# *Preliminary Site Assessment*

# *&*

# *Interim Remedial Measures Study*

# *for the*

# *Schenectady (Seneca St.) Site*

# *Schenectady, New York*

*Prepared for*

*Niagara Mohawk Power Corporation*

*November 1998*

*Prepared by*

**FOSTER WHEELER**

**FOSTER WHEELER ENVIRONMENTAL CORPORATION**

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# TABLE OF CONTENTS

## TABLE OF CONTENTS (Cont'd)

## TABLE OF CONTENTS (Cont'd)

### APPENDICES



### LIST OF FIGURES



### LIST OF TABLES

# EXECUTIVE SUMMARY

This Preliminary Site Assessment/Interim Remedial Measures (PSA/IRM) Study Report was prepared by the Foster Wheeler Environmental Corporation (Foster Wheeler Environmental), on behalf of the Niagara Mohawk Power Corporation (NMPC) to present the findings generated from the various tasks performed during the PSA/IRM Study at the Schenectady (Seneca St.) Site.

The PSA/IRM Study was based on the activities outlined in the approved New York State Department of Environmental Conservation (NYSDEC) PSA/IRM Work Plan (February 1998). This Study was performed pursuant to the NYSDEC Order on Consent, Index #DO-0001-9210, dated December 1992.

## Site Background

The Schenectady (Seneca Street) Site ("the Site") is situated on approximately three acres, and is located at 308 Seneca Street in the City of Schenectady, Schenectady County, New York. The Site was the former location of a manufactured gas plant (MGP) holder, and received purified manufactured gas from the Troy (Water St.) manufactured gas plant (MGP).

The Site is currently utilized as a crew facility for natural gas and electric distribution services. It is situated in a mixed use (industrial/commercial/residential) section of the City, approximately 800 feet from the Mohawk River. The Site is bounded by Seneca Street to the north, railroad tracks along the southern and western sides, and a bike path on the eastern side (Figure 1-2). A chain-link fence encompasses the Site including the former gas holder area, garage, and training building. A majority of the Site is covered with gravel, buildings, and/or asphalt.

## Preliminary Site Assessment

The PSA Program consisted of drilling five (5) soil borings and the sampling of various media (surface soil and subsurface soil). In addition, a fish and wildlife impact analysis (FWIA) Step I through IIA, and a cultural resources survey were conducted for the Site.

## Objectives

The objective of the PSA Program was to evaluate the nature and presence or absence of hazardous substance and MGP by-product impacts in the various media on the Site, assess the potential impacts (if any) to public health or the environment, and evaluate the need to perform interim remedial measures (IRM) and/or additional remedial investigations (RI) at the Site.

Based on the data generated during the performance of the PSA, the following conclusions are presented for the Schenectady (Seneca St.) Site.

## Hydrogeological

- Three unconsolidated deposits are present beneath the Site. In descending order from the ground surface (with their range of measured thickness on the Site), they are: fill consisting of sand and gravel and fragments of various debris (brick and concrete)

(1.5 to 2.8 feet); alluvial deposits consisting of sand, silt, and gravel (3.5 to 5 feet); and dense glacial till consisting of dark brown, gray to black silt (5 to 23 feet).

- Groundwater was detected in SB-01 and SB-03 between 23 and 24.5 ft bgs, respectively, however, due to the shallow depth of till, its impermeable nature, and the lack of observed contamination, no groundwater impacts are expected.
- The groundwater flow direction is assumed to be toward the Mohawk River. No groundwater was encountered in the unconsolidated deposits above the till unit.
- No MGP by-product impacts were observed/detected in the surface, shallow or subsurface soils.

## Surface Soils

- No volatile organics were detected in the surface soil samples.
- Several PAH compounds were detected in each of the off-site surface soil samples exceeding the TAGM values. The total PAH concentrations ranged from 0.8763 to 11.9187 ppm. Two PAH compounds were detected in each of the on-site surface soil samples exceeding the TAGM cleanup values. The total PAH concentrations ranged from 0.81 to 1.74 ppm.
- No pesticide or PCB constituents were detected exceeding their TAGM values in the on-site surface soil samples. One pesticide (4,4'-DDE) was detected (0.0022 ppm) exceeding its TAGM cleanup value in a off-site surface soil sample.
- Metal concentrations in the surface soils collected on-site were either less than the concentrations present in both the off-site (background) surface soil samples or between the two off-site sample concentrations. Cyanide was not detected in the on-site surface soil samples.
- TOC levels for the on-site soils were 18,500 and 17,600 ppm. TOC levels were 28,900 and 50,200 ppm for the off-site surface soil samples.

## Subsurface Soils

- No volatile organics with the exception of acetone, a common decontaminant, were above their respective TAGM 4046 value.
- A total of 11 PAH compounds were detected at concentrations which exceed their respective TAGM value. Phenanthrene (110 ppm) was the highest detected individual PAH concentration in SB-3 at 0 to 2 ft bgs.
- No pesticide or PCB concentrations were detected above their respective TAGM value.
- A total of eight metals (arsenic, beryllium, chromium, copper, iron, mercury, nickel, and zinc) were detected in the subsurface soils exceeding their respective TAGM 4046 value. Cyanide was not detected in the subsurface soils.

- TOC levels at the site were detected in concentrations ranging between 3,300 to 26,000 ppm.

## IRM Evaluation

Based on the review of the analytical data presented above, an IRM is not warranted at the Site because an imminent threat to human health and/or the environment is not present. However, one area on the Schenectady (Seneca St.) Site is being considered by NMPC to facilitate Site Closure. This area includes the shallow soils (0-2 ft bgs) at location SB-03.

## Recommendation

Based on the data generated during the performance of the PSA and the conclusions outlined above, the following is proposed by NMPC for the Schenectady (Seneca St.) Site.

- NMPC proposes to excavate and properly dispose of the shallow soils in the immediate area (5 ft by 5 ft) of SB-03 to a depth of approximately 4 feet bgs. Following the excavation of these shallow soils, NMPC will collect three soil samples, one each from two of the side walls of the excavation and from the bottom of the excavation and analyze the samples for PAHs. Based on these analyses, NMPC will either propose additional excavation in this area or propose closure of the Site to the NYSDEC.
- NMPC proposes to cover (cap) the gravel surface in the vicinity of the sampling locations with an asphalt layer to minimize the potential exposure pathways. In order to maintain control of the property, NMPC will also deed restrict the property.

# 1.0 INTRODUCTION

This document, herein referred to as the Preliminary Site Assessment/Interim Remedial Measures (PSA/IRM) Study Report for the Niagara Mohawk Power Corporation (NMPC) Schenectady (Seneca St.) Site (the Site), has been prepared by the Foster Wheeler Environmental Corporation (Foster Wheeler) on behalf of NMPC. Preparation of this Report is in response to and in accordance with the requirements set forth in the New York State Department of Environmental Conservation (NYSDEC) Order on Consent executed on December 7, 1992, and the NYSDEC approved Preliminary Site Assessment/Interim Remedial Measure (PSA/IRM) Work Plan (February 1998). Applicable requirements are set forth in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) [42 USC 9601 et seq], as amended; the National Contingency Plan (NCP) of March 8, 1990 [40 CFR Part 300]; and the United States Environmental Protection Agency (USEPA) guidance documents.

On February 26, 1998, NMPC submitted the Work Plan for PSA/IRM Study to the NYSDEC for review and comment. The NYSDEC commented on the Work Plan in its correspondence to NMPC dated March 27, 1998 and NMPC responded to these comments in a letter dated April 21, 1998. In a letter to NMPC dated May 6, 1998, NYSDEC stated that NMPC's responses were determined to be satisfactory and that they should finalize the Work Plan. Foster Wheeler prepared and submitted a site-specific Health and Safety Plan (HASP) to the NYSDEC on June 5, 1998 for their review and approval. The NYSDEC approved the HASP on June 25, 1998. Foster Wheeler initiated the PSA field activities at the Site on June 29, 1997. The PSA field program was completed on July 9, 1998.

## 1.1 PURPOSE OF REPORT

The purpose of this Report is to summarize the activities conducted as part of the PSA/IRM Study at the Schenectady (Seneca St.) Site. The purpose and scope of the PSA Study was to collect sufficient data such that an initial evaluation could be made regarding the following:

- The nature and presence of hazardous substances including MGP by-products;
- Whether such substances constitute a significant threat to human health or the environment;
- Whether a RI is necessary at the Site;
- Whether one or more IRMs may be appropriate due to the nature and extent of MGP residue, if present, or other contaminants at the Site; and
- Whether other potentially responsible parties (PRPs) exist.

As discussed herein, MGP by-products are defined as consisting of both coal tar-type impacts and/or purifier waste that are generated during the operation of a former MGP.

## 1.2 PROJECT OBJECTIVES

The objective of the PSA Program was to evaluate the nature and presence of hazardous substance and MGP by-product impacts in the various media on the Site, assess the potential

impacts (if any) to public health or the environment, and to evaluate the need to perform interim remedial measures (IRM) and/or additional remedial investigations (RI) at the Site.

## 1.3 SITE BACKGROUND

Relevant information concerning the historical and present status of the Schenectady (Seneca St.) Site is provided in this subsection. This information includes a description of the Site vicinity, a summary of investigations conducted at or relating to the Site, as well as the results and conclusions obtained from these activities.

### *1.3.1 Description of Site and Surrounding Areas*

The Schenectady (Seneca Street) Site is situated on approximately three acres, and is located at 308 Seneca Street in the City of Schenectady, Schenectady County, New York (Figure 1-1). The Site was the former location of a manufactured gas plant (MGP) holder, and received purified manufactured gas from the Troy (Water St.) manufactured gas plant (MGP).

The Site is currently utilized as a crew facility for natural gas and electric distribution services. It is situated in a residential/heavy industrial section of the City, approximately 800 feet from the Mohawk River. Yates School is located within ½ mile east of the Site; Ellis Hospital and Sunnyview Orthopedic Center are both located southeast and within one mile. A park exists ½ mile away to the southeast, and another park (Steinmetz Park) is located ¾ of a mile away east. The Asphalt Stone Products Gravel Industry is located approximately 400 feet north of the Site. The Town of Schenectady Highway Department is located east of the Site, across the bike path.

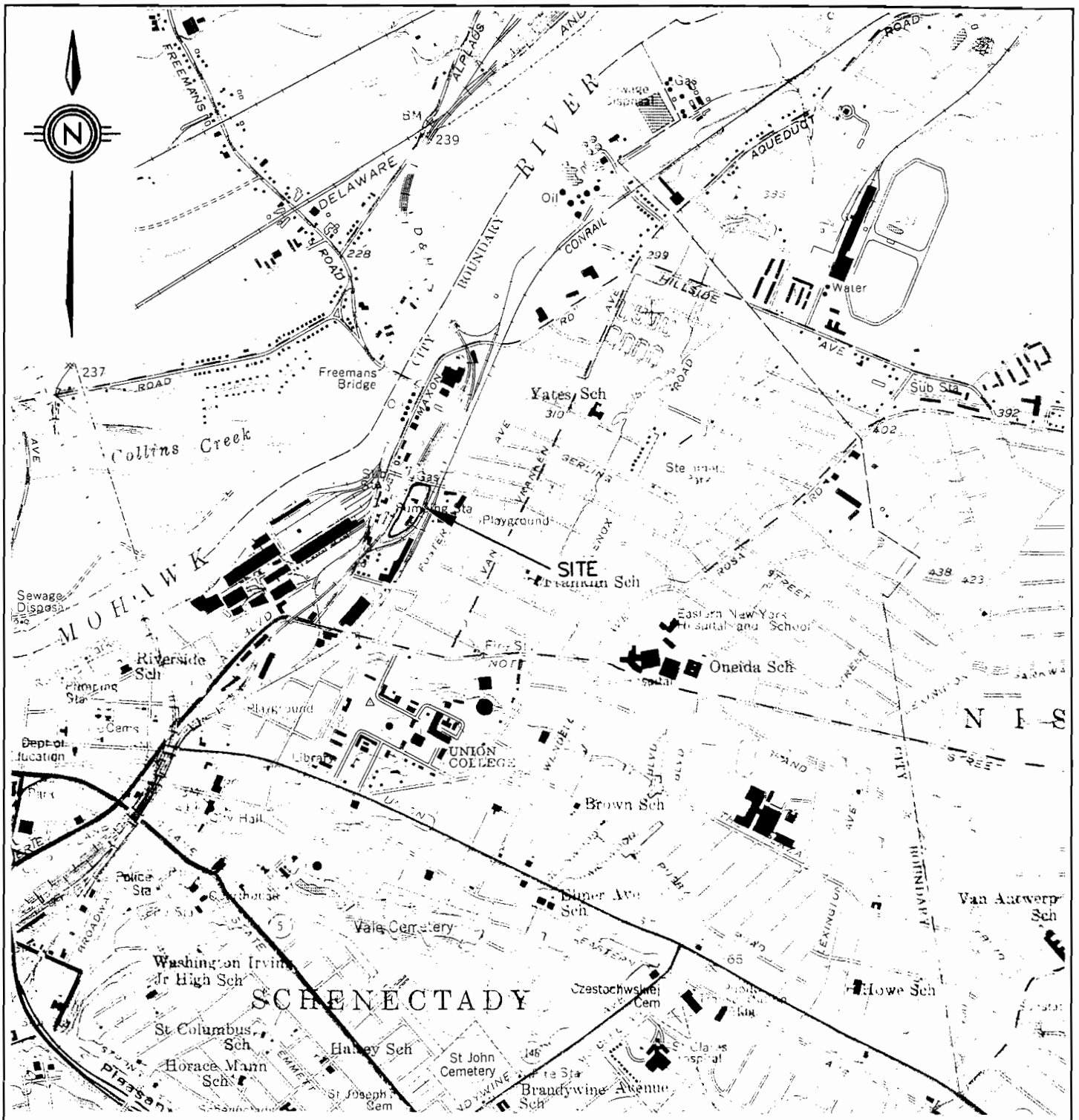
The Site is bounded by Seneca Street to the north, railroad tracks along the southern and western sides, and a bike path on the eastern side (Figure 1-2). A chain-link fence encompasses the Site including the former gas holder area, garage, and training building. Within the fenced area are various types of servicing equipment: Piping, electric wire, transformers, spools and utility poles. A majority of the Site is covered with gravel, buildings, and/or asphalt.

The NMPC property is situated in the Mohawk River Valley drainage basin. The bedrock is the Schenectady Formation which consists of alternating shale and sandstone (Ruedemann, 1930). Regionally, the bedrock is overlain by fill, stratified sand and gravel fluvial deposits and glacial till. Groundwater flow is assumed to be northwest toward the Mohawk River, which is located approximately 800 feet northwest of the Site. The Site is assumed to lie within the "Schenectady County Aquifer Protection Zone", a sole source aquifer supplying public water to Schenectady and Rotterdam County.

The Soil Conservation Service soil classification for the Site, as well as most of Schenectady, is cut and fill (USDA, 1972). Cut and fill consists of areas that have been disturbed by the removal or addition of soil material. The material and drainage are variable.

### *1.3.2 Site History*

Prior to 1930, the Site was owned by the Mica Insulator Company (later known as the 3M Company), an electrical equipment manufacturer (City Historic Center and Deed between the Mica




BASE MAP ADAPTED FROM USGS SCHENECTADY, N.Y.
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE

NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 1–1
SITE LOCATION MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

Insulator Co. and New York Power and Light Corporation, March 3, 1930). In 1930, New York Power and Light Corporation purchased the property and constructed a gas holder with a height of approximately 266 feet, and a diameter of 182 feet; it had a capacity of 6 million cubic feet. According to records, directly south of the holder was a 9,000 gallon steel skimmer or tar storage tank and tar pumphouse (New York Power and Light Corporation, Compressor Station Drawing, March 1930). However, the referenced tank may have been associated with operation of the "waterless" tar-seal holder. Tar would have been brought to the Site for use in the holder seal system. This type of dry gas holder relied on the use of a light gas-tar of moderate viscosity to maintain the gas seal around the periphery of the piston. As the seal was not absolutely tar-tight, tar would escape through the seal and flow to the bottom of the holder where it was collected in a series of chambers and pumped up to the top of the tower for recirculation. It should be noted that review of a Sanborn Fire Insurance Company map for the time period 1935 through 1961 shows no evidence of a discrete tar tank or similar structure.

The "Kellam and Shaffer" company was located west of the gas holder across the Delaware and Hudson (D&H) railroad tracks. This Site has a stone mill, a stone cutting shed, and a contracting department shown on the map. Two other companies, "Davis Lumber Company" and "E.P. Wilbur Masonry Supplies", are located to the east and across the D&H railroad tracks. The Texas Corporation (Texaco) had a petroleum bulk storage facility across Seneca Street north of the Site (Sanborn, 1930).

Between 1931 and 1933, a building was added to the Site, southwest of the gas holder. The building contained a compressor room whose dimensions were 33 feet by 112 feet, and an electrical room and office that was 45 feet by 20 feet in dimension (New York Power and Light Corporation, New York Public Utility 486, Eastern Underwriters 1931 and 1933). This building remains on-site, and was reconstructed as a crew facility and utility truck garage in 1967.

Between 1930 and 1949, an all steel 12 ft x 12 ft booster station was constructed on-site. The "E.P. Wilbur Masonry Supplies" company was no longer in operation, and the area was occupied by the City of Schenectady's Bureau of Public Service (Sanborn, 1949 revision). In 1961, the gas holder was decommissioned and removed (Photos December 2, 1961). In 1973, a utility training center was constructed adjacent to the booster station and enclosed by a ten foot high chain link fence. A large garage building was also constructed and is located east of the former gas holder.

### 1.3.3 Previous Site Investigations

A summary of all activities, performed on the Site, is presented in the following discussions.

#### 1.3.3.1 Preliminary Assessment

A site visit was performed by the NUS Corporation (NUS) Region 2 FIT on behalf of the USEPA on October 21, 1987 to determine if the Site was a potential hazardous waste site. A Final Draft Site Inspection Report was prepared by NUS dated March 29, 1991. The report identified that polynuclear aromatic hydrocarbons (PAHs) were not detected in soil samples at levels which would indicate that past operations at the Site have impacted the Site.

#### 1.3.3.2 Tank Removal

In 1993, a leaking 2,000 gallon underground diesel tank was removed. The spill was reported to the NYSDEC and assigned Spill Number 9308821 (Interface Service Inc., Tank Closure Report, October 19, 1993). The NYSDEC Spill file has since been closed (NYSDEC, 1997).

#### 1.3.3.3 Historical Review

In response to the NYSDEC Order on Consent, a search and review of historical background data were conducted for the Schenectady (Seneca St.) Site by NMPC. Available resources used to accomplish this task, included, but are not limited to:

- NMPC records and files;
- Sanborn Fire Insurance Atlases, Beer's Atlas, and other historical maps;
- Deeds and site surveys;
- Manufactured gas industrial publications;
- Brown's Directory of American Gas Companies;
- Syracuse University Library historical documents;
- USDA Soil Conservation Service and NYS Geological Survey reports; and
- NYSDEC files.

The results of the historical review are summarized and presented in the "Draft Initial Submittal" submitted to the NYSDEC on January 15, 1998.

## 1.4 REPORT ORGANIZATION

Section 1, the Introduction, describes the purpose of the Report. The Site background, which includes a Site description and a review of the Site history and previous investigations, is also presented, in summary form, to familiarize the reader with these aspects of the Site. Section 2 presents the scope-of-work performed as part of the PSA field investigation program. Section 3 describes the regional area, and physical characteristics of the Site, including topography, surface and groundwater hydrology, and geology. The results of the cultural resources survey are also summarized. Section 4 summarizes the nature and extent of impacts based on the data collected during the PSA Program. The type and concentration of the constituents of concern detected in each media are described. Section 5 outlines the results of the Fish and Wildlife Impact Analysis, Step I through Step IIA, completed at the Site. Section 6 presents a summary, the conclusions, and recommendations for the Site. References used to prepare this Report are presented in Section 7.

Appendices include the soil boring logs, surveying data, analytical data, and the data usability summary report.

# 2.0 SCOPE OF WORK

## 2.1 INTRODUCTION

This section describes the tasks performed as part of the PSA field program, the associated methods and/or procedures that were utilized, and any modifications to the NYSDEC approved Work Plan. Detailed descriptions of the scope of work and field methods approved by the NYSDEC are presented in the Work Plan for the PSA/IRM Study (February 1998).

## 2.2 SUMMARY OF SCOPE OF WORK

The PSA Program consisted of drilling five (5) soil borings, and the sampling of various media (surface soil, and subsurface soil). In addition, a fish and wildlife impact analysis (FWIA) Step I through IIA, and a Stage IA cultural resources survey were conducted for the Site.

## 2.3 PRE-INVESTIGATION ACTIVITIES

Prior to commencement of field activities, the Underground Facilities Protective Organization (UFPO) was contacted to mark out underground utilities at the Site. In addition, NMPC gas and electric personnel marked out subsurface utilities in the vicinity of the sampling locations. On June 23, 1998, the Site reconnaissance task was performed including the identification of utilities and mark out of all soil boring and sampling locations. Each location was evaluated with respect to overhead and underground obstructions. In addition, a staging area for equipment and materials was identified by NMPC during the reconnaissance task.

## 2.4 SURFACE SOIL SAMPLING

Four surface soil samples (SS-1, SS-2, OS-1, and OS-2), as depicted in Figure 1-2, were collected at the Site in accordance with the approved Work Plan. SS-1 and SS-2 were collected on-site, located west and east, respectively of the main entrance gate to the Site. Samples OS-1 and OS-2 were collected from off-site locations. OS-1 was collected north of the Site on the opposite side of Seneca Street from the Site and OS-2 was collected on the bike path, located east and across the fence from the NMPC Training Building. These surface soil samples were collected and analyzed to establish the presence or absence of hazardous substances and MGP by-products.

At each sampling location, a one foot square grid was outlined and the surface was cleared of vegetation and debris. Samples SS-1 and SS-2 were collected on June 30, 1998 using a decontaminated stainless steel spoon, which was advanced to a depth of 2 inches below ground surface (bgs). Samples OS-1 and OS-2 were collected on July 9, 1998 utilizing the same procedure. Samples were transferred to laboratory-supplied glassware and immediately placed on ice pending delivery to the laboratory for analysis of Target Compound List (TCL) Volatile Organic Compounds (VOCs), TCL Semi-volatile Organic Compounds (SVOCs), TCL pesticides, and Polychlorinated Biphenyls (PCBs), Target Analyte List (TAL) metals, cyanide, and Total Organic Carbon (TOC). The analytical results are discussed in Section 4.2.

In addition to the collection of the 0 to 2 inch bgs surface soil samples, a 0 to 2 foot shallow soil sample was collected immediately adjacent to surface soil sample locations SS-1 and SS-2 on-site. These shallow soil samples were collected by driving a 2-inch diameter split-spoon sampler

into the subsurface. These samples were collected on July 2, 1998. Each sample was analyzed for TCL VOCs, SVOCs, pesticides and PCBs, TAL metals, cyanide, and TOC. The analytical results are discussed in Section 4.3.

## 2.5 SOIL BORING DRILLING AND SAMPLING

Mobilization for the subsurface soil investigation commenced on June 29, 1998, at which time the drilling subcontractor, SJB Services, Inc., mobilized their equipment and supplies to the Site. In order to identify the nature and potential presence of hazardous substances and/or MGP by-product impacts, a total of five soil borings (SB-1 through SB-5) were drilled at on-site locations (as illustrated in Figure 1-2) between June 29 and July 2, 1998. The depths of the soil borings ranged from 6.5 ft bgs (SB-5) to 30 ft bgs (SB-1 and SB-2).

The soil borings were advanced using hollow-stem auger drilling methods, with the collection of split-spoon samples on a continuous basis. All split-spoon samples were field screened based on visual and olfactory observations, and with an organic vapor analyzer (OVA). Three soil samples collected from the five soil boring locations were submitted for laboratory analysis of TCL VOCs, SVOCs, pesticides and PCBs, TAL metals, cyanide, and TOC. Eight soil samples were collected from the five soil boring locations and analyzed for PAH, BTEX, and cyanide analysis. The analytical results are discussed in Section 4.3. Upon completion of soil boring and sampling activities, all boreholes including those that penetrated into till layer were properly abandoned with a cement/bentonite grout in accordance with NYSDEC TAGM HWR-88-4008. Soil boring logs, as presented in Appendix A, include soil descriptions, field instrumentation readings, observations of MGP by-products if present, and analytical sampling intervals. The data summarized in the soil boring logs were utilized to construct a geologic cross section across the Site, as illustrated and discussed in Section 3.4.2.

## 2.6 MONITORING WELL INSTALLATION AND DEVELOPMENT

No monitoring wells were installed on the Site during the PSA. On July 1, 1998 after discussions with Mr. John Spellman of the NYSDEC, NMPC received approval from the NYSDEC that monitoring wells would not be installed on the Site. This approval was based on the observance of a dense, relatively impermeable till layer at approximately 5 feet bgs, the absence of impacted material, and the absence of the water table surface.

## 2.7 IN-SITU HYDRAULIC CONDUCTIVITY TESTING

Hydraulic conductivity testing was not conducted at the Site because monitoring wells were not installed on the Site.

## 2.8 WATER LEVEL MEASUREMENTS

Water level measurements were not collected at the Site because monitoring wells were not installed on the Site.

## 2.9 GROUNDWATER SAMPLING

Groundwater sampling was not performed at the Site because monitoring wells were not installed on the Site.

## 2.10 SURVEY PROGRAM

Following the completion of the PSA field activities at the Site, NMPC surveyors located all sampling points (i.e., soil borings, and surface soil samples) and provided the elevation above mean sea level (ground surface) for each. The survey elevations are provided in Appendix B.

## 2.11 WASTE HANDLING AND DISPOSAL

Drill cuttings generated during the PSA field program were secured on-site in 55-gallon open top steel drums. Water and fluids used to decontaminate drilling and sampling equipment, were temporarily stored on-site in 55-gallon drums. Waste characterization and disposal were coordinated directly by NMPC in accordance with NYSDEC regulations.

## 2.12 ANALYTICAL PROGRAM

### *2.12.1 Sampling Program*

The PSA analytical program was designed to provide an initial characterization of MGP by-product impacts, as well as other potentially hazardous substances at the Site, if present. Analytical testing of the media was performed by Accutest Laboratories, Incorporated (Accutest) of Dayton, NJ, a New York State Department of Health Environmental Laboratory Approval Program (ELAP) certified laboratory and a participating member of the NYSDEC ASP (Analytical Services Protocol) Program. The analytical program included the following analyses:

- NYSDEC-ASP Target Compound List (TCL) Volatile Organic Compounds (VOCs);
- NYSDEC-ASP TCL Semi-volatile Organic Compounds (SVOCs);
- NYSDEC-ASP TCL Pesticides and Polychlorinated Biphenyls (PCBs);
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- NYSDEC-ASP Target Analyte List (TAL) Metals and Cyanide; and
- Total Organic Carbon (TOC) testing.

### *2.12.2 QA/QC Program*

Field quality control samples consisting of field blanks (FB), and field duplicates (DUP) were analyzed to assess field sampling accuracy and precision. A total of two (2) field blanks, and three (3) field duplicates were part of the QA/QC Program during the PSA field activities. One field blank was collected for each decontamination event associated with the soil boring task. These samples were collected to detect contamination introduced by the sampling equipment, in the laboratory, or during shipment of the samples. A water sample was collected for analysis from the drilling rig to identify the presence of contaminants in the water used for decontamination of the drilling and sampling equipment. The analytical results are discussed in Section 4 and summarized in tabular format (Appendix C).

### 2.12.3 Data Validation

A QA/QC review of the analytical data generated by Accutest was performed by Data Validation Services as the data were received. This included a review of pertinent QA/QC data such as holding times, calibration, laboratory and field blanks, duplicate precision, and surrogate and matrix spike recovery. Nonconforming QA/QC results were evaluated with respect to data reliability and usability. A Data Usability Summary Report (DUSR) is attached as Appendix D. Upon completion of the data validation task, the analytical data were arranged in summary tables (Appendix C).

## 2.13 CULTURAL RESOURCES SURVEY

A Phase 1A cultural resources survey was conducted for the Schenectady (Seneca St.) Site. The Phase 1A report was written under separate cover based on review of background information provided by NMPC, local histories, historic cartographic sources, and Site files maintained by both the New York State Museum and the New York State Historic Preservation Office. In addition, observations of the Site were made during a walkover reconnaissance of the property. Details of the cultural resources survey are summarized in Section 3.6.

## 2.14 FISH AND WILDLIFE IMPACT ANALYSIS

A fish and wildlife impact analysis (FWIA) was performed at the Site in accordance with the NYSDEC guidance entitled "Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (October 1994)." The objective of the analysis is to identify and address the potential impact of Site constituents on fish and wildlife receptors. The FWIA consisted of a Step I: Site Description which included a compilation of topographical, covertype, and drainage maps, a description of fish and wildlife resources and value, and identification of applicable regulatory criteria. The Step IIA: Contaminant-Specific Impact Assessment included a pathway analysis. Details of the FWIA are discussed in Section 5.

## 2.15 IRM EVALUATION

As part of the PSA/IRM Study, the data generated were evaluated as whether the Site posed an immediate threat to human health or the environment and whether an Interim Remedial Measure (IRM) or additional investigation is needed for this Site. The evaluation included a review of geologic and hydrogeologic conditions, analytical testing results (i.e., parameter, concentration, depth), human exposure pathways, location of site-related constituents with respect to discharge boundaries and/or surface water pathways, etc.

# 3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

## 3.1 INTRODUCTION

This section presents information relative to the physical characteristics (topography, geology, and hydrogeology) of the Site and surrounding area. The information discussed in this section is based on data generated from the PSA field investigation and the review of various published reference materials.

## 3.2 SITE TOPOGRAPHY

The Site, comprising approximately three acres of property is sloped to the northwest toward the Mohawk River. The Site is covered primarily with gravel, structures, and/or asphalt, except for the northern boundary and southeastern boundary of the Site adjacent to the fence, which is covered with grass. Based on survey data generated during the PSA field program, the Site elevation ranges from approximately 498 to 502 feet above MSL.

## 3.3 SURFACE WATER HYDROLOGY

### *3.3.1 Regional Surface Water Hydrology*

The Site is situated within an industrial/commercial/residential area within the City of Schenectady. Surface water travels west-northwest toward the Mohawk River via sheet flow to lower elevations via ditches and swales located adjacent to the Site.

### *3.3.2 Site Surface Water Hydrology*

The Site is primarily covered with gravel, structures, and/or asphalt, therefore the subsurface soils at the Site receive minimal precipitation, infiltration, and recharge during and after rainfall events. Surface water is directed via surface topography (see Figure 5-3) as overland flow off site toward the northwest, as well as to the east side of the Site, along the existing bike path (a former railroad bed).

