, brick); Bottom: Gray, same as top half, odor
21–23	638		35% 17-25-23-24		Slag	21'-23': Same as above (gray lower half), but wet, some large gravel, some cobbles, odor
23–25	1659		80% 20-14-8-12		Slag	*23'-25': Wet, gray/blue, loose, MEDIUM SAND, little to some fine gravel (fill, slag), trace cobbles (slag); Middle: Wet, brown, semi-pliable, FINE SAND, little silt, trace clay, clay layer at base (<1 cm); Bottom: Wet, black, loose, MEDIUM SAND, little coarse sand, strong odor

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring **SB-19**

Project: NIMO – Troy   Owner: Niagara Mohawk
Location: Water Street, Troy, New York   Proj. No. 0110-0037

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
25–27	1617	40% 9-12-12-7	Slag	**25'–27': Wet, black, loose, MEDIUM/COARSE SAND, trace fine gravel; Bottom 4": Wet, gray, loose, FINE SAND, trace fine gravel (brick – fill), strong odor
27–29		0% 14-15-11-8	Slag	27'–29': No recovery
29–31	303	80% 14-6-8-9	SM	29'–31': Wet, medium/dark gray, pliable, FINE SAND, some silt, trace little clay, little wood (at base), organics, wood (natural)
31–33	55.5	60% 2-6-9-10	SM	31'–33': Same as above, but graded to MEDIUM SAND at base, trace coarse sand, trace fine gravel, trace clay (1 cm layer), trace organics (0.5 cm layer)
33–35	177	70% 10-9-11-8	SC	33'–35': Wet, medium gray, pliable, FINE SAND, some silt, little clay, trace fine gravel, little cobbles, trace/little organics (wood)
35–37	49	35% 11-13-14-16	GW	**35'–37': Wet, gray/brown, slightly pliable, FINE SAND, and fine gravel (rounded), little medium/coarse gravel, little coarse sand, trace clay
37–39	16	75% 20-16-13-50	SP	**37'–39': Wet, medium gray, top slightly pliable, loose, FINE SAND, little-medium sand, some coarse sand, trace fine gravel (rounded), trace clay, sequence coarsing downward
39–41	39	30% 53-57-50-32	SP	39'–41': Wet, medium orange-gray, compact (till), FINE SAND, little angular gravel, little silt, trace clay, trace coarse sand
41–43	572	60% 74-20-20-14	GC	41'–43': Wet, dark gray, very compact (till-like), MEDIUM/COARSE GRAVEL (rounded and angular), some fine gravel, trace fine/medium sand, little clay
43–45	2.7	50% 14-23-28-36	SP	43'–45': Wet, dark gray, slightly loose to compact, FINE SAND, trace coarse sand, trace rounded cobbles, trace clay (little near top), trace fine gravel
45–47	7.2	90% 100/3"	SW	45'–47': Wet, dark gray, loose, FINE SAND, trace coarse sand, trace fine gravel, trace clay, consolidated shale at base
				End of boring, cement/bentonite grout to surface

Drilling Log

GROUNDWATER TECHNOLOGY

Soil Boring SB-20

See Site Map For Boring Location

Project *NIMO – Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*
Surface Elev. ______ Total Hole Depth *35 ft.* Diameter *8 in.*
Top of Casing ______ Water Level Initial *16 ft.* Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core *Mobil B-57*
Drill Co. *ADT* Method *HSA*
Driller *M. Harrington* Log By *J. Bishop* Date *9/17/94* Permit # ______
Checked By ______ License No: ______

COMMENTS:

** – Sample sent for TCL/TAL. ** – Sample sent for MGP Indicators. B – Sample sent for geotechnicals. M – Sample sent for MS/MSD. A – Sample sent for Atterberg limits.*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0	1.1	29-18-18		Fill	0'-2': Dry/ slightly moist, brown, loose, FINE SAND and COBBLES (fill brick), little medium gravel, trace coarse sand
2	7.2	75% 2-18-19-22			2'-4': Top: Dry, blue, loose, FINE SAND, trace fine gravel; Bottom: Dry, dark brown, loose, FINE SAND, some coarse sand, trace fine gravel, slag
4	20.4	75% 11-18-23-14			4'-6': Dry, dark brown, loose, FINE SAND, some fine gravel, little cobbles (fill, slag)
6	17.5	80% 14-18-15-15			6'-8': Same as above, but with little coarse sand, dry/slightly moist
8	40.1	80% 2?-22-20-24			8'-10': Same as above
10	63.1	3-21-18-12			10'-12': Slightly moist, blue/brown, loose, FINE and MEDIUM SAND, some coarse sand, little cobbles, slag and fill
12	40.1	70% 12-18-9-11			12'-14': Same as above, but moist and only trace cobbles
14	4.8	50% ?2-13-28-32		Slag	14'-16': Same as 6'-8', but wet, little clay, big slag cobbles
16	4.8	25% ?8-10-10-77			16'-18': Wet, red and black, loose, COBBLES (large brick), little fine sand, little coarse sand
18	88	35% 13-14-10-7			**18'-20': Wet, black, loose, (slightly pliable at top), COARSE SAND, little fine gravel, little fine sand, trace cobbles, trace clay
20	238	80% 5-10-14-13			**20'-22': Wet, brown/black, loose, COARSE SAND and FINE SAND, little fine gravel, trace cobbles, petroleum odor, crushed slag fill
22	194	12-11-13-12			*22'-24': Same as above, very strong odor
24	182	80%			

Drilling Log

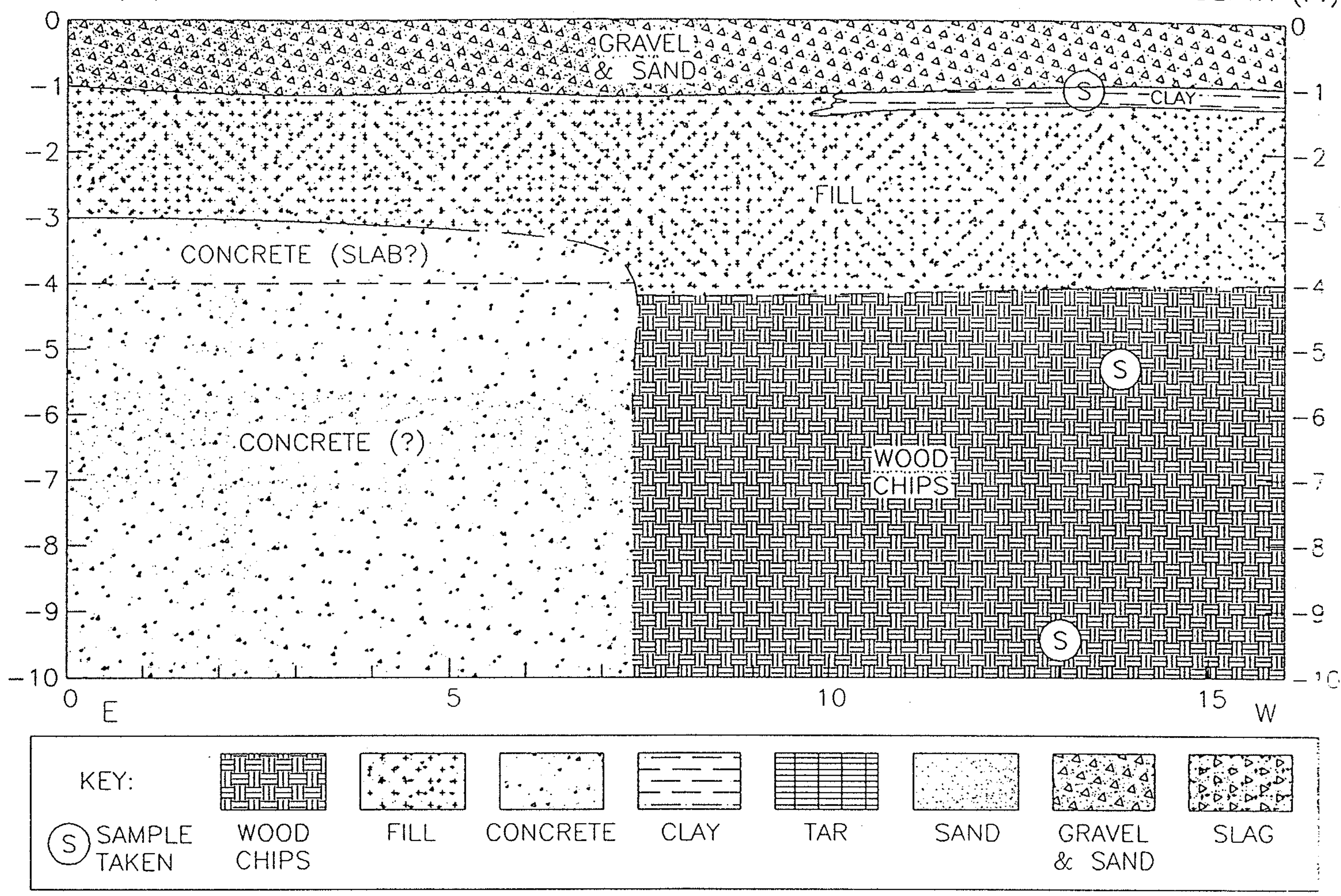
GROUNDWATER TECHNOLOGY

Soil Boring **SB-20**

Project *NIMO - Troy* Owner *Niagara Mohawk*
Location *Water Street, Troy, New York* Proj. No. *01110-0037*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	182	60%		Slag	24'-26': Same as above, but some fine gravel, coated with fuel oil,
26	192	70% 0-14-18-20		SM	**26'-28': Top: Same as above; Bottom: Moist, green/gray, loose, SILT and FINE SAND, trace clay
28	16.1	60% 7-10-9-13		SM	**28'-30': Same as above (bottom), but has 1 cm clay layer in shoe (dark gray), organics common
30	8.7	60% 12-12-16-17		SM	30'-32': Same as above including 1 cm clay layer in shoe, but trace fine gravel (rounded)
32	37.8	75% 6-9-11-11		GC	32'-34': Same as above, but little fine gravel, trace cobbles, gravel concentrated at middle, no clay layer
34		73-100/3"		GC	34'-35': Gray SHALE bedrock and clay
36					End of boring, cement/bentonite, grout to surface
38					
40					
42					
44					
46					
48					
50					
52					
54					
56					

TEST PIT RECORD TP-1



NOTES: 0-1 ft., DRY GRAVEL AND SAND FILL, ALSO CEMENTED BRICK, BRICK FRAGMENTS, LAMP POST (?), WOOD (BOARD) DEBRIS

3 ft. ENCOUNTERED CONCRETE SLAB. MOVED WEST 15 ft. AND RESUMED EXCAVATION.

1-1.5 ft. MOIST, BLUE, CLAY FILL

1-4 ft. DARK/MED. GRAY SAND, BRICK AND ASH, LITTLE WOOD (BOARDS)

4-10 ft. MOIST, VERY COARSE WOOD CHIPS, SOME SAND AND BRICK, ASH,

6-7 ft. SLIGHT PETROLEUM ODOR

6-9 ft. WOOD (BOARD) DEBRIS

1 ft. PID HEADSPACE 0.0ppm

5 ft. PID HEADSPACE 18.0ppm

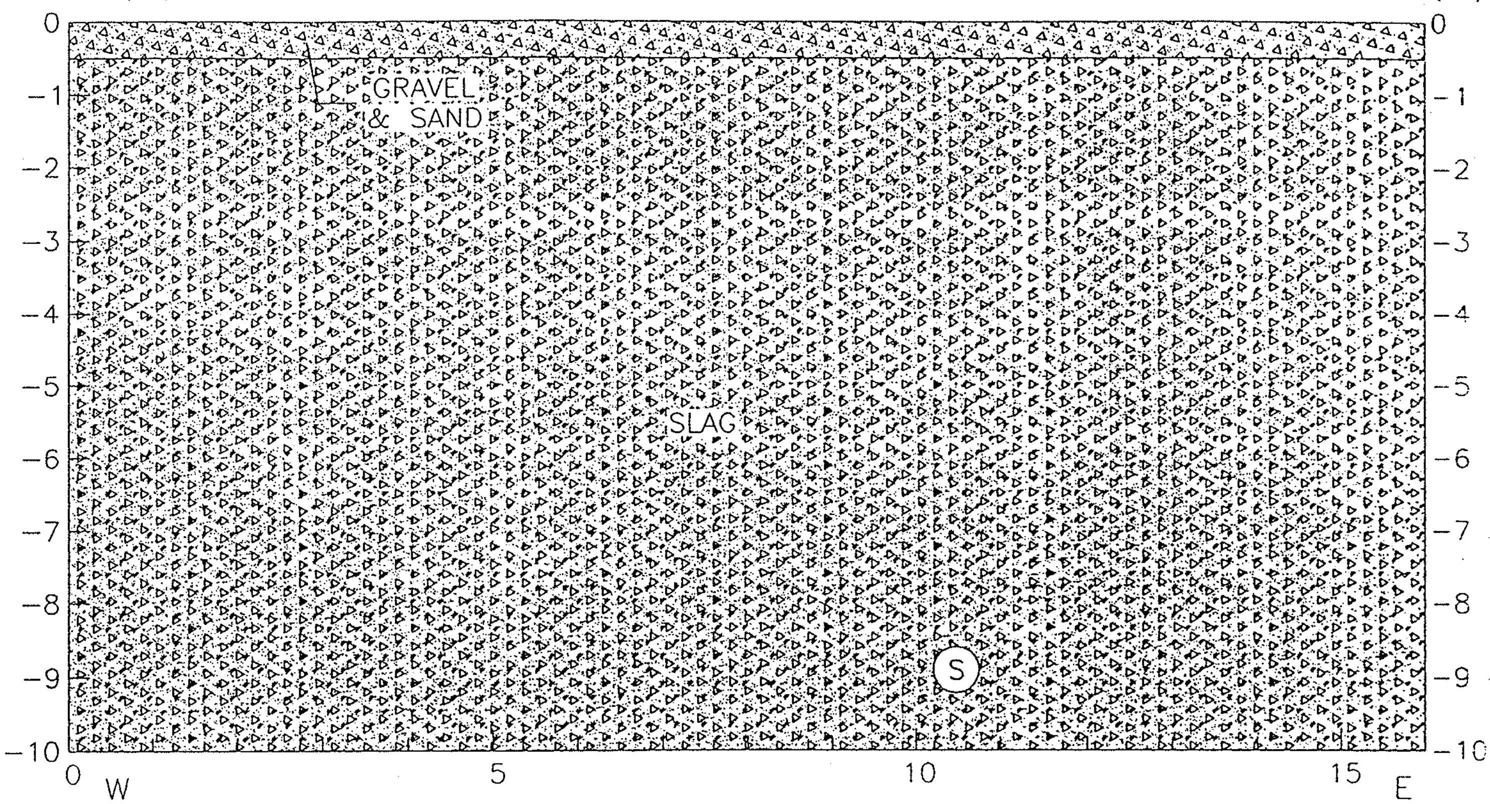
10 ft. PID HEADSPACE 18.6ppm

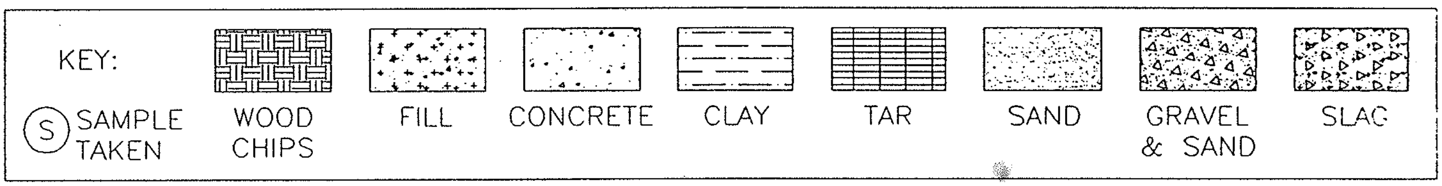
DATE: 8/9/94	LOCATION: WATER STREET, TROY, NEW YORK
LOGGED BY: SJT	TEST PIT RECORD
LOCATION: AREA 2	PROFILE ALONG TEST PIT

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

CLIENT:	PROJECT NO.:		DRAWING DATE:
NIAGARA MOHAWK	01110-0037		12/21/94
	PM: BWA	DETAILED: DEO	ACAD FILE: 0037-TP1

TEST PIT RECORD TP-2





NOTES: SURFACE SOIL: DRY, MED. GRAY, f.-m. SAND, LITTLE m. GRAVEL

0.5-2.0 ft. DRY ORANGE/BROWN FUSED GRAVEL AND COBBLE SIZED CHUNKS OF SLAG, LITTLE BRICK (FRAGMENTS), LITTLE COARSE GRAVEL

2-7 ft. DRY, DARK BROWN SLAG (SAME AS ABOVE), LITTLE BLACK SLAG CHUNKS

7-10 ft. SLIGHTLY MOIST, MED. GRAY m.-c. SAND SIZED SLAG, LITTLE GRAVEL SIZED METALLIC SLAG, tr. BRICK

9 ft. PID HEADSPACE 2.1ppm

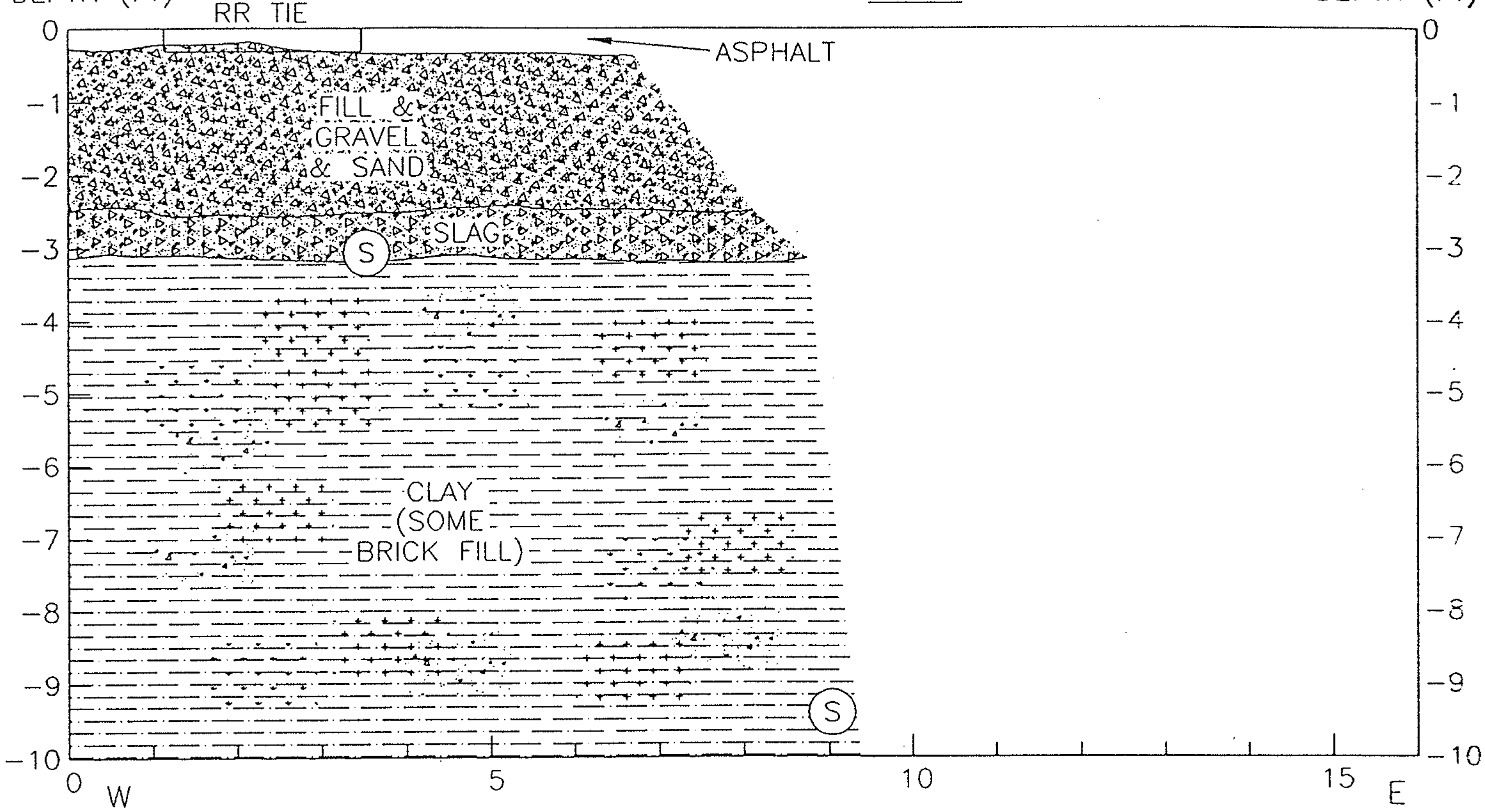
DATE: 8/11/94	LOCATION: WATER STREET, TROY, NEW YORK
LOGGED BY: SJT	TEST PIT RECORD
LOCATION: AREA 2	PROFILE ALONG TEST PIT

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

CLIENT:	PROJECT NO.:	DRAWING DATE:
NIAGARA MOHAWK	01110-0037	12/23/94

PM:	DETAILED:	ACAD FILE:
BWA	DEO	0037-TP2

TEST PIT RECORD TP-3



KEY: S SAMPLE TAKEN | WOOD CHIPS | FILL | CONCRETE | CLAY | TAR | SAND | GRAVEL & SAND | SLAG

NOTES: ASPHALT (ROAD) SURFACE

0–2.0 ft. DRY LOOSE DARK GRAY BLACK SAND AND GRAVEL AND BRICK PIECES (FILL)

2–2.5 ft. RED/BROWN DARK, SAND AND BRICK FILL

2.5 ft. RUSTY FUSED SLAG LAYER, TO CLAY (STIFF, SLIGHTLY PLIABLE, BLUE/GRAY, SLIGHTLY MOIST) WITH LITTLE TO SOME BRICK

3.5–4.0 ft. SAMPLE TAKEN AT SLAG/CLAY INTERFACE

10.0 ft. SAMPLE TAKEN

4.0 ft. HEADSPACE PID = 0.0 ppm

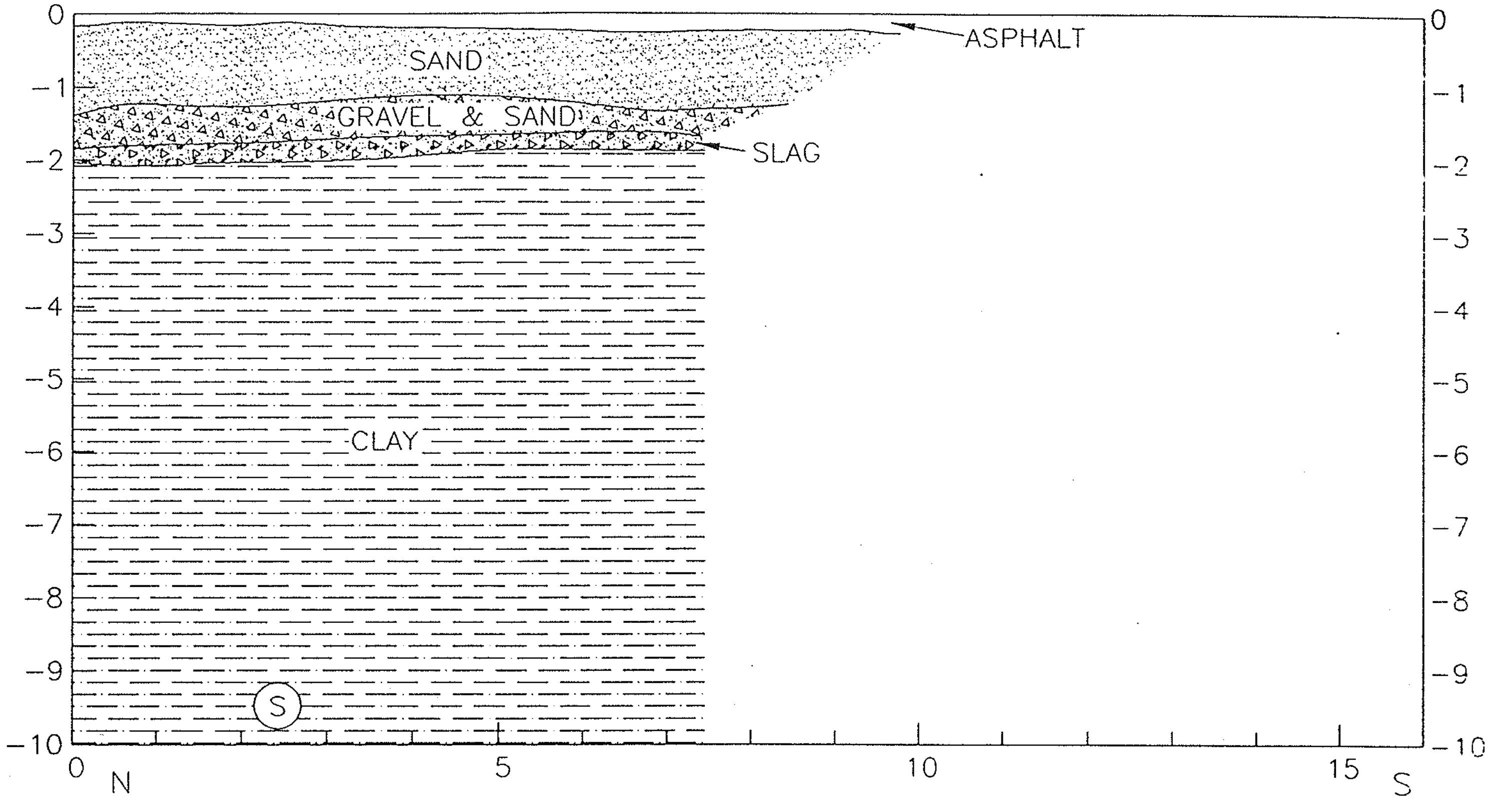
10.0 ft. HEADSPACE PID = 0.0 ppm

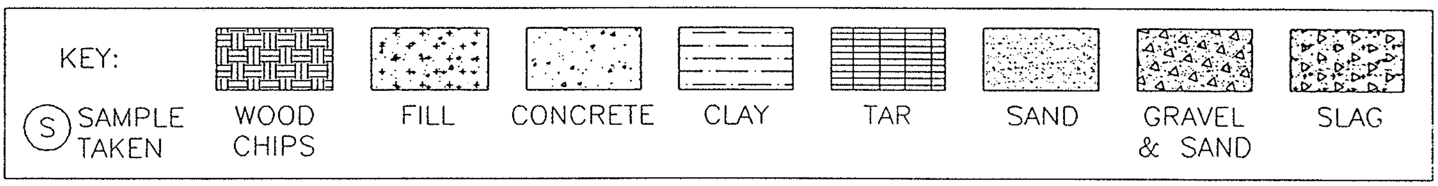
DATE: 8/9/94	LOCATION: WATER STREET TROY, NEW YORK
LOGGED BY: SJT	TEST PIT RECORD
LOCATION: AREA 2	PROFILE ALONG TEST PIT

