FOCUSED REMEDIAL INVESTIGATION FOR OPERABLE UNIT 2

Sunnyside Yard
Queens, New York

ROUX Associates, Inc.
ENVIRONMENTAL CONSULTING & MANAGEMENT

FOCUSED REMEDIAL INVESTIGATION FOR OPERABLE UNIT 2

Sunnyside Yard
Queens, New York

June 13, 1997

Prepared for:

National Railroad Passenger Corporation
30th Street Station
4th Floor South
Philadelphia, Pennsylvania 19104

Prepared by:

ROUX ASSOCIATES, INC.
1377 Motor Parkway
Islandia, New York 11788

CONTENTS

TABLES

TABLES (Continued)

FIGURES

APPENDIX

1.0 INTRODUCTION

The National Railroad Passenger Corporation (Amtrak) currently owns and operates a train makeup and maintenance facility known as Sunnyside Yard (Yard), located at 39-29 Honeywell Street in Queens County, a borough of New York City, New York (Figure 1). A portion of the Yard has been designated by Amtrak as the site for a proposed High Speed Trainset Facility (HSTF) Service and Inspection (S&I) Building. The Sunnyside Yard is listed as a Class II Site in the New York State Department of Environmental Conservation's (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites. As a result of the listing, Amtrak, New Jersey Transit Corporation (NJTC), and the NYSDEC entered into an Order on Consent (OOC) Index #W2-0081-87-06 effective October 1989. In accordance with the OOC, several investigations have been performed at the Yard including Phase I, Phase II and Phase II Addendum Remedial Investigations as well as a health-based Risk Assessment and a Feasibility Study (FS). Each of these investigations was performed by Roux Associates, Inc. (Roux Associates). As a result of these investigations, areas of the Yard were identified where levels of contamination require remedial efforts. With the NYSDEC's concurrence, to accommodate the HSTF S&I Building construction schedule and still address remedial efforts sitewide in a timely and orderly manner, the Yard has been subdivided into six operable units (Figure 2) described as follows:

- Operable Unit 1 (OU-1) designated as the soil above the water table within the footprint of the proposed HSTF S&I Building;
- Operable Unit 2 (OU-2) designated as the soil above the water table within the footprint of the HSTF S&I Building ancillary structures (i.e., the access road and utilities route, the parking area, the construction easement area which surrounds the building, and the construction laydown area);
- Operable Unit 3 (OU-3) designated as the soil and separate-phase petroleum accumulation above the water table in Area 1 of the Yard, as defined in the Phase I Remedial Investigation (RI) report;
- Operable Unit 4 (OU-4) designated as the soil above the water table in the remainder of the Yard;
- Operable Unit 5 (OU-5) designated as the sewer system beneath the Yard; and
- Operable Unit 6 (OU-6) designated as the ground water including the saturated soil beneath the Yard.

At Amtrak's request, Roux Associates has completed an RI for OU-2 in accordance with the NYSDEC-approved document titled "Scope of Work for the Focused Remedial Investigation of Operable Unit 2, Sunnyside Yard, Queens, New York". This report presents the findings of the RI for OU-2 (Figure 3).

1.1 Project Description

The HSTF Construction Project will consist of the construction of the proposed HSTF S&I Building (designated as OU-1) and ancillary structures (designated as OU-2). OU-2 encompasses slightly less than two acres in total area. As previously described, the ancillary structures are defined as the access road and utilities route, the parking area, the construction easement which surrounds OU-1, and the construction laydown area (Figure 3).

1.2 Objectives

The objective of the investigation was to characterize the environmental condition (i.e., soil quality) of the soil to be encountered during construction in OU-2 and to determine disposal or reuse options. In addition, three boreholes were completed as monitoring wells to be used to monitor ground-water elevation and flow patterns at the Yard and for future characterization of ground-water quality.