## 3.4 GEOLOGY

### *3.4.1 Regional Geology*

The NMPC property is situated in the Mohawk River Valley drainage basin. The bedrock is the Schenectady Formation which consists of alternating shale and sandstone (Ruedemann, 1930). Regionally, the bedrock is overlain by fill, stratified sand and gravel fluvial deposits and glacial till. Groundwater flow is assumed to be northwest toward the Mohawk River, which is located approximately 800 feet northwest of the Site. The Site is assumed to lie within the "Schenectady County Aquifer Protection Zone", a sole source aquifer supplying public water to Schenectady and Rotterdam County.

The Soil Conservation Service soil classification for the Site, as well as most of Schenectady, is cut and fill (USDA, 1972). Cut and fill consists of areas that have been disturbed by the removal or addition of soil material. The material and drainage are variable.

### 3.4.2 Site Geology

PSA activities indicate that there are three unconsolidated units located beneath the Site, (in descending order) as follows: fill, alluvial deposits, and glacial till. Bedrock was not encountered during drilling activities at the Site. The Site geology is illustrated on a cross section transect (location shown on Figure 1-2) through the Site as shown on Figure 3-1. Generally, the sequence of units underlying the Site are described as follows:

- Sand, gravel, concrete, and brick - 1.5 to 2.8 feet thick (fill);
- Sand, silt and gravel - 3.5 to 5 feet thick (alluvial deposits); and
- Dark brown, gray to black silt - 5 to 23 feet thick (glacial till).

The thickness and presence of the geologic units underlying the Site vary, as described in the following paragraphs.

The Site is underlain by fill. The maximum thickness was observed in SB-1 (2.8 ft). During soil boring drilling activities, coal tar-type impacts were not observed in the fill material. Underlying the fill layer exists alluvial deposits. These deposits consist of varying amounts of sand, silt, and gravel. The maximum thickness of alluvial deposits was observed in SB-3 (5 ft). Underlying the alluvial deposit exists a dense, glacial till layer consisting predominantly of silt with various amounts of sand and gravel. MGP by-product-type impacts were not observed/detected within this layer during the PSA Program. It should be noted that all boring locations that penetrated into the till unit were grouted in accordance with NYSDEC regulations. In SB-3, potentially impacted material (petroleum) was observed (staining and odor) at approximately 1.2 ft bgs. Soil boring logs are provided in Appendix A.

The Soil Conservation Service soil classification for the Site, as well as most of Schenectady, is cut and fill (USDA, 1972). Cut and fill consists of areas that have been disturbed by the removal or addition of soil material. The material and drainage are variable.

## 3.5 GROUNDWATER HYDROLOGY

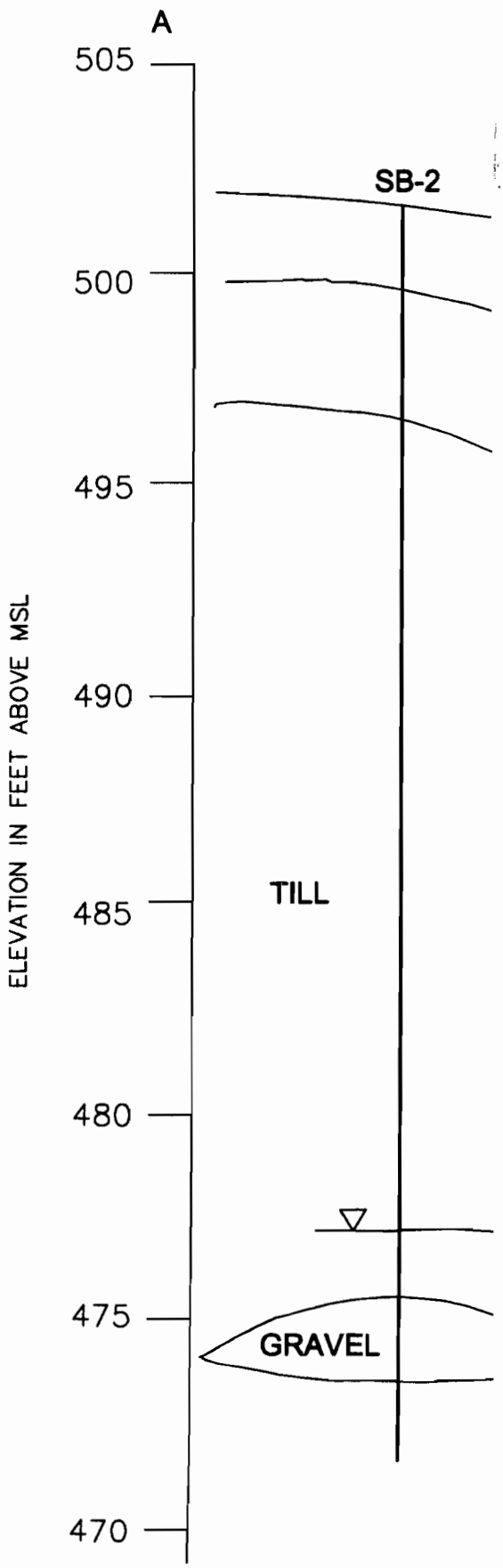
This section discusses both the regional and Site groundwater hydrology conditions.

### 3.5.1 Regional Groundwater Hydrology

The unconsolidated aquifer in this area is assumed to be located within/below the till layer. The groundwater flow is assumed to be towards the Mohawk River.

### 3.5.2 Site Groundwater Hydrology

Groundwater was encountered within the glacial till layer approximately 23 to 27 ft bgs during the PSA in SB-1 and SB-2. No groundwater monitoring wells were installed as part of the PSA field program because of a lack of available groundwater, the absence of impacted material on top of the glacial till, the thickness of the glacial till layer, and its close proximity to the ground surface.




LEGEND:

0 40'

HORIZONTAL SCALE IN FEET

GROUNDWATER ELEVATION

NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA STREET) SITE

FIGURE 3-1
GEOLOGIC CROSS SECTION A-A'

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

PLOT SCALE: 1=1
TIME: 9:24 AM

## 3.6 CULTURAL RESOURCES SURVEY

A Phase 1A cultural resources survey was conducted for the Schenectady (Seneca St.) Site. The Phase 1A report was written under separate cover based on review of background information provided by NMPC, local histories, historic cartographic sources, and Site files maintained by both the New York State Museum and the New York State Historic Preservation Office (SHPO). In addition, observations of the Site were made during a walkover reconnaissance of the property.

A Stage IA cultural resources survey has been submitted to SHPO for their review. In general, the Site has a low potential to contain intact prehistoric or early historic period cultural remains. However, the MGP site-related feature is anticipated to be extant within the project area. Remnants of the gas holder have not been identified within soil borings. If future activities at the Site expose this resource for view or if proposed activities will disturb the resource, then NMPC will consult with the SHPO prior to conduct of proposed activities that would result in disturbance to this MGP feature.

# 4.0 NATURE AND EXTENT OF IMPACTS

## 4.1 INTRODUCTION

Part of the investigation conducted at the Schenectady (Seneca St.) Site included the collection and analysis of surface soil (i.e., soils up to 2 inches bgs) and subsurface soil (i.e., soils greater than 2 inches bgs) samples from across the Site to determine the presence and nature of hazardous substances, including coal tar-type impacts, in the soils if they exist.

The soil samples were submitted to Accutest Laboratories, Inc. located in Dayton, New Jersey for laboratory analysis of various chemical parameters. All data generated by the laboratory were subjected to an independent validation by Data Validation Services, Inc. located in North Creek, New York. Further information on the data validation of the samples is presented in Section 2 of this Report. The Data Useability Summary Report (DUSR) is attached as Appendix D. The laboratory program included the following analyses:

- NYSDEC ASP Target Compound List (TCL) Volatile Organic Compounds (VOCs);
- NYSDEC ASP TCL Semi-volatile Organic Compounds (SVOCs);
- NYSDEC ASP TCL Pesticides and Polychlorinated Biphenyls (PCBs);
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- NYSDEC ASP Target Analyte List (TAL) Metals and Cyanide; and
- Total Organic Carbon (TOC).

The tabulated results of the sampling investigation are summarized by environmental medium in Appendix C.

The selection of chemical analyses focused on those constituents typically characteristic of coal tar-type impacts. Approximately 50 percent of the soil samples were analyzed for monocyclic aromatic hydrocarbons (BTEX compounds), PAH compounds, and cyanide. Full NYSDEC ASP TCL/TAL analyses were performed on approximately 40 percent of the soil samples to identify other potential constituents. In addition, nine soil samples were analyzed for TOC.

The soil analytical results were compared to the soil clean-up objectives recommended in the NYSDEC Division Technical and Administrative Guidance Memorandum HWR-94-4046 (TAGM 4046), January 1994. To assist in the comparison of results, these objective levels are provided on the data tables in Appendix C, and compound concentrations that are above the TAGM 4046 values are highlighted with shading.

Summaries of the constituents detected during the surface soils and subsurface soils investigations can be found in Sections 4.2 and 4.3, respectively.

## 4.2 SURFACE SOIL ANALYTICAL RESULTS

Four surface soil (i.e., soils up to 2 inches bgs) samples and one duplicate sample were collected at two on-site and two off-site background locations to evaluate potential surficial contamination. SS-01 and SS-02 were located on-site in a grassy area adjacent to the fenceline and Seneca Street and north of the former gas holder (see Figure 1-2). Off-site surface soil samples were collected northwest of the Site, across Seneca Street (OS-1) and to the southeast of the Site, across the bike path from the NMPC Training Building (OS-2). The surface soil samples were analyzed for full NYSDEC ASP TCL/TAL parameters (three samples); for BTEX, PAH, and cyanide constituents (one sample); and/or TOC (six samples). Results for these analyses are provided in Tables C-2 through C-9 of Appendix C. Constituents with concentrations that are greater than TAGM 4046 values are presented on Figure 4-1 for the surface soils.

No volatile organics, with the exception of unknown tentatively identified compounds (TICs) were present in the surface soils (see Appendix C, Tables C-2 and C-3).

As shown in Tables C-4 and C-5 of Appendix C, at least one individual PAH compound was detected in all of the surface soil samples, including the two off-site samples OS-1 and OS-2. The number of individual PAHs detected in a sample ranged from 10 (location OS-1) to 17 (location OS-2). Two PAHs, benzo(a)pyrene and dibenzo(a,h)anthracene, were present at concentrations which exceeded TAGM 4046 values in the on-site locations SS-01 and SS-02 (see Table C-4 and Figure 4-1). The total concentrations of PAHs detected in the on-site surface soils were approximately 0.81 ppm (SS-01-1, with a duplicate of 0.86 ppm) and 1.74 ppm (SS-02-1). As shown on Figure 4-1, the two off-site background samples, OS-1 and OS-2, contained exceedance concentrations of one and four individual PAHs, respectively. These PAH constituents were benzo(a)pyrene (both OS-1 and OS-2); benzo(a)anthracene; benzo(b)fluoranthene; and chrysene. Total PAHs summed to 0.8763 ppm (OS-1) and 11.9187 ppm (OS-2). In addition to the PAHs, bis(2-ethylhexyl)phthalate was detected in the surface soils of location SS-01 at 0.0419 ppm (duplicate of 0.0365 ppm), and there were TICs (generally labeled as unknown, unknown alkane or unknown hydrocarbon) present in the surface soil samples; see Table C-4.

No pesticide or PCB constituents were detected in the surface soils above TAGM 4046 values. As shown in Appendix C, Table C-6, one pesticide, 4,4'-DDE, was detected in the surface soils collected from off-site location OS-1, at a concentration of 0.0022 ppm.

Analysis of the surface soils indicated the presence of 16 metals in at least one of the surface soil samples, and the resulting concentrations are tabulated in Table C-7 of Appendix C. Concentrations of the metals in the on-site surface soils were either less than the concentrations present in both of the off-site surface soil samples, or between the two off-site sample concentrations. There were no on-site metal concentrations that were greater than the off-site background concentrations and/or the TAGM 4046 guidance values (see Table C-7).

As shown in Table C-8, cyanide was not detected in the surface soil samples collected from the Site.

Concentrations of TOC for the surface soils were 18,500 ppm (SS-01-1) and 17,600 ppm (SS-02-1) for the on-site locations and 28,900 ppm (OS-1) and 50,200 ppm (OS-2) for the off-site locations. Table C-9 of Appendix C presents the analytical results for TOC.

## 4.3 SUBSURFACE SOIL ANALYTICAL RESULTS

Twelve soil samples and two duplicate samples were collected from six subsurface locations during the field investigation at the Site. Shallow soil samples from the 0 to 2 foot bgs depth interval were collected adjacent to the surface soil locations (i.e., SS-01 and SS-02). As noted above, these samples were collected on-site in a grassy area adjacent to the fenceline and Seneca Street and north of the former gas holder. The subsurface soil samples were collected from soil borings located east (SB-02), northeast (SB-04), northwest (SB-05), and west (SB-03) of the former gas holder. The samples were analyzed for BTEX, PAHs, and cyanide; for full TCL/TAL constituents; and/or TOC. Tabulated results of the analyses are presented in Appendix C, Tables C-10 through C-17. Constituents with concentrations that are greater than TAGM 4046 values are presented on Figure 4-2 for the surface soils.

The TCL volatile organic data for the subsurface soil samples are presented in Table C-10, while Table C-11 contains the results of the BTEX analyses. Individual BTEX constituents were detected in samples SB-03 at 0 to 2 feet bgs (ethylbenzene at 0.0103 ppm) and SB-05 at 2 to 4 feet bgs (xylenes at 0.012 ppm). Neither of these detections is above TAGM 4046 comparison values. As shown in Figure 4-2, acetone was detected at concentrations greater than its TAGM 4046 value in locations SB-02 (10 to 12 feet bgs) and SB-05 (2 to 4 feet bgs). These concentrations were 1.10 ppm and 0.26 ppm, respectively. The occurrences of acetone are likely due to its use as a decontamination fluid during the investigation. In addition, the subsurface soils contained 2-butanone and TICs; see Table C-10 of Appendix C.

The TCL SVOC and PAH analyses indicated the presence of one or more PAHs in a majority (i.e., approximately 73 percent) of the sampled subsurface soil locations (see Appendix C, Tables C-12 and C-13). Three samples, SB-02 at 6 to 7 feet bgs, SB-02 at 10 to 12 feet bgs and SB-04 at 8 to 10 feet bgs, contained no detections of PAHs. Individual PAHs were present at concentrations up to a maximum of 110 ppm, which was detected for phenanthrene in sample SB-03 at 0 to 2 feet bgs. Detected concentrations for eleven individual PAHs were greater than their respective TAGM 4046 values in the subsurface soils. As shown in Table C-13 and Figure 4-2, the majority of these exceedances and the most elevated concentrations for the PAHs occurred in SB-03 (0 to 2 feet bgs). Total PAH concentrations ranged from approximately 0.12 ppm (SB-03 at 6 to 8 feet bgs) to 461 ppm (SB-03 at 0 to 2 feet bgs). Bis(2-ethylhexyl)phthalate and SVOC TICs were also present in various subsurface soil samples, as shown in Table C-12. In general, the TICs were denoted as unknowns, unknown alkanes, or unknown PAH substance.

Sample SS-02 at 0 to 2 feet bgs was the only occurrence of pesticide and/or PCB constituents in the subsurface soils. As shown in Appendix C, Table C-14, this sample contained aldrin at 0.0066 ppm and Aroclor 1254 at 1.01 ppm. Neither of these occurrences was greater than TAGM 4046 values for subsurface soils.

Four subsurface soil samples were collected from the Site and analyzed for TAL metals. Up to 17 metals were detected in these subsurface soil samples, and the results are presented in Table C-15 of Appendix C. Eight of the metals (arsenic, beryllium, chromium, copper, iron, mercury, nickel, and zinc) were present at concentrations that were above their respective TAGM 4046 values, in at least one of the subsurface soil samples; see Figure 4-2. Generally, the concentrations for a majority of the metal constituents were approximately equivalent in magnitude from around the Site. A few metals (e.g., calcium, lead, magnesium) were present in the shallow 0 to 2 foot bgs

sample of location SS-02 at more elevated concentrations (i.e., up to 8.6 times greater than the maximum of the other subsurface soil samples); see Table C-15.

As indicated in Table C-8, cyanide was not detected in the subsurface soil samples.

Subsurface soil samples from the 0 to 2 foot bgs and 2 to 4 foot bgs intervals were analyzed for TOC (see Table C-17). Concentrations were more elevated in the 0 to 2 foot bgs samples, which had a maximum of 26,000 ppm, in comparison to the 2 to 4 foot bgs samples, where the maximum concentration was 7,910 ppm.

## 4.4 INTERIM REMEDIAL MEASURES (IRM) EVALUATION

Based on the review of the analytical data presented above, an IRM is not warranted at the Site because an imminent threat to human health and/or the environment is not present. However, one area on the Schenectady (Seneca St.) Site is being considered by NMPC for Remedial Action. This area includes the shallow soils (0-2 ft bgs) at location SB-03.

At SB-03, the analytical data suggests that PAH concentrations ranging from 2,550 to 110,000D ppb are present in the shallow soils above their respective TAGM 4046 cleanup level. Additional analytical soil data generated at SB-03 from 6-8 ft bgs indicate that the PAH concentrations at depth (6-8 ft bgs) are below the their respective TAGM 4046 cleanup level. Therefore, the PAHs in the soil which exceed the TAGM 4046 cleanup level are limited to the shallow soils.

NMPC proposes to excavate and properly dispose of the shallow soils in the immediate area (5 ft by 5 ft) of SB-03 to a depth of approximately 4 feet bgs. Following the excavation of these shallow soils, NMPC will collect three soil samples, one each from two of the side walls of the excavation and from the bottom of the excavation and analyze the samples for PAHs. Based on these analyses, NMPC will either propose additional excavation in this area or that the soils have been remediated and propose to the NYSDEC for closure of the Site.

When comparing the analytical soil data to the NYSDEC TAGM 4046 guidance values, several samples (surface and subsurface) exceeded their respective guidance values (see Figures 4-1 and 4-2). An approach to address these exceedances is discussed below.

Both on-site (SS-01 and SS-02) and off-site (OS-1 and OS-2) surface soil sample locations had exceedances to TAGM 4046 guidance values. OS-1 and OS-2 were considered to be background locations for the PSA/IRM Study and have not been impacted by on-site NMPC operations. Even though benzo (a) pyrene was detected on-site, exceeding its TAGM 4046 guidance value, these on-site values were equal to or less than the background concentrations. Also in general, the on-site total PAH concentrations were significantly (i.e., 7 times) less than the total PAH background concentration at OS-2.

When comparing the subsurface soil data to the TAGM 4046 guidance values, exceedances (i.e., volatile, PAHs, and metals) were noted in SS-01 and SS-02, and SB-2 through SB-5. As discussed above, NMPC proposes to excavate and properly dispose of the impacted subsurface soils at location SB-03. An approach to address the other soil sampling location exceedances is discussed below.

One volatile compound (acetone) detected in SB-2 and SB-5 is likely due to its use as a decontamination fluid during the PSA. PAHs (benzo (a) pyrene, dibenzo (a,h) anthracene, chrysene, and benzo (a) anthracene) were detected in the subsurface soil samples at concentrations which exceeded their respective TAGM 4046 guidance levels at sampling locations SS-01, SS-02, SB-2, SB-4, and SB-5. These PAH concentrations were detected at concentrations approximately 2 to10 times less than the concentration of these PAHs detected in the background sample OS-2. These relatively low PAH concentrations were detected in the fill layer and were, in general, distributed at equal concentration across the Site. Metal concentrations detected in the subsurface soil were approximately equivalent in magnitude from across the Site and are generally consistent with regional metal concentrations in soil in this area of New York State (McGovern, 1989). These soil samples were also collected from the fill layer.

Based on these exceedances to TAGM 4046 soil guidance values, NMPC proposes to cover (cap) the gravel surface in the vicinity of the sampling locations with an asphalt layer to minimize the potential exposure pathways. In order to maintain control of the property, NMPC will also deed restrict the property.

# 5.0 PRELIMINARY QUALITATIVE IMPACT ANALYSIS

A Fish and Wildlife Impact Analysis (FWIA) Step I a through b and Step II were performed at the Niagara Mohawk Power Corporation (NMPC) Schenectady (Seneca St.) Site located in Schenectady, Schenectady County, New York. The analysis was performed following guidelines provided by New York State Department of Environmental Conservation (NYSDEC) in the *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (NYSDEC, 1994). The FWIA document provides guidance for conducting fish and wildlife impact analyses of inactive hazardous waste sites following a phased approach. The objectives of the Step I - Site Description, the first step of the phased approach, are to: 1) identify fish and wildlife resources that may potentially be affected by site-related constituents, and 2) if resources are or were present, provide the appropriate information for designing a remedial investigation of these resources (NYSDEC, 1994). To achieve these objectives, this Report provides information regarding fish and wildlife resource values in the form of maps, habitat descriptions, and an assessment of resource values. Applicable fish and wildlife regulatory criteria, both contaminant-specific and site-specific, were also identified for this Step-I Site Description. The objective of the Step IIA - Pathway Analysis is to determine the impacts, if any, of site-related constituents on fish and wildlife resources.

## 5.1 STEP I - SITE DESCRIPTION

The Schenectady (Seneca St.) Site is situated on approximately three acres and was the former location of a MGP holder. Currently, the Site is used as a NMPC crew facility for natural gas and electric distribution services. The Site is enclosed by a gated chain linked fence. Structures on the Site include a trailer, tower, training building, garage with offices, concrete transformer storage platform, and metal storage building. The elevation of the Site is approximately 498 to 502 feet above mean sea level (MSL). The topography immediately surrounding the Site slopes to the northwest, southwest and southeast to approximately 475 MSL. The Site is bordered by Seneca Street to the north, a bicycle path to the east (former railroad right of way), and an active railroad right of way to the west. The bicycle path and railroad right of way merge to form the southern boundary of the Site . Land use within the vicinity of the Site is a mix of commercial, industrial, and residential.

### *5.1.1 Site Maps*

This section presents and discusses the maps which were generated for the Site in accordance with the FWIA requirements (NYSDEC, 1994).

#### *5.1.1.1 Topographic Map*

The locations of documented fish and wildlife resources within a two-mile radius of the Site are shown on Figure 5-1. The New York Natural Heritage Program lists the occurrence of three rare plant species within a two-mile radius of the Site. The State listed endangered side-oats grama (*Bouteloua curtipendula*) was observed in the vicinity of Collins Lake in 1884 (approximately 1.5 miles east northeast of the Site). The State listed category SH (historically known from New York) erect knotweed (*Polygonum erectum*) was recorded on the bank of the Mohawk River near the New York Central Railroad bridge (approximately 0.75 mile southwest of the Site) in 1946. Additionally, the State listed category S1 (extremely rare) narrow-leaf paleseed (*Leucospora multifida*) was observed just north of the intersection of Seneca Street and the bike path


LEGEND:

- NYS–REGULATED WETLANDS
- LAKES, RIVER, CREEKS
- (1) ENDANGERED SPECIES (SIDE–OATS–GRAMA)
- (2) HISTORICALLY KNOW SPECIES (ERECT KNOTWEED)
- (3) EXTREMELY RARE SPECIES (NARROW LEAF PALESEED)

1 1/2 0 Mile

1000 0 1000 2000 3000 feet

1 0.5 0 Kilometer

SOURCE: N.Y. STATE FRESHWATER WETLANDS MAPS SARATOGA AND SCHENECTADY COUNTIES AND U.S.G.S. SCHENECTADY NEW YORK QUADRANGLE

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NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 5–1
FISH AND WILDLIFE RESOURCES

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

(approximately 0.02 mile northeast of the Site) in 1993 (NYSDEC, 1998a). Federally-listed, proposed endangered, or threatened species were not documented within the two-mile radius of the Site by the United States Fish and Wildlife Service (USFWS) (USFWS, 1998).

According to the New York State Freshwater Wetlands Map of Schenectady County, there are six New York State regulated wetlands located within two miles of the Site. These wetlands are identified on Figure 5-1.

#### *5.1.1.2 Covertype Map*

Land use within a 0.5-mile radius of the Site is predominantly composed of industrial, commercial and residential properties (Figure 5-2). The remaining land within the 0.5-mile radius study area is composed of forested and wetlands habitats, mowed lawns, and successional fields (Figure 5-2). A detailed description of these covertypes is present in Section 5.1.2.1, Fish and Wildlife Resources and Covertypes.

According to the New York State Freshwater Wetlands Map of Schenectady County, there is one NY State regulated wetland located within the 0.5-mile study area. This wetland is identified on Figure 5-2. There are no New York State regulated wetlands located within the Site boundaries; however, drainage from the Site flows to wetland ditches that border the northwest and southeast edges of the Site.

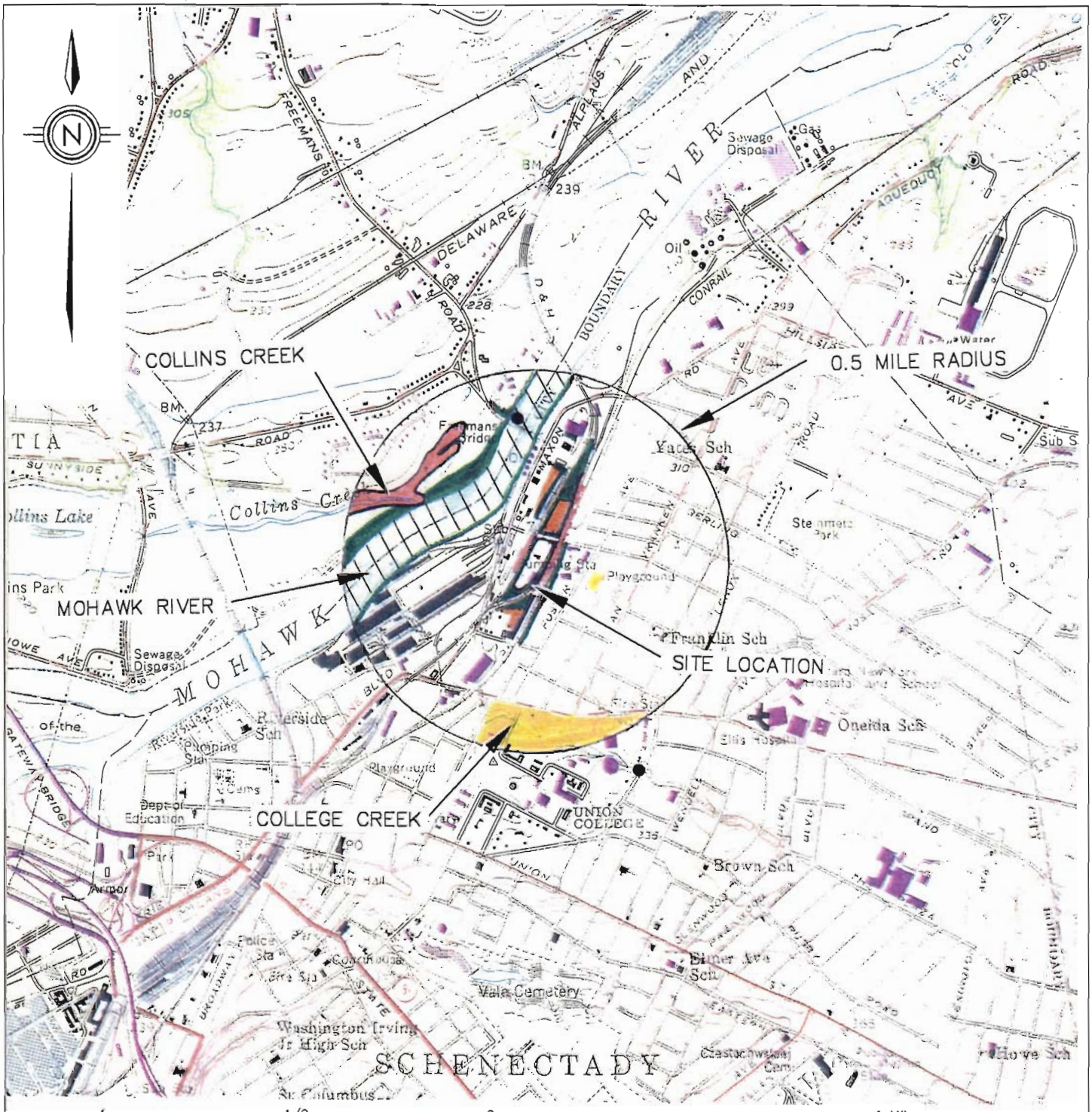
#### *5.1.1.3 Drainage Map*

Site elevation is approximately 500 MSL. Topography adjacent to the Site slopes steeply from the fence boundary to the northwest, southwest and southeast into wetland ditches that run along the edges of the Site, adjacent to former and existing railroad beds (approximately 475 MSL). A trailer, tower, training building, garage with offices, concrete transformer storage platform, and metal storage building constitute the only development on Site. The remaining portions of the Site are maintained as paved parking areas or covered with crushed stone. The Site is crowned; therefore, any storm-water flows across the Site to the northwest, southwest and southeast. Storm-water continues into the ditches that run along the railroad beds and then discharges into the Mohawk River (Figure 5-3).

### *5.1.2 Description of Fish and Wildlife Resources*

Pursuant to the NYSDEC guidelines, documented fish and wildlife resources within a two-mile radius of the Site were identified as part of the Step I - Site Description. A document search covering a two-mile radius of the Site was performed to identify documented fish and wildlife resources including, but not limited to, NYSDEC significant habitats, habitats supporting endangered, threatened or rare species, species of concern, regulated wetlands, wild and scenic rivers, streams and lakes, and other major resources. Figure 5-1 depicts the fish and wildlife resources within a two-mile radius of the Site.

A qualitative field assessment of vegetation covertypes and habitats, on-site and within the 0.5-mile radius study area, was performed on September 1, 1998 (Figure 5-2). This assessment included documentation of vegetation communities and wildlife observations. The information obtained from the qualitative assessment was then used to identify fish and wildlife resources and habitats within a 0.5-mile radius study area.