GROUNDWATER TECHNOLOGY 1245 KINGS ROAD SCHENECTADY, NY 12303 (518) 370-5631

CLIENT:	PROJECT NO.:		DRAWING DATE:
NIAGARA MOHAWK	01110-0037		1/3/94
	PM: BWA	DETAILED: DEO	ACAD FILE: 0037-TP3

TEST PIT RECORD TP-4





NOTES: 0-0.5 ft. ASPHALT

0.5-1.5 ft. MEDIUM BROWN/GRAY, LOOSE, F.-M. SAND, LITTLE/SOME F.-C. GRAVEL

1.5-1.8 ft. DARK GRAY, MED-FINE GRAVEL

1.8-2.0 ft. VERY DENSE SLAG LAYER, RED/BROWN, METALLIC, FUSED

2.0-10.0 ft. PLIABLE-STIFF BLUE/GRAY CLAY, SOME BRICK FRAGMENTS

6.0-8.0 ft. PIECES (UP TO 3 ft. LONG) OF WOOD (BOARDS)

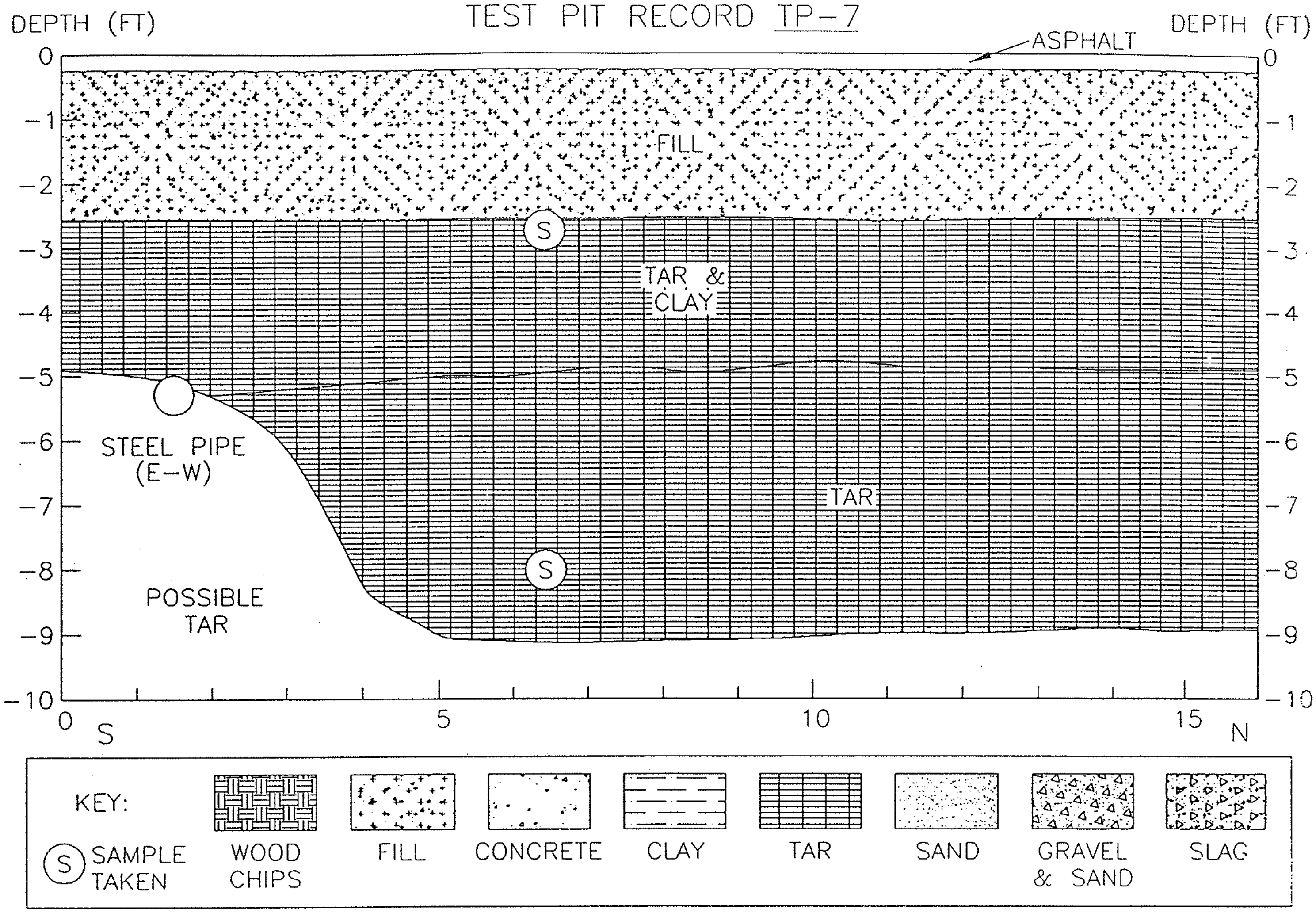
10.0 ft. PID HEADSPACE = 0.0 ppm

DATE: 8/9/94	LOCATION: WATER STREET, TROY, NEW YORK
LOGGED BY: SJT	TEST PIT RECORD
LOCATION: AREA 2	PROFILE ALONG TEST PIT

GROUNDWATER TECHNOLOGY
1245 KINGS ROAD
SCHENECTADY, NY 12303
(518) 370-5631

CLIENT:	PROJECT NO.:		DRAWING DATE:
NIAGARA MOHAWK	01110-0037		1/3/94
	PM: BWA	DETAILED: DEO	ACAD FILE: 0037-TP4

TEST PIT RECORD TP-7



NOTES: 0-0.5 ft. ASPHALT

0.5-2.0 ft. DRY, GRAVEL AND BRICK AND SAND (FILL)

NOTE: 5" DIA. STEEL PIPE AT 2 ft. RUNNING N-S (PARALLEL TO LONG AXIS OF TRENCH); MOVE 3 ft. EAST AND BEGIN NEW TRENCH

2.0-2.5 ft. SAME AS ABOVE INCLUDING WHITE GYPSUM (WALLBOARD?) AND MUCH BRICK FRAGMENTS.

2.5 ft. STRONG TAR ODOR; BACKGROUND PID LEVELS 3-10 ppm

2.5-5.0 ft. VISCOUS TAR AND CLAY, BLACK, VERY STRONG TAR ODOR, SLIGHT CHLORINE ODOR

5.0-9.0 fT. BLACK METALLIC, HIGHLY VISCOUS TAR (8" DIA. STEEL PIPE RUNNING E-W)

NOTE: WEST WALL OF TRENCH IS APPARENTLY BOUNDED BY A CEMENT BLOCK WALL

3.0 ft. PID HEADSPACE = 171 ppm

9.0 ft. PID HEADSPACE = 480 ppm

DATE: 8/10/94	LOCATION: WATER STREET, TROY, NEW YORK
LOGGED BY: SJT	TEST PIT RECORD
LOCATION: AREA 2	PROFILE ALONG TEST PIT

GROUNDWATER TECHNOLOGY, 1245 KINGS ROAD, SCHENECTADY, NY 12303, (518) 370-5631	CLIENT: NIAGARA MOHAWK	PROJECT NO.: 01110-0037	DRAWING DATE: 1/3/94
		PM: BWA / DETAILED: DEO	ACAD FILE: 0037-TP7

APPENDIX B

AIR ANALYSIS LABORATORY ANALYTICAL REPORTS

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP2U-F
LAB ID: 2163901
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP2D-F
LAB ID: 2163902
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP5U-F
LAB ID: 2163903
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP5D-F
LAB ID: 2163904
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP6U-F
LAB ID: 2163905
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP6D-F
LAB ID: 2163906
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:	AIR TUBE	SAMPLE ID:	EQ BLK-F
DESORPTION DATE:	08/19/94	LAB ID:	2163907
ANALYSIS DATE:	08/25/94	DIL FACTOR:	1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP2U-B
LAB ID: 2163908
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4_	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP2D-B
LAB ID: 2163909
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP5U-B
LAB ID: 2163910
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP5D-B
LAB ID: 2163911
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP6U-B
LAB ID: 2163912
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: TP6D-B
LAB ID: 2163913
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1501 - BTEX

NYTEST ENVIRONMENTAL INC.

ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: AIR TUBE
DESORPTION DATE: 08/19/94
ANALYSIS DATE: 08/25/94

SAMPLE ID: EQ BLK-B
LAB ID: 2163914
DIL FACTOR: 1.00

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/TUBE
1	71-43-2	Benzene	1.0 U
2	100-41-4	Ethylbenzene	1.0 U
3	108-88-3	Toluene	1.0 U
4	95-47-6	o-Xylene	1.0 U
5	108-38-3/106-47-3	m&p-Xylene	1.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS1-B
LAB ID: 2206706
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	3.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

:.B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER

EXTRACTION DATE: 9/27/94

ANALYSIS DATE: 11/5/94

SAMPLE ID: AS1-F

LAB ID: 2206701

DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	10.0 B
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS2-B
LAB ID: 2206707
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	38.0 B
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS-2F
LAB ID: 2206702
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	170.0 EB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/8/94

SAMPLE ID: AS2-FDL
LAB ID: 2206702
DIL FACTOR: 4.00
% MOISTURE:NA

CMPD #	CAS Number	PAH COMPOUNDS	UG/L
1	91-20-3	Naphthalene	290.0 BD
2	208-96-8	Acenaphthylene	40.0 U
3	83-32-9	Acenaphthene	40.0 U
4	86-73-7	Fluorene	40.0 U
5	85-01-8	Phenanthrene	40.0 U
6	120-12-7	Anthracene	40.0 U
7	206-44-0	Fluoranthene	40.0 U
8	129-00-0	Pyrene	40.0 U
9	56-55-3	Benzo(a)Anthracene	40.0 U
10	218-01-9	Chrysene	40.0 U
11	205-99-2	Benzo(b)Fluoranthene	40.0 U
12	207-08-9	Benzo(k)Fluoranthene	40.0 U
13	50-32-8	Benzo(a)Pyrene	40.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	40.0 U
15	53-70-3	Dibenz(a,h)Anthracene	40.0 U
16	191-24-2	Benzo(g,h,i)Perylene	40.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS3-B
LAB ID: 2206708
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	3.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS3-F
LAB ID: 2206703
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	8.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS4-B
LAB ID: 2206709
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	3.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: AS4-F
LAB ID: 2206704
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	6.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: FB-B
LAB ID: 2206710
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	3.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: FB-F
LAB ID: 2206705
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	6.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: BACK TUBE
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: CAL-B
LAB ID: S1230
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	3.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

1B PAH

NYTEST ENVIRONMENTAL INC.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: FRONT FILTER
EXTRACTION DATE: 9/27/94
ANALYSIS DATE: 11/5/94

SAMPLE ID: CAL-F
LAB ID: S1229
DIL FACTOR: 1.00

CMPD #	CAS Number	PAH COMPOUNDS	UG/TUBE
1	91-20-3	Naphthalene	8.0 JB
2	208-96-8	Acenaphthylene	10.0 U
3	83-32-9	Acenaphthene	10.0 U
4	86-73-7	Fluorene	10.0 U
5	85-01-8	Phenanthrene	10.0 U
6	120-12-7	Anthracene	10.0 U
7	206-44-0	Fluoranthene	10.0 U
8	129-00-0	Pyrene	10.0 U
9	56-55-3	Benzo(a)Anthracene	10.0 U
10	218-01-9	Chrysene	10.0 U
11	205-99-2	Benzo(b)Fluoranthene	10.0 U
12	207-08-9	Benzo(k)Fluoranthene	10.0 U
13	50-32-8	Benzo(a)Pyrene	10.0 U
14	193-39-5	Indeno(1,2,3-cd)Pyrene	10.0 U
15	53-70-3	Dibenz(a,h)Anthracene	10.0 U
16	191-24-2	Benzo(g,h,i)Perylene	10.0 U

TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc

CHAIN OF CUSTODY RECORD

Page 1 of 1

SHIP TO: Nytest Environmental Inc.
60 Seaview Blvd.
Port Washington, NY 11050
(516) 625-5500
Attn. L. Buyer

REPORT TO: Client Name GTI
Address 1245 Kings Rd
Schenectady NY 12303
Phone 370-5631
Attn. Bruce Ahrens/T. Misdek

Project No.	Project Name	Date Shipped	Carrier
01110-0037	Niagra Mohawk Water st.	9/20/94	Fed Ex
Sampler: (Signature) Greg Sherwin	Analytical Protocol	Air Bill No. 1372369154	Cooler No. —

Sample I.D.	Date/Time Sampled		Sample Description	No. Of Containers	ANALYSIS REQUESTED
AS1	9-20-94	2:30	Air	2	PAH's
AS2	"	2:30	"	2	"
AS3	"	2:30	"	2	"
AS4	"	2:30	"	2	"

Relinquished by (Signature)	Date / Time	Rec'd By (Signature)	Date / Time
Greg Sherwin	9-20-94 5:00		
Print Name Greg Sherwin		Print Name	
Relinquished by (Signature)	Date / Time	Rec'd. by (Signature)	Date / Time
Print Name		Print Name	
Relinquished by (Signature)	Date / Time	Received for Laboratory by (Signature) Robert Fletcher	Date / Time 9/21/94 930
Print Name		Print Name Robert Fletcher	

Special Instructions/Comments

EMPLOYEE EXPOSURE SAMPLING DATA

Name: Greg Sherwin

Social Security No.: 092-66-7456

Building: Outside

Sampling Location: SB28 Niagra Mohawk water st.

Date: 9/19/94

Samples Collected by: Greg Sherwin

Type of Sample: Air

Analyze For: PAH's

SAMPLE DATA

Sample No.	AS1					
Monitor/Pump No.	641					
Time On	0900					
Time Off	1431					
Total Time (min)	331					
Flow Rate (Volume/Time)	2 lts.min.					
Volume (cc, L, ft3)	2 L/min					
Result						

SAMPLE LOCATION

Sample #	Employee Name/Number or Sample Location	Height	Type
AS1	Greg Sherwin / Personal sample	4'	

CALIBRATION

F...p/ Monitor No.	Calibration		Setting		Calibration Date	
	Pre-Use	Post-Use	Pre-Use	Post-Use	Pre	Post
641	1.87	1.98				

Name of Calibrator: Buck Calibrator Type: _____

Temp: 75° Pressure: _____ RH: _____

OPERATION

Source of Contaminant/Noise: Coal Tar

Operation Employee(s) Perform: Drilling

...ation: _____ Local Exhaust: _____ General Area: _____ None: _____

PERSONAL PROTECTIVE EQUIPMENT (check if worn)

____ Respiratory Protective Equipment Type: _____

____ Protective Clothing Type: _____

✓ Gloves Type: _____

____ Goggles/Face Shield Type: _____

____ Ear Protection Type: _____

Notes or Comments

EMPLOYEE EXPOSURE SAMPLING DATA

Name: Greg Sherwin

Social Security No.: 092-66-7456

Building: Outside

Sampling Location: SB28 Niagra Mohawk water st.

Date: 9/19/94

Samples Collected by: Greg Sherwin

Type of Sample: Air

Analyze For: PAH's

SAMPLE DATA

Sample No.	AS2					
Monitor/Pump No.	283					
Time On	0900					
Time Off	1431					
Total Time (min)	331					
Flow Rate (Volume/Time)	2l/min					
Volume (cc, L, ft3)						
Result						

SAMPLE LOCATION

Sample #	Employee Name/Number or Sample Location	Height	Type
AS2	Greg Sherwin / ~~[illegible]~~ sample Eastern	4'	

CALIBRATION

L.../ Monitor No.	Calibration		Setting		Calibration Date	
	Pre-Use	Post-Use	Pre-Use	Post-Use	Pre	Post
283	1.53	1.96				

'ame of Calibrator: Buck Calibrator Type

emp: 75° Pressure: RH:

OPERATION

Source of Contaminant/Noise: Coal Tar

Operation Employee(s) Perform: Drilling

ion: Local Exhaust: General Area: None:

PERSONAL PROTECTIVE EQUIPMENT (check if worn)

___ Respiratory Protective Equipment Type:

___ Protective Clothing Type:

✓ Gloves Type:

___ Goggles/Face Shield Type:

___ Ear Protection Type:

Notes or Comments

EMPLOYEE EXPOSURE SAMPLING DATA

Name: Greg Sherwin

Social Security No.: 092-66-7456

Building: Outside

Sampling Location: SB28 Niagra Mohawk water

Date: 9/19/94

Samples Collected by: Greg Sherwin

Type of Sample: Air

Analyze For: PAH's

SAMPLE DATA

Sample No.	A53					
Monitor/Pump No.	279					
Time On	0900					
Time Off	1431					
Total Time (min)	331					
Flow Rate (Volume/Time)	2 ltrs Min					
Volume (cc, L, ft3)						
Result						

SAMPLE LOCATION

Sample #	Employee Name/Number or Sample Location	Height	Type
A53	Greg Sherwin / Western sample	4'	

CALIBRATION

Monitor No.	Calibration		Setting		Calibration Date	
	Pre-Use	Post-Use	Pre-Use	Post-Use	Pre	Post
279	1.84	1.98				

Name of Calibrator: Buck Calibrator Type______

Temp: 75° Pressure:______ RH:______

OPERATION

Source of Contaminant/Noise: Coal Tar

Operation Employee(s) Perform: Drilling

Ventilation:______ Local Exhaust:______ General Area:______ None:______

PERSONAL PROTECTIVE EQUIPMENT (check if worn)

____ Respiratory Protective Equipment Type:______

____ Protective Clothing Type:______

✓ Gloves Type:______

____ Goggles/Face Shield Type:______

____ Ear Protection Type:______

Notes or Comments

EMPLOYEE EXPOSURE SAMPLING DATA

Name: Greg Sherwin

Social Security No.: 092-66-7456

Building: Outside

Sampling Location: SB28 Niagra Mohawk water St.

Date: 9/19/94

Samples Collected by: Greg Sherwin

Type of Sample: Air

Analyze For: PAH's

SAMPLE DATA

Sample No.	A54					
Monitor/Pump No.	280					
Time On	0900					
Time Off	1431					
Total Time (min)	331					
Rate (Volume/Time)	2 lts min					
Volume (cc, L, ft3)						
Result						

SAMPLE LOCATION

Sample #	Employee Name/Number or Sample Location	Height	Type
A54	Greg Sherwin / Northern sample	4'	

APPENDIX C

GEOTECHNICAL LABORATORY ANALYTICAL REPORTS

GROUNDWATER TECHNOLOGY

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21829

We find as follows :

	Sample Identification			
Lab ID :	2182901	2182902	2182903	
Parameter(s) / Client ID :	1/1618	1/1820	1/2426	Method Blank
pH	NR	5.95	NR	NA
D[illegible]ty, gm/cc	1.8323	NR	NR	NA
M[illegible]ture, in Percent	NR	16.90	NR	0.02 U

U . Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21818

We find as follows :

Parameter(s)	Lab ID : 2181801 Client ID : 15/3032	2181802 15/1820	2181804 13/4749	Method Blank
	NR	4.17	NR	NA
sity, gm/cc	1.3917	NR	NR	NA
sture, in Percent	NR	18.30	NR	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 22077

We find as follows :

Parameter(s)	2207704 (2S/2628MS)	2207705 (2S/2224) SB-28	2207706 (2S/2426) SB-28	Method Blank
	Sample Identification			
Lab ID :	2207704	2207705	2207706	
Client ID :	2S/2628MS	2S/2224	2S/2426	Method Blank
		SB-28	SB-28	
pH	NR	6.09	NR	NA
Density, gm/cc	NR	NR	1.6143	NA
Moisture, in Percent	NR	12.7	NR	0.02 U

U Below method blank/method reporting limit
E Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21755

We find as follows :

Sample Identification

Parameter(s)	Lab ID : 2175504 / Client ID : 3/4648	2175505 / 4/2830	2175506 / 4/4749	Method Blank
Density, gm/cc	NR	1.6472	NR	NA

1 : Below method blank/method reporting limit
2 : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21755

We find as follows :

Parameter(s)	Sample Identification: Lab ID : 2175507 / Client ID : 4/4951	Method Blank
pH	8.60	NA
Moisture, in Percent	11.1	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21785

We find as follows :

Sample Identification

Parameter(s)				
Lab ID :	2178501	2178502	2178503	Method Blank
Client ID :	11/3032	11/2628	12/2224	
	SB-11	SB-11	SB-12	
pH	NR	7.08	7.02	NA
Density, gm/cc	2.0693	NR	NR	NA
Moisture, in Percent	NR	26.90	13.10	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21993

We find as follows :

		Sample Identification	
Lab ID :	2199304	2199305	Method Blank
Client ID :	26/2022	26/1820	
Parameter(s)			
pH	NR	3.88	NA
Density, gm/cc	1.5229	NR	NA
isture, in Percent	NR	16.9	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21926

We find as follows :

	Sample Identification			
Lab ID :	2192610	2192611	2192612	Method Blank
Client ID :	13/2628	11/0810	11/1012	
Parameter(s)	MW-13	MW-11	MW-11	
pH	9.18	NR	3.24	NA
Density, gm/cc	NR	1.1165	NR	NA
Moisture, in Percent	7.7	NR	12.5	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21926

We find as follows :

Sample Identification

Parameter(s)	Lab ID : 2192607 Client ID : 13/1214	2192608 13/1618	2192609 13/2426 MW-13	Method Blank
ensity, gm/cc	NR	NR	1.7043	NA

: Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

REPORT OF ANALYSIS

Log In No : 21903

We find as follows :

Parameter(s)	Sample Identification Lab ID : 2190302 Client ID : 2/2224 MW-2	Method Blank
pH	7.73	NA
Moisture, in Percent	17.50	0.02 U

U : Below method blank/method reporting limit
E : Above method limit
NA : Not available
NR : Not Required

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 22077

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Grain size distribution Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2207706	2S/2426	87.60	15.80	19.40	27.50	15.60	21.70

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21829

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Grain size distribution: Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2182901	1/1618	69.70	21.60	28.40	23.40	23.10	3.50

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21818

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Grain size distribution: Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2181801	15/30/32	79.90	6.30	27.80	32.60	19.10	13.60

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21903

We find as follows :

Results in percent :

			Grain size distribution				
LAB ID	CLIENTID	Total solids	Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm
2190301	2/2426	81.30	0.00	0.00	2.20	35.20	62.60

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21926

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Grain size distribution Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2192609	13/2426	86.20	19.10	25.30	23.00	16.10	16.50
2192611	11/0810	85.70	0.00	32.00	31.40	22.10	14.50

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21993

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Grain size distribution: Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2199304	26/2022	88.50	0.00	30.50	27.30	24.10	18.10

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21785

We find as follows :

Results in percent :

LAB ID	CLIENTID	Total solids	Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
			PARAMETERS				
2178502	11/2628	73.10	0.00	0.00	7.20	32.90	59.90
2178503	12/2224	86.90	0.00	43.30	24.00	9.60	23.10

NYTEST ENVIRONMENTAL, INC.