1.3 Report Format

This report is a summary of the findings for the focused RI of OU-2. The remainder of this report is organized as follows:

- Section 2.0 - Operable Unit 2 Description and History;
- Section 3.0 - Methods of Investigation;
- Section 4.0 - Discussion of Results;
- Section 5.0 - Preliminarily Identified ARARs;
- Section 6.0 - Summary and Conclusions; and
- Section 7.0 - References.

2.0 OPERABLE UNIT 2 DESCRIPTION AND HISTORY

A description of the physical characteristics and a history of OU-2 are presented below.

2.1 Operable Unit 2 Description

The OU-2 topography gently slopes from east to west and the area currently operates as a portion of an active rail yard. The most readily apparent features in OU-2 are a portion of the Metroliner Shed Building, the concrete ruins of the former locomotive washer, overhead electric catenary lines, operational and abandoned tracks, and the ubiquitous presence of ballast. The Metroliner Shed, formerly used to clean and maintain sanitary facilities on train cars, was taken out of service in February 1996 due to structural damage sustained during a wind storm.

With the exception of the eastern portion of the access road, OU-2 lies entirely within the boundary of the Yard. The eastern portion of the access road is bounded to the north by the Long Island Rail Road right-of-way which houses an active freight track, to the east by 42nd Place, and by light industrial/commercial property to the south.

2.2 Operable Unit 2 History

OU-2 and the surrounding Yard were originally owned and developed in the early 1900s by the Pennsylvania Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad (later know as Penn Central Transportation Company). On April 1, 1976 the Consolidated Rail Corporation acquired the Yard and the same day conveyed it to Amtrak.

2.3 Previous Investigations

As previously noted, numerous investigations have been conducted at the Yard, including the most recent, the RI/FS for the adjacent OU-1. The NYSDEC Region 2 Headquarters Office and the Sunnyside Public Library in Long Island City both serve as repositories of information from the ongoing investigations at the Sunnyside Yard including, among other documents, the results of the above-mentioned investigations. During these previous investigations, Soil Borings S-26 and HST-8, and Monitoring Wells MW-25A, MW-59, and MW-67 (Figure 3) were installed and sampled within or adjacent to the OU-2 boundary. These sampling results are discussed below.

It should be noted that specific soil cleanup levels have been established for the Yard. In a February 25, 1997 letter to Roux Associates, the NYSDEC and the New York State Department of Health (NYSDOH) were in agreement and recommended the following soil cleanup levels for the contaminants of concern at the Yard:

- polychlorinated biphenyls (PCBs) - 25 parts per million (ppm) for surface and subsurface soils;
- semivolatile organic compounds (SVOCs) - 10 ppm for surface and subsurface soils for total carcinogenic polycyclic aromatic hydrocarbons (PAHs); and
- lead - 1,000 ppm for surface and subsurface soils.

A volatile organic compound (VOC) cleanup level was not addressed in the NYSDEC letter as no VOCs have been detected at the Yard above the recommended soil cleanup objectives (RSCOs) contained in the NYSDEC's 1994 Technical and Administrative Guidance Memorandum (TAGM) which, in the absence of site-specific cleanup levels for VOCs, provides the basis and procedures to determine cleanup levels at inactive hazardous waste sites.

It should be noted that 10 ppm total carcinogenic PAHs is the NYSDEC RSCO contained in the above referenced TAGM.

During the Phase I RI, Soil Boring S-26 was completed and sampled as part of the facility-wide soil quality program. The 0 to 2 feet below land surface (bls) interval was sampled and analyzed for PCBs, total petroleum hydrocarbons (TPH), and lead, and the 4 to 6 feet bls interval was sampled and analyzed for TPH. The results of these analyses indicated the following:

- no PCBs were detected;
- TPH were detected at a concentration of 1,335 ppm in the 0 to 2 feet bls sample and 22 ppm in the 4 to 6 feet bls sample; and
- lead was detected at a concentration of 201 ppm.