LEGEND:

- WATER QUALITY SAMPLE STATION
- FORESTED AREA
- DEVELOPED LAND
- WETLAND
- MOWED LAWN
- SUCESSIONAL FIELD
- OPEN WATER (MOHAWK RIVER)

SOURCE: 7.5 MINUTE SERIES SCHENECTADY, NEW YORK TOPOGRAPHIC QUADRANGLES

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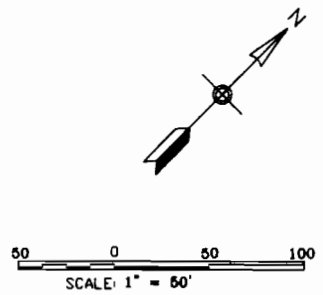
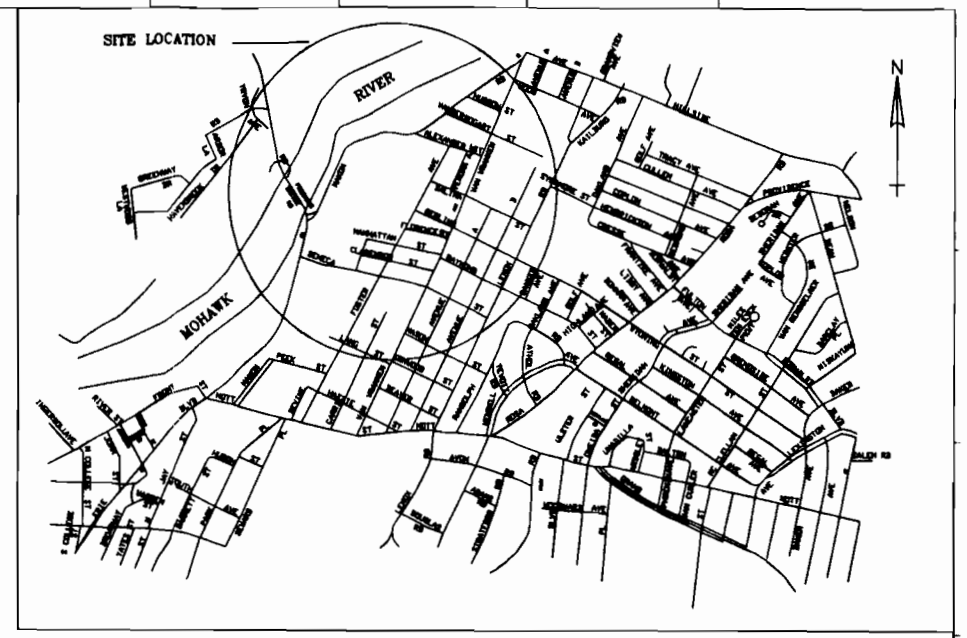
NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

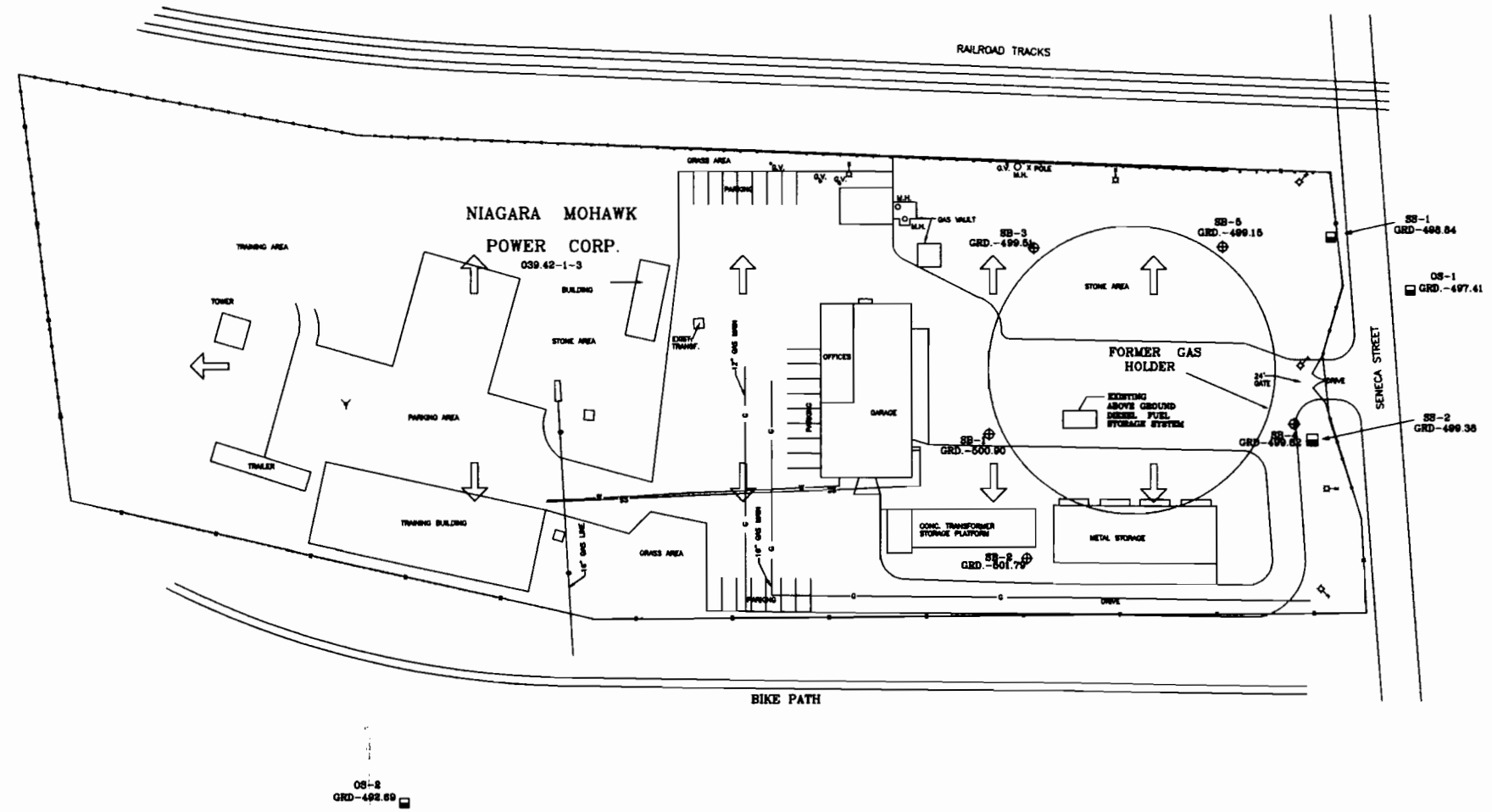
FIGURE 5-2
COVERTYPE MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY




LOCATION MAP
N.T.S.




## LEGEND

- Surface Soil Sample
- Soil Boring
- Pin
- Hyd.
- Manhole Unknown
- Manhole Electric
- Pipe
- Nail
- SITE BOUNDARY
- SURFACE FLOW

## REFERENCE MATERIAL

1) N.M.P.C. MAP TITLED "SENECA STREET SERVICE CENTER; INDEX NO. 20.3-S2.4-B2, DWG. NO. D-29735-E.
2) CITY OF SCHENECTADY TAX MAPS 039.34 AND039.42.

NOTE:

1) ALL SOIL BORINGS AND SOIL SAMPLES WERE LOCATED FROM A FIELD SURVEY ON 7/21/1998. THE BACKGROUND MAP IS OF A UNKNOWN ORIGIN (PER REF. 1) AND THEREFORE ITS ACCURACY MAY BE APROXIMATE.
2) ALL HORIZONTAL AND VERTICAL DATUM IS ASSUMED.

CAD FILE NAME: NM101298.DWG
PLOT SCALE: 1=50
DATE: 11/25/98
TIME: 8:53 AM

| REV | REVISION DESCRIPTION | PREPARED | CHECKED | APPROVED | DATE |
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NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 5-3
DRAINAGE MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

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SCALE: 1"=50'-0"
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### 5.1.2.1 Fish and Wildlife Resources and Covertypes

The Schenectady (Seneca St.) Site is situated on approximately three acres, and contained a former gas holder. The area is currently used by NMPC as a crew facility for natural gas and electric distribution services. Three buildings, a trailer, a concrete pad, a tower, and associated asphalt paved parking lots are present on the Site and are enclosed by a chain linked fence. The majority of the remaining area is covered with crushed stone. A small mowed grass area (approximately 1,350 square feet) with a mature black locust (*Robinia pseudoacacia*) and a fir (*Abies sp.*) is located to the northeast of the Training Building. Vegetation along the northwestern boundary of the fenced area includes 12 scattered pine (*Pinus sp.*) and two black locust trees. Five pine and three fir trees are scattered along the northeastern fence line along Seneca Street. Northern catalpa (*Catalpa speciosa*), boxelder (*Acer negundo*), and goldenrod (*Solidago sp.*) have naturally re-vegetated the area behind the Training Building along the southeast fence line. A narrow band of purple loosestrife (*Lythrum salicaria*), reed (*Phragmites communis*), goldenrod, and Queen Anne's lace (*Daucus carota*) is growing at the former gas holder location. Although covered with gravel, the training area at the southwestern end of the Site is overgrown with scattered goldenrod, bittersweet nightshade (*Solanum dulcamara*), bull thistle (*Cirsium vulgare*) and young poplars (*Populus sp.*). In addition, the stone area located in the northern corner of the Site is overgrown with goldenrod, knapweed (*Centaurea sp.*), common mullein (*Verbascum thapsus*), orchid grass (*Dactylis glomerata*), purple loosestrife, Queen Anne's lace, and young poplar and black locust.

Within the vicinity, and throughout a 0.5-mile radius of the Site, approximately 78 percent of the area is composed of industrial, commercial and residential properties (Figure 5-2). The remaining area is comprised of the following habitats and percentages: open water (the Mohawk River) (10%); forested area (5%); mowed lawn (4%); wetland (2%); and successional field (1%).

Adjacent to the Site is a 20 to 30 year old woodland to the northeast, southeast and southwest. The woodland is made up of poplar, boxelder, oak (*Quercus sp.*), sugar maple (*Acer saccharum*), black locust, black willow (*Salix nigra*), staghorn sumac (*Rhus typhina*), cherry (*Prunus sp.*), goldenrod and grapevine (*Vitis sp.*). To the southwest, the wooded area is approximately 30 feet wide and slopes down to a 30 foot wide ditch vegetated by reed. Adjacent to the ditch is an old railroad bed that has been paved with asphalt and is used as a bike path. The wooded area to the northwest of the Site slopes down approximately 25 feet to a narrow ditch (about 3 feet wide) vegetated with cattail (*Typha latifolia*), reed, and purple loosestrife. Running parallel to the ditch is another railroad bed. The bike path and railroad bed eventually join to the southwest of the Site, enclosing the wooded area to the southern portion of the Site.

North of the Site, across Seneca Street, there is a vacant successional field that is bordered by a woodland. Plant species in this area include black willow, red maple (*Acer rubrum*), cherry, staghorn sumac, stiff dogwood (*Cornus foemina*), purple loosestrife, and goldenrod. Maintained lawns occur at residences throughout the 0.5-mile radius. In addition, lawns exist at the playground near Foster Avenue, and at Union College. A State regulated wetland, associated with Collins Creek, is located across the Mohawk River from the Site. Forested areas are located in the riparian areas of the Mohawk River. Vegetation in the riparian area is composed of black willow, box elder, and elm (*Ulmus* sp.). False nettle (*Boehmeria cylindrica*), spotted touch-me-not (*Impatiens capensis*), pale touch-me-not (*Impatiens pallida*), spotted Joe-pye weed (*Eupatorium maculatum*), moneywort (*Lysimachia nummularia*), and common burdock (*Arctium minus*) were also observed

in the riparian zone on the banks of a small tributary to the Mohawk River, north of the Freeman's Bridge.

Surface water bodies within the 0.5-mile study area include the Mohawk River, Collins Creek, and College Creek. Collins Creek and the Mohawk River are located in the northwest portion of the study area, as is their confluence. College Creek is present in the southern portion of the study area. The Mohawk River is approximately 500 feet wide within the study area, and has a sandy substrate. Rip-rap was present along portions of the shoreline and submergent vegetation was not observed. Riparian habitat consisted of a broad-leaf deciduous woodland primarily composed of black willow, box elder, and elm. The nearest gauging station to Schenectady on the Mohawk River is located 12 to 13 miles to the east at Cohoes, NY. The annual mean flow for the years 1926 to 1997 was 5,680 cubic feet/second (cfs) (USGS, 1998).

Collins Creek is fed from Collins Lake and flows east into the Mohawk River. The creek is 10 to 20 feet wide, and also has a sandy substrate. Within the study area Collins Creek passes through wetlands and forested habitats. Submergent vegetation was observed. College Creek is present in the southern portion of the study area. The creek channel ranges from 10 to 15 feet wide and the substrate is composed of slate. Submergent vegetation was not observed. The creek originates from the southeast of the Site, and winds through a series of wooded areas outside of the study area. The wooded areas are dominated by hickory (*Carya sp.*), sugar maple (*Acer saccharum*), and oak (*Quercus sp.*). Inside the study area, it flows through the campus of Union College, then goes underground and enters the Mohawk River in the vicinity of the NYC Railroad bridge in Schenectady.

Water quality parameters were sampled in surface waters that occurred within 0.5-mile radius of the Site. A description of the water quality criteria within these streams is shown in Table 5-1. Water quality parameters were obtained for the Mohawk River at the Freeman's Bridge Fishing Access Site (north of the Freeman's Bridge on the west bank). Aboveground portions of College Creek were not observed within the 0.5-mile study area. Consequently, water quality parameters were collected just outside the study area near Lenox Road. Collins Creek is located upstream of the Site, on the opposite side of the Mohawk River. Therefore, water quality parameters were not obtained for Collins Creek.

The corresponding percent saturation of oxygen at the measured temperature was determined for the streams located within the 0.5-mile radius study area using an oxygen saturation nomogram (Wetzel 1983, Table 5-2).

The Mohawk River, within the vicinity of the Site, has been classified by NYSDEC as Class A waters. Class A waters are suitable as a source of water supply for drinking, culinary or food processing purposes. In addition, they are suited for fish propagation and survival, as well as primary and secondary contact recreation, and fishing. The NYSDEC classifies Collins Creek, and College Creek as Class C waters. These waters are appropriate for primary and secondary contact recreation and fishing, and fish propagation and survival (NYSDEC, 1998b; NYSDEC, 1998c; NYSDEC, 1998d).

Documented fish and wildlife habitat present within the 0.5-mile radius study area consist of a NYS regulated wetland area, and the State listed extremely rare narrow-leaf paleseed. (Figure 5-2). Six NYS regulated wetlands are present within the two-mile radius study area. (Figure 5-1).

**TABLE 5-1**

**Water Quality Criteria In Streams Within 0.5-Mile Radius of the Site**

| Water Parameters | Mohawk River[1] | | College Creek |
|---|---|---|---|
| Water Temperature (°C) | 25.3 | 25.2 | 19.6 |
| Dissolved Oxygen (mg/L) | 8.44 | 8.82 | 7.0 |
| Conductivity (mS) | 0.665 | 0.709 | 0.707 |
| Salinity (o/oo) | 0.03 | .030.03 | 0.03 |
| Turbidity | 5 | 6 | 0 |
| pH | 8.48 | 8.99 | 8.9 |

[1] Duplicate samples were obtained for the Mohawk River.

**TABLE 5-2**

**Percent Oxygen Saturation For Streams Within 0.5-Mile Radius of the Site**

| Water Body | Percent Saturation of Oxygen |
|---|---|
| Mohawk River | 102 |
| Mohawk River (duplicate sample) | 107 |
| Unnamed Creek | 77 |

### *5.1.2.2 Fauna Expected Within Each Covertype and Aquatic Habitat*

A total of six bird species, mourning dove (*Zenaida macroura*), mockingbird (*Mimus polyglottos*), common crow (*Corvus brachyrhynchos*), catbird (*Dumetella carolinensis*), bluejay (*Cyanocitta cristata*), and European starling (*Sturnus vulgaris*) were observed during the Site investigation. Mourning doves, starlings, and a mockingbird were observed on the Schenectady (Seneca St.) Site. The mourning doves were sighted within the training area at rest on the crushed stone, amongst the dead vegetation. The mockingbird was observed on the telephone wires above the training building, while the European starlings were seen in the trees and vegetation bordering the southeast boundary of the Site. Mourning doves, mockingbirds, and European starlings inhabit open fields, parks, lawns, and farmlands and are common in rural areas throughout the United States (Bull and Farrand, 1977).

A catbird was observed north of the Site in dense shrubs along the bike path, adjacent to the successional field. Catbirds inhabit thickets and brush in residential areas and gardens, and are primairly insectivorous (Bull and Farrand, 1977). Common crows and a blue jay were observed just outside of the 0.5-mile radius study area. Crows were seen at Steinmetz Park and at Union College. The bluejay was also observed at Steinmetz Park. Blue jays chiefly inhabit oak forests, but also frequent city parks and suburban yards where they feed on seeds and acorns. The common

crow is omnivorous, is abundant throughout North America and found in woodlands, farmlands, and suburban areas (Bull and Farrand, 1977).

The birds observed during the September 1, 1998 field investigation are winter residents and fall migratory species. This represents a portion of species that could potentially inhabit the area. Additional breeding and transient species may also be present in the study area during the spring, summer, and fall. Additional adaptable species, which can reside in highly populated and developed areas, include the American robin (*Turdus migratorius*), Northern cardinal (*Cardinalis cardinalis*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), and rock dove (*Columba livia*). These species would reside within developed areas in the 0.5-mile radius study area provided adequate food sources are available.

Raccoon (*Procyon lotor*) tracks were observed in the wetland ditches adjacent to the Site during the September 1, 1998 Site visit. Possible raccoon scat was also observed on the Site in the Training Area. Raccoons occur in wooded areas along streams and lakes. They are omnivorous, feeding on fruits, nuts, grains, insects, frogs, crayfish, and bird eggs. In addition, eastern gray squirrels (*Sciurus carolinensis*) and eastern chipmunks (*Tamias striatus*) were observed just outside the 0.5-mile study area at Union College. Eastern gray squirrels and eastern chipmunks inhabit forested areas and rarely venture far from trees. Eastern gray squirrels typically feed on nuts, seeds, fungi, and fruits and thrive in residential areas with nut-bearing trees such as oaks. Eastern chipmunks feed on seeds, bulbs, fruits, nuts, insects, meat and eggs (Burt and Grossenheider, 1980).

Additional mammal species that could reside in the woodland and successional field habitats and residential areas include the groundhog (*Marmota monax*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis marsupialis*), eastern cottontail (*Sylvilagus floridanus*), and various mice species.

Herpetofauna were not encountered during the field investigation. Throughout the 0.5-mile radius study area, the stream and riparian habitats provide necessary requirements for several turtle species common throughout the Northeast. These species include the snapping turtle (*Chelydra serpentina*), and stinkpot (*Sternothaerus odoratus*). Additional herpetofauna species which could utilize the adjacent upland forest areas include the eastern painted turtle (*Chrysemys picta picta*), and the common garter snake (*Thamnophis sirtalis*). Herpetofauna feed on a variety of food items, including insects, small mammals, fish, mushrooms, and berries.

Aquatic wildlife, i.e., fish, amphibians, benthic invertebrates, were not observed during the field investigation. The streams within the 0.5-mile radius study area support a warm water fishery (NYSDEC, 1998e). Fish studies were performed by NYSDEC in the Lock 7-8 reach of the Mohawk River, located both upstream and downstream of the Site, in 1980, 1982, and 1998. Largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), walleye (*Stizostedion vitreum*), black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), brown bullhead (*Ameiurus nebulosus*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), white bass (*Morone chrysops*), white crappie (*Pomoxis annularis*), white perch (*Morone americana*), yellow bullhead (*Ameiurus natalis*), yellow perch (*Perca flavescens*), American eel (*Anguilla rostrata*), blueback herring (*Alosa aestivalis*), common carp (*Cyprinus carpio*), common shiner (*Luxilus cornutus*), fallfish (*Semotilus corporalis*), gizzard shad (*Dorosoma cepedianum*), goldfish (*Carassius auratus*), golden shiner (*Notemigonus crysoleucas*), satinfin shiner (*Cyprinella*

*analostana*), shorthead redhorse (*Moxostoma macrolepidotum*), spotfin shiner (*Cyprinella spiloptera*), white sucker (*Catostomus commersoni*), tiger musky (*Esox masquinongy*), freshwater drum (*Aplodinotus grunniens*), and northern pike (*Esox lucius*) were recorded during these surveys (NYSDEC, 1998c). Fish were also collected at the mouth of Collins Creek, in the Mohawk River, in 1983. In this survey, largemouth bass, brown bullhead, pumpkinseed, yellow perch, common carp, gizzard shad, goldfish, golden shiner, spottail shiner (*Notropis hudsonius*), white sucker, emerald shiner (*Notropis atherinoides*), and American eel were recorded (NYSDEC, 1998c). According to the NYSDEC, College Creek has never been surveyed for fish.

#### 5.1.2.3 Observations of Stress

As part of the Site investigation, vegetation and wildlife within the 0.5-mile radius were investigated for signs of stress potentially related to Site constituents. According to Mr. Timothy Predice, with the Environmental Disturbance Investigation Unit, New York State Department of Environmental Conservation, there have been no fish kills associated with the Seneca Street Site in the Mohawk River. Wildlife observed within the 0.5-mile radius study area did not show signs of stress. However, vegetation occuring in the Training Area of the Schenectady (Seneca St.) Site did show signs of stress. Plants in this area were either dead or dying while plants of the same species adjacent to the area appeared to be thriving. Mr. Dave Durm, of NMPC, stated that the area where the stressed vegetation was observed had been sprayed by the NMPC Forestry Department. He was not sure what herbicide had been used in the control measure (NMPC, 1998).

### 5.1.3 Description of Fish and Wildlife Resource Values

As part of a Fish and Wildlife Impact Analysis, Step I - Site Description, habitat value for both wildlife and humans is assessed. Wildlife habitat is assessed, within the 0.5-mile study area, based on availability of food, seasonal cover, bedding areas, breeding and roosting sites, etc. For humans, the value of habitats within the 0.5-mile study area is assessed based on the current and potential use of fish and wildlife resources. Human resources may include hunting, fishing, observation of wildlife, scientific studies, agriculture, forestry, and other recreational and economic activities.

#### 5.1.3.1 Value of Resources to Wildlife

Wildlife habitat within the 0.5-mile study area consists of the forested riparian areas of the Mohawk River, the wetland associated with Collins Creek, the maintained lawns of Union College and the playground, and the forested and successional field areas on, adjacent to and north of the Site. Due to the development surrounding these habitats, only highly adaptable, or urban wildlife species are expected to inhabit these areas. The State Regulated Wetland S-114, and the State listed extremely rare narrow-leaf paleseed occur within 0.5-mile of the Site. Additional State or Federal endangered, threatened, rare, or special concern wildlife or plant species, natural communities, or other significant habitats of fish and wildlife resources are not documented within the 0.5-mile study area.

The Mohawk River, in the vicinity of Schenectady, has been classified by the NYSDEC as Class A waters. These waters are suitable for drinking, culinary or food processing purposes. Additionally, they are suited for primary and secondary contact recreation, and fishing, and support fish propagation and survival (NYSDEC, 1998b; NYSDEC, 1998c; NYSDEC, 1998d). Collins Creek, and College Creek have been classified by NYSDEC as Class C waters. These waters are suitable

for fishing, fish propagation and survival, and primary and secondary contact recreation (NYSDEC, 1998b; NYSDEC, 1998c; NYSDEC, 1998d).

#### 5.1.3.2 Value of Resources to Humans

Due to the developed nature of the 0.5-mile radius study area, resources available to humans are limited to the Mohawk River, the bicycle path, the mowed fields at the Union College, and the small playground located by Foster Avenue which could be used for recreational activities. The Mohawk River is the only water body within the study area that is large enough to be fished. Access to the river within the 0.5-mile study area can be gained at the Freeman's Bridge Fishing Access Site. In addition, the riparian area along the Mohawk River could potentially be used for wildlife observation. However, due to privately-owned properties along the river, access to these areas would be limited.

### 5.1.4 Identification of Applicable Fish and Wildlife Regulatory Criteria

Both contaminant-specific and Site-specific criteria applicable to the remediation of fish and wildlife resources were reviewed for the Schenectady (Seneca St.) Site. Contaminant-specific criteria involves reviewing NYSDEC rules, regulations, and guidance values to identify regulatory compliance, permits, or standards which may be applicable to the Site. Site-specific criteria involves reviewing NYSDEC rules and regulations to identify regulatory conditions or permits which may be required for the Site. The results of these reviews are discussed below.

Surface and subsurface soils were collected at the Schenectady (Seneca St.) Site. Site-specific surface soils were compared to background samples (Appendix C). Subsurface soils are not considered as pathways for fish and wildlife resource and were therefore, not reviewed. A total of two surface soil samples and two surface soil background samples were collected. Based on review of sample results and Site conditions the following New York Codes, Rules and Regulations; and guidances were identified as being applicable:

- Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels; and
- Derivation and Use of Standards and Guidance Values (6 New York Codes, Rules, and Regulations [NYCRR] Part 702).

## 5.2 STEP II - CONTAMINANT-SPECIFIC IMPACT ASSESSMENT

### 5.2.1 Pathway Analysis

#### 5.2.1.1 Surface Soil

Concentrations of two semi-volatiles and one PAH were detected at higher levels in surface soil samples from the Schenectady (Seneca St.) Site than at the background stations. Surface soils are a potential pathway for which ecological receptors can be exposed to constituents through ingestion, inhalation, or dermal apsorbtion. The area surrounding the Site is highly developed and offers limited feeding and resting habitat. The majority of the Site is either covered in crushed stone, paved, or covered by structures (i.e., buildings). Adjacent to the Site there is a dense woodland community. Therefore, erosion of contaminated soils is unlikely within these areas, and wildlife exposure to Site constituents via surface soil is anticipated to be minimal.

The semi-volatiles bis(2-ethylhexyl)phthalate and dibenzo(a,h)anthracene were detected in samples SS-01-1 and SS-01-1D (duplicate) but not at the background stations (OS-1 and OS-2). Concentrations of bis(2-ethylhexyl)phthalate ranged from 36.7 to 41.9 ppb and levels of dibenzo(a,h)anthracene varied from 23.3 to 24.1 ppb on the Site.

The PAH compound dibenzo (a,h) anthracene was present in the SS-02-1 sample at a concentration of 48.6 ppb. Dibenzo (a,h) anthracene was not detected in samples associated with the background locations.

#### *5.2.1.2 Surface Water*

As stated above, the Site is predominantly covered with impervious material; therefore, surface water contact with potentially contaminated soils is assumed to be minimal. During the Site inspection, no evidence of erosion or washed out areas were observed. Additionally, no catch basins were present on-site. Storm water would exit the Site overland through a vegetated forested area, and continue to wetland ditches that are located adjacent to the Site. It is anticipated that the release of possible contaminants to the surrounding area via the surface water pathway would be minimal.

# 6.0 CONCLUSIONS AND RECOMMENDATIONS

This section summarizes the findings of the PSA/IRM Study performed at the Schenectady (Seneca St.) Site and presents a recommendation for Remedial Action to be performed at the Site in order to achieve closure.

## 6.1 CONCLUSIONS

Based on the data generated during the performance of the PSA, the following conclusions are presented for the Schenectady (Seneca St.) Site.

### *6.1.1 Hydrogeological*

- Three unconsolidated deposits are present beneath the Site. In descending order from the ground surface (with their range of measured thickness on the Site), they are: fill consisting of sand and gravel and fragments of various debris (brick and concrete) (1.5 to 2.8 feet); alluvial deposits consisting of sand, silt, and gravel (3.5 to 5 feet); and dense glacial till consisting of dark brown, gray to black silt (5 to 23 feet).
- Groundwater was detected in SB-01 and SB-03 between 23 and 24.5 ft bgs, respectively, however, due to the shallow depth of the till, its impermeable nature, and the lack of observed contamination, no groundwater impacts are expected.
- The groundwater flow direction is assumed to be toward the Mohawk River. No groundwater was encountered in the unconsolidated deposits above the till unit.
- No MGP by-product impacts were observed/detected in the surface, shallow or subsurface soils.

### *6.1.2 Surface Soils*

- No volatile organics were detected in the surface soil samples.
- Several PAH compounds were detected in each of the off-site surface soil samples exceeding the TAGM values. The total PAH concentrations ranged from 0.8763 to 11.9187 ppm. Two PAH compounds were detected in each of the on-site surface soil samples exceeding the TAGM values. The total PAH concentrations ranged from 0.81 to 1.74 ppm.
- No pesticide or PCB constituents were detected exceeding their TAGM values in the on-site surface soil samples. One pesticide (4,4'-DDE) was detected (0.0022 ppm) exceeding its TAGM cleanup value in a off-site surface soil sample.
- Metal concentrations in the surface soils collected on-site were either less than the concentrations present in both the off-site (background) surface soil samples or between the two off-site sample concentrations. Cyanide was not detected in the on-site surface soil samples.
- TOC levels for the on-site soils were 18,500 and 17,600 ppm. TOC levels were 28,900 and 50,200 ppm for the off-site surface soil samples.

### 6.1.3 Subsurface Soils

- No volatile organics with the exception of acetone, a common decontaminant, were above their respective TAGM 4046 value.
- A total of 11 PAH compounds were detected at concentrations which exceed their respective TAGM value. Phenanthrene (110 ppm) was the highest detected individual PAH concentration in SB-3 at 0 to 2 ft bgs.
- No pesticide or PCB concentrations were detected above their respective TAGM value.
- A total of eight metals (arsenic, beryllium, chromium, copper, iron, mercury, nickel, and zinc) were detected in the subsurface soils exceeding their respective TAGM 4046 value. Cyanide was not detected in the subsurface soils.
- TOC levels at the site were detected in concentrations ranging between 3,300 to 26,000 ppm.

### 6.1.4 IRM Evaluation

Based on the review of the analytical data presented above, an IRM is not warranted at the Site because an imminent threat to human health and/or the environment is not present. However, one area on the Schenectady (Seneca St.) Site is being considered by NMPC as an IRM to facilitate Site Closure. This area includes the shallow soils (0-2 ft bgs) at location SB-03.

## 6.2 RECOMMENDATION

Based on the data generated during the performance of the PSA and the conclusions outlined above, the following is proposed by NMPC for the Schenectady (Seneca St.) Site.

- NMPC proposes to excavate and properly dispose of the shallow soils in the immediate area (5 ft by 5 ft) of SB-03 to a depth of approximately 4 feet bgs. Following the excavation of these shallow soils, NMPC will collect three soil samples, one each from two of the side walls of the excavation and from the bottom of the excavation and analyze the samples for PAHs. Based on these analyses, NMPC will either propose additional excavation in this area or propose closure of the Site to the NYSDEC.
- NMPC proposes to cover (cap) the gravel surface in the vicinity of the sampling locations with an asphalt layer to minimize the potential exposure pathways. In order to maintain control of the property, NMPC will also deed restrict the property.