LOG NUMBER : 21755

We find as follows :

Results in percent :

			PARAMETERS				
LAB ID	CLIENTID	Total solids	Coarse Gravels (>4.75 mm)	Fine Gravels (4.75 mm)	Coarse Sands (2.00 mm)	Medium & Fine sand (0.425 mm)	Silt & Clay (<0.075 mm)
2175506	4/4749	90.10	42.70	27.10	14.40	7.20	8.60

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc. Case No. 22077

Project No: 9421265 SDG: GT16

Client : Groundwater Technology, Inc.

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
2S/2224 (SB25)	2207705		87.3	9989 J
2S/2224D (SB28)	2207705	DUP	87.3	9263
2S/2224S (SB-28)	2207705	SPIKE	87.3	34950

Duplicate Relative Percent Difference: 7.54
Spike Added: 25455
Spike Percent Recovery: 98.1%

MDL 400

Method Blank <400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc.

Case No. 21829

Project No: 9421265

SDG: 21829

Client : GWT

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
1/1820	2182902		83.1	37341
1/1820	2182902	DUP	83.1	36927
1/1820	2182902	SPIKE	83.1	50262

Duplicate Relative Percent Difference:	1.11	
Spike Added:	25334	
Spike Percent Recovery:	102.0%	
MDL		400
Method Blank		<400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc.   Case No. 21818

Project No: 9421265   SDG: 21818

Client : GWT

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
15/1820	2181801		79.9	153971
15/1820	2181801	DUP	79.9	157935
15/1820	2181801	SPIKE	79.9	323711

Duplicate Relative Percent Difference: 2.54
Spike Added: 166875
Spike Percent Recovery: 101.7%

MDL 400

Method Blank <400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc.

Case No. 21933 9

Project No: 9421265

SDG: GT11

Client : Stearns & Wheeler

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
26/1820	2199305		83.1	126173
26/1820D	2199305	DUP	83.1	126774
26/1820S	2199305	SPIKE	83.1	178103

Duplicate Relative Percent Difference:	0.47	
Spike Added:	48135	
Spike Percent Recovery:	107.9%	
MDL		400
Method Blank		<400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc. Case No. 21903

Project No: 9421265 SDG: GT11

Client : Groundwater Technology, Inc.

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
2/2224	2190302		82.5	6273
2/2224D	2190302	DUP	82.5	6167
2/2224S	2190302	SPIKE	82.5	50222

Duplicate Relative Percent Difference:	1.70	
Spike Added:	44077	
Spike Percent Recovery:	99.7%	
MDL		400
Method Blank		<400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc.   Case No. 21926

Project No: 9421265   SDG: GT11

Client : Groundwater Technology, Inc.

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
13/2628	2192610		92.3	20742
13/2628D	2192610	DUP	92.3	20949
13/2628S	2192610	SPIKE	92.3	58670
11/1012	2192612		87.5	102498

Duplicate Relative Percent Difference: 0.99
Spike Added: 36114
Spike Percent Recovery: 105.0%

MDL 400

Method Blank <400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc. Case No. 21755

Project No: 9421265 SDG: GT8

Client : ~~Baker Environmental~~ GWT

10/5/94

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
4/4951	2175507		88.9	6218
4/4951	2175507	DUP	88.9	6177
4/4951	2175507	SPIKE	88.9	22260

Duplicate Relative Percent Difference:	0.66
Spike Added:	16664
Spike Percent Recovery:	81.4%

MDL	400
Method Blank	<400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc. Case No. 21770

Project No: 9421265 SDG: 21770

Client : GWT

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
13/2527	2177006		80.1	7643
13/2527	2177006	DUP	80.1	7764
13/2527	2177006	SPIKE	80.1	34194

Duplicate Relative Percent Difference:	1.57	
Spike Added:	26283	
Spike Percent Recovery:	101.0%	
MDL		400
Method Blank		<400

Total Organic Carbon
Results

Lab Name: Nytest Environmental Inc. Case No. 21785

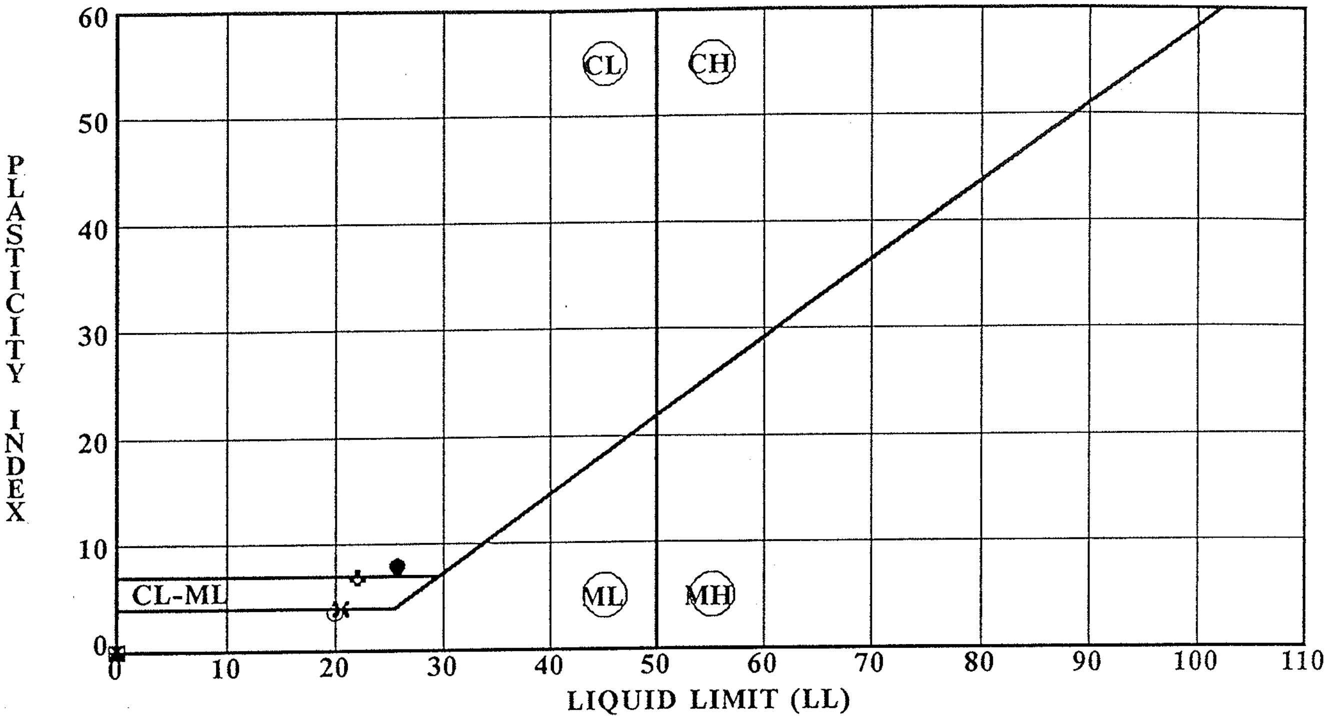
Project No: 9421265 SDG: 21785

Client : GWT

Sample ID	Lab ID		Percent Solids (%)	Results in mg/Kg Dry Wt.
11/2628	2178502		73.1	23705
12/2224	2178503		86.9	14562
12/2224D	2178503	DUP	86.9	13993
12/2224S	2178503	SPIKE	86.9	40025

Duplicate Relative Percent Difference:	3.98
Spike Added:	28769
Spike Percent Recovery:	88.5%

MDL	400
Method Blank	<400



	Sample Identification		LL	PL	PI	Fines	Notes
●	*9-94-31*	*29.0*	*26*	*18*	*8*		*SB-11, 28-30 feet*
⊠	*9-94-32*	*21.0*	*NP*	*NP*	*NP*		*SB-25, 20-22 feet (non plastic)*
▲	*9-94-33*	*25.0*	*NP*	*NP*	*NP*		*SB-12, 24-26 feet (non plastic)*
★	*9-94-34*	*19.0*	*NP*	*NP*	*NP*		*MW-1, 18-20 feet (non plastic)*
✕	*9-94-36*	*28.0*	*21*	*17*	*4*		*SB-13, 27-29 feet*
✿	*9-94-37*	*39.0*	*22*	*15*	*7*		*SB-15, 38-40 feet*
○	*9-94-38*	*43.0*	*20*	*16*	*4*		*SB-16, 42-44 feet*

PROJECT *GROUNDWATER TECHNOLOGY, NIAGARA MOHAWK - WATER STREET - 01110-0037 -*

JOB NO. *38566.000*
DATE *09/30/94*

ATTERBERG LIMITS RESULTS

RUST Environment & Infrastructure
12 Metro Park, Albany, NY 12205

APPENDIX D

PRELIMINARY RISK EVALUATION REPORT

GROUNDWATER TECHNOLOGY

April 17, 1995

TO: Bruce Ahrens / Teresa Misiolek

FROM: Mark Wert
Risk Assessment Services

SUBJECT: **Preliminary Risk Evaluation - Area 2**
Niagara Mohawk Water Street MGP Site
Rensselaer County
Troy, New York

A preliminary risk evaluation was performed for Area 2 of the former Water Street Manufactured Gas Plant (MGP) site which is currently owned and operated by King Fuels. The purpose of this evaluation was to determine whether contamination in soil in Area 2 poses an imminent hazard to human health in the short term (defined as less than 5 years). Potential exposure of daily workers and construction workers to soil was quantitatively evaluated. The results showed that the total potential cancer risks calculated are within USEPA's target risk range of 1×10^{-4} to 1×10^{-6}, and the total non-cancer hazard indices are below USEPA's threshold value of 1.0. Therefore, the site does not appear to pose an imminent hazard to human health.

Although the estimated potential risks are shown here to be acceptable, we would recommend to the client that no construction workers be allowed to excavate soils at the site without some level of monitoring, education, and PPE.

5.1 Preliminary Risk Evaluation

5.1.1 Data Evaluation

A brief review of analytical data for surface soil and subsurface soil was completed. Data for sediment and surface water were not evaluated because the potential for exposure to these media was judged insignificant compared with the potential for exposure to soil in the short term. Data for groundwater were not evaluated because groundwater is not used as a drinking water supply at or downgradient of the site.

The data for subsurface and surface soil was summarized in Table 1 and Table 2 respectively. Average concentrations were calculated based on detected concentrations only. This method of calculation overestimates the actual average concentrations because concentrations below the detection limits in the impacted area are eliminated. The average concentrations were also compared to NYSDEC Recommended Cleanup Objectives obtained from TAGM 4046 (NYSDEC, 1994) or to literature background values where NYSDEC values were not available.

As a screening mechanism to determine the compounds of concern for the imminent hazard evaluation, the compounds of concern were limited to those meeting the following criteria:

- detected more than twice in either surface or subsurface soil
- the average concentration was more than twice the NYSDEC cleanup objective or background level identified for the compound
- readily available toxicity values

Contaminants not meeting these criteria were eliminated from consideration.

5.1.2 Potential Exposure Pathways

The potential for exposure of on-site King Oil workers to surface soil was calculated for a 5 year period. The potential for exposure of hypothetical future construction/maintenance workers to subsurface soil was also calculated. The following two exposure pathways were quantitatively evaluated for both of these potential receptors:

dermal contact with soil
incidental ingestion of soil

5.1.3 Exposure Parameters

Table 3 presents the exposure equations and parameters used in this evaluation. In general, these were selected from USEPA methods and default values (USEPA, 1991). The exposure factors selected for the construction worker were based on professional judgement. All exposures were calculated based on the average concentrations detected in soil.

5.1.4 Toxicity Values

Toxicity values and their sources are given in Table 4. In general these values were obtained from USEPA sources such as the Integrated *Risk Information System (IRIS)* or Health *Effects Assessment Summary Tables (HEAST)* via the *Electronic Handbook of Risk Assessment Values (EHRAV)* (1995). Surrogate toxicity values were selected for some compounds without USEPA values. Toxicity Equivalence Factors published by USEPA (1993) were used to assess carcinogenic polycyclic aromatic hydrocarbons (PAHs). Sub-chronic reference doses were used for the assessment of non-carcinogenic effects. Metals with very low toxicities were eliminated. Other compounds without toxicity values in EHRAV were not evaluated.

5.1.5 Risk Characterization

Potential risks were summed for all compounds for each receptor as shown in Tables 5-8 . The results show that the potential cancer risks to daily workers (3×10^{-5}) and construction workers (8×10^{-5}) are within USEPA's target risk range of 1×10^{-4} to 1×10^{-6} . The potential non-cancer hazard indices for the daily workers (0.004) and construction workers(0.16) are also both below USEPA's threshold value of 1.0.

5.1.6 References

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TABLE 1
Summary of Subsurface Soil Analytical Data For King Oil Site

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Compound	Samples	Detects	Minimum	Average	Maximum	NYSDEC Recommended Cleanup Objective	Exceeds?
			µg/kg				
Acetone	26	0				200	no
Benzene	72	21	2	1500	15000	60	YES
2-Butanone	26	0				300	no
Carbon Disulfide	18	0				2700	no
Ethylbenzene	72	21	1	1105	13000	5500	no
2-Hexanone	18	1	1	1	1	not available	
Methylene Chloride	26	8	3	115	860	100	YES
4-Methyl-2-Pentanone	59	0				1000	no
Styrene	26	3	450	4883	13000	not available	
Toluene	72	22	2	1013	12000	1500	no
1,1,2-Trichloroethane	18	0				not available	
Trichloroethene	18	0				700	no
Xylene (total)	72	23	1	2368	18000	1200	YES
Benzene Isomers	26	6	840	50757	229000	not available	
Unknown Aromatics	26	14	6	46364	198000	not available	
Napthalene Isomers	18	0				not available	
Other Unknowns	26	15	7	8281	40000	not available	
Ethyl Dimethyl Benzene Isom	8	1	44000	44000	44000	not available	
Tetramethyl Benzene Isomer	8	2	64000	73000	82000	not available	
TOTAL VOCs				1275387		10000	YES
Acenaphthene	80	27	54	63474	940000	50000	YES
Acenaphthylene	80	29	43	203350	5600000	41000	YES
Anthracene	80	31	50	460684	6400000	50000	YES
Benzo (a) anthracene	80	42	52	348916	6100000	224	YES
Benzo (b) fluoranthene	11	8	85	945321	3800000	1100	YES
Benzo (k) fluoranthene	11	8	79	1064115	4200000	1100	YES
Benzo (g,h,i) perylene	11	8	56	481237	2000000	50000	YES
Benzo (a) pyrene	11	8	69	1183493	4800000	61	YES
Carbazole	35	5	18000	918200	2200000	50000 any SVOC	YES
4-Chloro-3-Methylphenol	24	1	2400	2400	2400	240	YES
2-Chlorophenol	24	1	2400	2400	2400	800	YES
Chrysene	56	37	53	338834	5100000	400	YES
Dibenz (a,h) anthracene	11	3	2100	261367	750000	14	YES
Dibenzofuran	35	17	45	879084	7200000	6200	YES
1,4-Dichlorobenzene	24	1	1400	1400	1400	8500	no
2,4-Dimethylphenol	35	1	680000	680000	680000	50000 any SVOC	YES
2,4- Dinitrotoluene	24	1	1700	1700	1700	1000	YES
Fluoranthene	80	48	45	863832	19000000	50000	YES
Fluorene	80	39	63	529589	9600000	50000	YES
Indeno (1,2,3-cd) pyrene	11	8	53	521095	2100000	3200	YES
2-Methylnaphthalene	35	14	55	1368680	9300000	36400	YES
2-Methylphenol	34	1	1000000	1000000	1000000	100	YES
4-Methylphenol	35	4	110	1350578	2800000	900	YES
Naphthalene	80	45	41	2289642	54000000	13000	YES
4-Nitrophenol	24	2	2400	5500	8600	100	YES
n-Nitrosoiphenylamine (1)	24	1	1700	1700	1700	50000 any SVOC	no
n-Nitroso-l-n-propylamine	24	1	1800	1800	1800	50000 any SVOC	no
Pentachlorophenol	24	1	2700	2700	2700	1000	YES
Phenanthrene	80	52	41	1228870	29000000	50000	YES
Phenol	35	6	380	1152997	3600000	30	YES
Pyrene	80	53	49	540392	12000000	50000	YES
1,2,4-Trichlorobenzene	24	1	1400	1400	1400	3400	no
TOTAL SVOCs				16647528		250000	YES

TABLE 1
Summary of Subsurface Soil Analytical Data For King Oil Site

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Compound	Samples	Detects	Minimum	Average	Maximum	NYSDEC Recommended Cleanup Objective	Exceeds?
			µg/kg				
Aldrin	25	0				40	no
alpha-BHC	25	0				110	no
beta-BHC	25	0				200	no
delta-BHC	25	1	81	81	81	300	no
gamma-BHC (Lindane)	25	1	6.8	7	6.8	60	no
alpha-Chlordane	25	1	7.8	8	7.8	not available	
gamma-Chlordane	25	0				540	no
4,4'-DDD	25	1	4.1	4	4.1	2900	no
4,4'-DDE	25	1	44	44	44	2100	no
4,4'-DDT	25	6	3.9	125	220	2100	no
Dieldrin	25	4	3.5	65	170	44	YES
Endosulfan I	25	1	32	32	32	900	no
Endosulfan II	25	0				900	no
Endosulfan sulfate	25	0				1000	no
Endrin	25	6	11	232	720	100	YES
Endrin aldehyde	25	5	5.5	15	30	not available	
Endrin ketone	25	2	4.2	172	340	not available	
Heptachlor	25	1	3.4	3	3.4	100	no
Heptachlor epoxide	25	1	5.8	6	5.8	20	no
Methoxychlor	25	0					no
Toxaphene	25	0				not available	
TOTAL PESTICIDES				794		10000	no
Aroclor-1016	25	0				10000	no
Aroclor-1221	25	0				10000	no
Aroclor-1232	25	0				10000	no
Aroclor-1242	25	0				10000	no
Aroclor-1248	25	0				10000	no
Aroclor-1254	25	0				10000	no
Aroclor-1260	25	0				10000	no

TABLE 1
Summary of Subsurface Soil Analytical Data For King Oil Site

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Compound	Samples	Detects	Minimum	Average	Maximum	NYSDEC Recommended Cleanup Objective		Exceeds?
			mg/kg					
TPH	5	5	0.3	13056	44300			
Aluminum	26	24	143	6172	16900	33000	SB (1)	no
Antimony	26	5	10.4	20	44.6	0.52	not available (	YES
Arsenic	26	23	2.6	17	42.8	7.5	or SB	YES
Barium	26	8	48.4	127	370	300	or SB	no
Beryllium	26	7	1.1	2	2.5	0.16	or SB	YES
Cadmium	26	12	1.2	3	5.1	1	or SB	YES
Calcium	26	24	1780	13362	86600	3400	SB (1)	YES
Chromium	26	24	2.4	27	95.7	10	or SB	YES
Cobalt	26	13	12.2	24	82.8	30	or SB	no
Copper	26	21	9.9	73	501	25	or SB	YES
Iron	26	24	3430	79605	331000	2000	or SB	YES
Lead	26	24	2	47	325	0.03	or SB	YES
Magnesium	26	14	1180	3649	9200	2100	SB (1)	YES
Manganese	26	24	28.2	3084	20900	0.15	SB	YES
Mercury	26	8	0.12	2	8.5	0.1		YES
Nickel	26	19	10.4	21	45.1	13	or SB	YES
Potassium	26	4	1380	1760	2440	12000	SB (1)	no
Selenium	26	4	2.3	4	8.8	2	or SB	YES
Silver	26	0					SB	no
Sodium	26	0					SB	no
Thallium	26	3	2.9	42	92.7	7.7	SB (1)	YES
Vanadium	26	21	9.5	81	298	150	or SB	no
Zinc	26	22	8.2	64	267	20	or SB	YES
Cyanide	52	4	1.6	12	36.5	depend on form		

(1) Background for the Eastern U.S. from Shacklette (1994)

TABLE 2
Summary of Surface Soil Analytical Data for the King Oil Site

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Compound	Samples	Detects	Minimum	Average	Maximum	NYSDEC Recommended Cleanup Objective	Exceeds?
			µg/kg				
Benzene	20	0				60	no
Ethylbenzene	20	2	2	3	3	1200	no
Methylene Chloride	4	4	3	3	3	100	no
Toluene	20	0				1500	no
Xylene (total)	20	2	4	4	4	1200 NA	no
Unknown Aromatic	4	1	8	8	8	not available	
Other Unknowns	4	2	8	11	14	not available	
TOTAL VOCs				29		10000	no
Acenaphthene	16	3	780	1360	2000	50000	no
Acenaphthylene	16	14	38	1590	4500	41000	no
Anthracene	16	13	40	2352	10000	50000	no
Benzo (a) anthracene	16	13	140	8073	31000	224	YES
Benzo (b) fluoranthene	16	12	150	7357	27000	1100	YES
Benzo (k) fluoranthene	16	12	160	6124	21000	1100	YES
Benzo (g,h,i) perylene	16	12	48	2593	16000	50000	no
Benzo (a) pyrene	16	13	120	5871	22000	61	YES
Chrysene	16	13	140	7329	31000	400	YES
Dibenz (a,h) anthracene	15	5	42	1608	6600	14	YES
Fluoranthene	16	15	37	10918	45000	50000	no
Fluorene	16	7	93	1538	3200	50000	no
Indeno (1,2,3-cd) pyrene	16	12	52	2772	16000	3200	no
2-Methylnaphthalene	4	1	51	51	51	36400	no
Naphthalene	16	6	42	519	1400	13000	no
Phenantherene	16	13	100	7023	28000	50000	no
Pyrene	16	15	74	10288	42000	50000	no
TOTAL SVOCs				77366		250000	no
Unknown Aromatic	4	4	110	23343	91300	not available	
Other Unknowns	4	1	8600	8600	8600	not available	
Aldrin	4	0				40	no
alpha-BHC	4	0				110	no
beta-BHC	4	0				200	no
delta-BHC	4	0				300	no
gamma-BHC (Lindane)	4	0				60	no
alpha-Chlordane	4	0				not available	
gamma-Chlordane	4	0				540	no
4,4'-DDD	4	0				2900	no
4,4'-DDE	4	1	2.7	3	2.7	2100	no
4,4'-DDT	4	1	6.9	7	6.9	2100	no
Dieldrin	4	0				44	no
Endosulfan I	4	0				900	no
Endosulfan II	4	0				900	no
Endosulfan sulfate	4	0				1000	no
Endrin	4	0				100	no
Endrin aldehyde	4	1	29	29	29	not available	
Endrin ketone	4	1	150	150	150	not available	
Heptachlor	4	0				100	no
Heptachlor epoxide	4	0				20	no
Methoxychlor	4	0					no
Toxaphene	4	0				not available	
TOTAL PESTICIDES				189		10000	no
Aroclor-1016	7	0				10000	no
Aroclor-1221	7	0				10000	no
Aroclor-1232	7	0				10000	no
Aroclor-1242	7	0				10000	no
Aroclor-1248	7	0				10000	no
Aroclor-1254	7	0				10000	no
Aroclor-1260	7	3	56	82	130	10000	no

TABLE 2
Summary of Surface Soil Analytical Data for the King Oil Site

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Compound	Samples	Detects	Minimum	Average	Maximum	NYSDEC Recommended Cleanup Objective		Exceeds?
			mg/kg					
Aluminum	8	4	9560	10190	11200	33000	SB (1)	no
Antimony	8	0				0.52	not available	no
Arsenic	8	4	5.4	7	8.7	7.5	or SB	no
Barium	8	4	58.8	69	86.3	300	or SB	no
Beryllium	8	0				0.16	or SB	no
Cadmium	8	1	1.2	1	1.2	1	or SB	YES
Calcium	8	4	1670	20480	48300	3400	SB (1)	YES
Chromium	8	4	14.3	21	35.3	10	or SB	YES
Cobalt	8	0				30	or SB	no
Copper	8	4	15.3	26	45.2	25	or SB	YES
Iron	8	4	19400	26525	40600	2000	or SB	YES
Lead	8	4	50.1	192	503	0.03	or SB	YES
Magnesium	8	4	3360	5330	7120	2100	SB (1)	YES
Manganese	8	4	480	573	739	0.15	SB	YES
Mercury	8	3	0.11	0	0.23	0.1		YES
Nickel	8	4	20.8	23	25.2	13	or SB	YES
Potassium	8	3	1040	1220	1320	12000	SB (1)	no
Selenium	8	0				2	or SB	no
Silver	8	0					SB	no
Sodium	8	0					SB	no
Thallium	8	0				7.7	SB (1)	no
Vanadium	8	4	20.7	27	34.7	150	or SB	no
Zinc	8	4	68.2	90	105	20	or SB	YES
Cyanide	21	3	1.2	18	49.5		depend on form	

(1) Background for the Eastern U.S. from Shacklette (1994)