Although it is located slightly outside OU-1, Soil Boring HST-8 was completed and sampled during the OU-1 RI. The 0 to 2 feet bls and the 6 to 8 feet bls intervals were sampled and analyzed for VOCs, SVOCs, PCBs, and metals. Yard-specific soil cleanup levels, discussed above, are referenced as appropriate. The results of these analyses indicated the following:

- several SVOCs were detected, including carcinogenic polycyclic aromatic hydrocarbons (PAHs), but not exceeding the Yard-specific cleanup level for total carcinogenic PAHs;
- lead, the metal of concern, was not detected above the Yard-specific cleanup level;
- no PCBs were detected above the Yard-specific cleanup level; and
- no VOCs were detected above NYSDEC cleanup level.

Ground-water samples were collected from Monitoring Wells MW-59 and MW-25A during the Phase II RI. Monitoring Well MW-59 was analyzed for VOCs, SVOCs, PCBs, and metals. The analytical results indicated the following:

- no VOCs were detected;
- no SVOCs were detected;
- no PCBs were detected; and
- iron and sodium were the only metals detected above the New York State Standards as contained in the October 1993 NYSDEC Division of Water Technical and Operational Guidance Series (TOGS [1.1.1]), Ambient Water Quality Standards and Guidance Values.

The Monitoring Well MW-25A sample was analyzed for PCBs only. No PCBs were detected above the standard contained in the TOGS.

A ground-water sample was collected from Monitoring Well MW-67 during the OU-1 investigation and analyzed for VOCs, SVOCs, PCBs, and metals. The analytical results indicated the following:

- no VOCs, SVOCs, or PCBs were detected above standards; and
- sodium was the only metal detected above the standards.

It is important to note that according to published data for Queens County (Soren, 1971; Roux Associates, 1995), sodium occurrences are attributable to historical salt-water intrusion of the aquifer beneath the Yard, rather than related to Yard activities.

3.0 METHODS OF INVESTIGATION

An intrusive field investigation was performed in OU-2 to evaluate:

- surface and subsurface soil quality within OU-2;
- ground-water elevation and flow direction; and
- the subsurface geology.

These objectives hese objectives were achieved by the installation of ten soil borings and the collectio analysis of soil samples, the completion of three of the boreholes as monitoring wells, and the collection of water-level measurements.

To ensure that the soil borings would not disrupt any unmapped underground utilities, Amtrak requested that, at a minimum, the first three feet of all soil borings be advanced by hand. Further advancement of soil borings to depths greater than three feet bls was accomplished either manually (i.e., posthole digger, hand auger and/or split-spoon sampler) or mechanically (i.e., hollow-stem auger drill rig). The method of advancement was determined by borehole purpose, location, subsurface conditions and/or accessibility.

Summaries of the investigation methods are described below.

3.1 *Soil Borings and Sampling*

The soil boring and sampling program was completed during the period from March 24, 1997 to March 25, 1997. Ten soil borings (HST-9 through HST-15 and TP-8 through TP-10) were completed by Land, Air and Water Environmental Services, Inc. of Center Moriches, New York (LAW) under the supervision of Roux Associates (Figure 3). Boring depths ranged from 4 to 19 feet bls. The soil borings were advanced from land surface to 4 feet bls using decontaminated hand tools (i.e., posthole digger, hand auger, etc.) and soil samples were collected accordingly. Soil samples were collected from depths greater than 4 feet bls continuous to the water table using a 2-inch diameter split-spoon sampler. Lithology samples were collected from below the water table at approximately 5-foot intervals.

All split-spoon samples and borehole cuttings were examined for lithology and visual evidence of contamination. All observations were recorded in the field book. When possible, soil samples were field screened for VOCs using a photoionization detector (PID). Geologic logs are included as Appendix A. A total of 20 soil samples were submitted to the laboratory for analysis. Two soil samples were collected at each boring location; the first from the 0 to 2 feet bls interval, and the second from unsaturated soil immediately above the water table. Soil samples from the 0 to 2 and 2 to 4 feet bls intervals were collected by placing the excavated soils on plastic sheeting, homogenizing them, and then collecting a representative sample. VOC samples were collected as rapidly as possible with minimal agitation. Soil samples were collected from depths greater than 4 feet bls using a split-spoon sampler and, therefore, did not require homogenization.