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# APPENDICES

# APPENDIX A

# SOIL BORING LOGS

# FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION
SCHENECTADY (SENECA STREET) SITE
BORING NUMBER: SB-01

PROJECT NO: 1984-0000-0000-00003
DATE STARTED: 6/29/98

LOCATION: Schenectady, New York
DATE COMPLETED: 6/29/98

GEOLOGIST: Paul Anderson
GROUNDWATER DEPTH: approximately 23 ft. bgs

DRILLER: SJB Services, Inc.
ELEVATION: 500.9 ft. MSL

DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons

| SAMPLE ID | DEPTH (feet) | BLOWS per 6" | RECO-VERY | PRO-FILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | |
| | | 14 | | | | 0.2 ft. asphalt, subbase (angular | | | | No coal tar- type |
| | 1 | 50 | 14" | | Fill | fine gravel, coarse sand). | 1338 | 6/29/98 | 1 | impacts |
| 1 | | 50/.2 | | | | Concrete (1.5-2.8 ft. bgs). | | | | observed. |
| | 2 | | | | | | | | | |
| | | HW | | | | 0.25 ft. as above contacting SILT. | | | | 50 ppm augers |
| | 3 | 1 | 10" | | SM | 0.6 ft. fine SAND and SILT, some fine | 1349 | 6/29/98 | 1 | water in augers |
| 2 | | 2 | | | | grey, brown, gravel (angular-round), | | | | No coal tar-type |
| | 4 | 2 | | | | saturated. | | | | impacts observed. |
| | | 1 | | | | | | | | |
| | 5 | 1 | 4" | | SM | Same as above. | 1355 | 6/29/98 | 6 | No coal tar- type |
| 3 | | 1 | | | | | | | | impacts |
| | 6 | 2 | | | | | | | | observed. |
| | | 3 | | | | Same as above grading into black | | | | 1% LEL augers |
| | 7 | 11 | 21" | | SM/ | SILT, some fine sand and sub | 1402 | 6/29/98 | 1.5 | 2 ppm augers |
| 4 | | 20 | | | ML | angular to sub round fine gravel, | | | | No coal tar-type |
| | 8 | 23 | | | (till) | stiff, hard, dry. | | | | impacts observed. |
| | | 17 | | | | Same as above. | | | | No coal tar- type |
| | 9 | 22 | 17" | | ML | Embedded subangular gravel, | 1411 | 6/29/98 | 1 | impacts observed. |
| 5 | | 38 | | | (till) | hard, dry. | | | | |
| | 10 | 32 | | | | | | | | |
| | | 16 | | | | | | | | No coal tar- type |
| | 11 | 24 | 21" | | ML | Same as above. | 1423 | 6/29/98 | 0 | impacts observed. |
| 6 | | 27 | | | | | | | | 0% LEL in |
| | 12 | 34 | | | | | | | | augers |
| | | 25 | | | | Same as above. Some 1" lenses | | | | No coal tar- type |
| | 13 | 47 | 22" | | ML | with increased sand content, | 1444 | 6/29/98 | 30 | impacts |
| 7 | | 45 | | | | moist. | | | (spike) | observed. |
| | 14 | 50 | | | | | | | | |

NOTES:

## FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION
SCHENECTADY (SENECA STREET) SITE
BORING NUMBER: **SB-01**

PROJECT NO: 1984-0000-0000-00003
DATE STARTED: 6/29/98

LOCATION: Schenectady, New York
DATE COMPLETED: 6/29/98

GEOLOGIST: Paul Anderson
GROUNDWATER DEPTH: approximately 23 ft. bgs

DRILLER: SJB Services, Inc.
ELEVATION: 500.9 ft. MSL

DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons

| SAMPLE ID | DEPTH (feet) | BLOWS per 6" | RECOVERY | PROFILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | 14 | | | | | | | | | |
| | | 28 | | | | | | | | |
| | 15 | 44 | 24" | | ML | Same as above. | 1605 | 6/29/98 | NA | 0% LEL augers |
| 8 | | 48 | | | (till) | | | | | |
| | 16 | 53 | | | | | | | | |
| | | 15 | | | | | | | | 0% LEL |
| | 17 | 30 | 24" | | ML | Black SILT, some angular fine gravel, | 1614 | 6/29/98 | 0 | borehole |
| 9 | | 30 | | | (till) | very hard, dry . | | | | No coal tar- type |
| | 18 | 45 | | | | | | | | impacts observed. |
| | | 16 | | | | | | | | 0% LEL |
| | 19 | 25 | 24" | | ML | Same as above, larger GRAVEL in | 1534 | 6/29/98 | 0.2 | borehole |
| 10 | | 49 | | | (till) | spoon tip. | | | | No coal tar- type |
| | 20 | 76 | | | | | | | | impacts observed. |
| | | 27 | | | | | | | | 0% LEL. wet at |
| | 21 | 32 | 24" | | ML/ | Same as above with 1" fine dark grey | 1550 | 6/29/98 | 0.2 | approx. 21.6 ft. bgs |
| 11 | | 49 | | | SP | sand lense, wet. | | | | No coal tar- type |
| | 22 | 73 | | | | | | | | impacts observed. |
| | | 36 | | | | Same as above with 1" fine dark | | | | Sand is possible |
| | 23 | 48 | 24" | | ML/ | grey SAND some fine round gravel, | 1609 | 6/29/98 | 0 | water bearing zone. |
| 12 | | 44 | | | SP | dense, wet. | | | | No coal tar- type |
| | 24 | 62 | | | | | | | | impacts observed. |
| | | 22 | | | | | | | | |
| | 25 | 35 | 16" | | ML | Same as above. | 1625 | 6/29/98 | 0.5 | No coal tar- type |
| 13 | | 44 | | | (till) | | | | | impacts |
| | 26 | 57 | | | | | | | | observed. |
| | | 17 | | | | | | | | 0 ppm in BZ |
| | 27 | 37 | 12" | | ML | Same as above. | 1645 | 6/29/98 | 0 | No coal tar- |
| 14 | | 70 | | | (till) | | | | | type impacts |
| | 28 | 75 | | | | | | | | observed. |
| | | 11 | | | | | | | | |
| | 29 | 31 | 16" | | ML | Same as above. | 1656 | 6/29/98 | 0 | No coal tar- |
| 15 | | 42 | | | (till) | | | | | type impacts |
| | 30 | 50 | | | | | | | | observed. |

NOTES: Boring terminated at 30 feet.

NA - Not available.

# FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION
SCHENECTADY (SENECA STREET) SITE
BORING NUMBER: SB-02

PROJECT NO: 1984-0000-0000-00003
DATE STARTED: 6/30/98

LOCATION: Schenectady, New York
DATE COMPLETED: 6/30/98

GEOLOGIST: Paul Anderson
GROUNDWATER DEPTH: 26.8 ft./ 24.5 ft. bgs on 7/1/98

DRILLER: SJB Services, Inc.
ELEVATION: 501.79 ft. MSL

DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons

| SAMPLE ID | DEPTH (feet) 0 | BLOWS per 6" | RECO-VERY | PRO-FILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1<br>2 | 3<br>6<br>7<br>6 | 11" | | GP (fill) | Grey coarse SAND and angular fine GRAVEL, trace brick fragments, loose, wet. | 1101 | 6/30/98 | NA | No coal tar- type impacts observed. |
| 2 | 3<br>4 | 6<br>12<br>38<br>50 | 0" | | NA | No recovery. | 1110 | 6/30/98 | NA | No coal tar-type impacts observed. 2% LEL augers |
| 3 | 5<br>6 | 21<br>48<br>70<br>76 | 22" | | GP | Grey brown fine SAND and fine sub angular to round GRAVEL, little silt, dense, dry. | 1126 | 6/30/98 | NA | No coal tar- type impacts observed. |
| 4 | 7<br>8 | 21<br>35<br>37<br>39 | 24" | | GP/ ML (till) | Same as above contacting grey, some fine GRAVEL, hard, dry. | 1145 | 6/30/98 | NA | Sampled for BTEX CN-, PAH 6-7ft. 0% LEL |
| 5 | 9<br>10 | 10<br>26<br>24<br>29 | 15" | | ML (till) | Same as above. | 1237 | 6/30/98 | NA | No coal tar- type impacts observed. |
| 6 | 11<br>12 | 17<br>24<br>31<br>32 | 22" | | ML (till) | Same as above. | 1253 | 6/30/98 | NA | |
| 7 | 13<br>14 | 15<br>22<br>27<br>30 | 24" | | ML (till) | Same as above. | 1301 | 6/30/98 | NA | No coal tar- type impacts observed. |

NOTES:

Raining heavy, OVA not operational. .

NA - Not available.

## FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION
SCHENECTADY (SENECA STREET) SITE
BORING NUMBER: SB-02

PROJECT NO: 1984-0000-0000-00003
DATE STARTED: 6/30/98

LOCATION: Schenectady, New York
DATE COMPLETED: 6/30/98

GEOLOGIST: Paul Anderson
GROUNDWATER DEPTH: 26.8 ft./ 24.5 ft. bgs on 7/1/98

DRILLER: SJB Services, Inc.
ELEVATION: 501.79 ft. MSL

DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons

| SAMPLE ID | DEPTH (feet) | BLOWS per 6" | RECO-VERY | PRO-FILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | 14 | | | | | | | | | |
| 8 | 15 | 17<br>32<br>37<br>32 | 24" | | ML (till) | Same as above. | 1312 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 9 | 17 | 15<br>22<br>28<br>38 | 20" | | ML (till) | Dark grey SILT, some fine angular gravel, hard, dry. | 1332 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 10 | 19 | 13<br>29<br>34<br>36 | 24" | | ML (till) | Same as above. | 1350 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 11 | 21 | 15<br>20<br>30<br>29 | 24" | | ML (till) | Same as above. | 1401 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 12 | 23 | 13<br>28<br>41<br>37 | 24" | | ML (till) | Same as above. | 1413 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 13 | 25 | 8<br>19<br>19<br>23 | 24" | | ML (till) | Same as above. | 1437 | 6/30/96 | NA | No coal tar-type impacts observed. |
| 14 | 27 | 7<br>21<br>67<br>43 | 24" | | ML/ GP (till) | Same as above with 1" sand lense and gravelly zone @ 27.5 to 27.8 ft., wet. | 1458 | 6/30/98 | NA | No coal tar-type impacts observed. |
| 15 | 29 | 13<br>32<br>33<br>43 | 24" | | ML (till) | Same as above. | 1524 | 6/30/98 | NA | No coal tar-type impacts observed. |

NOTES: Boring terminated at 30 ft. bgs.

NA - Not available.

# FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION
SCHENECTADY (SENECA STREET) SITE
BORING NUMBER: SB-03

PROJECT NO: 1984-0000-0000-00003
DATE STARTED: 7/1/98

LOCATION: Schenectady, New York
DATE COMPLETED: 7/1/98

GEOLOGIST: Paul Anderson
GROUNDWATER DEPTH: Not observed.

DRILLER: SJB Services, Inc.
ELEVATION: 499.51ft. MSL

DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons, 3 inch split-spoons

| SAMPLE ID | DEPTH (feet) | BLOWS per 6" | RECO-VERY | PRO-FILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | |
| | | 14 | | | | | | | | Petroleum odor |
| 1 | 1 | 9 | 22" | | SP/ | Fine angular GRAVEL and fine | 1333 | 7/1/98 | 2 | @ 1.2 ft. bgs, |
| | | 10 | | | GP | brown and grey to black medium | | | | black stained |
| | 2 | 9 | | | (Fill) | SAND, dense, dry. | | | | sand. |
| | | 4 | | | | | | | | 3" split-spoon |
| 2 | 3 | 6 | 16" | | ML | Brown SILT, some gravel | 1345 | 7/1/98 | 0 | Sampled for |
| | | 7 | | | | (fine, round to sub angular), stiff, | | | | BTEX. PAH, CN- |
| | 4 | 10 | | | | slightly moist. | | | | and duplicate. |
| | | 2 | | | | | | | | No coal tar- type |
| 3 | 5 | 9 | 23" | | ML/ | Same as above, contacting f-m | 1401 | 7/1/98 | 0 | impacts |
| | | 19 | | | GP | sub angular GRAVEL, some fine | | | | observed. |
| | 6 | 27 | | | | sand, dense, dry. | | | | |
| | | 29 | | | | | | | | No coal tar-type |
| 4 | 7 | 82 | 22" | | GP/ | Gravel as above, contacting | 1420 | 7/1/98 | 0 | impacts |
| | | 88 | | | ML | brown SILT, some angular gravel, | | | | observed. |
| | 8 | 100/.2 | | | (till) | very hard, dry. | | | | TCL/TAL sample. |
| | | 42 | | | | | | | | No coal tar- type |
| 5 | 9 | 75/.2 | 8" | | ML | Same as above. | 1429 | 7/1/98 | 0 | impacts |
| | | | | | (till) | | | | | observed. |
| | 10 | | | | | | | | | |
| | | 72 | | | | | | | | No coal tar- type |
| 6 | 11 | 50/.1 | 6" | | ML | Same as above, grey. | 1446 | 7/1/98 | 0 | impacts |
| | | | | | (till) | | | | | observed. |
| | 12 | | | | | | | | | |
| | | | | | | | | | | |
| | 13 | | | | | | | | | |
| | | | | | | | | | | |
| | 14 | | | | | | | | | |

NOTES: Boring terminated at 10.5 ft. bgs.

Resampled the 0-2ft. interval @ 1510, collected BTEX, CN- and PAH from impacted zone.

Abandoned boring at 10.5 ft. bgs (auger and split-spoon refusal) with NYSDEC concurrence.

# FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION — BORING NUMBER: **SB-04**
SCHENECTADY (SENECA STREET) SITE
PROJECT NO: 1984-0000-0000-00003 — DATE STARTED: 7/2/98
LOCATION: Schenectady, New York — DATE COMPLETED: 7/2/98
GEOLOGIST: Paul Anderson — GROUNDWATER DEPTH: Not observed.
DRILLER: SJB Services, Inc. — ELEVATION: 499.82 ft. MSL
DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons, 3" split-spoons

| SAMPLE ID | DEPTH (feet) 0 | BLOWS per 6" | RECO-VERY | PRO-FILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | asphalt | 4" | | GP | Gravel subbase, coarse gravel, some medium sand, dense, wet. | 742 | 7/2/98 | NA | No coal tar-type impacts observed. |
| | 1 | 9 | | | | | | | | |
| | | 9 | | | | | | | | |
| | 2 | 8 | | | | | | | | |
| 2 | | 6 | 16" | | GP/ ML | 0.7 ft. Same as above contacting brown SILT, some fine sand and gravel, slightly moist, stiff, hard. | 754 | 7/2/98 | NA | Slight coal tar-type impact. Odor @ spoon tip in sand. TCL/TAL + dup. |
| | 3 | 6 | | | | | | | | |
| | | 10 | | | | | | | | |
| | 4 | 22 | | | | | | | | |
| 3 | | 9 | 18" | | ML (till) | Brown SILT, some medium subround gravel, hard, grading to brown TILL (fine rounded gravel) very hard, dry. | 804 | 7/2/98 | NA | No coal tar-type impacts observed. |
| | 5 | 38 | | | | | | | | |
| | | 50/.4 | | | | | | | | |
| | 6 | | | | | | | | | |
| 4 | | 33 | 20" | | ML (till) | Same as above contacting 4" dark grey TILL. | 815 | 7/2/98 | 0 | No coal tar-type impacts observed. |
| | 7 | 42 | | | | | | | | |
| | | 47 | | | | | | | | |
| | 8 | 62 | | | | | | | | |
| 5 | | 15 | 24" | | ML (till) | Same as above. | 836 | 7/2/98 | NA | Sampled for BTEX, PAH, CN-. |
| | 9 | 29 | | | | | | | | |
| | | 39 | | | | | | | | |
| | 10 | 53 | | | | | | | | |
| 6 | | 31 | 22" | | ML (till) | Same as above. | 846 | 7/2/98 | NA | No coal tar-type impacts observed. |
| | 11 | 39 | | | | | | | | |
| | | 43 | | | | | | | | |
| | 12 | 48 | | | | | | | | |
| 7 | | 11 | 24" | | ML (till) | Same as above. | 901 | 7/2/98 | NA | No coal tar-type impacts observed. |
| | 13 | 19 | | | | | | | | |
| | | 22 | | | | | | | | |
| | 14 | 26 | | | | | | | | |
| 8 | | 17 | 24" | | ML (till) | Same as above. | 915 | 7/2/98 | NA | No coal tar-type impacts observed. |
| | 15 | 20 | | | | | | | | |
| | | 20 | | | | | | | | |
| | 16 | 25 | | | | | | | | |

NOTES: Boring terminated at 16 ft. bgs.

NA - Not available.

# FOSTER WHEELER ENVIRONMENTAL CORPORATION
## LOG OF BORING

PROJECT: NIAGARA MOHAWK POWER CORPORATION — BORING NUMBER: SB-05
SCHENECTADY (SENECA STREET) SITE
PROJECT NO: 1984-0000-0000-00003 — DATE STARTED: 7/2/98
LOCATION: Schenectady, New York — DATE COMPLETED: 7/2/98
GEOLOGIST: Paul Anderson — GROUNDWATER DEPTH: Not observed.
DRILLER: SJB Services, Inc. — ELEVATION: 499.18 ft. MSL
DRILLING/SAMPLING METHOD: Hollow Stem Augers. 2 inch split-spoons, 3 inch split-spoons

| SAMPLE ID | DEPTH (feet) | BLOWS per 6" | RECOVERY | PROFILE | USCS CLASS. | MATERIAL DESCRIPTION | COLLECTION Time | COLLECTION Date | OVA ppm | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | |
| | | 31 | | | | 0.5 ft. GRAVEL, some fine grey sand | | | | No coal tar-type |
| | 1 | 11 | 18" | | GP/ | contacting 0.25 ft. blk medium SAND. | 1303 | 7/2/98 | NA | impacts |
| 1 | | 18 | | | SP/ | contacting grey SILT, | | | | observed. |
| | 2 | 19 | | | ML | some fine angular gravel, dry. | | | | Petroleum odor. |
| | | NA | | | | | | | | No coal tar- type |
| | 3 | | 16" | | ML | Dark grey SILT, some medium sub | 1308 | 7/2/98 | NA | impacts observed. |
| 2 | | | | | (till) | round to sub angular gravel, stiff, | | | | Sample forTCL/ TAL |
| | 4 | | | | | slightly moist. | | | | + MS/MSD |
| | | 5 | | | | | | | | No coal tar-type |
| | 5 | 11 | 18" | | ML | Brown SILT, some fine subangular | 1317 | 7/2/98 | NA | impacts observed. |
| 3 | | 16 | | | (till) | to round gravel, hard, dry to | | | | CN-, BTEX, PAH |
| | 6 | 28 | | | | slightly moist. | | | | + MS/MSD. |
| | | 50/.1 | | | | | | | | No coal tar-type |
| | 7 | | 2" | | ML | Brown SILT, some fine angular | 1325 | 7/2/98 | NA | impacts |
| 4 | | | | | (till) | gravel, very hard, dry. | | | | observed. |
| | 8 | | | | | | | | | |
| | | | | | | | | | | |
| | 9 | | | | | | | | | |
| | | | | | | | | | | |
| | 10 | | | | | | | | | |
| | | | | | | | | | | |
| | 11 | | | | | | | | | |
| | | | | | | | | | | |
| | 12 | | | | | | | | | |
| | | | | | | | | | | |
| | 13 | | | | | | | | | |
| | | | | | | | | | | |
| | 14 | | | | | | | | | |

NOTES:
NA - Not available.

Spoon refusal @ 6.5 ft. bgs.
Auger to obtain sample or until further auger refusal. Final refusal @ 9.5 ft. bgs.

# APPENDIX B

# SURVEY DATA

**Survey Data**

**Soil Borings, and Surface Soil Sampling Locations**

**Schenectady (Seneca St.) Site**

| Location | Ground Surface Elevation (ft MSL) |
|---|---|
| SB-1 | 500.90 |
| SB-2 | 501.79 |
| SB-3 | 499.51 |
| SB-4 | 499.82 |
| SB-5 | 499.18 |
| SS-1 | 498.84 |
| SS-2 | 499.38 |
| OS-1 | 497.41 |
| OS-2 | 492.69 |

Notes:

| | |
|---|---|
| SB | Soil Boring |
| SS | Surface Soil Sample |
| OS | Off-site Surface Soil Sample |
| Ft MSL | Feet above Mean Sea Level |

# APPENDIX C

# ANALYTICAL DATA

# APPENDIX C - LIST OF ANALYTICAL RESULT TABLES

| Table | Title |
|---|---|
| C-1 | Abbreviations and Qualifiers Utilized in Result Tables |
| C-2 | TCL Volatile Organic Compounds - Surface Soils |
| C-3 | BTEX Compounds - Surface Soils |
| C-4 | TCL Semi-volatile Organic Compounds - Surface Soils |
| C-5 | PAH Compounds - Surface Soils |
| C-6 | TCL Pesticide/PCB Compounds - Surface Soils |
| C-7 | TAL Metals - Surface Soils |
| C-8 | Cyanide - Surface Soils |
| C-9 | Total Organic Carbon - Surface Soils |
| C-10 | TCL Volatile Organic Compounds - Subsurface Soils |
| C-11 | BTEX Compounds - Subsurface Soils |
| C-12 | TCL Semi-volatile Organic Compounds - Subsurface Soils |
| C-13 | PAH Compounds - Subsurface Soils |
| C-14 | TCL Pesticide/PCB Compounds - Subsurface Soils |
| C-15 | TAL Metals - Subsurface Soils |
| C-16 | Cyanide - Subsurface Soils |
| C-17 | Total Organic Carbon - Subsurface Soils |

TABLE C-1
ABBREVIATIONS AND QUALIFIERS UTILIZED IN RESULT TABLES

| Abbreviation | Definition |
|---|---|
| BTEX | Benzene, Toluene, Ethylbenzene, Xylenes. |
| FB | Field Blank. |
| mg/kg | milligrams per kilogram. |
| mg/L | milligrams per liter. |
| MW | Monitoring Well Location. |
| NC | No criteria and/or guidance value available. |
| ND | Non-detectable concentration by an approved analytical method. |
| NYSDEC | New York State Department of Environmental Conservation. |
| PAHs | Polycyclic Aromatic Hydrocarbons. |
| ppb | parts per billion (ug/kg or ug/L). |
| ppm | parts per million (mg/kg or mg/L). |
| SB | Soil Boring Location. |
| SS | Shallow Soil Location. |
| TAL | Target Analyte List. |
| TCL | Target Compound List. |
| TICs | Tentatively Identified Compounds. |
| ug/kg | micrograms per kilogram. |
| ug/L | micrograms per liter. |
| | Compound concentration is above the criteria and/or guidance value provided on the table (see Section 4.0 for selection rationale). To be used for comparison and reference purposes only. |

| Qualifier | Definition |
|---|---|
| U | Compound not detected at detection limits. |
| -- | No Tentatively Identified Compounds (TICs) identified in sample. |
| J | Compound value is estimated. |
| R | Compound value is rejected and deemed unusable. |
| B (organics) | Compound was also present in an associated blank sample. |
| B (inorganics) | Analyte value is less than the required method detection limit but greater than the instrument detection limit. |
| E | Compound concentration exceeds the calibration range. |
| D | Compound value reported is from a dilution analysis. |
| N | Presumptive evidence exists for the presence of compound. |
| NA | Not analyzed/not available. |

**TABLE C-2**
**TCL Volatile Organic Compounds - Surface Soils**
**NMPC Schenectady (Seneca St.) Site**


| Sample ID No. | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| Matrix | TAGM 4046 | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| Date | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 1,1,1-Trichloroethane | 800 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,1,2,2-Tetrachloroethane | 600 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,1,2-Trichloroethane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,1-Dichloroethane | 200 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,1-Dichloroethene | 400 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,2-Dichloroethane | 100 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 1,2-Dichloropropane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 2-Butanone (MEK) | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 2-Hexanone | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| 4-Methyl-2-pentanone (MIBK) | 1,000 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Acetone | 200 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Benzene | 60 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Bromodichloromethane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Bromoform | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Bromomethane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Carbon disulfide | 2,700 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Carbon tetrachloride | 600 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Chlorobenzene | 1,700 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Chloroethane | 1,900 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Chloroform | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Chloromethane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| cis-1,2-Dichloroethene | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| cis-1,3-Dichloropropene | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Dibromochloromethane | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Ethylbenzene | 5,500 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Methylene chloride | 100 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |

**TABLE C-2**
**TCL Volatile Organic Compounds - Surface Soils**
**NMPC Schenectady (Seneca St.) Site**


| Sample ID No. | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| Matrix | TAGM 4046 | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| Date | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Styrene | NC | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Tetrachloroethene | 1,400 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Toluene | 1,500 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| trans-1,2-Dichloroethene | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| trans-1,3-Dichloropropene | 300 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Trichloroethene | 700 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Vinyl chloride | 200 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Xylene (total) | 1,200 | 12 UJ | 12 UJ | 13 UJ | 12 UJ |
| Total Volatile TICs | NC | 35.6 JN | 18 JN | -- | -- |

**TABLE C-3**
**BTEX Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| **Sample ID No.** | | SS02-1 |
|---|---|---|
| **Lab ID No.** | **NYSDEC** | E36553-8 |
| **Matrix** | **TAGM 4046** | Soil (0-2") |
| **Date** | | 07/02/98 |
| **Units** | **ug/kg** | ug/kg |
| Benzene | 60 | 12 U |
| Ethylbenzene | 5,500 | 12 U |
| Toluene | 1,500 | 12 U |
| Xylene (total) | 1,200 | 12 U |

**TABLE C-4**
**TCL Semi-Volatile Organic Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| Matrix | TAGM 4046 | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| Date | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 1,2,4-Trichlorobenzene | NC | 400 U | 410 U | 440 U | 400 U |
| 1,2-Dichlorobenzene | 7,900 | 400 U | 410 U | 440 U | 400 U |
| 1,3-Dichlorobenzene | 1,600 | 400 U | 410 U | 440 U | 400 U |
| 1,4-Dichlorobenzene | 8,500 | 400 U | 410 U | 440 U | 400 U |
| 2,4,5-Trichlorophenol | 100 | 1000 U | 1000 U | 1100 U | 1000 U |
| 2,4,6-Trichlorophenol | NC | 400 U | 410 U | 440 U | 400 U |
| 2,4-Dichlorophenol | 400 | 400 U | 410 U | 440 U | 400 U |
| 2,4-Dimethylphenol | 400 | 400 U | 410 U | 440 U | 400 U |
| 2,4-Dinitrophenol | 200 | 1000 U | 1000 U | 1100 U | 1000 U |
| 2,4-Dinitrotoluene | NC | 400 U | 410 U | 440 U | 400 U |
| 2,6-Dinitrotoluene | 1,000 | 400 U | 410 U | 440 U | 400 U |
| 2-Chloronaphthalene | NC | 400 U | 410 U | 440 U | 400 U |
| 2-Chlorophenol | 800 | 400 U | 410 U | 440 U | 400 U |
| 2-Methylnaphthalene | 36,400 | 400 U | 410 U | 440 U | 53.5 J |
| 2-Methylphenol | 100 | 400 U | 410 U | 440 U | 400 U |
| 2-Nitroaniline | 430 | 1000 U | 1000 U | 1100 U | 1000 U |
| 2-Nitrophenol | 330 | 400 U | 410 U | 440 U | 400 U |
| 3&4-Methylphenol | 900 | 400 U | 410 U | 440 U | 400 U |
| 3,3'-Dichlorobenzidine | NC | 400 U | 410 U | 440 U | 400 U |
| 3-Nitroaniline | 500 | 1000 U | 1000 U | 1100 U | 1000 U |
| 4,6-Dinitro-o-cresol | NC | 1000 U | 1000 U | 1100 U | 1000 U |
| 4-Bromophenyl phenyl ether | NC | 400 U | 410 U | 440 U | 400 U |
| 4-Chloro-3-methyl phenol | 240 | 400 U | 410 U | 440 U | 400 U |
| 4-Chloroaniline | 220 | 400 U | 410 U | 440 U | 400 U |
| 4-Chlorophenyl phenyl ether | NC | 400 U | 410 U | 440 U | 400 U |
| 4-Nitroaniline | NC | 1000 U | 1000 U | 1100 U | 1000 U |

**TABLE C-4**
**TCL Semi-Volatile Organic Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| Matrix | TAGM 4046 | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| Date | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 4-Nitrophenol | 100 | 1000 U | 1000 U | 1100 U | 1000 U |
| Acenaphthene | 50,000 | 400 U | 410 U | 440 U | 400 U |
| Acenaphthylene | 41,000 | 400 U | 410 U | 440 U | 338 J |
| Anthracene | 50,000 | 400 U | 14.2 J | 440 U | 213 J |
| Benzo(a)anthracene | 224 | 65.2 J | 74 J | 55.1 J | 880 J |
| Benzo(a)pyrene | 61 | 89.1 J | 91.6 J | 89.5 J | 999 J |
| Benzo(b)fluoranthene | 1,100 | 80.4 J | 99.3 J | 94.8 J | 1180 J |
| Benzo(g,h,i)perylene | 50,000 | 47.4 J | 48.2 J | 67.6 J | 753 J |
| Benzo(k)fluoranthene | 1,100 | 80.4 J | 67.5 J | 66.3 J | 852 J |
| bis(2-Chloroethoxy)methane | NC | 400 U | 410 U | 440 U | 400 U |
| bis(2-Chloroethyl)ether | NC | 400 U | 410 U | 440 U | 400 U |
| bis(2-Chloroisopropyl)ether | NC | 400 U | 410 U | 440 U | 400 U |
| bis(2-Ethylhexyl)phthalate | 50,000 | 41.9 J | 36.5 J | 440 U | 400 U |
| Butyl benzyl phthalate | 50,000 | 400 U | 410 U | 440 U | 400 U |
| Carbazole | NC | 400 U | 410 U | 440 U | 107 J |
| Chrysene | 400 | 88.9 J | 98.5 J | 96.8 J | 1230 J |
| Di-n-butyl phthalate | 8,100 | 400 U | 410 U | 440 U | 400 U |
| Di-n-octyl phthalate | 50,000 | 400 U | 410 U | 440 U | 400 U |
| Dibenzo(a,h)anthracene | 14 | 24.1 J | 23.3 J | 440 U | 400 U |
| Dibenzofuran | 6,200 | 400 U | 410 U | 440 U | 41 J |
| Diethyl phthalate | 7,100 | 400 U | 410 U | 440 U | 400 U |
| Dimethyl phthalate | 2,000 | 400 U | 410 U | 440 U | 400 U |
| Fluoranthene | 50,000 | 132 J | 136 J | 157 J | 2100 |
| Fluorene | 50,000 | 400 U | 410 U | 440 U | 47.3 J |
| Hexachlorobenzene | 410 | 400 U | 410 U | 440 U | 400 U |
| Hexachlorobutadiene | NC | 400 U | 410 U | 440 U | 400 U |

See appendix introduction for abbreviations and data qualifiers.