TABLE 3
Exposure and Risk Equations

Niagra Mohawk Power Corp.
Water Street
Troy, New York

DAILY AND CONSTRUCTION WORKERS
INGESTION AND DERMAL CONTACT WITH SOIL

EQUATIONS:

$$\text{DOSE oral} = \frac{CS \cdot ING \cdot EF \cdot ED \cdot CF}{BW \cdot AT}$$

$$\text{DOSE dermal} = \frac{CS \cdot CF \cdot SA \cdot AF \cdot AB \cdot EF \cdot ED}{BW \cdot AT}$$

$$\text{CANCER RISK} = DOSE \cdot CSF$$

$$\text{HAZARD INDEX} = DOSE / RFD$$

SYMBOL		DESCRIPTION	UNIT	VALUE	REFERENCE
CS	=	concentration in soil	µg/kg	see below	average
CF	=	conversion factor	kg/µg	1.0E-09	
ING	=	ingestion rate	mg/day	100 const. worker	prof. judgement
				50 daily worker	USEPA, 1991
SA	=	skin surface area	cm^2	5300 const. worker	USEPA, 1992
				5300 daily worker	USEPA, 1992
AF	=	adherence factor	mg/cm^2	1	USEPA, 1992
AB	=	absorption factor for VOCs	unitless	0.25 VOCs	Ryan, 1987
				0.1 SVOCs/pest.	Ryan, 1987
				0.01 metals	Ryan, 1987
EF	=	exposure frequency	days/year	20 const. worker	one month (prof. judgement)
				250 daily worker	USEPA, 1991
ED	=	exposure duration	years	1 const. worker	one event per lifetime (prof. judgem
				5 daily worker	short-term
BW	=	body weight	kg	70	USEPA, 1991
AT	=	averaging time (carcinogens)	days	25550 carcinogens	USEPA, 1991
	=	averaging time (daily workers)	days	1825 non-cancer	USEPA, 1991
	=	averaging time (const. workers)		365 non-cancer	USEPA, 1991
DOSE	=	estimated daily dose	mg/kg-day	see below	calculated
CSF	=	cancer slope factor	$(mg/kg\text{-}day)^{-1}$	see below	
RISK	=	incremental cancer risk	unitless	see below	calculated
RfD	=	reference dose	mg/kg-day	see below	
HI	=	hazard index	unitless	see below	calculated

TABLE 4
Toxicity Values

Niagra Mohawk Power Corp.
Water Street
Troy, New York

Chemical Name	CAS Number	C Oral RfD		SC Oral RfD		Weight-of-Evidence		Oral Cancer Slope Factor	
		mg/kg-day	Source	mg/kg-day	Source	Class	Source	kg-day/mg	Source
acenaphthene	83-32-9	0.06	IRIS (1994)	0.6	HEAST (07/93)	NA	NA		NA
acenaphthylene	208-96-8	0.6	structural similarity to acenaphthene	0.6	structural similarity to acenaphthene	D	IRIS (1994)		NA
anthracene	120-12-7	0.3	IRIS (1994)	3	HEAST (07/93)	D	IRIS (1994)		NA
antimony	7440-36-0	0.0004	IRIS (1994)	0.0004	HEAST (07/93)	NA	NA		NA
arsenic	7440-38-2	0.0003	IRIS (1994)	0.0003	HEAST (07/93)	A	IRIS (1994)	1.75	IRIS (1994)
benzene	71-43-2		NA		NA	A	IRIS (1994)	0.029	IRIS (1994)
benzo(a)anthracene	56-55-3		NA		NA	B2	IRIS (1994)	0.73	USEPA, 1993
benzo(a)pyrene	50-32-8		NA		NA	B2	IRIS (1994)	7.3	IRIS (1994)
benzo(b)fluoranthene	205-99-2		NA		Contact TSC	B2	IRIS (1994)	0.73	USEPA, 1993
benzo(k)fluoranthene	207-08-9		NA		NA	B2	IRIS (1994)	0.073	USEPA, 1993
beryllium	7440-41-7	0.005	IRIS (1994)	0.005	HEAST (07/93)	B2	IRIS (1994)	4.3	IRIS (1994)
cadmium	7440-43-9		NA		NA	B1	IRIS (1994)		NA
carbazole	86-74-8		NA		NA	B2	HEAST (07/93)	0.02	HEAST (07/93)
chromium (hexavalen	18540-29-9	0.005	IRIS (1994)	0.02	HEAST (07/93)	A	IRIS (1994)		NA
chrysene	218-01-9		HEAST (07/93)		NA	B2	IRIS (1994)	0.0073	USEPA, 1993
cyanide	57-12-5	0.02	IRIS (1994)	0.02	HEAST (07/93)	D	IRIS (1994)		NA
dibenz(a,h)anthracen	53-70-3		NA		NA	B2	IRIS (1994)	7.3	USEPA, 1993
dibenzofuran	132-64-9		HEAST (07/93)		NA	D	IRIS (1994)		NA
dieldrin	60-57-1	0.00005	IRIS (1994)	0.00005	HEAST (07/93)	B2	IRIS (1994)	16	IRIS (1994)
endrin	72-20-8	0.0003	IRIS (1994)	0.0003	HEAST (07/93)	D	IRIS (1994)		NA
ethylbenzene	100-41-4	0.1	IRIS (1994)	0.1	Contact TSC	D	IRIS (1994)		NA
fluoranthene	206-44-0	0.04	IRIS (1994)	0.4	HEAST (07/93)	D	IRIS (1994)		NA
fluorene	86-73-7	0.04	IRIS (1994)	0.4	HEAST (07/93)	D	IRIS (1994)		NA
hexane, n-	110-54-3	0.06	HEAST (07/93)	0.6	HEAST (07/93)	NA	NA		NA
indeno (1,2,3-cd)pyre	193-39-5		NA		NA	B2	IRIS (1994)	0.73	USEPA, 1993
manganese (food)	7439-96-5	0.14	IRIS (01/01/93)	0.14	HEAST (03/93)	D	IRIS (1994)		NA
mercury	7439-97-6	0.0003	HEAST (07/93)	0.0003	HEAST (07/93)	D	IRIS (1994)		NA
methylene chloride	75-09-2	0.06	IRIS (1994)	0.06	HEAST (07/93)	B2	IRIS (1994)	0.0075	IRIS (1994)
2-methylnaphthalene		0.04	structural similarity to naphthalene	0.4	structural similarity to naphthalene				
methylphenol, 2-	95-48-7	0.05	IRIS (1994)	0.5	HEAST (07/93)	C	IRIS (1994)		IRIS (1994)
methylphenol, 4-	106-44-5	0.005	HEAST (11/93)	0.005	HEAST (11/93)	C	IRIS (1994)		IRIS (1994)
naphthalene	91-20-3	0.04	struct. similarity to fluoranthene	0.4	struct. similarity to fluoranthene	D	IRIS (1994)		NA
nickel	7440-02-0	0.02	IRIS (1994)	0.02	HEAST (07/93)	NA	NA		IRIS (03/01/94)
phenanthrene	85-01-8	0.03	structural similarity to pyrene	0.3	structural similarity to pyrene	D	IRIS (1994)		NA
phenol	108-95-2	0.6	IRIS (1994)	0.6	HEAST (07/93)	D	IRIS (1994)		NA
pyrene	129-00-0	0.03	IRIS (1994)	0.3	HEAST (07/93)	D	IRIS (1994)		NA
toluene	108-88-3	0.2	IRIS (1994)	2	HEAST (07/93)	D	IRIS (1994)		NA
xylene, m-	108-30-3	2	HEAST (07/93)	2	Contact TSC	NA	NA		NA
selenium	7782-49-2	0.005	IRIS (1994)	0.005	HEAST (07/93)	D	IRIS (1994)		NA
thallium	7440-28-0		NA		NA	NA	NA		NA
zinc	7440-66-6	0.3	IRIS (1994)	0.3	HEAST (07/93)	D	IRIS (1994)		NA

TABLE 5

Cancer Risk Estimates -- King Oil Subsurface Soil

Niagra Mohawk Power Corp.
Water Street
Troy, New York

CANCER RISK -- CONSTRUCTION WORKER				
COMPOUND	CS µg/kg	DOSE mg/kg-day	CSF $(mg/kg\text{-}day)^{-1}$	TOTAL RISK
INGESTION				
Benzene	1500	2E-09	0.029	5E-11
Benzo (a) anthracene	348916	4E-07	0.73	3E-07
Benzo (b) fluoranthene	945321	1E-06	0.73	8E-07
Benzo (k) fluoranthene	1064115	1E-06	0.073	9E-08
Benzo (a) pyrene	1183493	1E-06	7.3	1E-05
Carbazole	918200	1E-06	0.02	2E-08
Chrysene	338834	4E-07	0.0073	3E-09
Dibenz (a,h) anthracene	261367	3E-07	7.3	2E-06
Indeno (1,2,3-cd) pyrene	521095	6E-07	0.73	4E-07
Dieldrin	65	7E-11	16	1E-09
Arsenic	17174	2E-08	1.75	3E-08
Beryllium	1557	2E-09	4.3	7E-09
DERMAL CONTACT				
Benzene	1500	2E-08	0.029	6E-10
Benzo (a) anthracene	348916	2E-06	0.73	2E-06
Benzo (b) fluoranthene	945321	6E-06	0.73	4E-06
Benzo (k) fluoranthene	1064115	6E-06	0.073	5E-07
Benzo (a) pyrene	1183493	7E-06	7.3	5E-05
Carbazole	918200	5E-06	0.02	1E-07
Chrysene	338834	2E-06	0.0073	1E-08
Dibenz (a,h) anthracene	261367	2E-06	7.3	1E-05
Indeno (1,2,3-cd) pyrene	521095	3E-06	0.73	2E-06
Dieldrin	65	4E-10	16	6E-09
Arsenic	17174	3E-07	1.75	4E-07
Beryllium	1557	2E-08	4.3	1E-07
TOTAL CANCER RISK				8E-05

TABLE 6
Non-Cancer Risk Estimates -- King Oil Subsurface Soil

Niagra Mohawk Power Corp.
Water Street
Troy, New York

NON-CANCER RISK -- CONSTRUCTION WORKER				
COMPOUND	CS µg/kg	DOSE mg/kg-day	RfD mg/kg-day	HAZARD INDEX WORKER
INGESTION				
Xylene (total)	2368	2E-07	2	9E-08
Acenaphthylene	203350	2E-05	0.6	3E-05
Anthracene	460684	4E-05	3	1E-05
Fluoranthene	863832	7E-05	0.4	2E-04
Fluorene	529589	4E-05	0.4	1E-04
2-Methylnaphthalene	1368680	1E-04	0.4	3E-04
4-Methylphenol	1350578	1E-04	0.005	2E-02
Naphthalene	2289642	2E-04	0.4	4E-04
Phenanthrene	1228870	1E-04	0.3	3E-04
Phenol	1152997	9E-05	0.6	2E-04
Pyrene	540392	4E-05	0.3	1E-04
Dieldrin	65	5E-09	0.00005	1E-04
Endrin	232	2E-08	0.0003	6E-05
Antimony	20360	2E-06	0.0004	4E-03
Arsenic	17174	1E-06	0.0003	4E-03
Beryllium	1557	1E-07	0.005	2E-05
Manganese	3083754	2E-04	0.14	2E-03
Mercury	1819	1E-07	0.0003	5E-04
Selenium	4375	3E-07	0.005	7E-05
Zinc	63950	5E-06	0.3	2E-05
DERMAL CONTACT				
Xylene (total)	2368	2E-06	2	1E-06
Acenaphthylene	203350	8E-05	0.6	1E-04
Anthracene	460684	2E-04	3	6E-05
Fluoranthene	863832	4E-04	0.4	9E-04
Fluorene	529589	2E-04	0.4	5E-04
2-Methylnaphthalene	1368680	6E-04	0.4	1E-03
4-Methylphenol	1350578	6E-04	0.005	1E-01
Naphthalene	2289642	9E-04	0.4	2E-03
Phenanthrene	1228870	5E-04	0.3	2E-03
Phenol	1152997	5E-04	0.6	8E-04
Pyrene	540392	2E-04	0.3	7E-04
Dieldrin	65	3E-08	0.00005	5E-04
Endrin	232	1E-07	0.0003	3E-04
Antimony	20360	8E-07	0.0004	2E-03
Arsenic	17174	7E-07	0.0003	2E-03
Beryllium	1557	6E-08	0.005	1E-05
Manganese	3083754	1E-04	0.14	9E-04
Mercury	1819	8E-08	0.0003	3E-04
Selenium	4375	2E-07	0.005	4E-05
Zinc	63950	3E-06	0.3	9E-06
TOTAL HAZARD INDEX				0.16

TABLE 7
Cancer Risk Estimates -- King Oil Surface Soil

Niagra Mohawk Power Corp.
Water Street
Troy, New York

CANCER RISK -- DAILY WORKER				
COMPOUND	CS μg/kg	DOSE mg/kg-day	CSF $(mg/kg\text{-}day)^{-1}$	TOTAL RISK
INGESTION				
Benzo (a) anthracene	8073	3E-07	0.73	2E-07
Benzo (b) fluoranthene	7357	3E-07	0.73	2E-07
Benzo (k) fluoranthene	6124	2E-07	0.073	2E-08
Benzo (a) pyrene	5871	2E-07	7.3	1E-06
Chrysene	7329	3E-07	0.0073	2E-09
Dibenz (a,h) anthracene	1608	6E-08	7.3	4E-07
DERMAL CONTACT				
Benzo (a) anthracene	8073	3E-06	0.73	2E-06
Benzo (b) fluoranthene	7357	3E-06	0.73	2E-06
Benzo (k) fluoranthene	6124	2E-06	0.073	2E-07
Benzo (a) pyrene	5871	2E-06	7.3	2E-05
Chrysene	7329	3E-06	0.0073	2E-08
Dibenz (a,h) anthracene	1608	6E-07	7.3	4E-06
TOTAL CANCER RISK				3E-05

TABLE 8
Non-Cancer Risk Estimates -- King Oil Surface Soil

Niagra Mohawk Power Corp.
Water Street
Troy, New York

NON-CANCER RISK -- DAILY WORKER				
COMPOUND	CS µg/kg	DOSE mg/kg-day	RfD mg/kg-day	HAZARD INDEX WORKER
INGESTION				
Manganese	573250	3E-04	0.14	2E-03
Zinc	90175	4E-05	0.3	1E-04
DERMAL CONTACT				
Manganese	573250	3E-04	0.14	2E-03
Zinc	90175	5E-05	0.3	2E-04
TOTAL HAZARD INDEX				0.004

APPENDIX E

FISH AND WILDLIFE IMPACT ANALYSIS - STEP 1 REPORT

GROUNDWATER TECHNOLOGY

APPENDIX E

FISH AND WILDLIFE IMPACT ANALYSIS

OF THE

WATER STREET MGP SITE

STEP 1. SITE DESCRIPTION
AREA 2 - KING FUELS PROPERTY

CITY OF TROY

RENSSELAER COUNTY, NEW YORK

Prepared For: Groundwater Technology, Inc.
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April 1995

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1. Introduction

This report was prepared by Environmental Design & Research, P.C. (EDR) in conformance with the document titled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (16). Its purpose is to identify the fish and wildlife resources in the vicinity of the part of the Water Street Manufactured Gas Plant (MGP) site identified as Area 2 (King Fuels property), which could be affected by site-related contaminants. This information will be used to identify potential pathways of contaminant migration through the environment/food chain. It will also be utilized to identify the need for additional sampling/investigation prior to the development of a site remediation plan, and for subsequent evaluation of the potential beneficial and adverse effects of proposed remediation activities.

2. Site Description

The central portion of the Water Street MGP site (Area 2) comprises approximately 50 acres, and includes the former manufactured gas plant. The site is located on the south side of the City of Troy, in Rensselaer County, New York. It is bordered by the Hudson River on the west, the New York Central Railroad on the east, the Chevron USA (Chevron) asphalt batch plant to the south, and extends approximately 150 feet north of the Wynants Kill to the north. Some of the former gas plant facilities, including the large gas holder structure, are located just north of the Wynants Kill. Most of the site is currently occupied by King Fuels, Inc., a heating oil and gasoline distributor. Although most of the structures are abandoned, several of the buildings and tanks from the former gas plant remain in use by King Fuels. The site is relatively level, and most of it is covered with pavement and buildings. Unpaved areas are located along the periphery of the site, and include the steep wooded slopes along the Hudson River and the Wynants Kill.

Although under the ownership of a variety of different companies, the site was used for the production of iron and steel from the mid 1850's to the late 1960's. During that time it was also used for the production of a variety of associated products, including pig iron, coke, gas, tar, pitch, creosote, sulphate of ammonia, and benzol. The gas production facilities on-site were in operation until the mid 1950's. Most of the site was sold by Republic Steel to King Fuels in the 1960's (20).

Site soils are predominantly miscellaneous fill material, consisting of slag, cinders, ash, brick, sand, and gravel. These soils are classified as urban soil by the USDA Soil Conservation Service (28), indicating that asphalt, concrete, buildings, or other impervious materials cover more than 85% of the surface (O'Brien & Gere, Inc., 1994).

3. Methods

To determine the fish and wildlife resources present in the area of the project site, a variety of existing data sources were consulted. These included the following:

1. New York Natural Heritage Program element occurrence reports.
2. NYSDEC significant habitat records and fish survey reports.
3. NYSDEC Freshwater Wetland maps.
4. U.S. Fish and Wildlife Service (USFWS) records.
5. NYSDEC list of Critical Environmental Areas.
6. New York State Breeding Bird Atlas (BBA) data.
7. NYSDEC reports on toxic substances in fish and wildlife.
8. Hydro-electric project license applications.
9. Correspondence with NYSDEC regional fish and wildlife biologists.

It should be noted that there is no USFWS National Wetland Inventory (NWI) map for the area. Fish and wildlife species likely to occur in the area of the project site are listed in Appendix D-A. Written correspondence from the regulatory agencies is included in Appendix D-B.

Review of existing data was supplemented by a one day field review of the site and the surrounding area within a 0.5 mile radius. This survey was undertaken on December 9, 1994 by EDR staff ecologists John D. Hecklau and Barbara C. Reuter (vitae included in Appendix D-C). The purpose of the site visit was to document all plant and animal species and natural communities that occur on and within 0.5 mile of the site. Field survey involved the following activities:

1. Walking the entire site on foot.

2. Identification of plant species in the field and collection of certain specimens for follow-up identification (using taxonomic keys).

3. Identification (both visual and auditory) of wildlife species and their sign (tracks, droppings, bones, nests, etc.).

4. Driving and walking over the area within a 0.5 mile radius of the site (approximately 500 acres) to identify and map discrete natural communities/cover types.

In searching for small mammals, reptiles, and amphibians, rocks, logs, and man-made debris were turned over and examined. No sampling of fish or other aquatic organisms was undertaken. Classification of cover types was in general conformance with the publication titled *Ecological Communities of New York State* (22). The field survey also involved a qualitative assessment of the condition and value of all species and habitats observed.

4. Site Maps

Figure D-1 shows the location of the project site (Area 2) on the South Troy USGS topographic map (1" = 2,000' scale). It also identifies all significant fish and wildlife resources documented within a 2.0 mile radius of the site (based on information provided by the New York Natural Heritage Program, NYSDEC, and USFWS). As this map indicates, there are five state regulated wetlands, two significant coastal fish and wildlife habitats, and three documented rare plant locations within this 2.0 mile radius. The significant coastal fish and wildlife habitats include the Menands marsh, an important freshwater wetland, and Postenkill Creek, an area that is significant for anadromous fisheries (i.e. provides spawning habitat for striped bass, American shad, and other species). Both of these areas are over a mile away from the project site. The documented rare plants include green rock-cress (*Arabis missouriensis*), woodland bluegrass (*Poa sylvestris*), and Virginia ground-cherry (*Physalis virginiana*). The locations of all of these plants are listed as "historic" by the Natural Heritage Program, and all are located on the west side of the Hudson River, over 1.5 miles from the project site (19).

Figure D-2 illustrates the natural communities/cover types that occur on the project site and within a 0.5 mile radius of the site. This figure was developed based on interpretation of 1" = 600' scale aerial photographs (1992) supplemented by field review/ground truthing. To the extent possible, natural communities as defined by the New York Natural Heritage Program (22) were used as the basis for the development of this map. Where appropriate, these communities were combined into similar assemblages to arrive at the final cover type map presented in Figure 2. Descriptions of the species composition, age, and structural characteristics of each cover type are described in the Ecological Communities/ Habitat section of this report.

Figure D-3 is a site drainage map that shows site topography and the direction of surface water drainage from the site following rain fall or snow melt. Because no topographic survey of the site was reviewed, this map is simply an enlargement of the USGS 7.5 minute topographic map (South Troy). As the drainage map illustrates, the site is essentially level, except along the banks of the Hudson river and the Wynants Kill. The eastern perimeter of the site is enclosed by a concrete wall, and all runoff quickly enters the adjacent water courses. Most surface runoff is conveyed to the Hudson River through an on-site storm sewer system (20).

5. Description of Fish and Wildlife Resources

5.1. Species

A total of 69 different plant species (including trees, shrubs, and herbs), and 23 species of wildlife were observed on or surrounding the project site on December 9, 1994. These species are identified in Appendix D-A. Because of the timing of the field survey, observed species were limited to those that are on-site and active during the winter. Breeding and migratory species of birds were not present, nor were any reptiles and amphibians, which would be hibernating (below the ground or within underwater sediments) at this time of year. However, based on existing data sources and habitat conditions, it is estimated that a total of approximately 163 different wildlife species and 77 species of fish are likely to occur within 0.5 mile of the study area (see Appendix D-A for all common and scientific names). A brief discussion of the species likely to occur in the area is presented below.

5.1.1. Birds

The project site is wholly included within New York State Breeding Bird Atlas (BBA) sampling block 6072-A. This block is five (5) km^2 in size, and includes areas outside of the boundaries of the study area. However, BBA data are fairly representative of the breeding bird population found within a 0.5 mile radius of the site, and indicate that approximately 60 species nest in the general region (2). Field review of the site in December of 1994 documented the presence of 15 bird species on and adjacent to the site. These included common winter birds such as northern cardinal, white-breasted nuthatch, blue jay, black-capped chickadee, northern junco, and downy woodpecker.

The vast majority of the bird species documented as occurring on or adjacent to the Water Street MGP site are common seasonal or year-round residents of forested and suburban habitats in the Northeast. The abandoned structures on site provide abundant nesting and roosting areas for common urban species such as pigeon, starling and house sparrow. In addition, a significant gull, shorebird, and waterfowl component can be expected due to the presence of the adjacent Hudson River. Of the breeding birds documented in the area by the BBA, none are on the state or federal lists of endangered or threatened species. However, two species, the eastern bluebird and the common nighthawk, are listed as Special Concern by the NYSDEC. These species are discussed briefly below.

The eastern bluebird suffered a general population decline beginning in the early portion of this century. It is an open country, cavity nesting species, and its population decline can be attributed primarily to habitat loss (succession of abandoned agricultural land to forest cover) and nest site competition from introduced cavity nesters (European starling and house sparrow). However, bluebird populations are currently increasing state-wide, due in large part to the widespread provision of artificial nest boxes. This increase may lead to removal of this species from the Special Concern list (18). Bluebirds are most likely to occur in the larger areas of old field habitat within and adjacent to the study area.

The common nighthawk appears to be suffering a significant population decline within New York State. Rooftops in cities and towns and barren natural areas such as dunes and rock outcrops are preferred nesting sites. The rooftops of abandoned industrial structures on and adjacent to the project site thus represent potential habitat for this species.

Several migrant/transient species which could occur within the study area are currently considered rare in New York State. The bald eagle is listed by the NYSDEC as endangered, and the osprey is listed as threatened. These species often follow major waterways such as the Hudson River during migration, and could utilize trees along the shoreline in the area of the site for roosting. Bald eagles are also reported to use the open portions of the Hudson River (e.g. below the Troy Dam) during the winter as well. However, potential nesting habitat for these species does not occur within 2.0 miles of the project site (Heaslip, pers. comm.).

5.1.2. Mammals

Present populations of mammalian species in the area were documented entirely through field surveys, assessment of habitat suitability, and correspondence with regional NYSDEC personnel (10). These sources indicated the likely occurrence of at least 37 mammal species on or within 0.5 mile of the site, of which eight were observed during the 1994 field survey (see Appendix D-A). Common species include feral cat, gray squirrel, raccoon, woodchuck, and eastern chipmunk. Due to the time of year at which the survey took place, relatively common bats such as eastern pipestrelle, little brown bat, big brown bat, red bat, hoary bat, and silver-haired bat were not observed, although all are likely to occur in the area at some time. The abandoned structures on site provide potential roosting habitat for bats, while the adjacent river corridor provides excellent foraging habitat for these species. Similarly, widely distributed species of small mammal (mice, rats, voles, and shrews), along with opossum, striped skunk, and weasels, also probably occur in the area, although not documented in this survey. No rare or unusual mammal species were observed, and none are considered likely based on existing habitat conditions.