All soil samples intended for laboratory analyses were placed on ice immediately after collection and during transport to the laboratory. The analytical program was completed by IEA, Inc., Monroe, Connecticut, an approved laboratory in the NYSDOH's Environmental Laboratory Accreditation Program (ELAP). Soil samples were analyzed for specific chemical parameters including Target Compound List (TCL) VOCs by United States Environmental Protection Agency (USEPA) Method 8240A, TCL SVOCs by USEPA Method 8270A, PCBs by USEPA Method 8081, and Target Analyte List (TAL) metals by USEPA Methods 6010/7471. The NYSDEC Analytical Services Protocols (ASP) were followed by IEA for the TCL/TAL analyses. In addition, five samples were analyzed for Resource Conservation and Recovery Act (RCRA) characteristics and extracted for chlorinated herbicides using the Toxicity Characteristic Leaching Procedure (TCLP) and analyzed by USEPA Method 8150.

All downhole equipment was decontaminated between each soil boring location. Decontamination procedures included steam cleaning of drilling equipment (i.e., augers, rods, hand tools, etc.) prior to initial setup. Soil sampling equipment (i.e., split-spoon samplers, spatulas, etc.) was cleaned prior to each use using a solution of non-phosphate laboratory grade detergent and potable water, and a scrub brush. The sampling equipment was then rinsed with potable water followed by distilled water. A methanol rinse followed by a second distilled water rinse completed the decontamination procedure.

3.2 Monitoring Well Installation and Construction

To further evaluate hydrogeologic conditions at the Yard, three soil boreholes were completed as monitoring wells along the proposed HSTF S&I Building access road and utilities route. The monitoring wells (TP-8 through TP-10) were installed by LAW, under the supervision of Roux Associates, in pilot boreholes drilled with a truck mounted hollow-stem auger drill rig.

Monitoring well construction details are summarized in Table 1. The monitoring wells were constructed with ten feet of 2-inch diameter, 10 slot polyvinyl chloride (PVC) well screens and 2-inch diameter PVC riser casing. They were installed with the top of the well screen set approximately three feet above the existing water table as observed during drilling.

All monitoring wells were packed with No. 1 Morie sand, with the gravel pack extending from the bottom of the borehole to approximately one to two feet above the top of the well screen, followed by a 1-foot thick layer of bentonite. The remaining annular space, if any, was then filled with a bentonite/cement grout to approximately one foot bls. An outer locking, steel protective casing was then placed over the well casing and the remaining annular space filled with cement. Monitoring well construction logs are included in Appendix A.

Monitoring wells installed during this investigation will be developed and sampled as part of future work for OU-6.

4.0 DISCUSSION OF RESULTS

The results of the investigation are discussed below.

4.1 Soil Borings

A total of ten soil borings ranging in depth from 4 to 19 feet bls were completed for this investigation in accordance with the NYSDEC-approved Scope of Work. Lithology encountered in each borehole is described in the boring logs in Appendix A. The soil borings, as shown in Figure 3, are designated HST-9 through HST-15 and TP-8 through TP-10. Soil samples from two distinct depth intervals were collected for analysis from each boring within OU-2; one sample was collected from the 0 to 2 foot bls interval, and a second sample was collected from the vadose zone (i.e., the 2-foot interval immediately above the water table).

The lithology generally encountered in the OU-2 soil borings consisted of less than one foot of ballast and fine to coarse brown/black sand with gravel and coal ash or cinders overlying tan to orange/brown fine to coarse sand with trace gravel. However, samples from Soil Boring TP-9 indicate an interval of fine sand and silt, and silt and clay up to 8 feet in thickness that was not observed in any of the other borings.