**TABLE C-4**
**TCL Semi-Volatile Organic Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| **Sample ID No.** | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| **Lab ID No.** | **NYSDEC** | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| **Matrix** | **TAGM 4046** | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| **Date** | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| **Units** | **ug/kg** | ug/kg | ug/kg | ug/kg | ug/kg |
| Hexachlorocyclopentadiene | NC | 400 U | 410 U | 440 U | 400 U |
| Hexachloroethane | NC | 400 U | 410 U | 440 U | 400 U |
| Indeno(1,2,3-cd)pyrene | 3,200 | 48.2 J | 45.2 J | 48 J | 614 J |
| Isophorone | 4,400 | 400 U | 410 U | 440 U | 400 U |
| N-Nitroso-di-n-propylamine | NC | 400 U | 410 U | 440 U | 400 U |
| N-Nitrosodiphenylamine | NC | 400 U | 410 U | 440 U | 400 U |
| Naphthalene | 13,000 | 400 U | 410 U | 440 U | 97.9 J |
| Nitrobenzene | 200 | 400 U | 410 U | 440 U | 400 U |
| Pentachlorophenol | 1,000 | 1000 U | 1000 U | 1100 U | 1000 U |
| Phenanthrene | 50,000 | 47.8 J | 51.7 J | 79.2 J | 693 J |
| Phenol | 30 | 400 U | 410 U | 440 U | 400 U |
| Pyrene | 50,000 | 103 J | 112 J | 122 J | 1720 |
| Total Semi-Volatile TICs | NC | 3350 JN | 5730 JN | 5640 JN | 6830 JN |

**TABLE C-5**
**PAH Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-1 |
|---|---|---|
| Lab ID No. | NYSDEC | E36553-8 |
| Matrix | TAGM 4046 | Soil (0-2") |
| Date | | 07/02/98 |
| Units | ug/kg | ug/kg |
| Acenaphthene | 50,000 | 410 U |
| Acenaphthylene | 41,000 | 53.9 J |
| Anthracene | 50,000 | 39.4 J |
| Benzo(a)anthracene | 224 | 141 J |
| Benzo(a)pyrene | 61 | 178 J |
| Benzo(b)fluoranthene | 1,100 | 185 J |
| Benzo(g,h,i)perylene | 50,000 | 101 J |
| Benzo(k)fluoranthene | 1,100 | 125 J |
| Chrysene | 400 | 191 J |
| Dibenzo(a,h)anthracene | 14 | 48.6 J |
| Fluoranthene | 50,000 | 264 J |
| Fluorene | 50,000 | 410 U |
| Indeno(1,2,3-cd)pyrene | 3,200 | 89.9 J |
| Naphthalene | 13,000 | 410 U |
| Phenanthrene | 50,000 | 105 J |
| Pyrene | 50,000 | 215 J |

**TABLE C-6**
**TCL Pesticide/PCB Compounds - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-1 | SS01-1D | OS-1 | OS-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-7 | E36552-8 | E36948-1 | E36948-2 |
| Matrix | TAGM 4046 | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| Date | | 06/30/98 | 06/30/98 | 07/09/98 | 07/09/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 4,4'-DDD | 2,900 | 4 U | 4.1 U | 4 U | 4.4 U |
| 4,4'-DDE | 2,100 | 4 U | 4.1 U | 2.2 J | 4.4 U |
| 4,4'-DDT | 2,100 | 4 U | 4.1 U | 4 U | 4.4 U |
| Aldrin | 41 | 2 U | 2.1 U | 2 U | 2.2 U |
| alpha-BHC | 110 | 2 U | 2.1 U | 2 U | 2.2 U |
| alpha-Chlordane | NC | 2 U | 2.1 U | 2 U | 2.2 U |
| beta-BHC | 200 | 2 U | 2.1 U | 2 U | 2.2 U |
| delta-BHC | 300 | 2 U | 2.1 U | 2 U | 2.2 U |
| Dieldrin | 44 | 4 U | 4.1 U | 4 U | 4.4 U |
| Endosulfan-I | 900 | 2 U | 2.1 U | 2 U | 2.2 U |
| Endosulfan-II | 900 | 4 U | 4.1 U | 4 U | 4.4 U |
| Endosulfan sulfate | 1,000 | 4 U | 4.1 U | 4 U | 4.4 U |
| Endrin | 100 | 4 U | 4.1 U | 4 U | 4.4 U |
| Endrin aldehyde | NC | 4 U | 4.1 U | 4 U | 4.4 U |
| Endrin ketone | NC | 4 U | 4.1 U | 4 U | 4.4 U |
| gamma-BHC (Lindane) | 60 | 2 U | 2.1 U | 2 U | 2.2 U |
| gamma-Chlordane | 540 | 2 U | 2.1 U | 2 U | 2.2 U |
| Heptachlor | 100 | 2 U | 2.1 U | 2 U | 2.2 U |
| Heptachlor epoxide | 20 | 2 U | 2.1 U | 2 U | 2.2 U |
| Methoxychlor | NC | 20 U | 21 U | 20 U | 22 U |
| Toxaphene | NC | 200 U | 210 U | 200 U | 220 U |
| Aroclor 1016 | 1,000 | 40 U | 41 U | 40 U | 44 U |
| Aroclor 1221 | 1,000 | 80 U | 82 U | 80 U | 88 U |
| Aroclor 1232 | 1,000 | 40 U | 41 U | 40 U | 44 U |
| Aroclor 1242 | 1,000 | 40 U | 41 U | 40 U | 44 U |
| Aroclor 1248 | 1,000 | 40 U | 41 U | 40 U | 44 U |
| Aroclor 1254 | 1,000 | 40 U | 41 U | 40 U | 44 U |
| Aroclor 1260 | 1,000 | 40 U | 41 U | 40 U | 44 U |

See appendix introduction for abbreviations and data qualifiers.

**TABLE C-7**
**TAL Metals - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No.<br>Lab ID No.<br>Matrix<br>Date<br>Units | NYSDEC TAGM 4046<br>mg/kg | Most Stringent of TAGM 4046 or Maximum Site Background | SS01-1<br>E36552-7<br>Soil (0-2")<br>06/30/98<br>mg/kg | SS01-1D<br>E36552-8<br>Soil (0-2")<br>06/30/98<br>mg/kg | OS-1<br>E36948-1<br>Soil (0-2")<br>07/09/98<br>mg/kg | OS-2<br>E36948-2<br>Soil (0-2")<br>07/09/98<br>mg/kg |
|---|---|---|---|---|---|---|
| Aluminum | SB | 14,500 | 7920 J | 7430 J | 14500 J | 2870 J |
| Antimony | SB | NC | 7.2 UJ | 7.3 UJ | 7.9 UJ | 7.2 UJ |
| Arsenic | 7.5 or SB | 43.4 | 2.1 J | 2 J | 6.1 J | 43.4 J |
| Barium | 300 or SB | 300 | 40 | 48 | 110 J | 83.2 J |
| Beryllium | 0.16 or SB | 0.16 | 0.6 U | 0.61 U | 0.66 UJ | 0.6 UJ |
| Cadmium | 1 or SB | 1 | 0.6 U | 0.61 U | 0.73 J | 0.6 UJ |
| Calcium | SB | 102,000 | 6840 | 6840 | 10800 J | 102000 J |
| Chromium | 10 or SB | 20.2 | 9 | 8.3 | 20.2 J | 8.1 J |
| Cobalt | 30 or SB | 30 | 6 U | 6.1 U | 7.4 J | 6 UJ |
| Copper | 25 or SB | 51.9 | 10 J | 9.8 J | 31.6 J | 51.9 J |
| Iron | 2,000 or SB | 18,500 | 8660 J | 8430 J | 18500 J | 10400 J |
| Lead | SB | 208 | 29.1 | 28.3 | 208 J | 33.1 J |
| Magnesium | SB | 56,600 | 3520 | 3500 | 5530 J | 56600 J |
| Manganese | SB | 316 | 307 J | 291 J | 316 J | 190 J |
| Mercury | 0.1 | 0.1 | 0.12 U | 0.12 U | 0.13 UJ | 0.12 UJ |
| Nickel | 13 or SB | 18.5 | 7.2 J | 7.1 J | 18.5 J | 10.4 J |
| Potassium | SB | 3,700 | 865 J | 768 J | 3700 J | 1610 J |
| Selenium | 2 or SB | 2 | 12 U | 12 U | 13 UJ | 12 UJ |
| Silver | SB | NC | 1.2 U | 1.2 U | 1.3 UJ | 1.2 UJ |
| Sodium | SB | NC | 600 UJ | 610 UJ | 660 UJ | 600 UJ |
| Thallium | SB | NC | 1.2 UJ | 1.2 UJ | 1.3 UJ | 1.2 UJ |
| Vanadium | 150 or SB | 150 | 14.8 | 13.8 | 32.4 J | 10.2 J |
| Zinc | 20 or SB | 132 | 53.5 | 53.2 | 132 J | 43.2 J |

See appendix introduction for abbreviations and data qualifiers.

**TABLE C-8**
**Cyanide - Surface Soils**
**NMPC Schenectady (Seneca Street) Site**


| **Sample ID No.** | | SS01-1 | SS01-1D | SS02-1 | OS-1 | OS-2 |
|---|---|---|---|---|---|---|
| **Lab ID No.** | **NYSDEC** | E36552-7 | E36552-8 | E36553-8 | E36948-1 | E36948-2 |
| **Matrix** | **TAGM 4046** | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| **Date** | | 06/30/98 | 06/30/98 | 07/02/98 | 07/09/98 | 07/09/98 |
| **Units** | **mg/kg** | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Cyanide | NC | 1.2 U | 1.2 U | 1.2 U | 1.3 U | 1.2 U |

**TABLE C-9**
**Total Organic Carbon - Surface Soils**
**NMPC Schectady (Seneca Street) Site**


| **Sample ID No.** | SS01-1 | SS02-1 | OS-1 | OS-2 |
|---|---|---|---|---|
| **Lab ID No.** | E36552-7 | E36553-8 | E36948-1 | E36948-2 |
| **Matrix** | Soil (0-2") | Soil (0-2") | Soil (0-2") | Soil (0-2") |
| **Date** | 06/30/98 | 07/02/98 | 07/09/98 | 07/09/98 |
| **Units** | mg/kg | mg/kg | mg/kg | mg/kg |
| Total Organic Carbon | 18500 | 17600 | 28900 | 50200 |

**TABLE C-10**
**TCL Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 1,1,1-Trichloroethane | 800 | 12 U | 110 UJ | 11 U | 12 U |
| 1,1,2,2-Tetrachloroethane | 600 | 12 U | 110 UJ | 11 U | 12 U |
| 1,1,2-Trichloroethane | NC | 12 U | 110 UJ | 11 U | 12 U |
| 1,1-Dichloroethane | 200 | 12 U | 110 UJ | 11 U | 12 U |
| 1,1-Dichloroethene | 400 | 12 U | 110 UJ | 11 U | 12 U |
| 1,2-Dichloroethane | 100 | 12 U | 110 UJ | 11 U | 12 U |
| 1,2-Dichloropropane | NC | 12 U | 110 UJ | 11 U | 12 U |
| 2-Butanone (MEK) | 300 | 12 U | 110 UJ | 11 U | 23 J |
| 2-Hexanone | NC | 12 U | 110 UJ | 11 U | 12 U |
| 4-Methyl-2-pentanone(MIBK) | 1,000 | 12 U | 110 UJ | 11 U | 12 U |
| Acetone | 200 | 12 U | 1310 JD | 11 U | 260 J |
| Benzene | 60 | 12 U | 110 UJ | 11 U | 12 U |
| Bromodichloromethane | NC | 12 U | 110 UJ | 11 U | 12 U |
| Bromoform | NC | 12 U | 110 UJ | 11 U | 12 U |
| Bromomethane | NC | 12 U | 110 UJ | 11 U | 12 U |
| Carbon disulfide | 2,700 | 12 U | 110 UJ | 11 U | 12 U |
| Carbon tetrachloride | 600 | 12 U | 110 UJ | 11 U | 12 U |
| Chlorobenzene | 1,700 | 12 U | 110 UJ | 11 U | 12 U |
| Chloroethane | 1,900 | 12 U | 110 UJ | 11 U | 12 U |
| Chloroform | 300 | 12 U | 110 UJ | 11 U | 12 U |
| Chloromethane | NC | 12 U | 110 UJ | 11 U | 12 U |
| cis-1,2-Dichloroethene | 300 | 12 U | 110 UJ | 11 U | 12 U |
| cis-1,3-Dichloropropene | 300 | 12 U | 110 UJ | 11 U | 12 U |
| Dibromochloromethane | NC | 12 U | 110 UJ | 11 U | 12 U |
| Ethylbenzene | 5,500 | 12 U | 110 UJ | 11 U | 12 U |
| Methylene chloride | 100 | 12 U | 110 UJ | 11 U | 12 U |

**TABLE C-10**
**TCL Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Styrene | NC | 12 U | 110 UJ | 11 U | 12 U |
| Tetrachloroethene | 1,400 | 12 U | 110 UJ | 11 U | 12 U |
| Toluene | 1,500 | 12 U | 110 UJ | 11 U | 12 U |
| trans-1,2-Dichloroethene | 300 | 12 U | 110 UJ | 11 U | 12 U |
| trans-1,3-Dichloropropene | 300 | 12 U | 110 UJ | 11 U | 12 U |
| Trichloroethene | 700 | 12 U | 110 UJ | 11 U | 12 U |
| Vinyl chloride | 200 | 12 U | 110 UJ | 11 U | 12 U |
| Xylene (total) | 1,200 | 12 U | 110 UJ | 11 U | 1.6 J |
| Total Volatile TICs | NC | -- | -- | 53 JN | 17.8 JN |

**TABLE C-10**
**TCL Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No.<br>Lab ID No.<br>Matrix<br>Date<br>Units | NYSDEC<br>TAGM 4046<br>ug/kg | FB070198<br>E36552-1<br>Field Blank<br>07/01/98<br>ug/L | FB070398<br>E36553-7<br>Field Blank<br>07/02/98<br>ug/L |
|---|---|---|---|
| 1,1,1-Trichloroethane | 800 | 10 U | 10 U |
| 1,1,2,2-Tetrachloroethane | 600 | 10 U | 10 U |
| 1,1,2-Trichloroethane | NC | 10 U | 10 U |
| 1,1-Dichloroethane | 200 | 10 U | 10 U |
| 1,1-Dichloroethene | 400 | 10 U | 10 U |
| 1,2-Dichloroethane | 100 | 10 U | 10 U |
| 1,2-Dichloropropane | NC | 10 U | 10 U |
| 2-Butanone (MEK) | 300 | 10 U | 10 U |
| 2-Hexanone | NC | 10 U | 10 U |
| 4-Methyl-2-pentanone(MIBK) | 1,000 | 10 U | 10 U |
| Acetone | 200 | 10 U | 10 U |
| Benzene | 60 | 10 U | 10 U |
| Bromodichloromethane | NC | 10 U | 10 U |
| Bromoform | NC | 10 U | 10 U |
| Bromomethane | NC | 10 U | 10 U |
| Carbon disulfide | 2,700 | 10 U | 10 U |
| Carbon tetrachloride | 600 | 10 U | 10 U |
| Chlorobenzene | 1,700 | 10 U | 10 U |
| Chloroethane | 1,900 | 10 U | 10 U |
| Chloroform | 300 | 10 U | 10 U |
| Chloromethane | NC | 10 U | 10 U |
| cis-1,2-Dichloroethene | 300 | 10 U | 10 U |
| cis-1,3-Dichloropropene | 300 | 10 U | 10 U |
| Dibromochloromethane | NC | 10 U | 10 U |
| Ethylbenzene | 5,500 | 10 U | 10 U |
| Methylene chloride | 100 | 10 U | 10 U |

**TABLE C-10**
**TCL Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | FB070198 | FB070398 |
|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-1 | E36553-7 |
| Matrix | TAGM 4046 | Field Blank | Field Blank |
| Date | | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/L | ug/L |
| Styrene | NC | 10 U | 10 U |
| Tetrachloroethene | 1,400 | 10 U | 10 U |
| Toluene | 1,500 | 10 U | 10 U |
| trans-1,2-Dichloroethene | 300 | 10 U | 10 U |
| trans-1,3-Dichloropropene | 300 | 10 U | 10 U |
| Trichloroethene | 700 | 10 U | 10 U |
| Vinyl chloride | 200 | 10 U | 10 U |
| Xylene (total) | 1,200 | 10 U | 10 U |
| Total Volatile TICs | NC | -- | -- |

**TABLE C-11**
**BTEX Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-2 | SB02-2 | SB02-2D | SB02-4 | SB03-1 |
|---|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-9 | E36553-10 | E36553-11 | E36552-2 | E36552-5 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (2-4') | Soil (2-4') | Soil (6-7') | Soil (0-2') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 06/30/98 | 07/01/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Benzene | 60 | 12 U | 11 U | 11 U | 11 U | 11 U |
| Ethylbenzene | 5,500 | 12 U | 11 U | 11 U | 11 U | 10.3 J |
| Toluene | 1,500 | 12 U | 11 U | 11 U | 11 U | 11 U |
| Xylene (total) | 1,200 | 12 U | 11 U | 11 U | 11 U | 11 U |

**TABLE C-11**
**BTEX Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SB04-2 | SB04-2D | SB04-5 | SB05-3 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-4 | E36553-5 | E36553-3 | E36553-2 |
| Matrix | TAGM 4046 | Soil (2-4') | Soil (2-4') | Soil (8-10') | Soil (4-6') |
| Date | | 07/02/98 | 07/02/98 | 07/02/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Benzene | 60 | 11 U | 12 U | 11 U | 12 U |
| Ethylbenzene | 5,500 | 11 U | 12 U | 11 U | 12 U |
| Toluene | 1,500 | 11 U | 12 U | 11 U | 12 U |
| Xylene (total) | 1,200 | 11 U | 12 U | 11 U | 12 U |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 1,2,4-Trichlorobenzene | NC | 400 U | 360 U | 360 U | 390 U |
| 1,2-Dichlorobenzene | 7,900 | 400 U | 360 U | 360 U | 390 U |
| 1,3-Dichlorobenzene | 1,600 | 400 U | 360 U | 360 U | 390 U |
| 1,4-Dichlorobenzene | 8,500 | 400 U | 360 U | 360 U | 390 U |
| 2,4,5-Trichlorophenol | 100 | 990 U | 910 U | 890 U | 960 U |
| 2,4,6-Trichlorophenol | NC | 400 U | 360 U | 360 U | 390 U |
| 2,4-Dichlorophenol | 400 | 400 U | 360 U | 360 U | 390 U |
| 2,4-Dimethylphenol | 400 | 400 U | 360 U | 360 U | 390 U |
| 2,4-Dinitrophenol | 200 | 990 U | 910 U | 890 U | 960 U |
| 2,4-Dinitrotoluene | NC | 400 U | 360 U | 360 U | 390 U |
| 2,6-Dinitrotoluene | 1,000 | 400 U | 360 U | 360 U | 390 U |
| 2-Chloronaphthalene | NC | 400 U | 360 U | 360 U | 390 U |
| 2-Chlorophenol | 800 | 400 U | 360 U | 360 U | 390 U |
| 2-Methylnaphthalene | 36,400 | 400 U | 360 U | 360 U | 390 U |
| 2-Methylphenol | 100 | 400 U | 360 U | 360 U | 390 U |
| 2-Nitroaniline | 430 | 990 U | 910 U | 890 U | 960 U |
| 2-Nitrophenol | 330 | 400 U | 360 U | 360 U | 390 U |
| 3&4-Methylphenol | 900 | 400 U | 360 U | 360 U | 390 U |
| 3,3'-Dichlorobenzidine | NC | 400 U | 360 U | 360 U | 390 U |
| 3-Nitroaniline | 500 | 990 U | 910 U | 890 U | 960 U |
| 4,6-Dinitro-o-cresol | NC | 990 U | 910 U | 890 U | 960 U |
| 4-Bromophenyl phenyl ether | NC | 400 U | 360 U | 360 U | 390 U |
| 4-Chloro-3-methyl phenol | 240 | 400 U | 360 U | 360 U | 390 U |
| 4-Chloroaniline | 220 | 400 U | 360 U | 360 U | 390 U |
| 4-Chlorophenyl phenyl ether | NC | 400 U | 360 U | 360 U | 390 U |
| 4-Nitroaniline | NC | 990 U | 910 U | 890 U | 960 U |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 4-Nitrophenol | 100 | 990 U | 910 U | 890 U | 960 U |
| Acenaphthene | 50,000 | 400 U | 360 U | 360 U | 298 J |
| Acenaphthylene | 41,000 | 243 J | 360 U | 360 U | 199 J |
| Anthracene | 50,000 | 155 J | 360 U | 360 U | 290 J |
| Benzo(a)anthracene | 224 | 344 J | 360 U | 21 J | 236 J |
| Benzo(a)pyrene | 61 | 406 J | 360 U | 360 U | 370 J |
| Benzo(b)fluoranthene | 1,100 | 364 J | 360 U | 360 U | 228 J |
| Benzo(g,h,i)perylene | 50,000 | 217 J | 360 U | 360 U | 144 J |
| Benzo(k)fluoranthene | 1,100 | 267 J | 360 U | 360 U | 196 J |
| bis(2-Chloroethoxy)methane | NC | 400 U | 360 U | 360 U | 390 U |
| bis(2-Chloroethyl)ether | NC | 400 U | 360 U | 360 U | 390 U |
| bis(2-Chloroisopropyl)ether | NC | 400 U | 360 U | 360 U | 390 U |
| bis(2-Ethylhexyl)phthalate | 50,000 | 35.7 J | 64.4 J | 360 U | 90.4 J |
| Butyl benzyl phthalate | 50,000 | 400 U | 360 U | 360 U | 390 U |
| Carbazole | NC | 31 J | 360 U | 360 U | 390 U |
| Chrysene | 400 | 423 | 360 U | 16.2 J | 278 J |
| Di-n-butyl phthalate | 8,100 | 400 U | 360 U | 360 U | 390 U |
| Di-n-octyl phthalate | 50,000 | 400 U | 360 U | 360 U | 390 U |
| Dibenzo(a,h)anthracene | 14 | 104 J | 360 U | 360 U | 88.1 J |
| Dibenzofuran | 6,200 | 400 U | 360 U | 360 U | 390 U |
| Diethyl phthalate | 7,100 | 400 U | 360 U | 360 U | 390 U |
| Dimethyl phthalate | 2,000 | 400 U | 360 U | 360 U | 390 U |
| Fluoranthene | 50,000 | 568 | 360 U | 36.4 J | 513 J |
| Fluorene | 50,000 | 64 J | 360 U | 360 U | 185 J |
| Hexachlorobenzene | 410 | 400 U | 360 U | 360 U | 390 U |
| Hexachlorobutadiene | NC | 400 U | 360 U | 360 U | 390 U |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Hexachlorocyclopentadiene | NC | 400 U | 360 U | 360 U | 390 U |
| Hexachloroethane | NC | 400 U | 360 U | 360 U | 390 U |
| Indeno(1,2,3-cd)pyrene | 3,200 | 203 J | 360 U | 360 U | 132 J |
| Isophorone | 4,400 | 400 U | 360 U | 360 U | 390 U |
| N-Nitroso-di-n-propylamine | NC | 400 U | 360 U | 360 U | 390 U |
| N-Nitrosodiphenylamine | NC | 400 U | 360 U | 360 U | 390 U |
| Naphthalene | 13,000 | 400 U | 360 U | 360 U | 390 U |
| Nitrobenzene | 200 | 400 U | 360 U | 360 U | 390 U |
| Pentachlorophenol | 1,000 | 990 U | 910 U | 890 U | 960 U |
| Phenanthrene | 50,000 | 301 J | 360 U | 360 U | 225 J |
| Phenol | 30 | 400 U | 360 U | 360 U | 390 U |
| Pyrene | 50,000 | 571 | 360 U | 49.2 J | 966 |
| Total Semi-Volatile TICs | NC | 3000 JN | 2820 JN | 1540 JN | 15930 JN |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | FB070198 | FB070398 |
|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-1 | E36553-7 |
| Matrix | TAGM 4046 | Field Blank | Field Blank |
| Date | | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/l | ug/l |
| 1,2,4-Trichlorobenzene | NC | 10 U | 10 U |
| 1,2-Dichlorobenzene | 7,900 | 10 U | 10 U |
| 1,3-Dichlorobenzene | 1,600 | 10 U | 10 U |
| 1,4-Dichlorobenzene | 8,500 | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 100 | 26 U | 26 U |
| 2,4,6-Trichlorophenol | NC | 10 U | 10 U |
| 2,4-Dichlorophenol | 400 | 10 U | 10 U |
| 2,4-Dimethylphenol | 400 | 10 U | 10 U |
| 2,4-Dinitrophenol | 200 | 26 U | 26 U |
| 2,4-Dinitrotoluene | NC | 10 U | 10 U |
| 2,6-Dinitrotoluene | 1,000 | 10 U | 10 U |
| 2-Chloronaphthalene | NC | 10 U | 10 U |
| 2-Chlorophenol | 800 | 10 U | 10 U |
| 2-Methylnaphthalene | 36,400 | 10 U | 10 U |
| 2-Methylphenol | 100 | 10 U | 10 U |
| 2-Nitroaniline | 430 | 26 U | 26 U |
| 2-Nitrophenol | 330 | 10 U | 10 U |
| 3&4-Methylphenol | 900 | 10 U | 10 U |
| 3,3'-Dichlorobenzidine | NC | 10 U | 10 U |
| 3-Nitroaniline | 500 | 26 U | 26 U |
| 4,6-Dinitro-o-cresol | NC | 26 U | 26 U |
| 4-Bromophenyl phenyl ether | NC | 10 U | 10 U |
| 4-Chloro-3-methyl phenol | 240 | 10 U | 10 U |
| 4-Chloroaniline | 220 | 10 U | 10 U |
| 4-Chlorophenyl phenyl ether | NC | 10 U | 10 U |
| 4-Nitroaniline | NC | 26 U | 26 U |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | FB070198 | FB070398 |
|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-1 | E36553-7 |
| Matrix | TAGM 4046 | Field Blank | Field Blank |
| Date | | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/l | ug/l |
| 4-Nitrophenol | 100 | 26 U | 26 U |
| Acenaphthene | 50,000 | 10 U | 10 U |
| Acenaphthylene | 41,000 | 10 U | 10 U |
| Anthracene | 50,000 | 10 U | 10 U |
| Benzo(a)anthracene | 224 | 10 U | 10 U |
| Benzo(a)pyrene | 61 | 10 U | 10 U |
| Benzo(b)fluoranthene | 1,100 | 10 U | 10 U |
| Benzo(g,h,i)perylene | 50,000 | 10 U | 10 U |
| Benzo(k)fluoranthene | 1,100 | 10 U | 10 U |
| bis(2-Chloroethoxy)methane | NC | 10 U | 10 U |
| bis(2-Chloroethyl)ether | NC | 10 U | 10 U |
| bis(2-Chloroisopropyl)ether | NC | 10 U | 10 U |
| bis(2-Ethylhexyl)phthalate | 50,000 | 10 U | 10 U |
| Butyl benzyl phthalate | 50,000 | 10 U | 10 U |
| Carbazole | NC | 10 U | 10 U |
| Chrysene | 400 | 10 U | 10 U |
| Di-n-butyl phthalate | 8,100 | 10 U | 10 U |
| Di-n-octyl phthalate | 50,000 | 10 U | 10 U |
| Dibenzo(a,h)anthracene | 14 | 10 U | 10 U |
| Dibenzofuran | 6,200 | 10 U | 10 U |
| Diethyl phthalate | 7,100 | 10 U | 10 U |
| Dimethyl phthalate | 2,000 | 10 U | 10 U |
| Fluoranthene | 50,000 | 10 U | 10 U |
| Fluorene | 50,000 | 10 U | 10 U |
| Hexachlorobenzene | 410 | 10 U | 10 U |
| Hexachlorobutadiene | NC | 10 U | 10 U |

**TABLE C-12**
**TCL Semi-Volatile Organic Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No.<br>Lab ID No.<br>Matrix<br>Date<br>Units | NYSDEC<br>TAGM 4046<br>ug/kg | FB070198<br>E36552-1<br>Field Blank<br>07/01/98<br>ug/l | FB070398<br>E36553-7<br>Field Blank<br>07/02/98<br>ug/l |
|---|---|---|---|
| Hexachlorocyclopentadiene | NC | 10 U | 10 U |
| Hexachloroethane | NC | 10 U | 10 U |
| Indeno(1,2,3-cd)pyrene | 3,200 | 10 U | 10 U |
| Isophorone | 4,400 | 10 U | 10 U |
| N-Nitroso-di-n-propylamine | NC | 10 U | 10 U |
| N-Nitrosodiphenylamine | NC | 10 U | 10 U |
| Naphthalene | 13,000 | 10 U | 10 U |
| Nitrobenzene | 200 | 10 U | 10 U |
| Pentachlorophenol | 1,000 | 26 U | 26 U |
| Phenanthrene | 50,000 | 10 U | 10 U |
| Phenol | 30 | 10 U | 10 U |
| Pyrene | 50,000 | 10 U | 10 U |
| Total Semi-Volatile TICs | NC | 11.1 JN | -- |

**TABLE C-13**
**PAH Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-2 | SB02-2 | SB02-2D | SB02-4 | SB03-1 |
|---|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-9 | E36553-10 | E36553-11 | E36552-2 | E36552-5 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (2-4') | Soil (2-4') | Soil (6-7') | Soil (0-2') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 06/30/98 | 07/01/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Acenaphthene | 50,000 | 390 U | 370 U | 370 U | 360 U | 42900 D |
| Acenaphthylene | 41,000 | 24.4 J | 42.9 J | 44.8 J | 360 U | 12100 |
| Anthracene | 50,000 | 22.3 J | 44.5 J | 37.9 J | 360 U | 28900 |
| Benzo(a)anthracene | 224 | 62.8 J | 114 J | 42.1 J | 360 U | 20400 |
| Benzo(a)pyrene | 61 | 81.8 J | 96.6 J | 57.6 J | 360 U | 14400 |
| Benzo(b)fluoranthene | 1,100 | 91.2 J | 78.1 J | 48.2 J | 360 U | 11800 |
| Benzo(g,h,i)perylene | 50,000 | 44.6 J | 53.5 J | 56.6 J | 360 U | 4060 |
| Benzo(k)fluoranthene | 1,100 | 48.4 J | 48.9 J | 40.6 J | 360 U | 4700 |
| Chrysene | 400 | 86.8 J | 141 J | 57.8 J | 360 U | 21800 |
| Dibenzo(a,h)anthracene | 14 | 22 J | 26.3 J | 23.4 J | 360 U | 2550 |
| Fluoranthene | 50,000 | 115 J | 173 J | 77.1 J | 360 U | 52300 D |
| Fluorene | 50,000 | 390 U | 370 U | 370 U | 360 U | 53000 D |
| Indeno(1,2,3-cd)pyrene | 3,200 | 40 J | 41 J | 43.3 J | 360 U | 3940 |
| Naphthalene | 13,000 | 390 U | 370 U | 370 U | 360 U | 93 J |
| Phenanthrene | 50,000 | 68.7 J | 165 J | 56.9 J | 360 U | 110000 D |
| Pyrene | 50,000 | 91.4 J | 213 J | 72.8 J | 360 U | 77800 D |