5.1.3. Reptiles and Amphibians

No reptiles or amphibians were observed due to the time of year at which the field survey took place. These cold blooded species hibernate (below the ground or within underwater sediments) during the winter. However, based on the type of habitat available, there are probably at least 17 species of reptiles and amphibians that could be found in the area, including American toad, snapping turtle, painted turtle, garter snake, and bull frog (see Appendix D-A). Most of these species would be expected to occur in the less disturbed terrestrial or aquatic communities along the edge of the Hudson River and the Wynants Kill. The diversity and abundance of reptiles and amphibians is limited by the amount of development/disturbance in the area, and a lack of suitable breeding/nesting habitat (wetlands, vernal pools, undisturbed soils). No rare species of reptile and amphibian are anticipated to occur in the area based on available habitat.

5.1.4. Fish

The Hudson River supports a variety of warmwater and coolwater fish species, including year-round residents as well as seasonal migrants or anadromous species that enter the river as adults to spawn and return to the ocean afterwards. Notable among the latter are striped bass and American shad. Various studies indicate that approximately 77 fish species occur in the upper Hudson River estuary (5). Particularly common species include blueback herring, alewife, American eel, and white perch. This area of the Hudson River supports a high quality and popular recreational fishery for bass, pike, and other warmwater gamefish (14,15). It also provides habitat for one listed endangered fish species; the shortnose sturgeon (5,10,14).

An ecological survey of the lower portion of the Wynants Kill was prepared in 1992, as part of a hydroelectric project application (7). This report indicated that the Wynants Kill, directly upstream of the project site, supports a diverse coolwater/coldwater fish community. Twenty three different species of fish were documented in this portion of the stream, with white sucker, bluegill, fallfish, and brown trout being particularly abundant. NYSDEC personnel report that the Wynants Kill is stocked with trout several miles upstream of the project site, and receives limited use from local fishermen (14).

5.2. Ecological Communities/Habitat

A basic principle of ecology is that the distribution and abundance of fish and wildlife species is directly dependent upon the quality and quantity of available habitat. Habitat is defined as the sum total of environmental factors (including food, cover, and water) that a given species of animal needs to survive and reproduce in a given area (27). Seven separate terrestrial and aquatic communities were identified on or within 0.5 mile of the project site. The characteristics of these communities, including dominant plant species, fish and wildlife species observed or expected to occur, and the presence or absence of specific habitat elements, are described below.

5.2.1. Old Field

Old field vegetation occurs at the northern end of Area 2 of the Water Street MGP site (primarily north of the Wynants Kill), and in the northern portion of the larger study area (within a 0.5 mile radius of the site). This community type is dominated by grasses and forbs, and is similar to the successional old field community described by Reschke (22). The dominant plant species in this community include Canada goldenrod, Kentucky bluegrass, heath aster (as well as other aster species), spotted knapweed, Queen Anne's lace, and red clover. Other species present include chicory, common milkweed, foxtail, evening primrose, mullein, crown vetch, and English plantain. Several saplings of cottonwood and black locust are also present in some areas.

Unmowed fields of grass and low herbaceous vegetation are essential foraging and nesting habitat for open country bird species such as eastern meadowlark, bobolink, killdeer, horned lark, and several species of sparrow. However, these species typically require larger sized and less disturbed fields than are available within the Water Street study area. However, the open fields in this area do produce seeds and harbor abundant insect populations. They therefore represent important foraging sites for many bird species. Old fields also provide habitat for mammals such as eastern cottontail, woodchuck, and meadow vole. These species in turn provide a prey base for predators such as hawks, owls, fox, and coyote.

5.2.2. Shrub Upland

Shrub upland vegetation is found interspersed with deciduous forest vegetation in two locations in the eastern portion of the study area, and with old field vegetation in one location on the west side of the Hudson River. It also occurs in small patches and bands adjacent to developed sites throughout the study area. This community type is similar to the successional shrubland described in Reschke (22). Dominant plant species in these areas consist of staghorn sumac, gray birch, and cottonwood. Other common tree and shrub species present include American elm, buckthorn, apple, multiflora rose, honeysuckle, black oak, white oak, white ash, red raspberry, white pine, pin cherry, gray dogwood, bigtooth aspen, and trembling aspen. Common herbaceous species include smooth brome, knapweed, Queen Anne's lace, heath aster, timothy, crown vetch, Kentucky bluegrass, mullein, and evening primrose. Bittersweet and grape are present in the vine layer.

Shrub-dominated communities are perhaps the most common, abundant land use in the state (18). However, this type of habitat is ephemeral (10-20 years in duration), representing an intermediate successional stage between old field and deciduous forest. Certain bird species, such as cuckoos, gray catbird, brown thrasher, eastern kingbird, yellow breasted chat, rufous-sided towhee, American goldfinch, indigo bunting, common yellowthroat and blue-winged warbler, specifically require low bushy vegetation for nesting and escape cover. Shrub and vine species such as silky dogwood, wild grape, honeysuckle, sumac, raspberry, and apple, are common in the shrub upland portions of the study area. These shrubs produce fruit that are highly palatable to mammals such as raccoon, skunk and opossum, and birds such as robin, flicker, cardinal, blue jay, cedar waxwing and ruffed grouse. Shrub uplands also provide food and cover for mammals such as whitetail deer, red fox and eastern cottontail.

5.2.3. Deciduous Forest

Successional deciduous forest occurs on the banks of the Hudson River and the Wynants Kill, and is similar to the successional southern hardwoods community described in Reschke (22). This community is characterized by the presence of mature and pole-sized overstory trees. Dominant species include box-elder, tree-of-heaven, cottonwood, green ash, gray birch, red maple, sugar maple, and black willow. Portions of this community (especially along its border with other communities) also include a diverse shrub understory. Common shrub species include staghorn sumac, buckthorn, pin cherry, and black raspberry. Bittersweet and grape are common vine species. The herbaceous layer contains Kentucky bluegrass and various aster species.

The forested corridors along the Hudson River and Wynants Kill extend beyond the site itself, and in the case of the latter, change somewhat in character and species composition. The Wynants Kill corridor to the east of the project site is dominated by sugar maple, with occasional large cottonwoods and box elders. The understory in this area is dominated by maple and ash saplings, and a sparse forest herb layer including ferns and violets (7). Beyond the river/stream corridors, several additional bands of deciduous forest are found in the southern and central portions of the study area, primarily bordering roads and railroad tracks. These are also similar to the successional southern hardwoods community described in Reschke (22), and are dominated by cottonwood, sugar maple, and gray birch. Varying amounts of shrubs occur in these areas, including gray dogwood, staghorn sumac, and buckthorn.

Areas of deciduous forest located in the eastern and southern portions of the study area are similar to the beech-maple mesic forest described in Reschke (22). The dominant trees in this forest are mature sugar maples, and the understory shrub and herbaceous layers are essentially lacking (presumably due to overstory shading). The forest floor is generally covered with leaf litter. One additional area of deciduous forest occurs in the western portion of the study area in the floodplain along the western shore of the Hudson River. The dominant tree species in this area is cottonwood, with occasional box elder and American elm. The relatively open understory includes scattered shrubs and vines (sumac, brambles, wild grape, and silky dogwood) but is dominated by various old field herbs and grasses. This community type does not correspond directly to any of those described by Reschke (22).

The forested areas on and adjacent to the project site contain several habitat elements that make them attractive to a variety of wildlife species. They include tree species, such as black cherry, that are important sources of food for wildlife. However, mature oaks, hickories, and beech which produce large quantities of hard mast (nuts) are generally lacking. Rough barked trees (e.g. black cherry, black locust, and black willow) provide foraging sites for bark-probing birds (e.g. brown creeper and white-breasted nuthatch), and food storage sites for species such as tufted titmouse and black-capped chickadee.

Another important feature of the forested areas is the presence of fallen and standing deadwood. Fallen branches and logs provide foraging and nesting cover for a variety of species, including eastern cottontail, small mammals, reptiles, and amphibians. Hollow logs are used as cover and food storage sites by species such as gray squirrel, chipmunk, and raccoon. Fallen deadwood also harbors numerous insects and crustaceans which birds and mammals feed on. In addition, trees and branches that fall into the water provide cover for fish as well as basking/resting sites for frogs, turtles, and waterfowl. Standing dead trees and limbs provide foraging sites for insectivorous birds such as woodpeckers, nuthatches, and brown creeper. In addition, some 85 species of North American birds nest and/or roost in dead or deteriorating trees (23). Mammals such as gray squirrel and raccoon also use cavities for shelter and reproduction, utilizing both live and dead trees, while migratory bats are known to roost under loose bark. The lack of really large dead trees on site does, however, limit the availability of cavities suitable for larger wildlife species (e.g. raccoon and wood duck).

Several of the forested areas also display high foliage height diversity and structural complexity, characteristics typically associated with high bird species diversity (12,13). However, as with the old field habitat, the forests on and adjacent to the site are limited in their value to wildlife due to their relatively small size and proximity to human development/disturbance. For this reason, they do not provide suitable nesting habitat for forest interior species such as scarlet tanager, rose-breasted grosbeak, wood thrush, veery, red-eyed vireo, ovenbird, Canada warbler, and black-and-white warbler. The wooded slopes along the Hudson River and the Wynants Kill do, however, provide habitat for migratory songbirds, and serve as important wildlife travel corridors in a largely urbanized area.

5.2.4. Developed/Disturbed

The majority of the project site is developed and dominated by buildings, paved roads, parking areas, storage areas, and piles of debris. This area is also characterized by fairly intense human and vehicular activity. Although primarily paved or built upon, scattered old field and shrub upland vegetation occurs throughout the developed portion of the site, in areas with exposed soil and piles of rubble. A number of plant species are also growing up through cracks in the pavement and on the roofs of buildings. This community type is similar to the urban vacant lot described in Reschke (22). Common species include tree-of-heaven, spotted knapweed, panic grass, foxtail, Kentucky bluegrass, staghorn sumac, Queen Anne's lace, burdock, sweetclover, mullein, and heath aster.

Other types of developed areas occur within the larger study area, including roads, residences, commercial and industrial buildings, and parking lots. These areas are similar to several community types described in Reschke (22) including mowed lawn with/without trees, mowed roadside/pathway, and paved road/path. Some of the roads are bordered by irregularly mowed old field vegetation, while the remainder of the developed areas are typically associated with mowed lawns and maintained gardens. Typical horticultural plantings around the office buildings on the site, as well as in the developed areas surrounding the site, include Norway spruce, Canada yew, white spruce, barberry, white cedar, various maples, various ashes, black willow, various junipers, scotch pine, white pine, privet, burning bush, red-osier dogwood, various crabapples, cottonwood, and catalpa.

These disturbed areas are distinguished from other habitats by the influence of past and on-going human activity and the presence of built structures and associated debris. Wildlife using these areas include many of the mammals and songbirds previously mentioned. In addition, abandoned structures provide nesting, roosting, and denning sites for species such as starling, house sparrow, eastern phoebe, barn swallow, raccoon, squirrels, bats, and small mammals. The refuse found in these areas also provides potential cover for snakes, toads, and small mammals. Lawn and landscaped areas provide some wildlife habitat, especially where they border forested areas or where they include patches of trees and/or shrubs. Mowed lawn areas are used for foraging by certain birds (robin, starling, flicker) and mammals (eastern cottontail, voles, etc.) However, the habitat value of these areas is generally limited due to a lack of adequate cover and fairly intense human disturbance (from residents, pets, vehicles, etc.). These areas will typically receive irregular use by a limited number of wildlife species.

5.2.5. Wetland

The only wetlands that occur within the study area are well removed from the project site. Burdens pond is a impoundment/wetland on the Wynants Kill, approximately 2,400 feet upstream of the project site. The other wetland in the study area occurs across the Hudson River, on the west side of Route 787. Burdens Pond includes a significant open water component, along with a fringe of emergent herbaceous and shrub wetland vegetation, including cattail, rice cutgrass, purple loosestrife, common reed, great bulrush, bur-reed, arrowhead, alder, silky dogwood, and willow. The wetland to the west of Route 787 lacks open water, and is dominated by the same species of shrubs and herbaceous wetland vegetation found at Burdens Pond. Emergent herbaceous vegetation (e.g. cattails) around the edges of the open water areas provide cover for waterfowl, wading birds, turtles and frogs. They also support abundant populations of insects and other invertebrates, which are the basic food items of many species of fish, songbirds, wading birds and bats. Wetlands that are dominated by shrubs (e.g. red osier dogwood, and willows) provide cover, perches, and feeding sites for numerous birds, including herons, warblers, flycatchers, and red-winged blackbird.

5.2.6. Midreach Stream

The Wynants Kill crosses the project site in an east-west direction and is similar to the midreach stream community described in Reschke (22). There is no submerged or emergent aquatic vegetation present in the stream, and the western portion (from the outlet to the Hudson, approximately 700 feet upstream) was relocated, straightened, and channelized within concrete walls in the 1930's. Upstream of the channelized portion, the Wynants Kill has a moderate gradient, with up to 12 inches of water flowing over a gravel/cobble substrate. The stream is characterized by a series of pools and riffles, but generally lacks cover in the form of large rocks, fallen logs, or undercut banks. The stream is well shaded, and the banks in the eastern half of the site are characterized by deciduous forest similar to the successional southern hardwoods described in Reschke (22).

Upstream of the project site, the Wynants Kill drops 138 feet over a distance of approximately 2,400 feet, for an average gradient of 5.75%. The stream in this reach includes several waterfalls and cascades over exposed shale bedrock. The gradient flattens out as it reaches Burden's Pond, approximately 2,400 feet upstream of the project site. An ecological survey report, that was prepared as part of a hydroelectric project application for this site, indicated that this portion of the Wynants Kill is characterized by a bedrock substrate with a sparse scattering of boulders and cobbles. Waterfalls and plunge pools (some up to 50 feet in diameter and 7.0 feet deep) are interspersed with low gradient riffles. A small man-made impoundment is also found in this area. Cover for fish is provided by small amounts of woody debris, boulders, turbulence, and undercut banks. Flows in this portion of the stream ranged from 8.3 to 12.2 cubic feet per second (cfs) under moderately low flow conditions, and water temperatures ranged from 82 degrees F in late June, to 46 degrees F in late October (7).

The Wynants Kill supports a diverse coolwater/coldwater fish community, dominated by white sucker, fallfish, and brown trout. These species are generally concentrated in pools, rather than riffles or runs (7), presumably because of greater water depth and better cover availability. Trout populations are maintained by the stream's cool temperature and high dissolved oxygen content, along with its generally good water quality and habitat characteristics. Along with providing fish habitat, the Wynants Kill is also important to wildlife. Water is one of the habitat elements all wildlife species require. In addition to being used for drinking and bathing, streams also provide food and cover, as well as a travel corridor, for a variety of aquatic, semi-aquatic, and terrestrial species. Such riparian zones are used by wildlife disproportionately more than other types of habitat (3,11).

5.2.7. Tidal River

The Hudson River, from New York City to the Troy dam (at river mile 153), is an estuarial water body. In the vicinity of the project site, the river experiences tidal fluctuations of about 3.7 feet on a daily basis (30). With the exception of a vertical salinity gradient (which terminates well downstream), the Hudson River within the study area conforms with the description of a tidal river, as presented in Reschke (22). In the area of the project site, the Hudson is approximately 900 feet wide, and drains an area in excess of 8,000 square miles. Records from the USGS gaging station at Green Island indicate that the river has a mean annual discharge of 13,580 cfs just upstream of the Troy dam (30). Flows upstream of the dam are regulated to a certain extent (to provide flood control and low flow augmentation) by upstream impoundments, including the Sacandaga Reservoir and Indian Lake. Below the Troy dam, the net downstream flow of the Hudson River varies with the freshwater discharge to the river (generally 2,000-40,000 cfs) and the tidal influx (300,000-400,000 cfs). The river actually flows upstream during flood tides. The Hudson River between the Troy dam and the salt front has been compared to a large freshwater reservoir because of the relatively slow net downstream movement of water (30).

Water quality in the Hudson River is directly related to flow, because of the relatively fixed input of pollutants entering the river from municipal and industrial sources. At high flows, dilution of the pollutants occurs, and many pollutants can be assimilated by the river. However, during low flow periods when the dilution is not as great, the river's capacity to assimilate pollutants is approached or exceeded. Dissolved oxygen in the area of the project site is probably on the order of 4.0 mg/l. Upstream suspended solids concentration averages approximately 6.0 mg/l during the summer period (30).

Between 1947 and the early 1970's, PCB's were discharged into the Hudson River at Hudson Falls and Fort Edward. Consequently, PCB-laden sediments occur along the entire length of the river to varying degrees. With the exception of PCB's, sufficient data is not available on the relationship between the concentration of man-made pollutants and river flow. During the late 1970's, extensive analyses were performed for 14 organic pesticides in the Hudson River at Waterford (upstream of the Troy dam), and none were detected (30).

Previous studies indicate that widespread fish species such as American eel, alewife, American shad, common carp, spottail shiner, white perch, striped bass, and pumpkinseed can be found throughout the upper Hudson River estuary. However, these studies also demonstrate that abundance and diversity of fish in the river varies substantially between habitats and seasons. Catch rates are reportedly highest in vegetated backwaters, and lowest in the vicinity of submerged rock piles (5). The river in the vicinity of the project site is characterized by an abrupt shoreline edge, and a gently sloping gravel substrate that is devoid of vegetation (at least within the zone of tidal influence). Occasional fallen trees and old pilings provide some submerged cover, but no underwater rock piles, submerged weed beds, or coves with emergent wetland vegetation were observed in the area. The river in this area includes an excavated navigation channel that is approximately 12-14 feet deep. In this type of riverine habitat, species such as banded killifish, golden shiner, emerald shiner, tesselated darter, white catfish, brown bullhead, hogchoker, shortnose sturgeon, and occasionally Atlantic tomcod, can be expected (5). The channel habitat is especially important for shortnose sturgeon and hogchoker. Shortnose sturgeon spawn in channel areas in the upper 20 miles of the estuary where substrates are mostly gravel and boulders rather than sands and clays (21). Tributary mouths also contain highly diverse fish aggregations including white sucker, smallmouth bass, redbreast sunfish, yellow perch, and largemouth bass (5). This type of fish community can be expected near the outlet of the Wynants Kill into the Hudson.

Along with providing habitat for a variety of warmwater fish species, the open water of the Hudson River (specifically the ice-free areas below the Troy Dam and at the confluence of the Hudson and Mohawk Rivers) is used by migratory and wintering waterfowl (10,15). However, there is no emergent vegetation and shallow water habitat is extremely limited in the area of the project site. Consequently, the shoreline provides little if any wetland habitat, beyond limited foraging habitat for shorebirds (e.g. great blue heron and sandpipers). Nesting habitat for waterfowl also appears to be limited due to the steep shoreline, lack of thick shoreline vegetation, and absence of suitable tree cavities (for wood duck.) The shoreline of the river, however, does harbor abundant insects, invertebrates (including fresh water mussels, as evidenced by numerous shells), frogs, and fish, all of which serve as important food sources for terrestrial species including herons, mink, and raccoon. It also provides a source of drinking and bathing water for a variety of upland mammals and birds. Waterfowl, frogs, and turtles undoubtedly utilize the partially-submerged fallen trees along the shoreline as basking and resting sites.

5.3. Observations of Stress

There were no observations of physical stress that appeared related to site contamination. However, because plants were dormant at the time of field review, any abnormalities in the size or coloration of foliage (which might indicate stress) could not be documented. The site and surrounding area appear to have a wildlife community typical (in terms of both abundance and diversity) of what one would expect in an urban industrial/residential setting. Any lack of species appeared to be related to a lack of particular habitat elements or the high level of physical disturbance and human activity in the area, rather than site contamination. Existing fisheries data revealed that contamination is well documented in the Hudson River adjacent to the site, but most of the contamination concerns are related to PCB's from upstream industrial facilities (24). Other contaminants documented in Hudson River fish (e.g. TCDD, TCDF, heavy metals, Chlordane, DDT) are unlikely to be associated with the former MGP operation that took place on the project site. Contaminants that could be associated with the site (e.g. aromatic hydrocarbons), could just as easily be associated with any number of other active and abandoned industrial and commercial sources along the Hudson River.

6. Value of Fish and Wildlife Resources

As described in the previous sections, the habitats/cover types within 0.5 mile of the project site have the potential to support a variety of fish and wildlife species. The diversity of cover types in this area, and the unique elements each possesses provide habitat for common aquatic, forest, and early successional species. However, human development (and the associated disturbance and loss of habitat) severely limits the habitat value of terrestrial communities in this area. Sizeable populations of species that typically inhabit urban/suburban areas, such as pigeon, house sparrow, starling, gray squirrel, skunk, opossum, raccoon, and house mouse can be expected. In fact, the site, with its large abandoned structures, interspersed with wooded and aquatic corridors, provides excellent foraging, resting, nesting, and escape cover for all of these species, and large numbers of roosting pigeons were observed at the time of field review. Relatively small numbers of other typical winter bird and mammal species were observed, but the population densities were not considered unusual given the time of year the survey was conducted, the limited availability of undeveloped natural habitat, and the high level of human disturbance. It is these habitat factors, rather than site contamination, that is limiting the size and diversity of on-site wildlife populations.

Despite being in a highly disturbed, urban setting, the aquatic habitats on and adjacent to the site appear to support a healthy and abundant fish population. Existing fish survey data for both the Hudson River and the Wynants Kill indicate a diverse assemblage of common warm water, cool water and (in the case of the Wynants Kill) cold-water fish species. Any limitations on fish abundance and diversity in these water sources is probably due to water temperature and dissolved oxygen conditions (in the Hudson), and less than ideal cover availability (e.g. the bulk-headed portions of the Wynants Kill or the lack of shoreline structure/emergent vegetation on the Hudson), rather than chemical contamination. Significant coastal fish and wildlife habitats have been identified at the Troy Dam and the Poesten Kill, due to their importance to anadromous fisheries (19). Both of these sites are over a mile upstream of the project site, and would not be affected by past or on-going activities on the site.

In terms of the value of the area's fish and wildlife resources to humans, there are some limitations in this regard as well. Because the area is highly developed/urbanized and in private ownership, hunting of game species is not a significant use of the wildlife resource. The greatest value of local wildlife species is probably their availability for observation at backyard feeding stations in the surrounding neighborhoods. There are no nature centers or nature trails within the area, but parkland along the western shore of the Hudson River does provide the public with opportunities for observation of wildlife, especially shorebirds and waterfowl on the river.

There is no significant commercial fishing in this area of the Hudson River. However, according to the NYSDEC, the river provides important spawning habitat for striped bass and American shad, and supports a high quality recreational fishery for smallmouth bass, northern pike and other warm-water species (14). Opportunities for recreational utilization of this resource is limited on the eastern shore of the Hudson River due to a steep-sloping shoreline and lack of available public access. However, the parkland and trails on the western shore of the river, along with boat launch facilities, do provide public fishing access to the river. Shoreline fishing opportunities are also provided by the Wynants Kill, which supports a healthy population of brown trout. However, as on the eastern shore of the Hudson, the value of this resource is limited by access difficulties resulting from steep slopes and private land ownership.

The Hudson River fishery, while providing good recreational opportunities, is limited in value due to the concern over fish contamination. Potentially high levels of PCB's in fish inhabiting this portion of the Hudson River has resulted in a NYS Health Department advisory against eating most species of fish caught in this area (at best, consumption of some species is recommended not to exceed one meal per month). The presence of shortnose sturgeon in the upper Hudson River does offer the opportunity for scientific study of this endangered species.

7. Regulatory Criteria

New York State's stream classification system was developed to protect the highest and best use of state's water resources. This classification system does not necessarily reflect existing water quality or use, but rather its best potential use. The Hudson River within the study area (river miles 130-154), is classified as a Class C water. This indicates that its best use is "for fishing and all other purposes except as a source of water supply for drinking, culinary or food processing purposes and primary contact recreation" (6NYCRR Part 700). The Wynants Kill is also a Class C stream, indicating that its best use is as above. However, based on the data collected by Fernwood-Limne (7), the NYSDEC could recommend upgrading the classification to C(TS), indicating that it supports a self-sustaining population of trout.

Physical, chemical and biological standards have been established for each water quality classification. Water quality standards for waters with a C classification specify a minimum dissolved oxygen level of 4.0 mg/l, although a minimum of 5.0 mg/l and a minimum daily average of 6.0 mg/l is required for trout streams. Dissolved solids can not exceed 500 mg/l, and pH can not be less than 6.5, nor greater than 8.5. The standards for turbidity require no increase that will cause a substantial visible contrast to natural conditions, while standards for oil require no visible oil film or globules of grease. The standards for toxic and deleterious substances generally specify none in amounts that will be injurious to fish life or which, in any manner, shall adversely affect the flavor, color, or odor thereof, or impair the waters for any best usage as determined by their classification. In addition, Class A, B, C, and D waters have established limits for coliform bacteria, thermal discharges, radioactivity, phosphorus and nitrogen, and various chemical substances (6NYCRR Parts 703.2 and 703.3). It should be noted that 6NYCRR Part 701.22 states that "new discharges may be permitted for waters where discharge restriction categories are assigned when such discharges result from environmental remediation projects, projects correcting environmental or public health emergencies, or when such discharges result in a reduction of pollutants for the designated waters."

Criteria for the identification of contaminated sediments have been established by the NYSDEC for 52 non-polar organic compounds or classes of compounds, and 12 metals (17). Sediments with contaminant concentrations that exceed the criteria listed in this document are considered to be contaminated, and potentially causing harmful impacts to marine and aquatic ecosystems. In the Hudson River, the primary concern in this regard is PCB contamination, which is unrelated to past or on-going activities on the project site.

It is the public policy of New York State, as set forth in the freshwater wetlands act, to "preserve, protect and conserve freshwater wetlands and the benefits derived therefrom, to prevent the despoliation and destruction of freshwater wetlands, and to regulate use and development of such wetlands, consistent with the general welfare and beneficial economic, social and agricultural development of the state" (6NYCRR Part 663). To accomplish this goal, a permit is required from the NYSDEC for any activity which may impair the functions and benefits provided by a state regulated wetland (including provision of fish and wildlife habitat). Permit issuance is based on an individual wetland's classification (I-IV), which indicates its ability to perform wetland functions and provide wetland values. For each wetland classification, standards of compatibility and weighing must be met by any proposed activity.

Based on a review of NYSDEC Freshwater Wetland maps, there are two state regulated wetlands within the study area. These include Burdens Pond (wetland TS-102), which is located on the Wynants Kill, approximately 2,400 feet upstream of the project site, and wetland TS-2, which is across the Hudson River, west of Route 787, approximately 1,300 feet from the project site. Given their location, these wetlands would be unaffected by site-related contamination or future remediation activities. Consequently, no activities on or adjacent to the project site would be regulated under Article 24 of the Environmental Conservation Law (6NYCRR Parts 663 and 664). However, the Hudson River and the Wynants Kill, being protected streams (and in the case of the Hudson, also a navigable water), are regulated under Article 15 of the Environmental Conservation Law (6NYCRR Part 608). Disturbance of the bed or banks of such waters cannot occur without a permit issued by the NYSDEC. The basis for the issuance of an Article 15 permit is a determination that the proposed activity is in the public interest, in that it 1) is reasonable and necessary, 2) will not endanger the health, safety and welfare of the people of the State of New York, and 3) will not cause unreasonable, uncontrolled or unnecessary damage to the natural resources of the state.

Although there is no National Wetland Inventory map for the area, field review indicated that, with the exception of Burdens Pond and state regulated wetland TS-2, there are no wetlands that would be under federal jurisdiction within the study area. However, the Hudson River and the Wynants Kill are considered "waters of the United States", and as such, are protected under Sections 401 and 404 of the Clean Water Act of 1977 (33 U.S.C. 1344). Under state laws and regulations governing streams (6NYCRR Part 608.7) the NYSDEC is responsible for issuing Section 401 water quality certification for any activities requiring a federal license or permit to discharge fill into a water of the United States. Under Section 404, a permit is required from the U.S. Army Corps of Engineers (Corps) to discharge dredged or fill material into a water of the United States. The Hudson River, being a navigable water is also protected by the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Under this law, a permit is required from the Corps for any structure or work that take place in, under, or over a navigable water. The criteria for permit issuance by the Corps include 1) compliance with U.S. Environmental Protection Agency guidelines, and 2) weighing of project benefits against the negative aspects of the proposal. This public interest review includes, among other things, fish and wildlife values.

The federally listed endangered shortnose sturgeon, which resides in the Hudson River adjacent to the project site, is protected by the federal Endangered Species Act. Section 7 of this act directs federal agencies to determine if any action they authorize, fund, or conduct may affect listed species or critical habitat. Although there is no designated critical habitat for shortnose sturgeon in the Hudson River, this species, because it occurs and spawns in the area, could be affected by future remediation projects. Consultation with the National Marine Fisheries Service will be required as remediation plans for the Water Street MGP site are developed (8).

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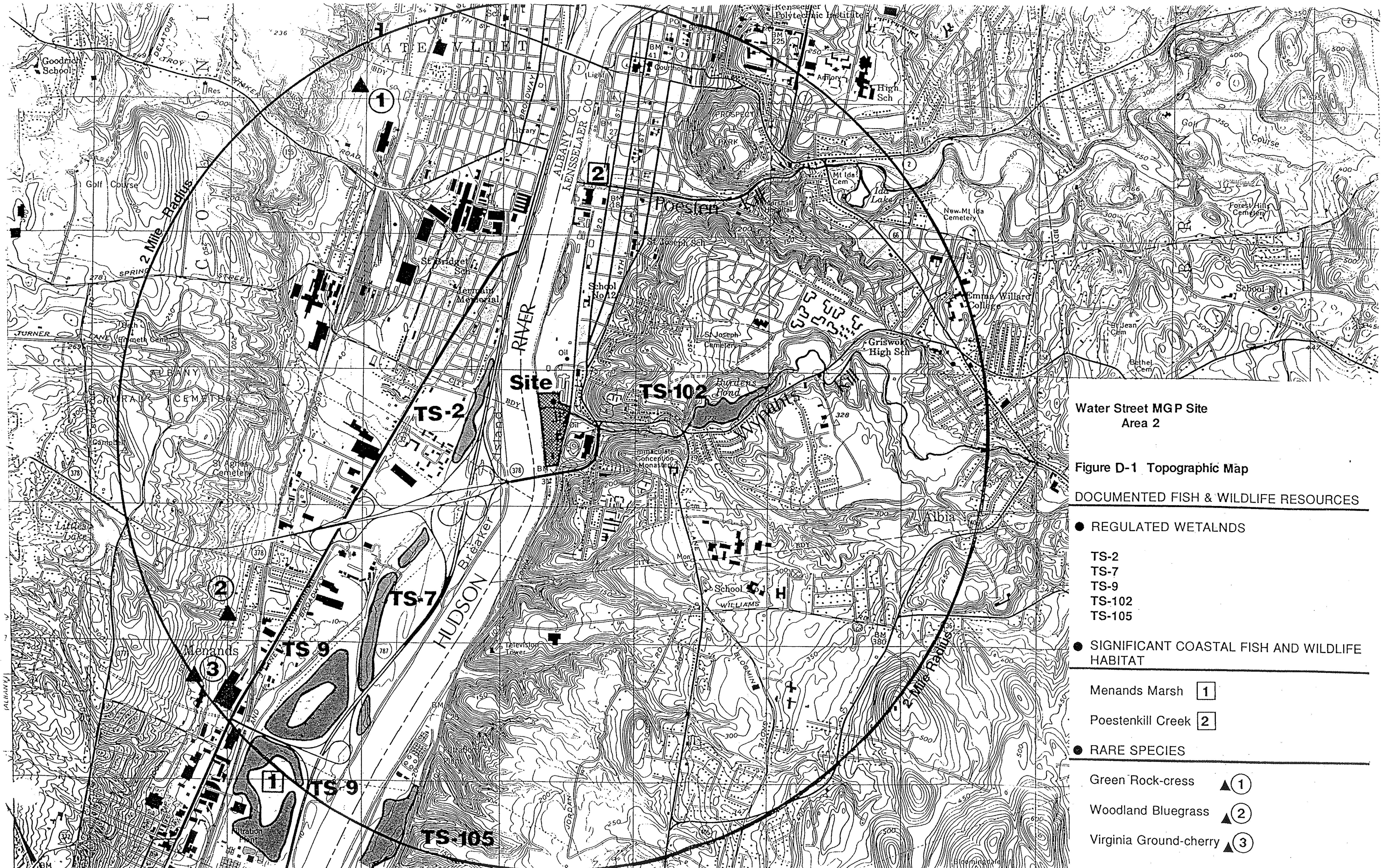
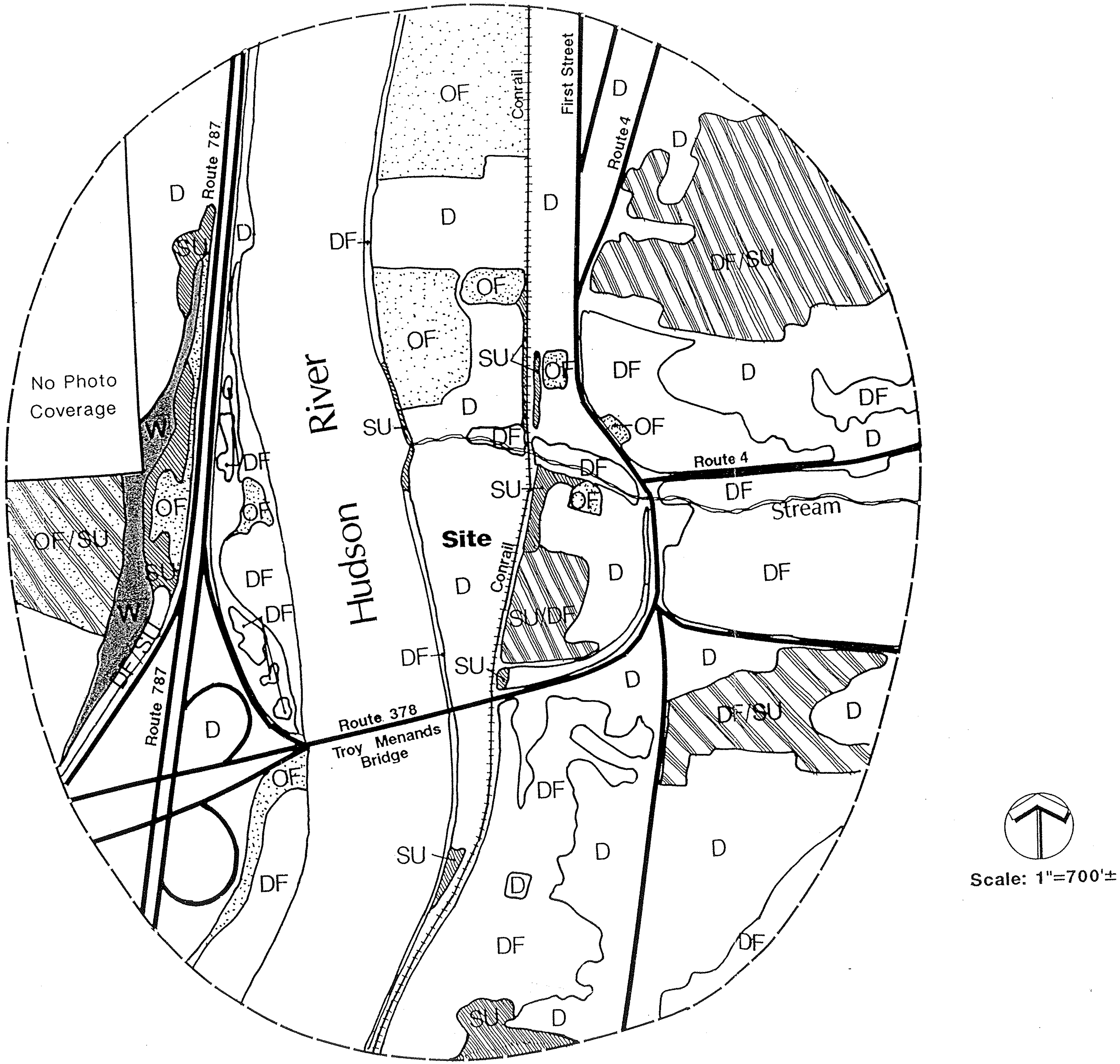
Figures



Water Street MGP Site
Area 2

Figure D-1 Topographic Map



Water Street MGP Site

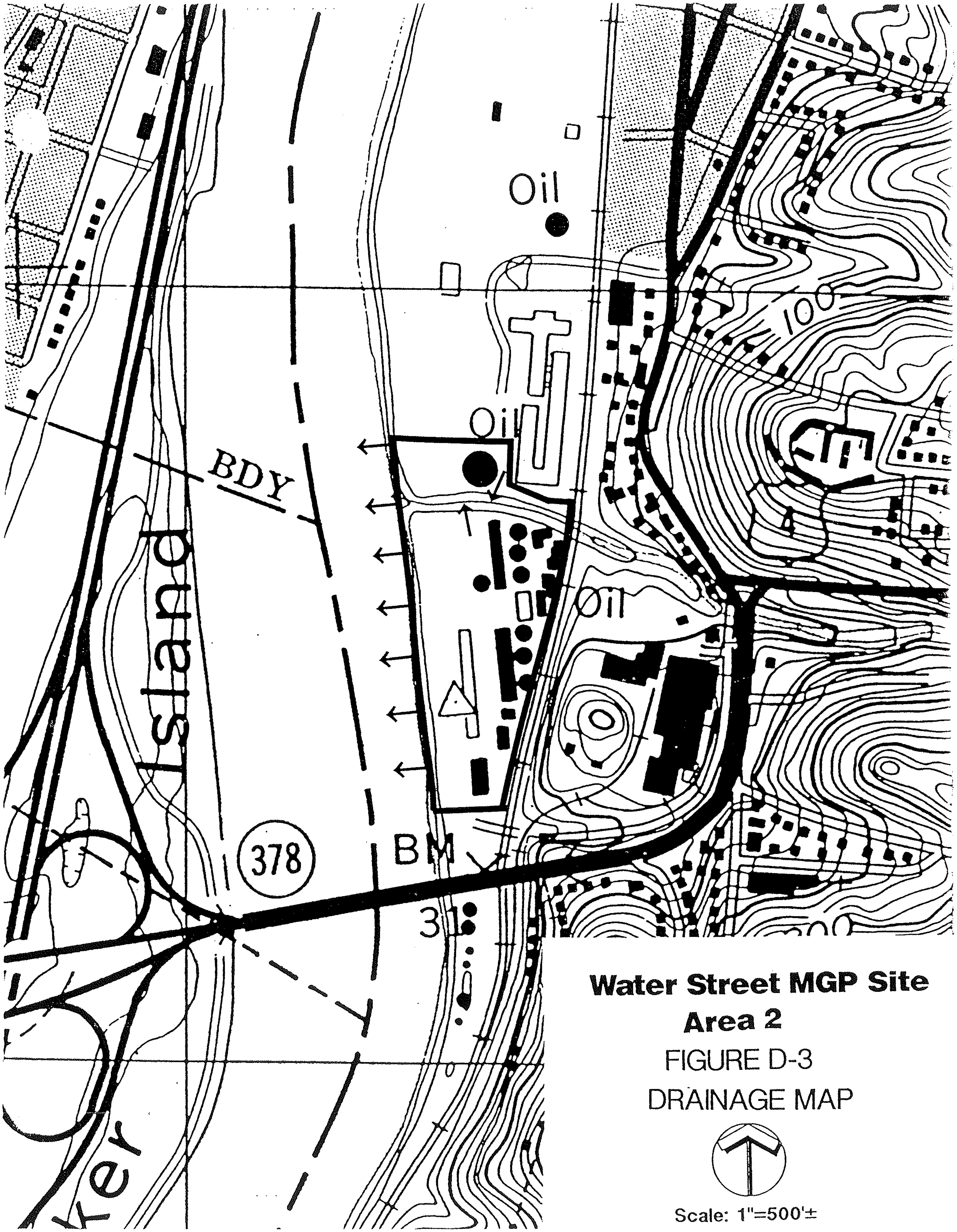
Area 2

FIGURE D-2

COVER TYPE MAP

Legend

DF	Deciduous Forest
SU	Shrub Upland
OF	Old Field
D	Developed
W	Wetland



Water Street MGP Site
Area 2
FIGURE D-3
DRAINAGE MAP

Scale: 1"=500'±

Appendix D-A - Vegetation and Wildlife Species Lists

TABLE 1. WATER STREET MGP SITE, AREA 2 - FISH & WILDLIFE SPECIES[1]

Bird Species[2]

Herons, Bitterns	**Ardeidae**
great blue heron	Ardea herodias
green heron	Butorides striatus
Waterfowl	**Anatidae**
Canada goose	Branta canadensis
mallard	Anas platyrhynchos
American black duck	Anas rubripes
northern pintail	Anas acuta
green-winged teal	Anas crecca
blue-winged teal	Anas discors
redhead	Athya americana
canvasback	Athya valisineria
common goldeneye	Bucephala clangula
ruddy duck	Oxyura jamaicensis
common merganser	Mergus merganser
American Vultures	**Cathartidae**
turkey vulture	Cathartes aura
Hawks	**Accipitridae**
red-tailed hawk*	Buteo jamaicensis
broad-winged hawk	Buteo platypterus
sharp-shinned hawk	Accipiter striatus
American kestrel	Falco sparverius
Grouse	**Tetraonidae**
ruffed grouse	Bonasa umbellus
Quail	**Phasianidae**
ring-necked pheasant	Phasianus colchicus
Turkeys	**Meleagrididae**
wild turkey	Meleagris gallopavo

Plovers	**Charadriidae**
killdeer	Charadrius vociferus
Sandpipers	**Scolopacidae**
solitary sandpiper spotted sandpiper American woodcock	Tringa solitaria Actitus macularia Philohela minor
Gulls, Terns	**Laridae**
herring gull ring-billed gull*	Larus argentatus Larus delawarensis
Pigeons, Doves	**Columbidae**
rock dove* mourning dove*	Columba livia Zenaida macroura
Cuckoos	**Cuculidae**
yellow-billed cuckoo black-billed cuckoo	Coccyzus americanus Coccyzus erythropthalmus
Typical Owls	**Strigidae**
common screech owl great horned owl	Otus asio Bubo virginianus
Goatsuckers	**Caprimulgidae**
common nighthawk	Chordeiles minor
Swifts	**Apodidae**
chimney swift	Chaetura pelagica
Hummingbirds	**Trochilidae**
ruby-throated hummingbird	Archilochus colubris
Kingfishers	**Alcedinidae**
belted kingfisher	Ceryle alcyon

Woodpeckers	**Picidae**
common flicker	*Colaptes auratus*
pileated woodpecker	*Dryocopus pileatus*
red-bellied woodpecker	*Melanerpes carolinus*
yellow-bellied sapsucker	*Sphyrapicus varius*
hairy woodpecker	*Picoides villosus*
downy woodpecker*	*Picoides pubescens*
Flycatchers	**Tyrannidae**
eastern kingbird	*Tyrannus tyrannus*
great crested flycatcher	*Myiarchus crinitus*
eastern phoebe	*Sayornis phoebe*
least flycatcher	*Epidonax minimus*
eastern wood-pewee	*Contopus virens*
Swallows	**Hirundinidae**
tree swallow	*Tachycineta bicolor*
bank swallow	*Riparia riparia*
rough-winged swallow	*Stelgidopteryx serripennis*
barn swallow	*Hirundo rustica*
purple martin	*Progne subis*
Jays, Crows	**Corvidae**
blue jay*	*Cyanocitta cristata*
American crow*	*Corvus brachyrhynchos*
Titmice	**Paridae**
black-capped chickadee*	*Parus atricapillus*
tufted titmouse	*Parus bicolor*
Nuthatches	**Sittidae**
white-breasted nuthatch*	*Sitta carolinensis*
red-breasted nuthatch	*Sitta canadensis*
Creepers	**Certhiidae**
brown creeper	*Certhia americana*

Wrens	**Troglodytidae**
winter wren	Troglodytes troglodytes
house wren	Troglodytes aedon
Mimic Thrushes	**Mimidae**
northern mockingbird	Mimus polyglottos
gray catbird	Dumetella carolinensis
brown thrasher	Toxostoma rufum
Thrushes	**Turdidae**
American robin*	Turdus migratorius
wood thrush	Hylocichla mustelina
veery	Catharus fuscescens
eastern bluebird	Sialia sialis
Waxwings	**Bombycillidae**
cedar waxwing	Bombycilla cedrorum
Starlings	**Sturnidae**
European starling*	Sturnus vulgaris
Vireos	**Vireonidae**
yellow-throated vireo	Vireo flavifrons
red-eyed vireo	Vireo olivaceus
white-eyed vireo	Vireo griseus
warbling vireo	Vireo gilvus
Wood Warblers	**Parulidae**
black and white warbler	Mniotilta varia
blue-winged warbler	Vermivora pinus
yellow warbler	Dendroica petechia
magnolia warbler	Dendroica magnolia
yellow-rumped warbler	Dendroica coronata
chestnut-sided warbler	Dendroica pensylvanica
prairie warbler	Dendroica discolor
ovenbird	Seiurus aurocapillus
common yellowthroat	Geothlypis trichas
American redstart	Setophaga ruticila

Weaver Finches	**Ploceidae**
house sparrow*	Passer domesticus
Blackbirds	**Icteridae**
bobolink	Dolichonyx oryzivorus
eastern meadowlark	Sturnella magna
red-winged blackbird	Agelaius phoeniceus
northern oriole	Icterus galbula
common grackle	Quiscalus quiscula
brown-headed cowbird	Molothrus ater
Tanagers	**Thraupidae**
scarlet tanager	Piranga olivacea
Finches	**Fringillidae**
northern cardinal*	Cardinalis cardinalis
rose-breasted grosbeak	Pheucticus ludovicianus
indigo bunting	Passerina cyanea
evening grosbeak	Hesperiphona vespertina
purple finch	Carpodacus purpureus
house finch	Carpodacus mexicanus
American goldfinch*	Carduelis tristis
rufous-sided towhee	Pipilo erythrophthalmus
savannah sparrow	Passerculus sandwichensis
northern junco*	Junco hyemalis
chipping sparrow	Spizella passerina
field sparrow	Spizella pusilla
white-throated sparrow	Zonotrichia albicollis
fox sparrow	Passerella iliaca
swamp sparrow	Melospiza georgiana
song sparrow	Melospiza melodia

Mammal Species

Opossums	**Didelphiidae**
opossum	Didelphis virginiana
Shrews	**Soricidae**
masked shrew	Sorex cinereus
shorttail shrew	Blarina brevicauda
Moles	**Talpidae**
eastern mole	Scalopus aquaticus
starnose mole	Condylura cristata
Plainnose Bats	**Vespertilionidae**
eastern pipistrel	Pipistrellus subflavus
big brown bat	Eptesicus fuscus
hoary bat	Lasiurus cinereus
red bat	Lasiurus borealis
little brown bat	Myotis lucifugus
Keen myotis	Myotis keenii
silver-haired bat	Lasionycteris noctivagans
Racoons	**Procyonidae**
raccoon*	Procyon lotor
Weasels	**Mustelidae**
shorttail weasel	Mustela erminea
longtail weasel	Mustela frenata
mink	Mustela vison
striped skunk	Mephitis mephitis
Dogs, Wolves, Foxes	**Canidae**
coyote	Canis latrans
red fox*	Vulpes vulpes
gray fox	Urocyon cinereoargenteus

Cats	**Felidae**
house cat (feral)*	Felis catus
Squirrels	**Sciuridae**
woodchuck*	Marmota monax
eastern chipmunk*	Tamias striatus
eastern gray squirrel*	Sciurus carolinensis
red squirrel	Tamiasciurus hudsonicus
southern flying squirrel	Glaucomys volans
Beaver	**Castoridae**
beaver*	Castor canadensis
Mice, Rats, Lemmings, Volves	**Cricetidae**
deer mouse	Peromyscus maniculatus
white-footed mouse	Peromyscus leucopus
meadow vole	Microtus pennsylvanicus
muskrat	Ondatra zibethicus
Old World Rats & Mice	**Muridae**
Norway rat	Rattus norvegicus
house mouse	Mus musculus
Jumping Mice	**Zapeoidae**
meadow jumping mouse	Zapus hudsonicus
woodland jumping mouse	Napaeozapus insignis
Hares, Rabbits	**Leporidae**
eastern cottontail*	Sylvilagus floridanus
Deer	**Cervidae**
whitetail deer	Odocoileus virginianus

Reptile and Amphibian Species

Box and Water Turtles	**Emydidae**
painted turtle	Chrysemys picta
Snapping Turtles	**Chelydridae**
snapping turtle	Chelydra serpentina
Colubrids	**Colubridae**
northern water snake	Natrix sipedon sipedon
northern brown snake	Storeria dekayi dekayi
eastern garter snake	Thamnophis sirtalis sirtalis
eastern milk snake	Lampropeltis triangulum
Newts	**Salamandridae**
red-spotted newt	Notophthalmus viridescens viridescens
Lungless Salamanders	**Plethodontidae**
red-backed salamander	Plethodon cinereus cinereus
northern two-lined salamander	Eurycea bislineata bislineata
Toads	**Bufonidae**
American toad	Bufo americanus
Tree Frogs	**Hylidae**
spring peeper	Hyla crucifer
gray treefrog	Hyla versicolor
True Frogs	**Ranidae**
wood frog	Rana sylvatica
pickeral frog	Rana palustris
northern leopard frog	Rana pipiens
green frog	Rana clamitans melanota
bull frog	Rana catesbeiana

Fish Species[3]