**TABLE C-13**
**PAH Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SB04-2 | SB04-2D | SB04-5 | SB05-3 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-4 | E36553-5 | E36553-3 | E36553-2 |
| Matrix | TAGM 4046 | Soil (2-4') | Soil (2-4') | Soil (8-10') | Soil (4-6') |
| Date | | 07/02/98 | 07/02/98 | 07/02/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Acenaphthene | 50,000 | 903 J | 719 J | 360 U | 380 U |
| Acenaphthylene | 41,000 | 50.6 J | 41.6 J | 360 U | 71.5 J |
| Anthracene | 50,000 | 562 J | 361 J | 360 U | 380 U |
| Benzo(a)anthracene | 224 | 177 J | 190 J | 360 U | 34.4 J |
| Benzo(a)pyrene | 61 | 120 J | 114 J | 360 U | 106 J |
| Benzo(b)fluoranthene | 1,100 | 73.8 J | 82.1 J | 360 U | 82.7 J |
| Benzo(g,h,i)perylene | 50,000 | 35.4 J | 39.2 J | 360 U | 68.7 J |
| Benzo(k)fluoranthene | 1,100 | 72.6 J | 56.3 J | 360 U | 46 J |
| Chrysene | 400 | 182 J | 189 J | 360 U | 45.7 J |
| Dibenzo(a,h)anthracene | 14 | 24.6 J | 29.2 J | 360 U | 36 J |
| Fluoranthene | 50,000 | 562 | 533 | 360 U | 44.7 J |
| Fluorene | 50,000 | 1310 | 1080 | 360 U | 380 U |
| Indeno(1,2,3-cd)pyrene | 3,200 | 35.3 J | 36.7 J | 360 U | 61.3 J |
| Naphthalene | 13,000 | 370 U | 380 U | 360 U | 380 U |
| Phenanthrene | 50,000 | 591 | 558 | 360 U | 67 J |
| Pyrene | 50,000 | 561 | 568 | 360 U | 83.9 J |

**TABLE C-14**
**TCL Pesticide/PCB Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (10-12') | Soil (6-8') | Soil (2-4') |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| 4,4'-DDD | 2,900 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| 4,4'-DDE | 2,100 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| 4,4'-DDT | 2,100 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| Aldrin | 41 | 6.6 | 1.9 U | 1.8 U | 2 U |
| alpha-BHC | 110 | 2 U | 1.9 U | 1.8 U | 2 U |
| alpha-Chlordane | NC | 2 U | 1.9 U | 1.8 U | 2 U |
| beta-BHC | 200 | 2 U | 1.9 U | 1.8 U | 2 U |
| delta-BHC | 300 | 2 U | 1.9 U | 1.8 U | 2 U |
| Dieldrin | 44 | 28 U | 3.7 U | 3.6 U | 3.9 U |
| Endosulfan-I | 900 | 2 U | 1.9 U | 1.8 U | 2 U |
| Endosulfan-II | 900 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| Endosulfan sulfate | 1,000 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| Endrin | 100 | 4 U | 3.7 U | 3.6 U | 3.9 U |
| Endrin aldehyde | NC | 4 U | 3.7 U | 3.6 U | 3.9 U |
| Endrin ketone | NC | 2.8 U | 3.7 U | 3.6 U | 0.39 U |
| gamma-BHC (Lindane) | 60 | 2 U | 1.9 U | 1.8 U | 2 U |
| gamma-Chlordane | 540 | 2 U | 1.9 U | 1.8 U | 2 U |
| Heptachlor | 100 | 2 U | 1.9 U | 1.8 U | 2 U |
| Heptachlor epoxide | 20 | 2 U | 1.9 U | 1.8 U | 2 U |
| Methoxychlor | NC | 20 U | 19 U | 18 U | 20 U |
| Toxaphene | NC | 200 U | 190 U | 180 U | 200 U |
| Aroclor 1016 | 10,000 | 40 U | 37 U | 36 U | 39 U |
| Aroclor 1221 | 10,000 | 80 U | 74 U | 72 U | 78 U |
| Aroclor 1232 | 10,000 | 40 U | 37 U | 36 U | 39 U |
| Aroclor 1242 | 10,000 | 40 U | 37 U | 36 U | 39 U |
| Aroclor 1248 | 10,000 | 40 U | 37 U | 36 U | 39 U |
| Aroclor 1254 | 10,000 | 1010 | 37 U | 36 U | 39 U |
| Aroclor 1260 | 10,000 | 40 U | 37 U | 36 U | 39 U |

**TABLE C-14**
**TCL Pesticide/PCB Compounds - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | FB070198 | FB070398 |
|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-1 | E36553-7 |
| Matrix | TAGM 4046 | Field Blank | Field Blank |
| Date | | 07/01/98 | 07/02/98 |
| Units | ug/kg | ug/l | ug/l |
| 4,4'-DDD | 2,900 | 0.1 U | 0.1 U |
| 4,4'-DDE | 2,100 | 0.1 U | 0.1 U |
| 4,4'-DDT | 2,100 | 0.1 U | 0.1 U |
| Aldrin | 41 | 0.05 U | 0.05 U |
| alpha-BHC | 110 | 0.05 U | 0.05 U |
| alpha-Chlordane | NC | 0.05 U | 0.05 U |
| beta-BHC | 200 | 0.05 U | 0.05 U |
| delta-BHC | 300 | 0.05 U | 0.05 U |
| Dieldrin | 44 | 0.1 U | 0.05 U |
| Endosulfan-I | 900 | 0.05 U | 0.05 U |
| Endosulfan-II | 900 | 0.05 U | 0.1 U |
| Endosulfan sulfate | 1,000 | 0.1 U | 0.1 U |
| Endrin | 100 | 0.1 U | 0.1 U |
| Endrin aldehyde | NC | 0.1 U | 0.1 U |
| Endrin ketone | NC | 0.1 U | 0.1 U |
| gamma-BHC (Lindane) | 60 | 0.05 U | 0.05 U |
| gamma-Chlordane | 540 | 0.05 U | 0.05 U |
| Heptachlor | 100 | 0.05 U | 0.05 U |
| Heptachlor epoxide | 20 | 0.05 U | 0.05 U |
| Methoxychlor | NC | 0.5 U | 0.5 U |
| Toxaphene | NC | 5 U | 5 U |
| Aroclor 1016 | 10,000 | 1 U | 1 U |
| Aroclor 1221 | 10,000 | 2 U | 2 U |
| Aroclor 1232 | 10,000 | 1 U | 1 U |
| Aroclor 1242 | 10,000 | 1 U | 1 U |
| Aroclor 1248 | 10,000 | 1 U | 1 U |
| Aroclor 1254 | 10,000 | 1 U | 1 U |
| Aroclor 1260 | 10,000 | 1 U | 1 U |

**TABLE C-15**
**TAL Metals - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS02-2 | SB02-6 | SB03-4 | SB05-2 |
|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-6 | E36552-3 | E36552-6 | E36553-1 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil | Soil | Soil |
| Date | | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Aluminum | SB | 10900 J | 15600 J | 14900 J | 20500 J |
| Antimony | SB | 7.2 UJ | 6.6 UJ | 6.4 UJ | 6.9 UJ |
| Arsenic | 7.5 or SB | 7.7 J | 6 J | 5.7 J | 2.4 J |
| Barium | 300 or SB | 83.7 | 134 | 115 | 129 |
| Beryllium | 0.16 or SB | 0.6 U | 0.69 | 0.65 | 0.64 |
| Cadmium | 1 or SB | 0.66 | 0.55 U | 0.54 U | 0.58 U |
| Calcium | SB | 52300 | 29000 | 32500 | 16600 |
| Chromium | 10 or SB | 19.2 | 22.4 | 20.8 | 21.2 |
| Cobalt | 30 or SB | 6.8 | 9.8 | 11 | 5.8 U |
| Copper | 25 or SB | 18.9 | 25.7 | 25.6 | 14.2 |
| Iron | 2,000 or SB | 17300 J | 23100 J | 22200 J | 13500 J |
| Lead | SB | 228 | 11.8 | 11.6 | 26.6 |
| Magnesium | SB | 25600 | 10700 | 10300 | 6100 |
| Manganese | SB | 574 J | 460 J | 584 J | 241 J |
| Mercury | 0.1 | 0.14 | 0.11 U | 0.1 U | 0.11 U |
| Nickel | 13 or SB | 15.1 J | 23.9 J | 24.6 J | 13.2 J |
| Potassium | SB | 2560 J | 4590 J | 4320 J | 2740 J |
| Selenium | 2 or SB | 12 U | 11 U | 11 U | 12 U |
| Silver | SB | 1.2 U | 1.1 U | 1.1 U | 1.2 U |
| Sodium | SB | 600 UJ | 550 UJ | 540 UJ | 580 UJ |
| Thallium | SB | 1.2 UJ | 1.1 UJ | 1.1 UJ | 1.2 UJ |
| Vanadium | 150 or SB | 27.2 | 30.4 | 29.5 | 32.6 |
| Zinc | 20 or SB | 168 | 53 | 66.9 | 57.1 |

**TABLE C-15**
**TAL Metals - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | FB070198 | FB070398 |
|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-1 | E36553-7 |
| Matrix | TAGM 4046 | Field Blank | Field Blank |
| Date | | 07/01/98 | 07/02/98 |
| Units | mg/kg | ug/l | ug/l |
| Aluminum | SB | 200 U | 200 U |
| Antimony | SB | 5 U | 5 U |
| Arsenic | 7.5 or SB | 5 U | 5 U |
| Barium | 300 or SB | 200 U | 200 U |
| Beryllium | 0.16 or SB | 5 U | 5 U |
| Cadmium | 1 or SB | 4 U | 4 U |
| Calcium | SB | 5000 U | 5000 U |
| Chromium | 10 or SB | 10 U | 10 U |
| Cobalt | 30 or SB | 50 U | 50 U |
| Copper | 25 or SB | 25 U | 25 U |
| Iron | 2,000 or SB | 100 U | 100 U |
| Lead | SB | 3 U | 3 U |
| Magnesium | SB | 5000 U | 5000 U |
| Manganese | SB | 15 U | 15 U |
| Mercury | 0.1 | 0.2 U | 0.2 U |
| Nickel | 13 or SB | 40 U | 40 U |
| Potassium | SB | 5000 U | 5000 U |
| Selenium | 2 or SB | 5 U | 5 U |
| Silver | SB | 10 U | 10 U |
| Sodium | SB | 5000 U | 5000 U |
| Thallium | SB | 5 U | 5 U |
| Vanadium | 150 or SB | 50 U | 50 U |
| Zinc | 20 or SB | 20 U | 20 U |

**TABLE C-16**
**Cyanide - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SS01-2 | SS02-2 | SB02-2 | SB02-2D | SB02-4 |
|---|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36553-9 | E36553-6 | E36553-10 | E36553-11 | E36552-2 |
| Matrix | TAGM 4046 | Soil (0-2') | Soil (0-2') | Soil (2-4') | Soil (2-4') | Soil (6-7') |
| Date | | 07/02/98 | 07/02/98 | 07/01/98 | 07/01/98 | 06/30/98 |
| Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Cyanide | NC | 1.2 U | 1.2 U | 1.1 U | 1.1 U | 1.1 U |

**TABLE C-16**
**Cyanide - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| Sample ID No. | | SB02-6 | SB03-1 | SB03-4 | SB04-2 | SB04-2D |
|---|---|---|---|---|---|---|
| Lab ID No. | NYSDEC | E36552-3 | E36552-5 | E36552-6 | E36553-4 | E36553-5 |
| Matrix | TAGM 4046 | Soil (10-12') | Soil (0-2') | Soil (6-8') | Soil (2-4') | Soil (2-4') |
| Date | | 07/01/98 | 07/01/98 | 07/01/98 | 07/02/98 | 07/02/98 |
| Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Cyanide | NC | 1.1 U | 1.1 U | 1.1 U | 1.1 U | 1.1 U |

**TABLE C-16**
**Cyanide - Subsurface Soils**
**NMPC Schenectady (Seneca Street) Site**


| **Sample ID No.** | | SB04-5 | SB05-2 | SB05-3 | FB070198 |
|---|---|---|---|---|---|
| **Lab ID No.** | **NYSDEC** | E36553-3 | E36553-1 | E36553-2 | E36552-1 |
| **Matrix** | **TAGM 4046** | Soil (8-10') | Soil (2-4') | Soil (4-6') | Field Blank |
| **Date** | | 07/02/98 | 07/02/98 | 07/02/98 | 07/01/98 |
| **Units** | **mg/kg** | mg/kg | mg/kg | mg/kg | mg/l |
| Cyanide | NC | 1.1 U | 1.2 U | 1.2 U | 0.01 U |

**TABLE C-17**
**Total Organic Carbon - Subsurface Soils**
**NMPC Schectady (Seneca Street) Site**


| **Sample ID No.** | SS01-2 | SS02-2 | SB02-2 | SB03-2 | SB05-2 |
|---|---|---|---|---|---|
| **Lab ID No.** | E36553-9 | E36553-6 | E36553-10 | E36552-4 | E36553-1 |
| **Matrix** | Soil (0-2') | Soil (0-2') | Soil (2-4') | Soil (2-4') | Soil (2-4') |
| **Date** | 07/02/98 | 07/02/98 | 07/01/98 | 07/01/98 | 07/02/98 |
| **Units** | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Total Organic Carbon | 26000 | 10200 | 6800 | 3300 | 7910 |

# APPENDIX D

# DATA USABILITY SUMMARY REPORT

# Data Validation Services

**120 Cobble Creek Road P. O. Box 208**
**North Creek, N. Y. 12853**
**Phone 518-251-4429**

September 8, 1998

Gregory DelMastro
Foster Wheeler Environmental
8 Peach Tree Hill Rd.
Livingston, NJ 07039

RE: **D**ata **U**sability **S**ummary **R**eport for NMPC-Schenectady Site Data Packages
ACCUTEST SDG Nos. E36552, E36553, and E36948

Dear Mr. DelMastro:

Review has been completed for the data packages generated by ACCUTEST Laboratories, pertaining to samples collected at the Niagara Mohawk Schenectady Site. Eight soil samples were analysed for full TCL/TAL analytes and ten soil samples were processed for MGP parameters (BTEX/PAH/CN). Nine samples were analysed for TOC. Field blanks and matrix spikes/duplicates were also processed. Methodologies utilized are those of the 1995 NYSDEC ASP/SW846.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with limited, random review of associated raw data. Full validation has not been performed; however, the reported summary tables have been reviewed for application of validation qualifiers per USEPA National Functional Guidelines for Data Review and USEPA Region II SOPs HW-2 and HW-6. All conclusions are based upon assumption of accurate reported values on the summary forms, and compliance in sample processing.

The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Instrumental Tunes
* Calibration Standards
* Instrument IDLs
* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative, and on the attached qualification summary. All other items were determined to be acceptable.

Although requested, the data package deliverables were not in accordance with the NYSDEC ASP Category B. Resubmissions were made for inclusion of ASP Preparation and Analysis Summary forms, and for revised organic results report forms correcting the detection limits of nondetected analytes from those reported (IDLs/MDLs) to those required by the methods and project QAPP. The submission of these will follow the generation of this report.

In summary, most of the sample results are usable as reported, with some qualifications as estimated resulting from typical processing and/or matrix effects. The validation qualifications are detailed in the Qualification Summary following this narrative discussion.

Attached to this narrative is a summary of the validation qualifiers resulting from the review. Resubmission communications, and copies of laboratory case narratives and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are attached to this text, and should be reviewed in conjunction with this report.

The following text discusses quality issues of concern.

## ***SOIL SAMPLES***

### General

Field duplicate correlations were performed: SS01-1/SS0101D, SB04-2/SB04-2D, and SB02-2/ SB0202D. All showed good correlation.

Due to projected delays in shipment (from holiday closures), the client held some of the samples for up to six days from collection before delivery to the laboratory. Documentation is attached stating proper custody and condition during the interim. It is observed that no release date is present for the first sample transfer of samples collected 6/30/98 and 7/01/98 (E36552); proper custody of the samples was maintained.

Accuracy and precision determinations were performed on SB05-2 (full TCL/TAL), OS-1(0-2) (full TCL/TAL), and SB05-3 (MGP parameters).

Samples undergoing delays between collection and shipment were evaluated for condition, temperature of storage and at receipt, and overall technical holding times.

### Volatile Analyses

Due to the delays between collection and laboratory receipt, samples SS01-01, SS01-01D, OS-1(0-2), and OS-2(0-2) were processed with the ASP required laboratory holding time from receipt, but one and two days beyond an acceptable technical holding time from collection. Therefore the results for these samples should be considered estimated, possibly biased slightly low. SS01-01 and SS01-01D also produced a low response for internal standard, which indicates possible a matrix effect causing low bias to results.

Sample SB05-2 required qualification as estimated due to elevated surrogate standard responses. Sample SB02-6 is reported at elevated detection limits due to apparent matrix effect.

The accuracy and precision results for SB05-3 (BTEX) and OS-1(0-2) were acceptable. The evaluations for the matrix spikes of SB05-2 (TCL) showed some outlying values not affecting sample results. Field duplicate correlation was acceptable.

Tentatively Identified Compound (TIC) results should be reported to only one signficant figure.

## Semivolatile Analyses

The laboratory "J" qualifier has been applied to detected values which are below the method/QAPP CRDLs. They are detailed in the attached Qualification Summary.

Accuracy and precision for SB05-3 (PAHs) and SB05-2 (TCLs) were acceptable. Field duplicate correlation was acceptable.

Although not detected in associated blanks (and therefore not qualified), reported detections of bis(2-ethylhexyl)phthalate are at levels typical of contamination, and should be regarded with that consideration.

## Pesticide/PCB Analyses

Pesticides and PCBs were processed and reported as two different analyses. Therefore instrument performance, and accuracy and precision evaluations were made on Aroclor mixtures as well as pesticides. Instrument performance was acceptable. Accuracy and precision on SB05-02 were acceptable. Accuracy and precision for OS-1(0-2) were also within recommended ranges, with the exception of high recoveries for 4,4-DDD. Sample results (nondetection) are unaffected.

Detections were reported for only two samples. Two of the three analytes reported for SS02-02 produced dual column percent differences exceeding 90%. They are therefore rejected as interferences, and reported values are edited to reflect nondetection at the originally reported value.

Review of the sample pesticide raw data is limited to the the results of the analysts' evaluation, due to the fact that the integration output is edited prior to submission.

Field duplicate correlations were acceptable.

## Metals/CN Analyses

As a combination of outlying parameters indicating matrix effect and insufficient instrument evaluation, results for all analytes (except cyanide) in samples OS-1(0-1) and OS-2(0-2) are considered estimated. These indicate a possible low bias, with variances not likely to exceed 30%.

Accuracy and precision for metals in samples SB05-02 and OS-1(0-2) produced recovery outliers warrenting qualification for several elements. Variances of more than a factor of two or three from reported values are not expected. The duplicate correlation of SB05-02 produced numerous outliers which were above the recommended limit of 20%RPD, but all except arsenic and nickel were below the validation action levels for soils. The duplicate correlation for OS-1(0-2) was within recommended ranges.

Cyanide matrix spike/duplicate evaluations were performed on OS1-(0-2), SB02-04 and SB03-01 in SDGs E36552 and E36948 with acceptable results. Spikes on SB05-2 and SB05-03 produced low recoveries (70% and 40%, respectively), and associated sample results are considered estimated, possibly biased low.

The ICP Serial Dilution for OS-1(0-2) produced twelve outlying responses, indicating a possible significant matrix effect suppressing sample responses. This should have been discussed/denoted on the laboratory "case narrative" pages for the data package. These element values have been qualified as estimated, and may be biased low.

Low level standards (CRIs) were not processed for any of the element for samples OS-1(0-2) and OS-2(0-2), or for copper in the SS01-01 and SS01-01D. Therefore results reflecting nondetection or low level detections in the samples are considered estimated.

Other outlying standard responses and elevated blank responses were evaluated for effect on sample reported results, and non were found.

Field duplicate correlation was acceptable

## TOC Analyses

Matrix spikes were performed on OS-1(0-2) and SS01-02, with acceptable recovery and duplicate correlation.

# QUALIFICATION SUMMARY

NOTE: Analytes already qualifed as estimated by the laboratory due to values below CRDL are not noted below.

***Volatiles***

1. Reported results for those analytes flagged as "E" should be derived from the dilution analyses of the samples. All other analyte values can be used from the initial analyses, unless otherwise specifically noted within this text.
2. SS01-01, SS01-01D, OS-1(0-2), and OS-2(0-2) results are estimated ("J") due to extended holding time.
3. The acetone, 2-butanone, and xylenes result for SB05-2 is estimated due to elevated surrogate recoveries.
4. All SB02-6 results should be derived from the dilution analysis (due to very poor initial recoveyr of internal standards), and are estimated due to outlying reanalysis holding time.
5. The ethylbenzene result for SB03-1 should have the "J" flag due to value below the adjusted CRDL (and outside linear range).
6. Tentatively Identified Compounds (TICs) which are identified as carbon dioxide or column bleed should be disregarded as sample components.

***Semivolatiles***

1. Reported results for those analytes flagged as "E" should be derived from the dilution analyses. All other analyte values can be used from the initial analysis, unless otherwise specifically noted within this text.
2. The following analyte **detected** values should be flagged as "J" due to value below adjusted CRDL:
   - all in OS-1(0-2), SB03-4, SS01-1, SS01-1D, SB05-3, SS02-1, SS01-2, SB02-2, and SB02-2D
   - all **except** fluoranthene and pyrene in OS-2(0-2)
   - all **except** pyrene in SB05-2
   - all **except** fluorene, fluoranthene, phenanthrene, and pyrene in SB04-2 & SB04-2D
   - all **except** chrysene, fluoranthene, and pyrene in SS02-2
3. Tentatively Identified Compounds (TICs) which are flagged "A" and/or "B" should be disregarded as sample components. ("R" flag)

***Pesticide/PCBs***

1. The results for dieldrin and endrin ketone in SS02-02 should be edited to nondetection (addition of the "U", "<", or "ND" to the originally reported value).

*Metals/CN*

1. Results for aluminum, antimony, and potassium are estimated ("J") for all soil samples due to outlying matrix spike recoveries.
2. Iron, manganese, and sodium results are estimated for all soil samples **except** OS-1(0-2) and OS-2(0-2) due to outlying matrix spike recoveries.
3. Arsenic and nickel results are estimated for all soil samples **except** OS-1(0-2) and OS-2(0-2) due to outlying duplicate correlation.
4. Sodium and thallium results are estimated for all soil samples **except** OS-1(0-2) and OS-2(0-2) due to outlying ICP serial dilution.
5. All analytes in OS-1(0-1) and OS-2(0-2) are estimated for the following reasons:
   Aluminum, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, vanadium, and zinc results are estimated due to outlying ICP serial dilution.
   Barium, arsenic, beryllium, cadmium, cobalt, selenium, and silver results due to lack of standard evaluation.
   Aluminum, antimony, and potassium cited above for matrix spike recovery.
6. Copper results for SS01-01 and SS01-01D are estimated due to lack of low level standard evaluation.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

# ANALYSIS SUMMARY CHART

Project: Foster Wheeler Environmental - NMPC Schenectady Site

SDG Nos. ACCUTEST SDG Nos. E36552, E36553, and E36948

Protocol: 1995 NYSDEC ASP/SW846

| Rec. Date | Sample ID | Matrix | VOA | BNA | Pest/PCB | Metals | CN | TOC |
|---|---|---|---|---|---|---|---|---|
| 07-06-98 | FB070198 | Aqueous | OK | OK | OK | OK | OK | NR |
| 07-06-98 | SB02-06 | Soil | OK | OK | OK | OK | OK | NR |
| 07-06-98 | SB03-04 | Soil | OK | OK | OK | OK | OK | NR |
| 07-06-98 | SS01-01 | Soil | OK | OK | OK | OK | OK | OK |
| 07-06-98 | SS01-01D | Soil | OK | OK | OK | OK | OK | NR |
| 07-06-98 | SB03-02 | Soil | NR | NR | NR | NR | NR | OK |
| 07-06-98 | FB070398 | Aqueous | OK | OK | OK | OK | NR | NR |
| 07-06-98 | SB05-02 | Soil | OK | OK | OK | OK | OK | OK |
| 07-06-98 | SS02-02 | Soil | OK | OK | OK | OK | OK | OK |
| 07-15-98 | OS-1(0-2) | Soil | OK | OK | OK | OK | OK | OK |
| 07-15-98 | OS-2(0-2) | Soil | OK | OK | OK | OK | OK | OK |

| Rec. Date | Sample ID | Matrix | BTEX | PAH | CN | TOC |
|---|---|---|---|---|---|---|
| 07-06-98 | FB070198 | Aqueous | OK | OK | NR | NR |
| 07-06-98 | SB02-04 | Soil | OK | OK | OK | NR |
| 07-06-98 | SB03-01 | Soil | OK | OK | OK | NR |
| 07-06-98 | SB05-3 | Soil | OK | OK | OK | NR |
| 07-06-98 | SB04-5 | Soil | OK | OK | OK | NR |
| 07-06-98 | SB04-2 | Soil | OK | OK | OK | NR |
| 07-06-98 | SB04-2D | Soil | OK | OK | OK | NR |
| 07-06-98 | SS2-1 | Soil | OK | OK | OK | OK |
| 07-06-98 | SS1-02 | Soil | OK | OK | OK | OK |
| 07-06-98 | SB02-2 | Soil | OK | OK | OK | OK |
| 07-06-98 | SB02-2D | Soil | OK | OK | OK | NR |

OK -analysis reported
NR -analysis not required

## DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

**U** - **The analyte was analyzed for, but was not detected above the reported sample quantitation limit.**

**J** - **The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.**

**N** - **The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."**

**NJ** - **The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.**

**UJ** - **The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.**

**R** - **The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.**

# Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Kathleen O'Neal
Accutest
Fresh Ponds Corporate Village
Building B
2235 Route 130
Dayton, NJ 08810

RE: Foster Wheeler NMPC -Schenectady Seneca St Site
SDG Nos. E36552, E36553, and E36948

Dear Ms. O'Neal:

As we discussed today, the above-mentioned samples were to have been processed and reported according to the NYSDEC ASP. The required deliverables involve defined reporting detection limits (CRDLs), which are related to calibration standard levels, and reflect a confidence in the quantitative values (of detections and detection limits). The RDLs submitted in the data package are not in accordance with those of the ASP. Please regenerate the sample results forms for all analyses, reflecting the ASP CRDL requirements. This includes the requirement to report metals results to the MDL. If additional information about this request is needed, please contact me immediately at the number above.

In addition, the following information is also needed to complete the review of the data packages:

1. Summaries of the organic and inorganic IDL/MDL studies for each method/instrument used.
2. The following pages were not present in the E36552 data package: 347, 349, 763, 1345, and 1346.

Due to project deadlines, please provide an expedited response to these requests at least by the end of this week. Please also send copies of all communications to Gregory DelMastro at Foster Wheeler.

Very truly yours,

Judy Harry

cc: Gregory DelMastro

# Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Kathleen O'Neal

COMPANY: Accutest

FAX NUMBER: 732 329-3499

FROM: Judy Harry

DATE: 8-31-98

No. of pages (including cover): 1

COMMENTS: RE: My letter request of earlier today:

Please note the following correction to item #2:

2. The following pages were not present in the E36552 data package: 1345 and 1346.

   The following pages were not present in the E36553 data package: 347, 349, and 763

I apologise for any inconvenience this may have caused.

Thank you.

# Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Dave Speis
COMPANY: ACCUTEST
FAX NUMBER: 732 329 3499

FROM: Judy Harry

DATE: 9-2-98

No. of pages (including cover): 1

COMMENTS: RE: Foster Wheeler Environmental--NMPC Sites
Data package deliverables.

In order to meet the project and NYSDEC ASP requirements, it has been determined that the organic sample result report forms for the project samples must be reissued to reflect the QAPP and method CRDLs (i.e. 10 ppb for VOA, etc). This includes subsequent flagging of the detected values below the CRDLs as estimated ("J").

Please be aware that there are two projects involved--the Schenectady and Johnstown Sites, and the following resubmissions are required for both (please do those for Schenectady as first priority):

1. Original and duplicate copies of the volatile, semivolatile, pesticide, and PCB corrected sample results report forms.
2. Electronic deliverables including these corrections (to Foster Wheeler).
3. Copies of organic MDL/IDL determinations, including dates and instruments used (this is part of the ASP Cat. B requirements).
4. Original and duplicate copies of the NYSDEC ASP Sample Preparation and Analysis summary forms (these are shown in section B of the ASP).

Please forward the originals of the forms and the electronic deliverables to Gregory DelMastro at Foster Wheeler, and the copies of the forms and the MDLs to me.

Due to project deadlines, it is imperative that these submissions be received by Tuesday, September 8, 1998. Thank you in advance for your prompt attention to this matter

cc: Gregory DelMastro

# Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: ~~Don McDowell~~ Dave Sperz
9m 9-8-98

COMPANY: ACCUTEST

FAX NUMBER: 732 329 3499

FROM: Judy Harry

DATE: 9-6-98 9-8-98 Retransmittal

No. of pages (including cover): 1

COMMENTS: RE: Foster Wheeler --NMPC Sites

Thank you for submissions of the NYSDEC ASP Sample Prep/Analysis Forms for these two projects. However, the first page of these forms (that for Sample ID and Anal. Requirement Summary) was not present for the packages. This one associates client and lab ID numbers, and analyses required. Please provide them for each of the project SDGs. Thank you.

cc Greg Del Mastro

# Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: ~~Don McDowell~~ Dave Speis 9-8-98

COMPANY: ACCUTEST

FAX NUMBER: 732 329 3499

FROM: Judy Harry

DATE: 9-7-98 9-8-98 Retransmittal

No. of pages (including cover): 1

COMMENTS: RE: Foster Wheeler --NMPC Schenectady and Johnstown Sites

Additional concerns/requests for the above-mentioned sites:

1. As we have discussed, the data packages provided are not in accordance with the NYSDEC ASP Category B deliverables. One of the important items excluded is the "verbatim" statement for each data package, signed by the Lab Manager (as discussed in the SDG Narrative subsection of the ASP Cat. B section, at the beginning of the outline). Please provide this statement for each project data package at your earliest opportunity--originals to Gregory DelMastro at Foster Wheeler, and copies to myself. Thank you

2. As a reminder, when revising the organic report forms (electronically and hand-corrected hardcopies) to adjust the CRDLs of nondetected analytes (as discussed with Greg DelMastro), please note that all **detected** values below the adjusted CRDLs must be flagged as "J". This is in accordance with the protocols.I will be citing these within the validation report, but the lab edits should also be made accordingly.

Thank you.

cc: Gregory DelMastro

# FOSTER WHEELER ENVIRONMENTAL CORPORATION

August 26, 1998

Ms. Judy Harry
Data Validation Services
120 Cobble Creek Road
P. O. Box 208
North Creek, NY 12853

RE: Chain of Custody Procedures & Duplicate Samples
Schenectady (Seneca St.) and Johnstown (Market St.) Sites

Dear Judy:

As a follow-up to your fax dated today and our telephone conversation earlier today, I have documented the chain of custody and handling procedures at the above mentioned Site and the blind duplicates below.

All samples collected for chemical analysis were properly packaged and delivered to the appropriate laboratory. After collection, and prior to and during the shipment/transportation of these samples to the laboratory, the samples were stored in coolers and iced down with the temperature continually below 4 degrees C. The air samples for Johnstown were couriered overnight to Philips. The soil samples on which my name appears on the chain of custody form were hand delivered to the laboratory by myself and relinquished. The public water sample and soil samples from SB-11, SB-12, SB-13, and SB-14 were transported to the laboratory by an overnight courier. The groundwater samples were hand delivered to our offices in Livingston, NJ by the sampling team and pickup by a laboratory representative for delivery to the laboratory.

All samples collected at the Schenectady (Seneca St.) Site were transported to the laboratory by an overnight courier with the exception of those chain of custody's where my name appears. Those samples were hand delivered to the laboratory by myself and relinquished. All samples were stored in coolers and iced down with the temperature continually below 4 degrees C.

8 Peach Tree Hill Road, Livingston, NJ 07039
Tel: 973-597-7000 Fax: 973-597-7025

With respect to blind duplicates for each Site, they are as follows:

Johnstown (Market St.) Site

| Sample ID | Blind Duplicate Sample ID |
|---|---|
| SD2-01 | SD2-01D |
| MW07 | MW17 |

Schenectady (Seneca St.) Site

| Sample ID | Blind Duplicate Sample ID |
|---|---|
| SS01-1 | SS01-1D |
| SB04-2 | SB04-2D |
| SB02-2 | SB02-2D |

If there are any questions, please contact me at (973) 597-7329.

Sincerely,

Gregory A. DelMastro
Project Manager

cc: L. Niles

dataval.doc

## Accutest Laboratories

### MEMORANDUM

Subject: Reporting Limits

Date: September 2, 1998

To: Judy Harry, Data Validation Services

From: David N. Speis

Judy:

The data reporting and reporting limit procedures employed by Accutest at the time samples from jobs E36552 and E36553 were analyzed is as follows:

1. Method detection limits are determined annually on water and soil matrices. These values are tabulated in our LIMS and imported into each results table. The reported detection limit (RDL) is adjusted to reflect initial sample size (weight or volume), final extract volume, and dilution.

2. Instrument calibration was performed using the conventional approach for SW-846 methodology prior to 3rd Edition, 3rd Update. The concentration of the low standard was near, but above, the experimentally determined MDL.

3. Analytical data was reported to the RDL without qualification. Values below the RDL, which met all qualitative identification criteria, were qualified as estimated using a "J".

This approach has since been changed to reflect New Jersey's enforcement of all SW-846 3rd Edition, 3rd Update criteria. The reporting limit is now established by the low calibration standard. Values below the RL, which meet all qualitative identification criteria are qualified as estimated using the "J" qualifier. The concentration of the low calibration standard has been lowered to a level that enables the analysts to achieve a satisfactory reporting limit without sacrificing the linear range.

Attached are summaries of the metals IDL studies that were in effect at the time samples from these jobs were analyzed. The data includes studies from two ICP trace instruments and the mercury analyzer. The trace vacuum study is seven pages, the trace purge is one page, and the mercury study is one page. I did not include the raw data from the mercury study.

Please call me if you need additional information. FYI, our agreement with Foster Wheeler on this project allowed us to substitute NJ Tier I for ASP Cat. B.

# ratory Instrumentation Elemental Information Form

rument Identification HG #1

| ement | Instrument Symbol | Wavelength | Detection Limit | Integration Time | Linearity | Bkg |
|---|---|---|---|---|---|---|
| inum | | | | | | |
| timony | | | | | | |
| enic | | | | | | |
| ium | | | | | | |
| yllium | | | | | | |
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| pper | | | | | | |
| n | | | | | | |
| ad | | | | | | |
| agnesium | | | | | | |
| nganese | | | | | | |
| rcury | Hg | 253.700 | 0.1 (0.054) | | | |
| ickel | | | | | | |
| tassium | | | | | | |
| lenium | | | | | | |
| lver | | | | | | |
| odium | | | | | | |
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| rontium | | | | | | |
| itanium | | | | | | |
| Palladium | | | | | | |
| ithium | | | | | | |
| ranium | | | | | | |
| Silicon | | | | | | |
| exachrom | | | | | | |
| henols | | | | | | |
| bicarbonate | | | | | | |
| BOD | | | | | | |
| COD | | | | | | |
| ardness | | | | | | |
| TOC | | | | | | |

Detection Limit Summary Data for Instrument : 11

| Dates : | 03/26/98 | 03/30/98 | 04/01/98 | 03/26/98 |
|---|---|---|---|---|
| Element | 1 | 2 | 3 | Detection Limit |
| Aluminum | 6.74 | 9.14 | 20.22 | 36.1 |
| Antimony | 1.25 | 0.98 | 1.04 | 3.3 |
| Arsenic | 1.20 | 1.00 | 1.07 | 3.3 |
| Barium | 0.18 | 0.26 | 0.47 | 0.9 |
| Beryllium | 0.14 | 0.02 | 0.03 | 0.2 |
| Cadmium | 0.11 | 0.14 | 0.07 | 0.3 |
| Calcium | 4.85 | 2.16 | 4.44 | 11.5 |
| Chromium | 0.30 | 0.22 | 0.22 | 0.7 |
| Cobalt | 0.24 | 0.31 | 0.18 | 0.7 |
| Copper | 0.96 | 0.58 | 0.44 | 2.0 |
| Iron | 26.81 | 4.70 | 7.22 | 38.7 |
| Lead | 0.68 | 0.40 | 0.37 | 1.5 |
| Magnesium | 3.46 | 2.08 | 2.14 | 7.7 |
| Manganese | 0.34 | 0.07 | 0.14 | 0.5 |
| Mercury | 377964.1 | | | |
| Nickel | 0.28 | 0.41 | 0.47 | 1.2 |
| Potassium | 68.87 | 59.94 | 59.96 | 138.8 |
| Selenium | 1.16 | 1.72 | 1.16 | 4.0 |
| Silver | 0.63 | 0.35 | 0.42 | 1.4 |
| Sodium | 57.26 | 23.99 | 153.47 | 234.7 |
| Thallium | 1.58 | 1.11 | 1.92 | 4.6 |
| Vanadium | 0.29 | 0.29 | 0.13 | 0.7 |
| Zinc | 0.25 | 0.13 | 0.20 | 0.6 |
| Cyanide | | | | |
| Boron | 1.41 | 1.21 | 1.62 | 4.2 |
| Molybdenum | 0.70 | 0.25 | 0.40 | 1.3 |
| Tin | 1.73 | 0.51 | 0.65 | 2.9 |
| Strontium | 0.20 | 0.04 | 0.17 | 0.4 |
| Titanium | 0.12 | 0.06 | 0.14 | 0.3 |
| Palladium | 1.81 | 1.11 | 0.93 | 3.8 |
| Lithium | | | | |
| Uranium | | | | |
| Silicon | 2.69 | 4.44 | 5.64 | 12.8 |
| Hexachrom | | | | |
| Phenols | | | | |
| bicarbonat | | | | |
| BOD | | | | |
| COD | | | | |
| Hardness | | | | |
| TOC | | | | |

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

| Customer Sample Code | Laboratory Sample ID | Analytical Requirements | | | | | |
|---|---|---|---|---|---|---|---|
| | | VOA GC/MS Method 8260 | BNA GC/MS Method # | VOC GC Method # | Pest PCB Method # | Metals | Other |
| FB070198 | E36552 - 1 | X | X | | X | X | X |
| SB02-4 | E36552 - 2 | X | X | | | | X |
| SB02-6 | E36552 - 3 | X | X | | X | X | X |
| SB02-6 | E36552 - 3 | X | | | | | |
| SB03-2 | E36552 - 4 | X | | | | | X |
| SB03-1 | E36552 - 5 | X | X | | | | X |
| SB03-4 | E36552 - 6 | X | X | | X | X | X |
| SS01-1 | E36552 - 7 | X | X | | X | X | X |
| SS01-1D | E36552 - 8 | X | X | | X | X | X |
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Additional Edits JMG 9-10-98

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and the computer readable data submitted on floppy diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Vincent J. Pugliese, President

9/10/98
Date

## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

### SAMPLE PREPARATION AND ANALYSIS SUMMARY
### VOLATILE (VOC)
### ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36552 - 1 | FB | 7/1/98 | 7/6/98 | NA | 7/10/98 |
| E36552 - 2 | Soil | 6/30/98 | 7/6/98 | NA | 7/10/98 |
| E36552 - 3 | Soil | 7/1/98 | 7/6/98 | NA | 7/10/98 |
| E36552 - 3 | Soil | 7/1/98 | 7/6/98 | NA | 7/15/98 |
| E36552 - 4 | Soil | 7/1/98 | 7/6/98 | NA | NA |
| E36552 - 5 | Soil | 7/1/98 | 7/6/98 | NA | 7/10/98 |
| E36552 - 6 | Soil | 7/1/98 | 7/6/98 | NA | 7/11/98 |
| E36552 - 7 | Soil | 6/30/98 | 7/6/98 | NA | 7/13/98 |
| E36552 - 8 | Soil | 6/30/98 | 7/6/98 | NA | 7/14/98 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## SEMIVOLATILE (BNA)
## ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36552 - 1 | FB | 7/1/98 | 7/6/98 | 7/7/98 | 7/9/98 |
| E36552 - 2 | Soil | 6/30/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36552 - 3 | Soil | 7/1/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36552 - 4 | Soil | 7/1/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36552 - 4 (Run #2) | Soil | 7/1/98 | 7/6/98 | 7/7/98 | 7/10/98 |
| E36552 - 5 | Soil | 7/1/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36552 - 6 | Soil | 7/1/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36552 - 7 | Soil | 6/30/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36552 - 8 | Soil | 6/30/98 | 7/6/98 | 7/10/98 | 7/14/98 |
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## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

### SAMPLE PREPARATION AND ANALYSIS SUMMARY
### PESTICIDE / PCB
### ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36552 - 1 | FB | 7/1/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36552 - 2 | Soil | 6/30/98 | 7/6/98 | NA | NA |
| E36552 - 3 | Soil | 7/1/98 | 7/6/98 | 7/10/98 | 7/17/98 |
| E36552 - 4 | Soil | 7/1/98 | 7/6/98 | NA | NA |
| E36552 - 5 | Soil | 7/1/98 | 7/6/98 | NA | NA |
| E36552 - 6 | Soil | 7/1/98 | 7/6/98 | 7/10/98 | 7/17/98 |
| E36552 - 7 | Soil | 6/30/98 | 7/6/98 | 7/10/98 | 7/18/98 |
| E36552 - 8 | Soil | 6/30/98 | 7/6/98 | 7/10/98 | 7/18/98 |
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## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

### SAMPLE PREPARATION AND ANALYSIS SUMMARY
### INORGANIC ANALYSES

| Laboratory Sample ID | Matrix | Metals Requested | Date Rec'd at Lab | Date Analyzed |
|---|---|---|---|---|
| E36552 - 1 | FB | TAL Metals | 7/6/98 | 7/8 - 15 |
| E36552 - 2 | Soil | TAL Metals | 7/6/98 | NA |
| E36552 - 3 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
| E36552 - 4 | Soil | TAL Metals | 7/6/98 | NA |
| E36552 - 5 | Soil | TAL Metals | 7/6/98 | NA |
| E36552 - 6 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
| E36552 - 7 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
| E36552 - 8 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

| Customer Sample Code | Laboratory Sample ID | Analytical Requirements | | | | | |
|---|---|---|---|---|---|---|---|
| | | VOA GC/MS Method 8260 | BNA GC/MS Method 8270 | VOC GC Method # | Pest PCB Method 8081/ 8082 | Metals | Other |
| SB05-2 | E36553 - 1 | X | X | | X | X | X |
| SB05-3 | E36553 - 2 | X | X | | | | X |
| SB04-5 | E36553 - 3 | X | X | | | | X |
| SB04-2 | E36553 - 4 | X | X | | | | X |
| SB04-2D | E36553 - 5 | X | X | | | | X |
| SS02-2 | E36553 - 6 | X | X | | X | X | X |
| FB070398 | E36553 - 7 | X | X | | X | X | X |
| SS2-1 | E36553 - 8 | X | X | | | | X |
| SS1-02 | E36553 - 9 | X | X | | | | X |
| SB02-2 | E36553 - 10 | X | X | | | | X |
| SB02-2D | E36553 - 11 | X | X | | | | X |
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**I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and the computer readable data submitted on floppy diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.**

Vincent J. Pugliese, President

9/10/98
Date

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## VOLATILE (VOC)
## ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36553 - 1 | Soil | 7/2/98 | 7/6/98 | NA | 7/9/98 |
| E36553 - 2 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 3 | Soil | 7/2/98 | 7/6/98 | NA | 7/19 & 7/10 |
| E36553 - 4 | Soil | 7/2/98 | 7/6/98 | NA | 7/9/98 |
| E36553 - 5 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 6 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 7 | FB | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 8 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 9 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 10 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
| E36553 - 11 | Soil | 7/2/98 | 7/6/98 | NA | 7/10/98 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## INORGANIC ANALYSES

| Laboratory Sample ID | Matrix | Metals Requested | Date Rec'd at Lab | Date Analyzed |
|---|---|---|---|---|
| E36553 - 1 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
| E36553 - 2 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 3 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 4 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 5 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 6 | Soil | TAL Metals | 7/6/98 | 7/9 - 21 |
| E36553 - 7 | FB | TAL Metals | 7/6/98 | 7/8 - 15 |
| E36553 - 8 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 9 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 10 | Soil | TAL Metals | 7/6/98 | NA |
| E36553 - 11 | Soil | TAL Metals | 7/6/98 | NA |
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## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

### SAMPLE PREPARATION AND ANALYSIS SUMMARY
### PESTICIDE / PCB
### ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36553 - 1 | Soil | 7/2/98 | 7/6/98 | 7/10/98 | 7/13 & 7/18 |
| E36553 - 2 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 3 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 4 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 5 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 6 | Soil | 7/2/98 | 7/6/98 | 7/10/98 | 7/13 & 7/18 |
| E36553 - 7 | FB | 7/2/98 | 7/6/98 | 7/7/98 | 7/8 & 7/17 |
| E36553 - 8 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 9 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 10 | Soil | 7/2/98 | 7/6/98 | NA | NA |
| E36553 - 11 | Soil | 7/2/98 | 7/6/98 | NA | NA |
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## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

### SAMPLE PREPARATION AND ANALYSIS SUMMARY
### SEMIVOLATILE (BNA)
### ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36553 - 1 | Soil | 7/2/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36553 - 2 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 3 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 4 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 5 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 6 | Soil | 7/2/98 | 7/6/98 | 7/10/98 | 7/14/98 |
| E36553 - 7 | FB | 7/2/98 | 7/6/98 | 7/7/98 | 7/9/98 |
| E36553 - 8 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 9 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 10 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
| E36553 - 11 | Soil | 7/2/98 | 7/6/98 | 7/7/98 | 7/8/98 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

| Customer Sample Code | Laboratory Sample ID | Analytical Requirements | | | | | |
|---|---|---|---|---|---|---|---|
| | | VOA GC/MS Method 8260 | BNA GC/MS Method 8270 | VOC GC Method # | Pest PCB Method 8081/ 8082 | Metals | Other |
| OS-1 (0-2") | E36948 - 1 | X | X | | X | X | X |
| OS-2 (0-2") | E36948 - 2 | X | X | | X | X | X |
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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and the computer readable data submitted on floppy diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Vincent J. Pugliese, President

Date 9/10/98

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## VOLATILE (VOC)
## ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36948 - 1 | Soil | 7/9/98 | 7/15/98 | NA | 7/23/98 |
| E36948 - 2 | Soil | 7/9/98 | 7/15/98 | NA | 7/23/98 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## SEMIVOLATILE (BNA)
## ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36948 - 1 | Soil | 7/9/98 | 7/15/98 | 7/20/98 | 7/24/98 |
| E36948 - 2 | Soil | 7/9/98 | 7/15/98 | 7/20/98 | 7/24/98 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## PESTICIDE / PCB
## ANALYSES

| Laboratory Sample ID | Matrix | Date Collected | Date Rec'd at Lab | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|
| E36948 - 1 | Soil | 7/9/98 | 7/15/98 | 7/16 & 7/20 | 7/18 & 7/25 |
| E36948 - 2 | Soil | 7/9/98 | 7/15/98 | 7/16 & 7/20 | 7/18 & 7/25 |
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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## SAMPLE PREPARATION AND ANALYSIS SUMMARY
## INORGANIC ANALYSES

| Laboratory Sample ID | Matrix | Metals Requested | Date Rec'd at Lab | Date Analyzed |
|---|---|---|---|---|
| E36948 - 1 | Soil | TAL Metals | 7/15/98 | 7/18 - 29 |
| E36948 - 2 | Soil | TAL Metals | 7/15/98 | 7/18 - 29 |
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# Sample Summary

Foster Wheeler Environmental

**Date:** 07/28/98
**Job No:** E36552

Niagara Mohawk, Seneca St., Schenectady, NY
Project No: PO#011528

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Matrix Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| E36552-1 | 07/01/98 | 12:50 | PA | 07/06/98 | AQ | Field Blank Soil | FB070198 |
| E36552-2 | 06/30/98 | 11:45 | PA | 07/06/98 | SO | Soil | SB02-4 |
| E36552-3 | 07/01/98 | 11:30 | PA | 07/06/98 | SO | Soil | SB02-6 |
| E36552-4 | 07/01/98 | 13:45 | PA | 07/06/98 | SO | Soil | SB03-2 |
| E36552-5 | 07/01/98 | 15:10 | PA | 07/06/98 | SO | Soil | SB03-1 |
| E36552-6 | 07/01/98 | 14:20 | PA | 07/06/98 | SO | Soil | SB03-4 |
| E36552-7 | 06/30/98 | 16:30 | PA | 07/06/98 | SO | Soil | SS01-1 |
| E36552-8 | 06/30/98 | 16:30 | PA | 07/06/98 | SO | Soil | SS01-1D |

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# Sample Summary

Foster Wheeler Environmental

**Date:** 07/28/98
**Job No:** E36553

Niagara Mohawk, Seneca St., Schenectady, NY
Project No: PO#011528

| Sample Number | Collected Date | Time By | Received | Matrix Code | Matrix Type | Client Sample ID |
|---|---|---|---|---|---|---|
| E36553-1 | 07/02/98 | 13:08 PA | 07/06/98 | SO | Soil | SB05-2 |
| E36553-2 | 07/02/98 | 14:10 PA | 07/06/98 | SO | Soil | SB05-3 |
| E36553-3 | 07/02/98 | 08:36 PA | 07/06/98 | SO | Soil | SB04-5 |
| E36553-4 | 07/02/98 | 07:54 PA | 07/06/98 | SO | Soil | SB04-2 |
| E36553-5 | 07/02/98 | 07:54 PA | 07/06/98 | SO | Soil | SB04-2D |
| E36553-6 | 07/02/98 | 09:40 PA | 07/06/98 | SO | Soil | SS02-2 |
| E36553-7 | 07/02/98 | 08:30 PA | 07/06/98 | AQ | Field Blank Soil | FB070398 |
| E36553-8 | 07/02/98 | 15:00 PA | 07/06/98 | SO | Soil | SS2-1 |
| E36553-9 | 07/02/98 | 14:40 PA | 07/06/98 | SO | Soil | SS1-02 |
| E36553-10 | 07/02/98 | 11:30 PA | 07/06/98 | SO | Soil | SB02-2 |
| E36553-11 | 07/02/98 | 11:30 PA | 07/06/98 | SO | Soil | SB02-2D |
| E36553-1D | 07/02/98 | 13:08 PA | 07/06/98 | SO | Soil Dup/MSD | SB05-2 |
| E36553-1S | 07/02/98 | 13:08 PA | 07/06/98 | SO | Soil Matrix Spike | SB05-2 |



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# Sample Summary
(continued)

Foster Wheeler Environmental

**Date:** 07/28/98
**Job No:** E36553

Niagara Mohawk, Seneca St., Schenectady, NY
Project No: PO#011528

| Sample Number | Collected Date | Time By | Received | Matrix Code | Matrix Type | Client Sample ID |
|---|---|---|---|---|---|---|
| E36553-2D | 07/02/98 | 14:10 PA | 07/06/98 | SO | Soil Dup/MSD | SB05-3 |
| E36553-2S | 07/02/98 | 14:10 PA | 07/06/98 | SO | Soil Matrix Spike | SB05-3 |



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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

7. Surrogate Recoveries Meets Criteria. [ ✓ ] [ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* Surrogate recoveries fall outside the acceptable range for 36552-2 and -3.*

8. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. [ ✓ ] [ ]

*If not met, refer to MS/MSD and blank spike summaries:* Refer to MS/MSD and blank spike summaries for MS, MSD, BSP, and BSD sections falling outside the acceptable range.

9. Internal Standard Area/Retention Time Shift Meet Criteria [ ✓ ] [ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* Internal standard areas fall outside the acceptable range for 36552-2, -3, -7 and -8.*

10. Extraction Holding Time Met [ ] [ NA ]

*If not met, list number of days exceeded for each samples:* _____

11. Analysis Holding Time Met [ ] [ ✓ ]

*If not met, list number of days exceed for each sample:* _____

Additional Comments: * Surrogates and internal standards are outside QC limits due to possible matrix interference as verified by reanalysis

QC Review Signature: Michael Lucca Date: 05-79

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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: semi-volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

| | | | |
|---|---|---|---|
| 7. | Surrogate Recoveries Meets Criteria. | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 8. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [ ✓ ] |

*If not met, refer to MS/MSD and blank spike summaries:* _____

| | | | |
|---|---|---|---|
| 9. | Internal Standard Area/Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 10. | Extraction Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceeded for each samples:* _____

| | | | |
|---|---|---|---|
| 11. | Analysis Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceed for each sample:* _____

Additional Comments: _____

QC Review Signature: Michael Crocco Date: 7/20/98



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# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: P8081 PEST TCL

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [✓] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [✓] |
| 3. | Blank Contamination | [✓] | [ ] |
| | *If yes, list compounds and in each blank:* | | |
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [✓] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [✓] |
| | *If not met,refer to MS/MSD and blank spike summaries:* | | |
| 6. | Retention Time Shift Meet Criteria | [ ] | [✓] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 7. | Extraction Holding Time Met | [ ] | [✓] |
| | *If not met, list number of days exceeded for each samples:* | | |
| 8. | Analysis Holding Time Met | [ ] | [✓] |
| | *If not met, list number of days exceed for each sample:* | | |

Additional Comments:

QC Review Signature: Benedetta Popow Date: 7/27/98

785

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# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: P8082PCB AO

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 3. | Blank Contamination | [ ✓ ] | [ ] |
| | *If yes, list compounds and in each blank:* | | |
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [ ✓ ] |
| | *If not met,refer to MS/MSD and blank spike summaries:* | | |
| 6. | Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 7. | Extraction Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceeded for each samples:* | | |
| 8. | Analysis Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceed for each sample:* | | |

Additional Comments:

QC Review Signature: Benedetta Gigliotti Date: 7/27/97



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# Metals Analysis Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [ ✓ ] |

*If no, list elements above reporting limits :* _____

| | | Al, Sb, Fe Mn, K, Na | All other metals |
|---|---|---|---|
| 3. | Matrix Spike data within acceptable limits? | [ ✓ ] | [ ✓ ] |

*If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Aluminum, Antimony, Iron, Manganese, Potassium and Sodium.

| | | Al, As, Ba, Cr, Cu, Fe, Mg, Mn, Ni: | All other metals |
|---|---|---|---|
| 4. | Matrix duplicate data within acceptable limits?. | [ ✓ ] | [ ✓ ] |

*If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Aluminum, Antimony, Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Sodium and Thallium

| | | | |
|---|---|---|---|
| 5. | Samples digested and analyzed within holding time? | [ ] | [ ✓ ] |

*If holding times were not met, list elements where holding times were exceeded and explain:* _____

| | | | |
|---|---|---|---|
| 6. | All analytical criteria met (calibrations, CCV and CCB checks, interfering element checks, etc.)? | [ ] | [ ✓ ] |

*If not met, list affected samples and elements:* _____

Additional Comments: _____

QC Review Signature: Johnetta Scott Date: 7-24-98



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# General Chemistry Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [ √ ] |

*If no, list analytes above reporting limits :* _____

| | | | |
|---|---|---|---|
| 2. | Spike blank or lab control data within acceptable limits? | [ ] | [ √ ] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Total Cyanide

| | | | |
|---|---|---|---|
| 3. | Matrix Spike data within acceptable limits? | [ ] | [ √ ] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* _____

| | | | |
|---|---|---|---|
| 4. | Matrix duplicate data within acceptable limits?. | [ ] | [ √ ] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* _____

| | | | |
|---|---|---|---|
| 5. | Samples prepared and analyzed within holding time? | [ ] | [ √ ] |

*If holding times were not met, list analytess where holding times were exceeded and explain:* _____

| | | | |
|---|---|---|---|
| 6. | All analytical criteria met (calibrations, CCV checks, etc.)? | [ ] | [ √ ] |

*If not met, list affected samples and elements:* _____

Additional Comments: _____

QC Review Signature: Johnetta Scott Date: 7-27-98



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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: Volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

7. Surrogate Recoveries Meets Criteria. [ ✓ ] [ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* Surrogate recoveries fall outside the acceptable range for 36553-1 and -3.*

8. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. [ ✓ ] [ ]

*If not met, refer to MS/MSD and blank spike summaries:* Refer to MS/MSD and blank spike summaries for MS, MSD, and BSP sections falling outside the acceptable range.

9. Internal Standard Area/Retention Time Shift Meet Criteria [ ✓ ] [ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* Internal standard areas fall outside the acceptable range for 36553-1, -3, and -9.*

10. Extraction Holding Time Met [ ] [ NA ]

*If not met, list number of days exceeded for each samples:* _____

11. Analysis Holding Time Met [ ] [ ✓ ]

*If not met, list number of days exceed for each sample:* _____

Additional Comments: * Surrogates and internal standards are outside QC limits due to possible matrix interference as verified by either MS/MSD or by reanalysis. Refer to each sample.



QC Review Signature: Michael Crocco Date: 7/20/98

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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: semi-volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

| | | | |
|---|---|---|---|
| 7. | Surrogate Recoveries Meets Criteria. | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 8. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [ ✓ ] |

*If not met, refer to MS/MSD and blank spike summaries:* _____

| | | | |
|---|---|---|---|
| 9. | Internal Standard Area/Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 10. | Extraction Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceeded for each samples:* _____

| | | | |
|---|---|---|---|
| 11. | Analysis Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceed for each sample:* _____

Additional Comments: _____

QC Review Signature: Michael Crocco Date: 7/20/98



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# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: 8081 PESTICL

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 3. | Blank Contamination | [ ✓ ] | [ ] |
| | *If yes, list compounds and in each blank:* | | |
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [ ✓ ] |
| | *If not met,refer to MS/MSD and blank spike summaries:* | | |
| 6. | Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 7. | Extraction Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceeded for each samples:* | | |
| 8. | Analysis Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceed for each sample:* | | |

Additional Comments:

QC Review Signature: Benedetta Tognon Date: 7/23/98

668

ACCUTEST.

# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: P8082PCBAO

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [✓] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [✓] |
| 3. | Blank Contamination | [✓] | [ ] |
| | *If yes, list compounds and in each blank:* | | |
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [✓] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [✓] |
| | *If not met,refer to MS/MSD and blank spike summaries:* | | |
| 6. | Retention Time Shift Meet Criteria | [ ] | [✓] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 7. | Extraction Holding Time Met | [ ] | [✓] |
| | *If not met, list number of days exceeded for each samples:* | | |
| 8. | Analysis Holding Time Met | [ ] | [✓] |
| | *If not met, list number of days exceed for each sample:* | | |

Additional Comments:

QC Review Signature: Benedetta Bogow Date: 7/23/98

761

ACCUTEST.

# Metals Analysis Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [ ✓ ] |

*If no, list elements above reporting limits :* _____

| | | NO | YES |
|---|---|---|---|
| 2. | Spike blank or lab control data within acceptable limits? | [ ] | [ ✓ ] |

*If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* _____

| | | Al, Sb, Fe, Mn, K, Na | All other metals |
|---|---|---|---|
| 3. | Matrix Spike data within acceptable limits? | [ ✓ ] | [ ✓ ] |

*If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Aluminum, Antimony, Iron, Manganese, Potassium and Sodium

| | | Al, As, Ba, Cr, Cu, Fe, Mg, Mn, Ni | All other metals |
|---|---|---|---|
| 4. | Matrix duplicate data within acceptable limits?. | [ ✓ ] | [ ✓ ] |

*If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Aluminum, Antimony, Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Sodium & Thallium

| | | NO | YES |
|---|---|---|---|
| 5. | Samples digested and analyzed within holding time? | [ ] | [ ✓ ] |

*If holding times were not met, list elements where holding times were exceeded and explain:* _____

| | | NO | YES |
|---|---|---|---|
| 6. | All analytical criteria met (calibrations, CCV and CCB checks, interfering element checks, etc.)? | [ ] | [ ✓ ] |

*If not met, list affected samples and elements:* _____

Additional Comments: _____

QC Review Signature: Jotinetta Scott Date: 7-27-98

910

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# General Chemistry Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [√] |

*If no, list analytes above reporting limits :* _____

| | | | |
|---|---|---|---|
| 2. | Spike blank or lab control data within acceptable limits? | [ ] | [√] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* See comment for Total Cyanide

| | | | |
|---|---|---|---|
| 3. | Matrix Spike data within acceptable limits? | [ ] | [√] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* _____

| | | | |
|---|---|---|---|
| 4. | Matrix duplicate data within acceptable limits?. | [ ] | [√] |

*If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* _____

| | | | |
|---|---|---|---|
| 5. | Samples prepared and analyzed within holding time? | [ ] | [√] |

*If holding times were not met, list analytess where holding times were exceeded and explain:* _____

| | | | |
|---|---|---|---|
| 6. | All analytical criteria met (calibrations, CCV checks, etc.)? | [ ] | [√] |

*If not met, list affected samples and elements:* _____

Additional Comments: _____

QC Review Signature: Johnetta Scott Date: 7-27-98

1698

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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

7. Surrogate Recoveries Meets Criteria. [ ] [ ✓ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

8. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. [ ✓ ] [ ]

*If not met, refer to MS/MSD and blank spike summaries:* Refer to MS/MSD and blank spike summaries for MS, MSD, RPD, and LCS sections falling outside the acceptable range.

9. Internal Standard Area/Retention Time Shift Meet Criteria [ ✓ ] [ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* Internal Standard area fails outside the acceptable range for 36948-1.*

10. Extraction Holding Time Met [ ] [ N/A ]

*If not met, list number of days exceeded for each samples:* _____

11. Analysis Holding Time Met [ ] [ ✓ ]

*If not met, list number of days exceed for each sample:* _____

Additional Comments: * Internal standard is outside QC limits due to possible matrix interference as verified by MS/MSD."

QC Review Signature: Michael Crocco Date: 7/30/08



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# GC/MS Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: Semi-volatile

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC/MS Tune Meet Criteria. | [ ] | [ ✓ ] |
| 3. | GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 4. | GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 5. | GC/MS Calibration Requirements | | |
| | a. Calibration Check Compounds | [ ] | [ ✓ ] |
| | b. System Performance Check Compounds | [ ] | [ ✓ ] |
| 6. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

_____

7. Surrogate Recoveries Meets Criteria. [ ] [ ✓ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

_____

8. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. [ ✓ ] [ ]

*If not met, refer to MS/MSD and blank spike summaries:* Refer to MS/MSD and blank spike Summaries for MSD, RPD, and ESF sections falling outside the acceptable range.