Lampreys	**Petromyzonidae**
silver lamprey	Ichthyomyzon unicuspis
sea lamprey	Petromyzon marinus
Sturgeons	**Acipenseridae**
shortnose sturgeon	Acipenser brevirostrum
Atlantic sturgeon	Acipenser oxyrhynchus
Shads and Herrings	**Clupeidae**
blueback herring	Alosa aestavalis
alewife	Alosa pseudoharengus
American shad	Alosa sapidissima
gizzard shad	Dorosoma cepedianum
Anchovies	**Engraulidae**
bay anchovy	Anchoa mitchilli
Smelts	**Osmeridae**
rainbow smelt	Osmerus mordax
Mudminnows	**Umbridae**
central mudminnow	Umbra limi
Eels	**Angullidae**
American eel	Anguilla rostrata
Needlefishes	**Belonidae**
Atlantic needlefish	Strongylura marina
Codfishes	**Gadidae**
Atlantic tomcod	Microgadus tomcod

Pikes	**Esocidae**
redfin pickerel	*Esox aamericanus*
northern pike	*Esox lucius*
chain pickerel	*Esox niger*
tiger muskellunge	(northern pike x muskellunge)
Sunfishes	**Centrarchidae**
largemouth bass	*Micropterus salmoides*
smallmouth bass	*Micropterus dolomieui*
redbreast sunfish	*Lepomis auritus*
bluegill	*Lepomis macrochirus*
pumpkinseed	*Lepomis gibbosus*
green sunfish	*Lepomis cyanellus*
rock bass	*Ambloplites rupestris*
black crappie	*Pomoxis nigromaculatus*
white crappie	*Pomoxis annularis*
Basses	**Serranidae**
white perch	*Morone americana*
white bass	*Morone chrysops*
striped bass	*Morone saxatilis*
Bluefish	**Pomatomidae**
bluefish	*Pomatomus saltatrix*
Bullhead/Catfishes	**Ictaluridae**
channel catfish	*Ictalurus punctatus*
tadpole madtom	*Noturus gyrinus*
brown bullhead	*Ictalurus nebulosus*
white catfish	*Ictalurus catus*
yellow bullhead	*Ictalurus natalis*
Carps and Minnows	**Cyprinidae**
goldfish	*Carassius auratus*
common shiner	*Notropis cornutus*
golden shiner	*Notemigonus crysoleucas*
rosyface shiner	*Notropis rubellus*
bridle shiner	*Notropis bifrenatus*
spottail shiner	*Notropis hudsonicus*

carp*	Cyprinus carpio
creek chub	Semotilus atromaculatus
bluntnose minnow	Pimephales notatus
fathead minnow	Pimephales promelus
stone roller	Campstoma anomalum
cutlips minnow	Exoglossum maxillingua
satinfin shiner	Notropis analostanus
comely shiner	Notropis amoenus
emerald shiner	Notropis atherinoides
spotfin shiner	Notropis spilopterus
silvery minnow	Hybognathus regins
fallfish	Semotilus corporalis
blacknose dace	Rhinichthys atratulus
longnose dace	Rhinichthys cataractae
Suckers	**Catostomidae**
white sucker	Catostomus commersoni
northern hog sucker	Hypentelium nigricans
shorthead redhorse	Moxostoma macrolepidotum
Sticklebacks	**Gasterosteidae**
fourspine stickleback	Apeltes quadracus
brook stickleback	Culaea inconstans
threespine stickleback	Gasterosteus aculeatus
Killifishes	**Cyprinodontidae**
banded killifish	Fundulus diaphanus
mummichog	Fundulus heteroclitus
Troutperches	**Percopsidae**
trout perch	Percopsis omiscomaycus
Perches	**Percidae**
tessellated darter	Etheostoma olmstedi
greenside darter	Etheostoma blennioides
fantail darter	Etheostoma flabellare
yellow perch	Perca flavescens
walleye	Stizostedion vitreum
logperch	Percina caprodes

Trout	**Salmonidae**
brown trout	Salmo trutta
brook trout	Salvelinus fontinalis
rainbow trout	Salmo gairdneri
Sculpins	**Cottidae**
sculpin	Cottus spp.
Soles	**Solidae**
hogchoker	Trinectes maculatus
Flukes	**Bothidae**
summer flounder	Paralichthys dentatus

Footnotes:

[1]Based on range and suitable habitat conditions.

[2]Also based NYS Breeding Bird Atlas data (Andrle and Carroll, 1987).

[3]Based on previous studies of the Wynants Kill and the upper Hudson River estuary (Field, 1992; Carlson,1989).

*Observed on-site during December 9, 1994 field survey.

TABLE 2. WATER STREET MGP SITE - AREA 2 - PLANT SPECIES

Acer negundo	Box-elder
Acer platanoides	Norway maple
Acer rubrum	Red maple
Acer saccharum	Sugar maple
Acer saccharinum	Silver maple
Ailanthus altissima	Tree-of-heaven
Alliaria officinalis	Garlic mustard
Amaranthus spp.	Pigweed
Ambrosia artemisiifolia	Ragweed
Arctium vulgare	Burdock
Asclepias syriaca	Common milkweed
Aster ericoides	Heath aster
Aster spp.	Asters
Betula populifolia	Gray birch
Carpinus caroliniana	Musclewood
Celastrus scandens	Bittersweet
Centaurea maculosa	Spotted knapweed
Cerastium spp.	Chickweed
Cichorium intybus	Chicory
Circaea alpina	Enchanter's nightshade
Cirsium spp.	Thistle
Conyza canadensis	Horseweed
Cornus sericea	Red-osier dogwood
Dactylis glomerata	Orchard grass
Daucus carota	Queen Anne's lace
Echinochloa muricata	Barnyard grass
Epilobium ciliatum	Willow-herb
Eragrostis spp.	Lovegrass
Euonymus atropurpurea	Burning-bush
Fagus grandifolia	American beech
Fraxinus americana	White ash
Fraxinus pennsylvanica	Green ash
Glechoma hederacea	Gill-over-the-ground
Hieracium spp.	Hawkweed
Hypericum punctatum	Spotted St. John's-wort
Linaria vulgaris	Butter-and-eggs
Lythrum salicaria	Purple loosestrife
Malus spp.	Crabapple
Melilotus spp.	Sweet-clover
Nepeta cataria	Catnip
Oenothera biennis	Evening primrose
Panicum spp.	Panic grass
Phragmites communis	Common reed
Pinus strobus	White pine
Plantago lanceolata	English plantain
Plantago major	Common plantain
Poa pratensis	Kentucky bluegrass
Populus deltoides	Cottonwood
Potentilla recta	Sulfur cinquefoil
Prunus pensylvanica	Pin cherry
Rhamnus cathartica	Buckthorn

Rhus typhina	Staghorn sumac
Robinia pseudo-acacia	Black locust
Rubus idaeus	Red raspberry
Rubus occidentalis	Black raspberry
Rudbeckia hirta	Black-eyed susan
Rumex crispus	Curly dock
Salix nigra	Black willow
Setaria spp.	Foxtail
Solidago canadensis	Canada goldenrod
Taraxacum officinalis	Dandelion
Taxus canadensis	Canada yew
Thlaspi arvense	Field pennycress
Trifolium pratense	Red clover
Ulmus americana	American elm
Verbascum thapsus	Mullein
Vitis aestivalis	Summer grape
Vitis riparia	River grape
Xanthium strumarium	Common cocklebur

NEW YORK STATE BREEDING BIRD ATLAS

›AGE : 1 BLOCK : 6072A COMPLETE BLOCK LISTING

-------------------- NYTM COORDINATES IN METERS --------------------

NORTH : 4730000 SOUTH : 4725000 EAST : 610000 WEST : 605000

-- JURISDICTION (COUNTY-TOWN/CITY,PERCENT) --

|) Rensselaer Co. - Troy - City 35% 2) Albany Co. - Colonie 12%

ṡ) Rensselaer Co. - North Greenbush 50%

:OMMON NAME	SCIENTIFIC NAME	BREED-ING CODE	YEAR	NEW YORK LEGAL STATUS	NATURAL HERITAGE PROGRAM STATE RANK
łallard	Anas platyrhynchos	X1	80	Game Species	S5
ťed-tailed Hawk	Buteo jamaicensis	FL	81	Protected	S5
ımerican Kestrel	Falco sparverius	FL	81	Protected	S5
ťing-necked Pheasant	Phasianus colchicus	X1	80	Game Species	SE
:illdeer	Charadrius vociferus	FL	80	Protected	S5
ťock Dove	Columba livia	N2	82	Unprotected	SE
łourning Dove	Zenaida macroura	FL	80	Protected	S5
:lack-billed Cuckoo	Coccyzus erythropthalmus	X1	81	Protected	S5
astern Screech-Owl	Otus asio	X1	80	Protected	S5
ommon Nighthawk	Chordeiles minor	X1	82	Protected-Special Concern	S4
himney Swift	Chaetura pelagica	X1	80	Protected	S5
orthern Flicker	Colaptes auratus	ON	82	Protected	S5
airy Woodpecker	Picoides villosus	T2	80	Protected	S5
owny Woodpecker	Picoides pubescens	FY	80	Protected	S5
astern Kingbird	Tyrannus tyrannus	FY	81	Protected	S5
astern Phoebe	Sayornis phoebe	X1	84	Protected	S5
ank Swallow	Riparia riparia	FL	81	Protected	S5
orthern Rough-winged Swallow	Stelgidopteryx serripennis	X1	81	Protected	S5
arn Swallow	Hirundo rustica	X1	81	Protected	S5
urple Martin	Progne subis	X1	81	Protected	S5
lue Jay	Cyanocitta cristata	FL	80	Protected	S5
merican Crow	Corvus brachyrhynchos	T2	81	Game Species	S5
lack-capped Chickadee	Parus atricapillus	FY	80	Protected	S5
ufted Titmouse	Parus bicolor	X1	81	Protected	S5
'hite-breasted Nuthatch	Sitta carolinensis	FY	81	Protected	S5
ouse Wren	Troglodytes aedon	D2	80	Protected	S5
łorthern Mockingbird	Mimus polyglottos	FL	81	Protected	S5

Gray Catbird	Dumetella carolinensis	FY	81	Protected	S5
Brown Thrasher	Toxostoma rufum	T2	81	Protected	S5
American Robin	Turdus migratorius	NY	80	Protected	S5
Wood Thrush	Hylocichla mustelina	T2	81	Protected	S5
Veery	Catharus fuscescens	T2	81	Protected	S5
Eastern Bluebird	Sialia sialis	FY	81	Protected-Special Concern	S5
Cedar Waxwing	Bombycilla cedrorum	P2	80	Protected	S5
European Starling	Sturnus vulgaris	FY	81	Unprotected	SE
White-eyed Vireo	Vireo griseus	X1	84	Protected	S4
Red-eyed Vireo	Vireo olivaceus	S2	81	Protected	S5
Blue-winged Warbler	Vermivora pinus	T2	80	Protected	S5
Yellow Warbler	Dendroica petechia	FY	81	Protected	S5
Prairie Warbler	Dendroica discolor	S2	80	Protected	S5
Ovenbird	Seiurus aurocapillus	T2	80	Protected	S5
Common Yellowthroat	Geothlypis trichas	D2	80	Protected	S5
House Sparrow	Passer domesticus	FL	80	Unprotected	SE
Bobolink	Dolichonyx oryzivorus	NE	80	Protected	S5
Eastern Meadowlark	Sturnella magna	FL	80	Protected	S5
Red-winged Blackbird	Agelaius phoeniceus	NE	80	Protected	S5
Northern Oriole	Icterus galbula	FL	81	Protected	S5
Common Grackle	Quiscalus quiscula	FY	81	Protected	S5
Brown-headed Cowbird	Molothrus ater	X1	81	Protected	S5
Scarlet Tanager	Piranga olivacea	T2	81	Protected	S5
Northern Cardinal	Cardinalis cardinalis	S2	80	Protected	S5
Rose-breasted Grosbeak	Pheucticus ludovicianus	T2	81	Protected	S5
Indigo Bunting	Passerina cyanea	P2	80	Protected	S5
House Finch	Carpodacus mexicanus	FY	81	Protected	SE
American Goldfinch	Carduelis tristis	D2	81	Protected	S5
Rufous-sided Towhee	Pipilo erythrophthalmus	FL	81	Protected	S5
Savannah Sparrow	Passerculus sandwichensis	FL	81	Protected	S5
Chipping Sparrow	Spizella passerina	FY	80	Protected	S5
Field Sparrow	Spizella pusilla	FL	81	Protected	S5
Song Sparrow	Melospiza melodia	FY	84	Protected	S5

Appendix D-B - Agency Correspondence

United States Department of the Interior

TAKE PRIDE IN AMERICA

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045

January 11, 1995

Mr. John D. Hecklau
Ecologist
Environmental Design & Research
6007 Fair Lakes Drive
East Syracuse, NY 13057-1253

Dear Mr. Hecklau:

This responds to your letter of December 16, 1994, requesting information on the presence of endangered or threatened species in the vicinity of the inactive hazardous waste site, located east of the Hudson River, north of Route 378, City of Troy, Rensselaer County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the U.S. Fish and Wildlife Service (Service). Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. An updated compilation of Federally listed and proposed endangered and threatened species in New York is enclosed for your information.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under the Fish and Wildlife Coordination Act or other legislation.

However, the Federally listed endangered shortnose sturgeon *(Acipenser brevirostrum)* is found in the Hudson River near the project area. This species is under the jurisdiction of the National Marine Fisheries Service. You should contact Mr. Douglas W. Beach, National Marine Fisheries Service, Habitat Conservation Branch, One Blackburn Drive, Gloucester, Massachusetts 01930-2298.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact:

New York State Department of
Environmental Conservation
Region 4
Route 10, Jefferson Road
Stamford, NY 12167
(607) 652-7364

New York State Department of
Environmental Conservation
Wildlife Resources Center - Information Serv.
New York Natural Heritage Program
700 Troy-Schenectady Road
Latham, NY 12110-2400
(518) 783-3932

The Service's National Wetlands Inventory (NWI) map is not yet available for the Troy South Quadrangle. Any wetlands which may be impacted by the project should be identified and described by the project sponsor using methods suitable for Federal regulatory purposes.

Work in certain waters and wetlands of the United States may require a permit from the U.S. Army Corps of Engineers (Corps). If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without stipulations, or recommend denial of the permit depending upon the potential adverse impacts on fish and wildlife resources associated with project implementation. The need for a Corps permit may be determined by contacting Mr. Joseph Seebode, Chief, Regulatory Branch, U.S. Army Corps of Engineers, 26 Federal Plaza, New York, NY 10278 (telephone: [212] 264-3996).

If you have any questions regarding this letter, contact Tom McCartney at (607) 753-9334.

Sincerely,

Mark W. Clough
ACTING FOR

David A. Stilwell
Acting Field Supervisor

Enclosure

cc: NYSDEC, Stamford, NY (Regulatory Affairs)
NYSDEC, Latham, NY
COE, New York, NY
EPA, Chief, Marine & Wetlands Protection Branch, New York, NY
NMFS, Gloucester, MA

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK

Common Name	Scientific Name	Status	Distribution
FISHES			
Sturgeon, shortnose*	*Acipenser brevirostrum*	E	Hudson River & other Atlantic coastal rivers
REPTILES			
Turtle, green*	*Chelonia mydas*	T	Oceanic summer visitor coastal waters
Turtle, hawksbill*	*Eretmochelys imbricata*	E	Oceanic summer visitor coastal waters
Turtle, leatherback*	*Dermochelys coriacea*	E	Oceanic summer resident coastal waters
Turtle, loggerhead*	*Caretta caretta*	T	Oceanic summer resident coastal waters
Turtle, Atlantic ridley*	*Lepidochelys kempii*	E	Oceanic summer resident coastal waters
BIRDS			
Eagle, bald	*Haliaeetus leucocephalus*	E	Entire state
Falcon, peregrine	*Falco peregrinus*	E	Entire state - re-establishment to former breeding range in progress
Plover, piping	*Charadrius melodus*	E T	Great Lakes Watershed Remainder of coastal New York
Tern, roseate	*Sterna dougallii dougallii*	E	Southeastern coastal portions of state
MAMMALS			
Bat, Indiana	*Myotis sodalis*	E	Entire state
Cougar, eastern	*Felis concolor couguar*	E	Entire state - probably extinct
Whale, blue*	*Balaenoptera musculus*	E	Oceanic
Whale, finback*	*Balaenoptera physalus*	E	Oceanic
Whale, humpback*	*Megaptera novaeangliae*	E	Oceanic
Whale, right*	*Eubalaena glacialis*	E	Oceanic
Whale, sei*	*Balaenoptera borealis*	E	Oceanic
Whale, sperm*	*Physeter catodon*	E	Oceanic
MOLLUSKS			
Snail, Chittenango ovate amber	*Succinea chittenangoensis*	T	Madison County
Mussel, dwarf wedge	*Alasmidonta heterodon*	E	Orange County - lower Neversink River

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

Region 5 - 11/09/94 - 2 pp.

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES IN NEW YORK (Cont'd)

Common Name	Scientific Name	Status	Distribution
BUTTERFLIES			
Butterfly, Karner blue	*Lycaeides melissa samuelis*	E	Albany, Saratoga, Warren, and Schenectady Counties
PLANTS			
Monkshood, northern wild	*Aconitum noveboracense*	T	Ulster, Sullivan, and Delaware Counties
Pogonia, small whorled	*Isotria medeoloides*	T	Entire state
Swamp pink	*Helonias bullata*	T	Staten Island - presumed extirpated
Gerardia, sandplain	*Agalinis acuta*	E	Nassau and Suffolk Counties
Fern, American hart's-tongue	*Phyllitis scolopendrium* var. *americana*	T	Onondaga and Madison Counties
Orchid, eastern prairie fringed	*Platanthera leucophea*	T	Not relocated in New York
Bulrush, northeastern	*Scirpus ancistrochaetus*	E	Not relocated in New York
Roseroot, Leedy's	*Sedum integrifolium* ssp. *Leedyi*	T	West shore of Seneca Lake
Amaranth, seabeach	*Amaranthus pumilus*	T	Atlantic coastal plain beaches

E=endangered T=threatened P=proposed

Region 5 - 11/09/94 - 2 pp.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Northeast Region
Habitat and Protected Resources Division
One Blackburn Drive
Gloucester, MA 01930-2298

January 27, 1995

FEB 0 8 1995

John Hecklau
Environmental Design and Research
6007 Fair Lakes Drive
East Syracuse, NY 13057-1253

Dear Mr. Hecklau:

We reviewed your request for information regarding the presence of shortnose sturgeon (*Acipenser brevirostrum*)in the Hudson River, near Troy, Rensselaer County, New York. Endangered shortnose sturgeon may occur in the lower 243 kilometers (km) of the Hudson River, although they are found primarily between Haverstraw Bay (@ river km 55) and the Troy Lock and Dam (@ river km 243). Spawning occurs in late April/early May and the best available information indicates that the spawning site is located within the Albany/Rensselaer section of the river. The precise location of this site has yet to be determined.

Section 7 of the Endangered Species Act (§402.14) directs federal agencies to determine if any action they authorize, fund or conduct may affect listed species or critical habitat. There is no designated critical habitat for shortnose sturgeon in the Hudson River. Depending on the nature and extent of any future remediation projects at the Troy project site, shortnose sturgeon may be affected as they occur and may spawn in this region. If a remediation project is planned eventually, you should inform the federal agency responsible for either permitting, funding or carrying out the project to consult with the National Marine Fisheries Service regarding potential impacts to endangered shortnose sturgeon.

If you have further questions about shortnose sturgeon or the Endangered Species Act consultation process, please contact me at (413) 253-8616 or Doug Beach (Protected Species Program Coordinator) at (508) 281-9254.

Sincerely,

Nancy Haley

Nancy Haley
Protected Species Program

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wildlife Resources Center
700 Troy-Schenectady Road
Latham, NY 12110-2400 (518) 783-3932

Langdon Marsh
Commissioner

January 4, 1995

RECEIVED
JAN 09 1995

John Hecklau
Environmental Design and Research
6007 Fair Lakes Drive
East Syracuse, New York 13057-1253

Dear Mr. Hecklau:

We have reviewed the New York Natural Heritage Program files with respect to your recent request for biological information concerning an inactive hazardous waste site, site as indicated on your enclosed map, located in the Cities of Troy and Colonie, Rensselaer and Albany Counties.

Enclosed is a computer printout covering the area you requested to be reviewed by our staff. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program.
Also enclosed is the Breeding Bird Atlas information for this area.

Our files are continually growing as new habitats and occurrences of rare species and communities are discovered. In most cases, site-specific or comprehensive surveys for plant and animal occurrences have not been conducted. For these reasons, we can only provide data which have been assembled from our files. We cannot provide a definitive statement on the presence or absence of species, habitats or natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

This response applies only to known occurrences of rare animals, plants and natural communities and/or significant wildlife habitats. You should contact our regional office, Division of Regulatory Affairs, at the address enclosed for information regarding any regulated areas or permits that may be required (e.g., regulated wetlands) under State Law.

If this proposed project is still active one year from now we recommend that you contact us again so that we can update this response.

Sincerely,
Information Services
New York Natural Heritage Program

Encs.
cc: Reg. 4, Wildlife Mgr.
Reg. 4, Fisheries Mgr.

BIOLOGICAL AND CONSERVATION DATA SYSTEM - ELEMENT OCCURRENCE REPORT, 03 JAN 1995
Prepared by N.Y.S.D.E.C NATURAL HERITAGE PROGRAM

(This report contains sensitive information which should be treated in a sensitive manner. Refer to the users guide for explanation of codes and ranks.)

COUNTY & TOWN	USGS 7 1/2' TOPOGRAPHIC MAP	LAT./ LONG.	PREC-ISION	LAST SEEN	EO RANK	SCIENTIFIC NAME	COMMON NAME	ELEMENT TYPE	NY STATUS	FED. STATUS	GLOBAL RANK	STATE RANK	OFFICE	USE
* ALBANY														
COLONIE	TROY SOUTH	424340 734314	M	1960	H	ARABIS MISSOURIENSIS	GREEN ROCK-CRESS	VASCULAR PLANT	R		G5	S2	4207366	2
COLONIE	TROY SOUTH	424117 734407	M		H	PHYSALIS VIRGINIANA	VIRGINIA GROUND-CHERRY	VASCULAR PLANT	U		G5	SH	4207366	5
COLONIE	TROY SOUTH	424132 734356	M		H	POA SYLVESTRIS	WOODLAND BLUEGRASS	VASCULAR PLANT	U		G5	S1	4207366	6

3 Records Processed

SIGNIFICANT HABITATS

DATE : 01/03/95

REPORT ID#	NAME OF AREA	TYPE OF AREA	COUNTY	TOWN OR CITY	QUADRANGLE	LATITUDE (DEG MIN SEC)	LONGITUDE (DEG MIN SEC)
* PW 01-501	Menands Marsh	Freshwater Wetland	Albany	Colonie	Troy South	42 40 59	73 43 37
* SW 42-500	Troy Dam Area	Anadromous Fisheries	Rensselaer	Troy - City	Troy North	42 44 48	73 41 20
* SW 42-501	Poestenkill Creek	Anadromous Fisheries	Rensselaer	Troy - City	Troy South	42 43 07	73 41 14

* Designated "Significant Coastal Fish and Wildlife Habitat" by the NYS Dept. of State.

New York State Department of Environmental Conservation

Region 4 Headquarters
1150 North Westcott Road
Schenectady, New York 12306
Phone (518) 357-2066
Fax (518) 357-2087

Langdon Marsh
Commissioner

RECEIVED
FEB 09 1995

February 2, 1995

Mr. John Hecklau
Environmental Design and Research
6007 Fair Lakes Drive
East Syracuse, NY 12057-1253

Dear Mr. Hecklau:

I reviewed our files concerning significant fish and wildlife resources within two miles of the two inactive hazardous waste sites in the city of Troy shown on the attached map. I also consulted with Norm McBride the fisheries biologist responsible for Rensselaer County.

Basically, the fish resources of significance in the area of concern are anadromous fishes, specifically striped bass, blueback herring, American shad and alewives. The very lower reaches of the Poestenkill Creek have been identified as significant for their spawning activities. Shortnose sturgeon may also use reaches of the Hudson River as far north as the Troy Dam.

Bald eagles, an endangered species in New York is regularly seen along the Hudson River. Most observations of eagles in the vicinity of the two inactive hazardous waste sites are reported during spring and fall migration periods, but eagles use open portions of the Hudson River during the winter as well. In addition, ospreys, a threatened species, are observed along the Hudson River during migration. I have no reason to believe that there is potential nesting habitat for either of these species within two miles of the sites, however.

The only other significant wildlife resources that I am aware of in the general area are waterfowl using portions of the Hudson River that remain free of ice during the winter. What are considered significant winter waterfowl concentration areas in the vicinity of the inactive hazardous waste sites are downstream of the Troy Dam and the area around the confluence of the Hudson and Mohawk Rivers. Portions of the winter waterfowl concentration area associated with the Troy Dam are within two miles of northern most of the two inactive hazardous waste sites.

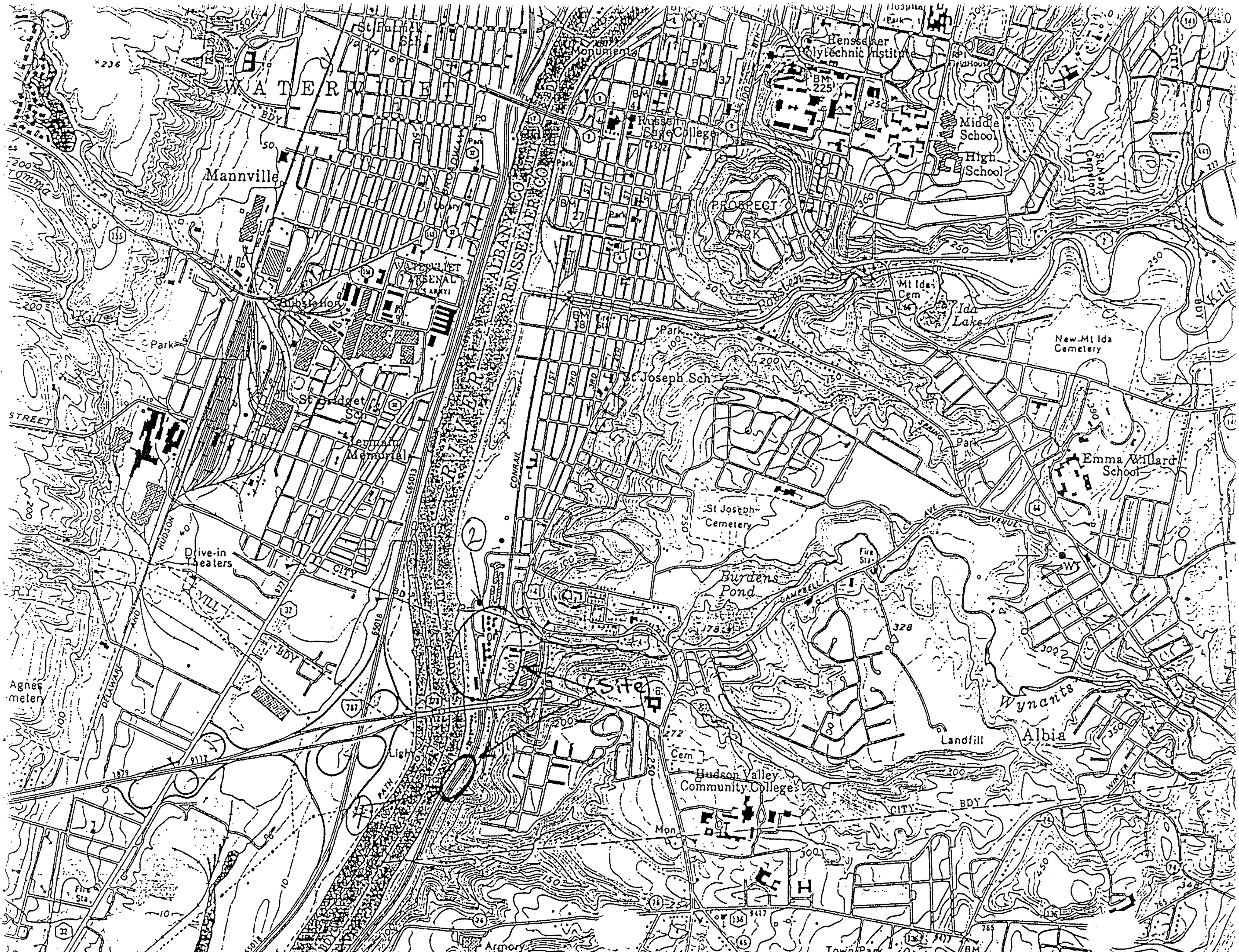
The waterfowl that concentrate in these areas are primarily Canada geese, black ducks and mallard ducks. Various species of gulls also use the area. To find out more about exactly what species use particular portions of the Hudson River to what extent you should contact the Hudson-Mohawk Bird Club, 439-8080, Diane Scovill, President of the Capitol District Audubon Society, 383-4048 and Warren Broderick, 235-4041.

I apologize for taking so long to respond to your request for information. If you have additional questions concerning the wildlife resources of the area, please feel free to contact me. Question about fisheries resources should be directed to our fisheries office in Stamford at (607) 652-7364.

Sincerely

Nancy Heaslip

Nancy Heaslip
Senior Wildlife Biologist


WATERVLIET
Mannville
Rensselaer Polytechnic Institute
Russell Sage College
Middle School
High School
PROSPECT PARK
WATERVLIET ARSENAL
Substation
Park
St Bridget Sch
St Joseph Sch
Mt Ida Cem
Ida Lake
New Mt Ida Cemetery
Emma Willard School
St Joseph Cemetery
Burdens Pond
Drive-in Theaters
CONRAIL
RIVER
2
Site
Landfill
Albia
Wynants
Cem
Hudson Valley Community College
Light
Mon
Fire Sta
Armory
Town Park

Appendix D-C - Project Personnel Vitae

John D. Hecklau
Ecologist/Wildlife Biologist

Mr. Hecklau is a wildlife biologist experienced in resource management planning, environmental impact analysis, right-of-way management, wildlife inventory and census techniques, habitat and ecosystem analysis, and recreation planning.

EDUCATION

State University of New York, College of Environmental Science & Forestry
Syracuse, New York
Master of Science in Environmental and Forest Biology, 1982
Specialization: Wildlife Biology

Middlebury College, Middlebury, Vermont
Bachelor of Arts in Biology, 1979

EMPLOYMENT HISTORY

Environmental Design and Research, P.C.
Syracuse, New York
Position: Senior Associate/Director, Environmental Services/Ecologist.
Employed: January 1989 - present.

John D. Hecklau
Clinton, New York
Position: Self-employed Environmental Consultant.
Employed: February 1988 - December 1988.

New York State Power Authority
Marcy, New York
Position: Resource Manager - Environmental Programs Division.
Employed: July 1984 - January 1988.

Connecticut Department of Environmental Protection
Burlington, Connecticut
Position: Wildlife Biologist.
Employed: June 1983 - June 1984.

Central Park Conservancy
New York, New York
Position: Wildlife Consultant.
Employed: August 1982 - May 1983.

PROFESSIONAL EXPERIENCE

Environmental Design and Research, P.C.

Director of Environmental Services section of a multi-disciplinary private consulting firm, and project manager on a variety of environmental inventory, management, and permitting projects. Significant projects have included the following:

- Preparation of a Generic Environmental Impact Statement for a proposed industrial park on a 128-acre site in the City of Watertown, Jefferson County, New York. Also conducted a Phase I Environmental Audit and state and federal wetland delineation on the project site.

- Preparation of portions of a Generic Environmental Impact Statement (GEIS) for a proposed 305-acre office park in the Town of Greece, Monroe County, New York. Conducted a vegetation and wildlife inventory for the site and prepared the Terrestrial and Aquatic Ecology section of the GEIS, along with sections 1) Topography, Geology and Soils, 2) Visual Characteristics, 3) Land Use and Neighborhood Characteristics, 4) Historical and Archaeological Resources, and 5) Recreation and Open Space. Also conducted an on-site wetland delineation, and assisted with preparation and submittal of permit applications and mitigation plans.

- Preparation of Environmental Impact Assessment Report for a proposed natural gas distribution system in the Village of Gouverneur and the Towns of Gouverneur, Fowler, and Edwards, St. Lawrence County, New York. Report included an inventory of environmental resources within the proposed franchise area, as well as an assessment of anticipated impacts and proposed mitigation measures within that portion of the franchise area scheduled to receive gas service within the next five years.

- Provision of on-going assistance to Niagara Mohawk Power Corporation with the federal relicensing of various hydroelectric projects throughout New York State. Prepared a variety of plans, reports, position papers, studies, and responses to agency inquiries. Topics addressed have included land use and recreation, fisheries protection and enhancement, whitewater boating, open space conservation, aesthetic/visual impacts, and cultural resources management.

- Development of comprehensive environmental protection and enhancement plans for the upper Hudson, Sacandaga and Raquette River corridors. These corridors include 29 hydroelectric developments, 22 of which are owned and\or operated by Niagara Mohawk Power Corporation. Reports were prepared to assist with on-going planning efforts and Federal relicensing efforts involving several of these projects.

- Evaluation of environmental impacts of a proposed clay mining operation on a 570-acre site in the Towns of East Bloomfield and West Bloomfield, Ontario County, New York. Study involved a federal wetland delineation, a vegetation and wildlife inventory (including identification of endangered species/critical habitats), and preparation of the Terrestrial and Aquatic Ecology section of the Draft Environmental Impact Statement for the project.

- Development of a comprehensive management plan for the Albany Pine Bush Preserve, a unique pine barren community just west of the City of Albany, Albany County, New York. Project involved extensive data collection, public participation, and close coordination with members of the Albany Pine Bush Preserve Commission. Plan included management recommendations, an implementation plan, and a Draft Environmental Impact Statement that addressed the potential impacts of plan implementation, including land acquisition, fire management, and increased public use.

- Evaluation of the environmental impacts of a proposed natural gas storage project in the Town of Avoca, Steuben County, New York. Study included a wetland inventory and delineation, a vegetation, fish and wildlife inventory (including identification of endangered species and critical habitats and preparation of an ecological resource report for the FERC license application for the project. Report described ecological resources within a 2,360-acre study area, along with potential impacts to these resources resulting from construction and operation of the project, and proposed means of mitigating adverse impacts.

- Numerous projects involving the delineation of wetlands in accordance with the procedures outlined in the 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* and the 1987 *Corps of Engineers Wetlands Delineation Manual.*

- Preparation of visual/aesthetic impact assessments of various hydro developments for Niagara Mohawk Power Corporation. Projects have involved documentation and evaluation of existing conditions, and preparation of computer-assisted visual simulations of potential mitigation measures.

- Preparation of ecological study of Mendon Ponds Park, Monroe County, New York. The park is a designated National Natural Landmark, well known for its variety of rare species and unique natural communities, including fens, bogs, oak openings, and prairie remnants. Study involved species inventory, analysis of ecological value of various areas of the park, and management recommendations for the protection and enhancement of the park's ecological resources.

John D. Hecklau (self-employed)

Provided environmental/ecological consulting services to landscape architecture and planning firms. Specific projects included preparation of 12 vegetation and wildlife inventories, four wetland studies, and three environmental damage assessments. Gathered ecological resource data for two regional land use plans, and wrote a Draft Environmental Impact Statement for a 28 lot residential subdivision in Dutchess County, New York.

New York State Power Authority

Provided environmental support and supervision during the planning, licensing and construction of a major 345kV transmission line. Specific duties included 1) conducting baseline environmental surveys and inventories, 2) reviewing and revising environmental/construction specifications, 3) providing liaison with state regulatory agencies, and 4) monitoring compliance with environmental regulations and commitments during construction.

Assisted with implementation of ongoing right-of-way management program, including revision of existing vegetation management specifications and criteria, field evaluation of vegetation inventory and management techniques, and assistance with development of computerized right-of-way database. Other responsibilities included initiation of various wildlife management programs and studies. These included 1) programs to improve wildlife habitat on right-of-ways and at generating facilities, 2) studies to assess impacts of transmission line construction on wildlife, and 3) an endangered species survey for a proposed 200 mile-long transmission line.

Connecticut Department of Environmental Protection

Prepared a comprehensive development and operation plan for a newly acquired 450-acre wildlife management area and proposed educational facility. Project included coordination of a wildlife species survey, analysis of habitat improvement needs, and conducting of a nationwide survey of existing conservation education facilities and programs.

Central Park Conservancy

Prepared fish and wildlife section of a master plan for the restoration and management of Central Park. Project included conducting an inventory of species and significant habitat areas within the 830-acre park. Report of findings was prepared, which included analysis of habitat value and recommendations for preserving and enhancing park wildlife habitats.

Manomet Bird Observatory

Assisted Director of Environmental Education with preparation and teaching of field and classroom courses regarding ornithology and marine biology. Also assisted research personnel with studies investigating songbird territoriality and shorebird migration.

Minnesota Department of Natural Resources

Conducted research project involving trapping and transplanting of radio-tagged wild turkeys. Investigated mortality, dispersal, and reproduction of birds in three separate populations. Also assisted DNR biologists in wildlife research projects involving trapping and tagging of whitetail deer, and surveys of ruffed grouse and waterfowl.

PROFESSIONAL AFFILIATIONS

The Wildlife Society
- Member
- Certified Wildlife Biologist (Associate)

Town of Kirkland, New York
- Planning Board Chairman

PUBLICATIONS

Hecklau, J.D., C. Palmero, E.T. Liverman and J. deWall Malefyt. 1987. Reducing the environmental impacts of stream crossings on a 345kV transmission line in New York. In W.R. Byrnes and H.A. Holt, eds. Fourth Symp. on Environmental Concerns in Rights-of-Way Manage. Purdue Univ., West Lafayette, IN.

Liverman, E.T., J.D. Hecklau and C. Palmero. 1987. Minimization of soil erosion and siltation during construction of the Marcy-South 345kV transmission facilities. pp. 241-253. In Erosion Control: You're Gambling Without It. Proc. of Conf. XVII. International Erosion Control Assoc., Pinole, CA. 335pp.

Hecklau, J.D. 1986. A wildlife survey and management plan for New York City's Central Park. pp. 238-239. In L.W. Adams and D.L. Leedy, eds. Integrating Man and Nature in the Metropolitan Environment. Proc. Natl. Symp. on Urban Wildl. Natl. Inst. for Urban Wildl., Columbia, MD. 249 pp.

Hecklau, J.D. 1985. Wildlife in Central Park: The problems and opportunities associated with wildlife management in an urban park setting. Trans. Northeast. Fish and Wildl. Conf. 42: 126-137.

Hecklau, J.D., W.F. Porter, and W.M. Shields. 1982. Feasibility of transplanting wild turkeys into areas of restricted forest cover and high human density. Trans. Northeast. Fish and Wildl. Conf. 39: 96-104.

Environmental Design & Research
Landscape Architecture, Surveying, Engineering, P.C.

Barbara C. Reuter
Botanist/Ecologist

Ms. Reuter is a botanist with a broad range of experience in wetland delineation, permitting and mitigation, environmental impact analysis, vegetation inventory and sampling techniques, and ecosystem analysis.

EDUCATION

University of Wisconsin, Madison, Wisconsin
Master of Science in Botany, 1985
Specialization: Plant Population Biology

Iowa State University, Ames, Iowa
Bachelor of Science in Landscape Architecture, 1979

University of Tennessee, Knoxville, Tennessee
Bachelor of Arts in Botany, 1976

EMPLOYMENT HISTORY

Environmental Design & Research, P.C.
Syracuse, New York
Position: Botanist/Wetland Specialist/Ecologist.
Employed: June 1990 - present.

Terrestrial Environmental Specialists, Inc.
Phoenix, New York
Position: Associate Environmental Scientist.
Employed: October 1987 - June 1990.

Texas A&M University Research and Extension Center at Dallas
Dallas, Texas
Position: Research Associate.
Employed: February 1986 - August 1987.

The Nature Conservancy
Madison, Wisconsin
Position: Science and Stewardship Intern.
Employed: September 1982 - January 1984.

6007 Fair Lakes Drive
East Syracuse, NY 13057-1253
(315) 463-0808 FAX (315) 463-9587

53 West Main Street
Honeoye Falls, New York 14472-1130
(716) 624-7290 FAX (716) 624-7298

The Bruce Company
Middleton, Wisconsin
Position: Landscape Architect.
Employed: March 1980 - September 1982.

PROFESSIONAL EXPERIENCE

Environmental Design and Research, P.C.

Botanist/Ecologist and Wetland Specialist in the Environmental Services Division of EDR, and project manager on a variety of environmental inventory, management, and permitting projects. Involved in the preparation and distribution of marketing materials for the Environmental Services Division. Significant projects have included the following:

- Project manager for numerous projects involving the delineation of wetlands in accordance with the procedures outlined in the 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* and the 1987 *Corps of Engineers Wetlands Delineation Manual.* Along with boundary delineation and data collection in the field, these projects have generally involved preparation of a wetland delineation report in accordance with Corps' standards, and submission of Sections 404 and 401 (and when appropriate, Section 10 and Article 24) permit applications.

- Project manager for several projects involving the delineation of state regulated wetlands. EDR's role in these projects has typically been to review existing documentation to determine the possible presence of state regulated wetlands on the site, and then contact the appropriate NYSDEC Regional Office to coordinate a field visit to delineate the wetlands according to the NYSDEC's methodology. In certain instances, EDR has delineated state wetland boundaries prior to NYSDEC arrival on site and then subsequently reviewed the delineated boundary with NYSDEC staff.

- Evaluation of existing ecological conditions on a 570-acre site proposed as a clay mine operation in the Towns of East Bloomfield and West Bloomfield, Ontario County, New York. The study included a vegetation and wildlife inventory (including identification of endangered species and critical habitats), and preparation of a Vegetation and Wildlife Survey report for inclusion in the Draft Environmental Impact Statement (DEIS) for the project. Potential project impacts on ecological resources were identified, and means of mitigating impacts to wetlands were recommended. Provided agency liaison to the project sponsor and, as part of the wetland permit conditions, developed a detailed mitigation plan (including construction drawings and specifications) for impacts to the on-site wetlands.

- Developed a wetland design to mitigate for impacts to approximately 2.0 acres of freshwater wetland on a transmission line right-of-way along Chittenango Creek in Onondaga and Madison Counties. Performed a detailed wetland delineation according to the federal methods in the proposed mitigation area, and then prepared a conceptual wetland design and mitigation plan. Provided agency liaison to the Authority and prepared construction specifications, construction drawings, and a post-construction monitoring plan. Technical support and on-site supervision were also provided during the construction phase of the project.

- Developed and implemented a comprehensive wetland/natural areas enhancement program to mitigate the impacts of a 305-acre corporate business park being constructed in the Town of Greece, New York. The program involved the creation of 32.5 acres of natural areas, including open water habitat, emergent and submergent wetland, and a complex of open field, shrub, and forested upland. Worked closely with the engineers, landscape architects, and project sponsor to develop a detailed planting plan for the wetland and upland areas along with planting specifications and an open space management plan. Performed the on-site wetland delineation, submitted permit applications and mitigation plans, and functioned as the liaison between the project sponsor and the involved agencies (the Corps, the NYSDEC, the U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency).

- Assisted a large waste disposal company with the preparation and submittal of wetland permit applications to the Corps and NYSDEC in association with the proposed expansion of an existing landfill in the Town of Perinton, Monroe County, New York. Wetland issues involved in this project included impacts to a NYSDEC wetland buffer area, relocation of a gas pipeline through a NYSDEC regulated wetland, and maintenance of a NYSDEC and Corps regulated stream. Specific tasks included the review of all data pertaining to the proposed expansion, identification of all wetland issues involved, review of previous wetland investigations, on-site wetland delineation, and preparation of applications for all required wetland permits.

- Conducted a wetland assessment and delineation on a 204-acre landfill site in the Town of Albion, Orleans County, New York. Conducted a thorough review of historical information to determine if numerous small depressions and blocked drainage courses containing wetland vegetation resulting from past and on-going landfill operations were under the jurisdiction of the Corps. This information revealed that the project site was characterized by upland soils, and had historically been in agricultural production. Areas appearing to meet the criteria of federally regulated wetlands were actually the product of the landfill operation and thus only temporary in nature. Therefore, the amount of wetland on site that is under federal jurisdiction was determined to be minimal.

- Delineation of wetlands on a 170-acre parcel of land proposed for a sand, gravel, and rock mining operation in the Town of Martinsburg, Lewis County, New York. Conducted a detailed wetlands investigation and delineation followed by the preparation of a report presenting the results of the wetland delineation. Prepared a wetland permit application for submittal to the Corps and NYSDEC under Sections 404 and 401, respectively, of the Clean Water Act. The wetland permit application included a discussion of the anticipated impacts to on-site wetlands as a result of the mining operation, as well as a proposed wetland mitigation plan.

- Conducted a state and federal wetland delineation on a 128-acre parcel of land in the City of Watertown, Jefferson County, New York. This project involved an initial site walkover and review of pertinent agency information to determine the presence and location of wetlands on the subject property. A detailed wetland delineation was conducted using the methodology set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual* followed by an on-site meeting with the NYSDEC to determine the boundaries of the wetland based on the state's criteria. A wetland delineation report was prepared and submitted to the Corps and NYSDEC to be used for permitting purposes. Based on the proposed master plan for the industrial park, it has been determined that existing Nationwide Permits under Section 404 of the Clean Water Act will cover the anticipated impacts.

- Conducted several biological surveys to determine the presence or absence of Federal and State endangered and threatened plant and animal species. These projects involved a literature review, field investigation, and preparation of a report which included a discussion of potential impacts and mitigation.

- Conducted a vegetation inventory for the Albany Pine Bush Preserve, a unique pine barren community just west of the City of Albany, Albany County, New York. Project involved working closely with personnel from the New York Natural Heritage Program and The Nature Conservancy, and classifying the vegetation communities according to Ecological Communities of New York State (Reschke, 1990).

- Prepared an Environmental Baseline Study for a proposed landfill site in Onondaga County, New York. This study was incorporated into an Environmental Impact Statement which was used by the Onondaga Resource Recovery Agency to aid in siting a county-wide landfill. The Environmental Baseline Study involved review of current available data, and description and analysis of specific items of concern including ecological resources and rare species occurrence at the county and town levels. Other topics addressed included water resources, air resources, land use and zoning, community services, demography, and cultural, archaeological, and historical resources.

Terrestrial Environmental Specialists, Inc.

Conducted several vegetation inventories and assessments for rare plant species for various projects throughout the Northeast. These projects involved a literature review, field investigation, and preparation of a report which included a discussion of potential impacts and mitigation. Conducted numerous wetland delineations throughout the Northeastern U.S. and Puerto Rico using the Unified Federal Method for wetland delineation. Prepared wetland delineation reports and permit applications with supporting documentation for Section 404 and Section 401 Water Quality Certification. Performed a number of environmental audits and assisted in the preparation of Environmental Impact Statements.

Texas A&M University Research and Extension Center at Dallas

Assisted with compilation, analysis, and summarization of plant research data. Duties included set-up and maintenance of greenhouse experiments, laboratory measurements, and computerized statistical analysis of data. Edited a book entitled "A Field Guide to Texas Trees" by B.J. Simpson (1988).

Department of Botany, University of Wisconsin - Madison

Assisted in restructuring the curriculum for Botany 100 (an introductory course for non-science majors) to provide more small group contact and hands-on experience. Duties included designing instructional materials, constructing teaching aids, preparing equipment and handouts, and writing teaching and study guides. Also provided weekly individual and group tutoring sessions for students in Botany 130 (an introductory course for science majors). Other responsibilities were to attend tutoring workshops, develop handouts, write a sourcebook for teaching assistants, and develop study questions and practice quizzes. In addition, taught two sections of Botany 130 students consisting of two two-hour labs and one one-hour discussion. Provided additional study sessions prior to examinations, prepared quizzes, and graded exams.

Institute for Environmental Studies, University of Wisconsin - Madison

Assisted a subcommittee of the Land Resources Program in the development of a proposed seminar series for Land Resources students and generated seminar outlines, provided bibliographies and reading lists, and suggested speakers, instructors, and teaching assistants for the selected seminar topics.

The Nature Conservancy - Wisconsin Chapter

Compiled and organized The Nature Conservancy stewardship information into site stewardship summaries for use in management planning. Other duties were to compile and organize specific site information for use in the site registry program and to inventory properties for potential purchase.

University of Wisconsin - Arboretum

Assisted the Arboretum Ecologist in gathering field data for several ongoing research projects including control of sweet clover and poplar in a prairie. Also gathered field data pertinent to an ongoing study of the response of certain prairie forbs to varying fire management regimes.

The Bruce Company

Conducted site inspections and supervised ongoing landscape projects, residential design, and cost estimates.

Environmental Design Group, Inc.

Responsibilities were to meet with clients and land developers to discuss ongoing projects and the initiation of new projects. Other responsibilities involved site inspection, and analysis and production of construction drawings and specifications for residential and commercial development.

PROFESSIONAL AFFILIATIONS

Society of Wetland Scientists
Association of State Wetland Managers
The Nature Conservancy

PUBLICATIONS

Reuter, B.C. 1986. The habitat, reproductive ecology and host relations of *Orobanche fasciculata* Nutt. (Orobanchaceae) in Wisconsin. Bull. Torrey Bot. Club 113(2): 110-117.

Reuter, B.C. xx. Comparison of seed coat morphology of seven species of *Orobanche* (Orobanchaceae) using SEM. Manuscript in preparation for submittal to TSEM.

Reuter, B.C. xx. The reproductive ecology of *Orobanche multiflora* Nutt. (Orobanchaceae) in Fort Worth, Texas. Manuscript in preparation for submittal to the The American Midland Naturalist.

Reuter, B.C., B.J. Simpson, and D.D. Reuter. xx. Comparison of four species of *Acer* (Aceraceae) in Texas and Oklahoma using leaf characteristics. Manuscript under review.