9. Internal Standard Area/Retention Time Shift Meet Criteria [ ] [ ✓ ]

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

_____

10. Extraction Holding Time Met [ ] [ ✓ ]

*If not met, list number of days exceeded for each samples:* _____

_____

11. Analysis Holding Time Met [ ] [ ✓ ]

*If not met, list number of days exceed for each sample:* _____

_____

Additional Comments: _____

_____

_____

QC Review Signature: Michael Crocco Date: 7/31/98



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# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: 8081 PEST TCL

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 3. | Blank Contamination | [ ✓ ] | [ ] |
| | *If yes, list compounds and in each blank:* | | |
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ✓ ] | [ ] |
| | *If not met, refer to MS/MSD and blank spike summaries:* See MS/MSD Summary for %MS and %MSD being out | | |
| 6. | Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |
| | *If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* | | |
| 7. | Extraction Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceeded for each samples:* | | |
| 8. | Analysis Holding Time Met | [ ] | [ ✓ ] |
| | *If not met, list number of days exceed for each sample:* | | |

Additional Comments:

QC Review Signature: Benedetta Popow Date: 8/10/98



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# GC Analysis Case Narrative/Conformance/Non-Conformance Summary

Fraction: P8082PCBA 0

| | | NO | YES |
|---|---|---|---|
| 1. | Chromatograms Labeled/Compounds Identified. *(Field Samples and Method Blanks)* | [ ] | [ ✓ ] |
| 2. | GC Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of samples analysis for 600 series and 12 hours for 8000 series. | [ ] | [ ✓ ] |
| 3. | Blank Contamination | [ ✓ ] | [ ] |

*If yes, list compounds and in each blank:* _____

| | | | |
|---|---|---|---|
| 4. | Surrogate Recoveries Meets Criteria (if applicable). | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 5. | Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria. | [ ] | [ ✓ ] |

*If not met,refer to MS/MSD and blank spike summaries:* _____

| | | | |
|---|---|---|---|
| 6. | Retention Time Shift Meet Criteria | [ ] | [ ✓ ] |

*If not met, list those samples which fall outside the acceptable range and confirmed by reanalysis:* _____

| | | | |
|---|---|---|---|
| 7. | Extraction Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceeded for each samples:* _____

| | | | |
|---|---|---|---|
| 8. | Analysis Holding Time Met | [ ] | [ ✓ ] |

*If not met, list number of days exceed for each sample:* _____

Additional Comments: _____

QC Review Signature: Benedetta Pappow Date: 7/30/98



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# Metals Analysis Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [ √ ] |
| | *If no, list elements above reporting limits :* _____ | | |
| 2. | Spike blank or lab control data within acceptable limits? | [ ] | [ √ ] |
| | *If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* _____ | | |
| | | Al, Sb, K | All other meta |
| 3. | Matrix Spike data within acceptable limits? | [ √ ] | [ √ ] |
| | *If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* See comments for Aluminum Antimony, Calcium and Potassium. | | |
| 4. | Matrix duplicate data within acceptable limits?. | [ ] | [ √ ] |
| | *If no, list elements outside of acceptable limits. Refer to QC summary for additional comments :* _____ | | |
| 5. | Samples digested and analyzed within holding time? | [ ] | [ √ ] |
| | *If holding times were not met, list elements where holding times were exceeded and explain:* _____ | | |
| 6. | All analytical criteria met (calibrations, CCV and CCB checks, interfering element checks, etc.)? | [ ] | [ √ ] |
| | *If not met, list affected samples and elements:* _____ | | |

Additional Comments: _____

**QC Review Signature:** Johnetta Scott **Date:** 8-6-98



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# General Chemistry Case Narrative/Conformance/Non-Conformance Summary

| | | NO | YES |
|---|---|---|---|
| 1. | Blank levels below reporting limits? | [ ] | [ √ ] |
| | *If no, list analytes above reporting limits :* | | |
| 2. | Spike blank or lab control data within acceptable limits? | [ ] | [ √ ] |
| | *If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* | | |
| 3. | Matrix Spike data within acceptable limits? | [ ] | [ √ ] |
| | *If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* | | |
| 4. | Matrix duplicate data within acceptable limits?. | [ ] | [ √ ] |
| | *If no, list analytes outside of acceptable limits. Refer to QC summary for additional comments :* | | |
| 5. | Samples prepared and analyzed within holding time? | [ ] | [ √ ] |
| | *If holding times were not met, list analytess where holding times were exceeded and explain:* | | |
| 6. | All analytical criteria met (calibrations, CCV checks, etc.)? | [ ] | [ √ ] |
| | *If not met, list affected samples and elements:* | | |

Additional Comments:

QC Review Signature: Johnette Scott Date: 8-6-98



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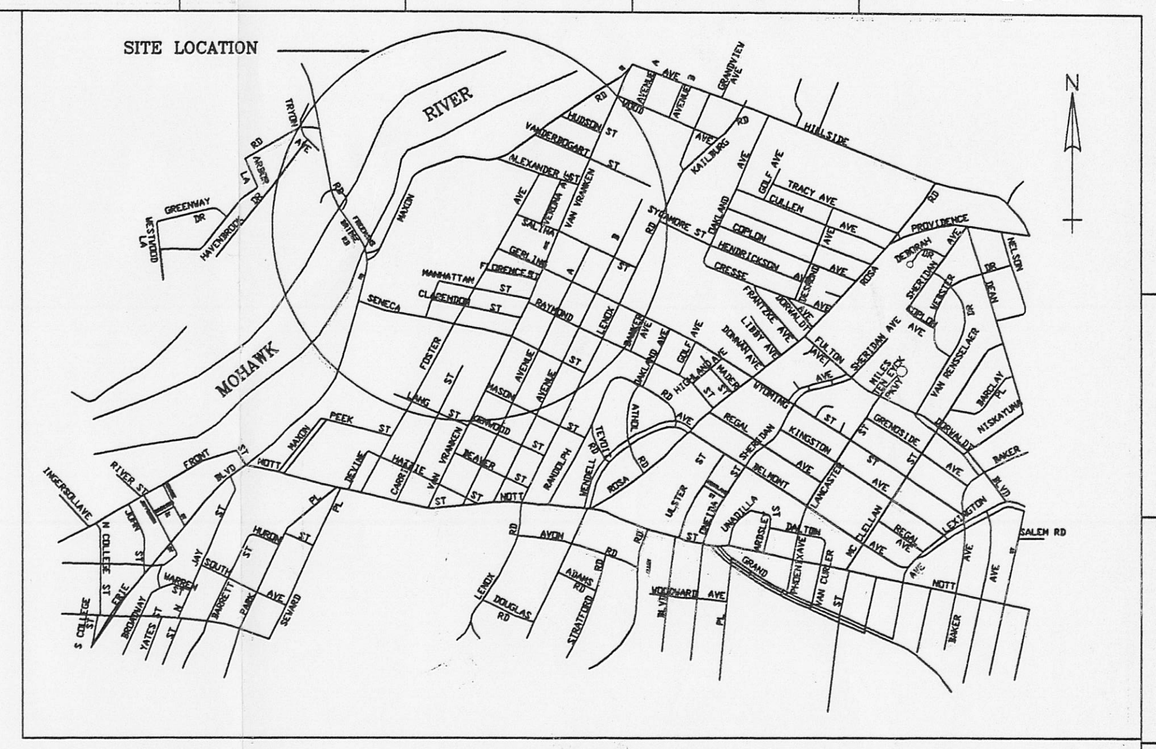
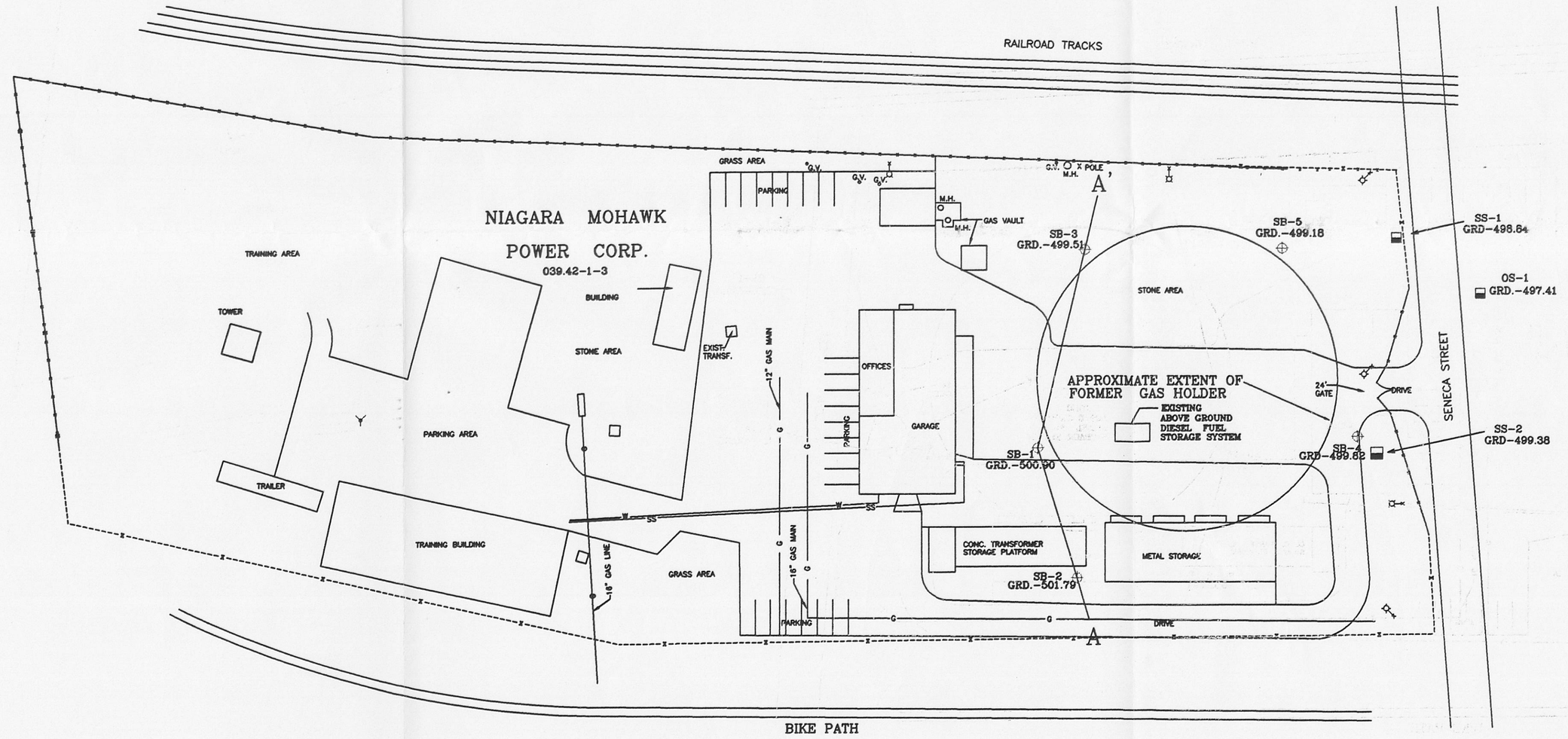



LOCATION MAP
N.T.S.




LEGEND

- Surface Soil Sample
- Soil Boring
- Pin
- Hyd.
- Manhole Unknown
- Manhole Electric
- Pipe
- Nail

REFERENCE MATERIAL

1)N.M.P.C. MAP TITLED "SENECA STREET SERVICE CENTER; INDEX NO. 20.3-S2.4-B2, DWG. NO. D-29735-E.
2) CITY OF SCHENECTADY TAX MAPS 039.34 AND039.42.

NOTE:

1) ALL SOIL BORINGS AND SOIL SAMPLES WERE LOCATED FROM A FIELD SURVEY ON 7/21/1998.THE BACKGROUND MAP IS OF A UNKNOWN ORIGIN (PER REF. 1) AND THEREFORE ITS ACCURACY MAY BE APROXIMATE.
2) ALL HORIZONTAL AND VERTICAL DATUM IS ASSUMED.

50 0 50 100
SCALE: 1" = 50'

NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 1-2
SITE MAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

| DEPT | DESIGNED | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|
| CE | | J.R. | | | |

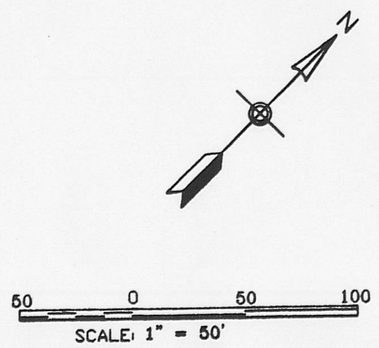
SCALE: 1"=50'-0' | DRAWING NUMBER: | SH. OF | REV

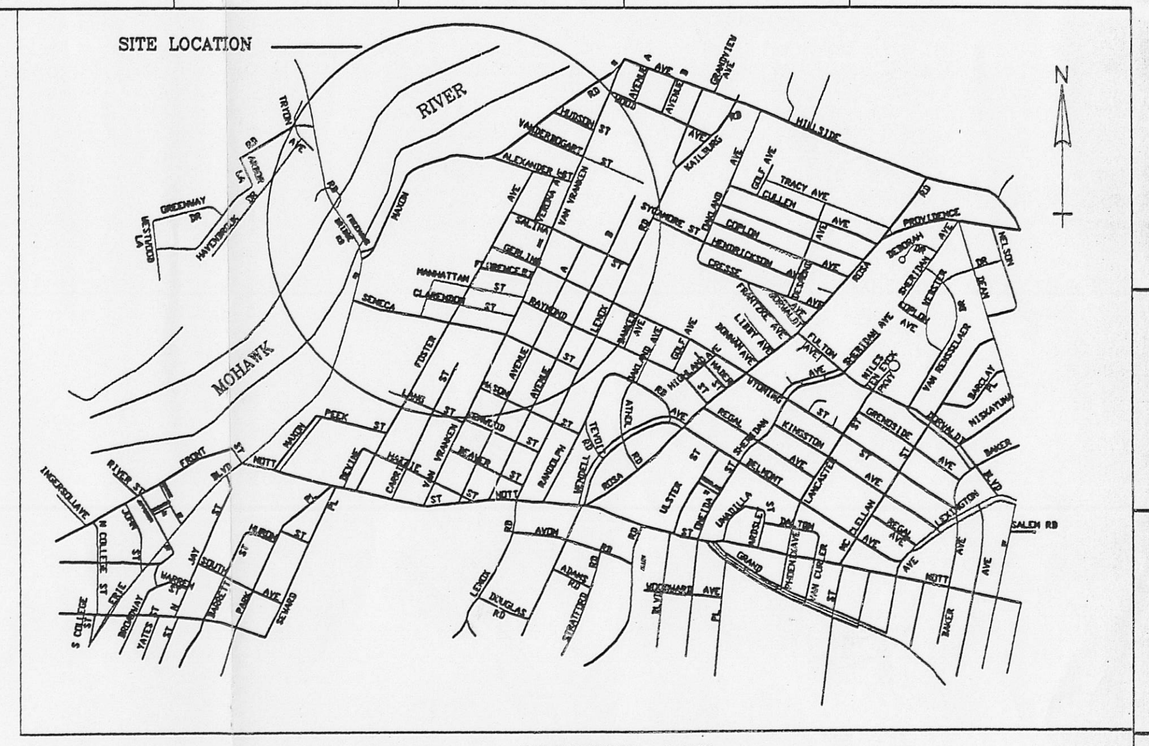


| REV | REVISION DESCRIPTION | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|

CAD FILE NAME: NM101298.DWG DATE: 10/19/98
PLOT SCALE: 1=50 TIME: 9:55 AM

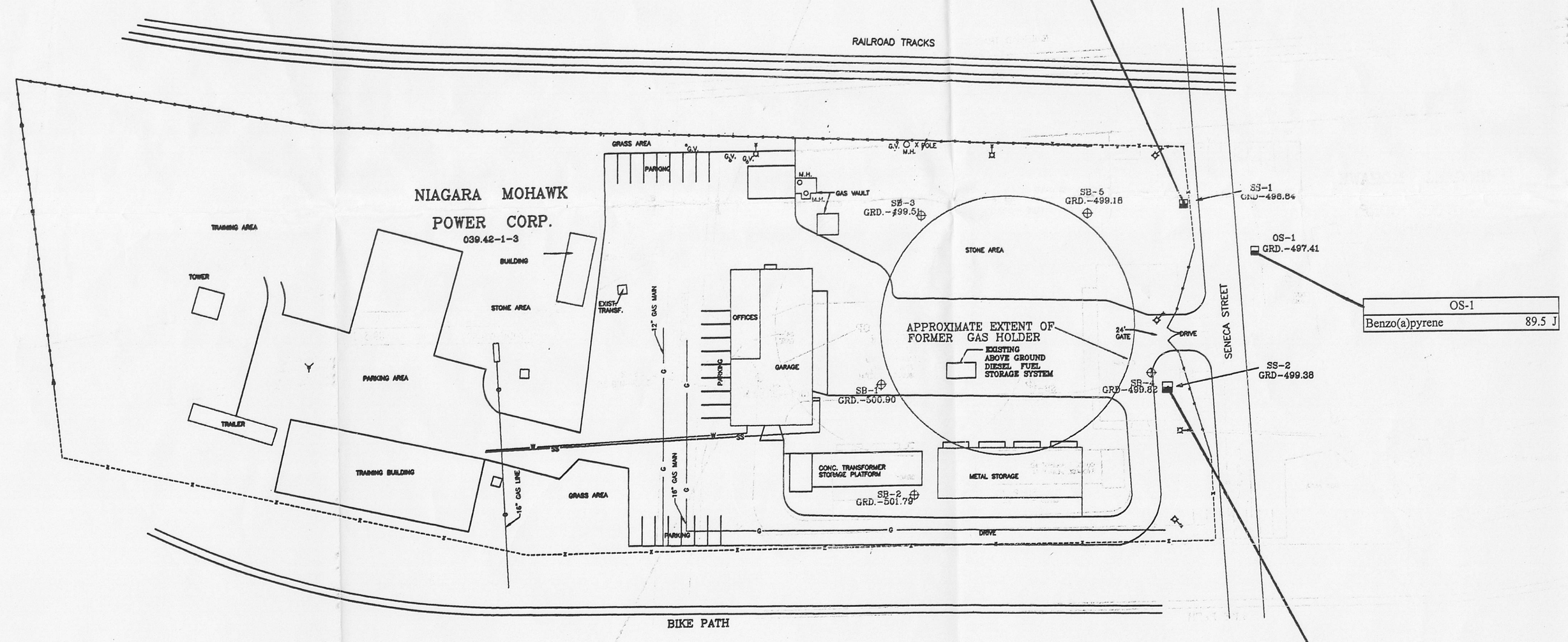
FWD2R12.DWG




LOCATION MAP
N.T.S.

| SS01-1 | |
|---|---|
| Benzo(a)pyrene | 89.1 J |
| Dibenzo(a,h)anthracene | 24.1 J |
| SS01-1D | |
| Benzo(a)pyrene | 91.6 J |
| Dibenzo(a,h)anthracene | 23.3 J |




| OS-1 | |
|---|---|
| Benzo(a)pyrene | 89.5 J |

| SS02-1 | |
|---|---|
| Benzo(a)pyrene | 178 J |
| Dibenzo(a,h)anthracene | 48.6 J |

OS-2
GRD-492.69

| OS-2 | |
|---|---|
| Benzo(a)anthracene | 880 J |
| Benzo(a)pyrene | 999 J |
| Benzo(b)fluoranthene | 1180 J |
| Chrysene | 1230 J |

LEGEND
- ▣ – Surface Soil Sample
- ⊕ – Soil Boring
- ◇ – Pin
- ♀ – Hyd.
- Ⓜ – Manhole Unknown
- Ⓔ – Manhole Electric
- ⊹ – Pipe
- ⊹ – Nail

REFERENCE MATERIAL

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2) ALL HORIZONTAL AND VERTICAL DATUM IS ASSUMED.

ug/kg

| REV | REVISION DESCRIPTION | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|
| | | | | | |



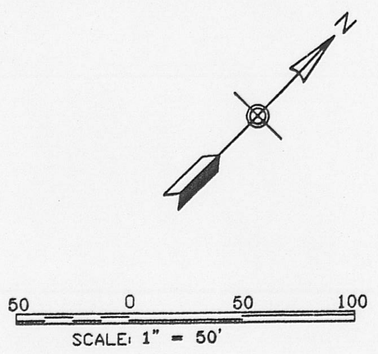
NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 4-1
Surface Soil Analytical Data Above NYSDEC TAGM 4046 Guidance Levels

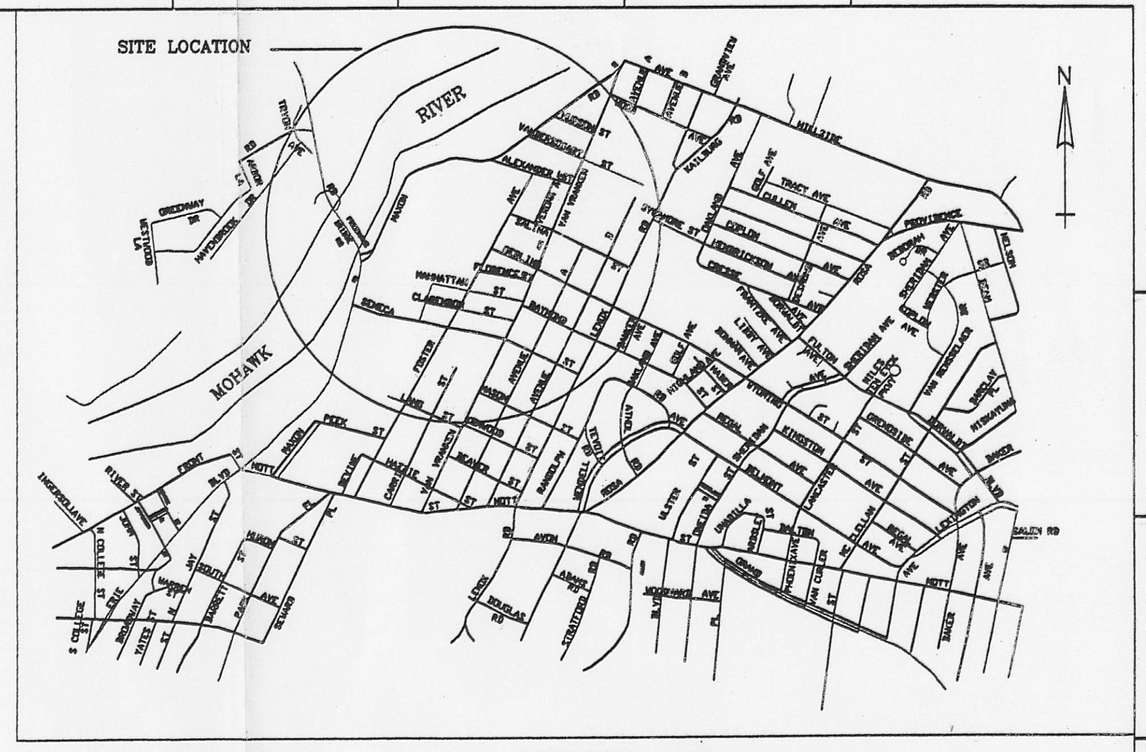
FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

| DEPT CE | DESIGNED | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|
| SCALE: 1"=50'-0' | DRAWING NUMBER: | | | SH. OF | REV |

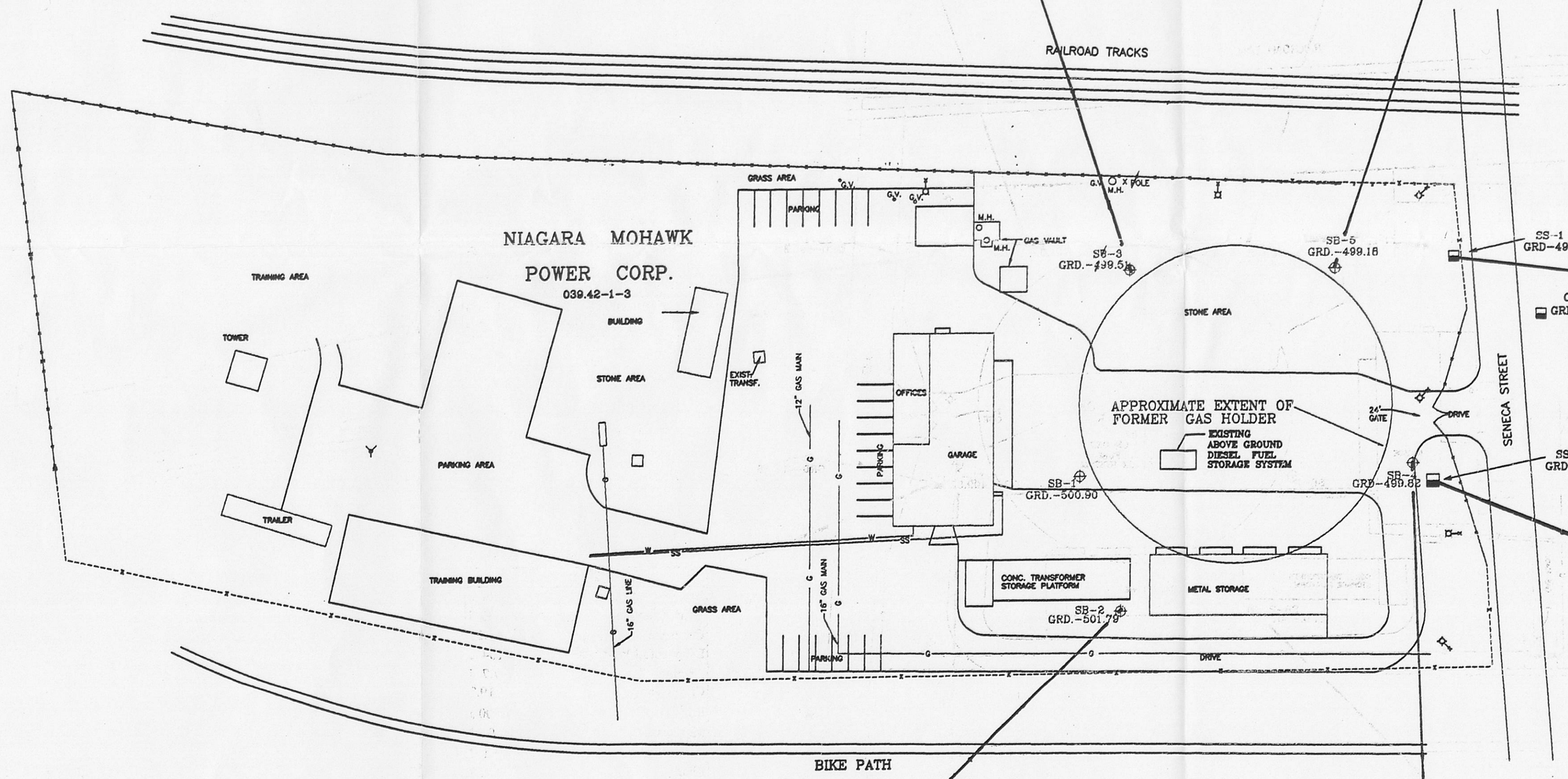



| SB03-1 (0-2') | |
|---|---|
| Benzo(a)anthracene | 20,400 |
| Benzo(a)pyrene | 14,400 |
| Benzo(b)fluoranthene | 11,800 |
| Benzo(k)fluoranthene | 4,700 |
| Chrysene | 21,800 |
| Dibenzo(a,h)anthracene | 2,550 |
| Fluoranthene | 52,300 D |
| Fluorene | 53,000 D |
| Indeno(1,2,3-cd)pyrene | 3,940 |
| Phenanthrene | 110,000 D |
| Pyrene | 77,800 D |
| **SB03-4 (8-10')** | |
| Beryllium | 0.65 |
| Chromium | 20.8 |
| Copper | 25.6 |
| Iron | 22,200 J |
| Nickel | 24.6 J |
| Zinc | 66.9 |

| SB05-2 (2-4') | |
|---|---|
| Acetone | 260 J |
| Benzo(a)anthracene | 236 J |
| Benzo(a)pyrene | 370 J |
| Dibenzo(a,h)anthracene | 88.1 J |
| Beryllium | 0.64 |
| Chromium | 21.2 |
| Iron | 13,500 J |
| Nickel | 13.2 J |
| Zinc | 57.1 |
| **SB05-3 (4-6')** | |
| Benzo(a)pyrene | 106 J |
| Dibenzo(a,h)anthracene | 36 J |




LOCATION MAP
N.T.S.




| SS01-2 (0-2') | |
|---|---|
| Benzo(a)pyrene | 81.8 J |
| Dibenzo(a,h)anthracene | 22 J |

| SS02-2 (0-2') | |
|---|---|
| Benzo(a)anthracene | 344 J |
| Benzo(a)pyrene | 406 J |
| Chrysene | 423 |
| Dibenzo(a,h)anthracene | 104 J |
| Arsenic | 7.7 J |
| Chromium | 19.2 |
| Iron | 17,300 J |
| Mercury | 0.14 |
| Nickel | 15.1 J |
| Zinc | 168 |

| SB02-2 (2-4') | |
|---|---|
| Benzo(a)pyrene | 96.6 J |
| Dibenzo(a,h)anthracene | 26.3 J |
| **SB02-2D (2-4')** | |
| Dibenzo(a,h)anthracene | 23.4 J |
| **SB02-6 (10-12')** | |
| Acetone | 1310 JD |
| Beryllium | 0.69 |
| Chromium | 22.4 |
| Copper | 25.7 |
| Iron | 23,100 J |
| Nickel | 23.9 J |
| Zinc | 53 |

| SB04-2 (2-4') | |
|---|---|
| Benzo(a)pyrene | 120 J |
| Dibenzo(a,h)anthracene | 24.6 J |
| **SB04-2D (2-4')** | |
| Benzo(a)pyrene | 114 J |
| Dibenzo(a,h)anthracene | 29.2 J |

LEGEND
- – Surface Soil Sample
- – Soil Boring
- – Pin
- – Hyd.
- – Manhole Unknown
- – Manhole Electric
- – Pipe
- – Nail

REFERENCE MATERIAL

1)N.M.P.C. MAP TITLED "SENECA STREET SERVICE CENTER; INDEX NO. 20.3-S2.4-B2, DWG. NO. D-29735-E.
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2) ALL HORIZONTAL AND VERTICAL DATUM IS ASSUMED.

| REV | REVISION DESCRIPTION | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|
| | | | | | |



NIAGARA MOHAWK POWER CORPORATION

SCHENECTADY (SENECA ST.) SITE

FIGURE 4-2
Subsurface Soil Analytical Data Above NYSDEC TAGM 4046 Guidance Levels

ORGANICS ug/Kg
METALS mg/Kg

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY

| DEPT | DESIGNED | PREPARED | CHECKED | APPROVED | DATE |
|---|---|---|---|---|---|
| CE | | | | | |

SCALE: 1"=50'-0" | DRAWING NUMBER: | SH. OF | REV