The soil analytical data are presented in Tables 2 through 7. The Yard-specific cleanup levels, as appropriate, are referenced in the following discussion of the laboratory analytical results.

Volatile Organic Compounds - As shown in Table 2, VOCs were not detected in seven of the 20 samples analyzed. Of the remaining 13 samples, eight samples contained only one VOC, four samples contained two VOCs, and one sample contained six of the seven VOCs detected. No VOCs were detected above the NYSDEC cleanup level.

Semivolatile Organic Compounds - Although numerous SVOCs, including PAHs, were detected, no sample contained total carcinogenic PAHs above the Yard-specific cleanup level of 10 ppm. The PAHs are compounds commonly found in diesel fuel and fuel oils. However, these compounds are also commonly associated with fill material containing cinders, asphalt and asphaltic material commonly used to treat railroad ties. Therefore, the presence of these compounds in surficial soils, especially in low concentrations, may only reflect the composition of the trackbed fill material at the Yard. As shown in Table 3, total carcinogenic PAHs ranged from not detected in samples HST-10 (2-4), HST-11 (4-6), HST-14 (6-8), HST-15 (6-8), TP-8 (4-6) and TP-9 (4-6) to 8,290 micrograms per kilogram (µg/kg) or 8.29 ppm in sample TP-10 (0-2). It is important to note that TP-10 is located adjacent to 42nd Place and furthest from Yard activities (Figure 3).

Metals - Table 4 presents the results of the TAL metals analyses. As previously indicated, lead is the only metal of concern in soils at the Yard. As shown in the table, lead concentrations ranged from 1.5 milligrams per kilogram (mg/kg) or 1.5 ppm in TP-10 (9-11) to 322 mg/kg or 322 ppm in TP-8 (0-2), which are well below the Yard-specific cleanup level of 1,000 ppm.

Polychlorinated Biphenyls - Results of the PCB analyses are presented in Table 5. As shown in the table, PCB concentrations ranged from not detected in five samples to a high of 4,500 µg/kg or 4.5 ppm in sample HST-10 (0-2), well below the Yard-specific cleanup level of 25 ppm.

4.2 Ground Water

Ground water was encountered in all soil borings within OU-2 and occurred between 4 feet bls (HST-9 and 10) and 11 feet bls (TP-10). As stated in the NYSDEC-approved scope of work, ground-water samples were not collected in conjunction with this investigation.

4.3 Waste Characterization

In addition to the total analyses previously described, the soil in OU-2 was further evaluated to determine disposal and/or reuse options.

Five samples were submitted for analysis of RCRA characteristics (i.e., corrosivity, reactivity, and ignitability) and for herbicide analysis using TCLP for extraction. No herbicides were detected in any of the samples (Table 6) and results of the RCRA characteristics analyses were well below regulatory limits (Table 7).

5.0 PRELIMINARILY IDENTIFIED ARARs

Consistent with the National Contingency Plan (NCP) (USEPA, 1990a) and the "CERCLA Compliance with Other Laws Manual" (USEPA, 1988), applicable or relevant and appropriate requirements (ARARs) continue to be developed at multiple stages of the remedy selection process for the Yard, including during the scoping and Yard characterization phases of the Phase I, Phase II and Phase II Addendum RIs. Preliminary potential ARARs identified during the scoping phase were presented in the RI/FS work plan (Roux Associates, 1989). Site characterization data obtained during this OU-2 RI were used to further identify potential chemical-specific and location-specific ARARs. The results of the identification of action-specific ARARs will be presented in the FS, if required. Continued development of ARARs will be performed during the FS (if required), and a final presentation of chemical , location , and action-specific ARARs will be provided in the FS report. A risk assessment report has been completed and will be used to establish health-based remediation goals for the Yard.

In the following sections, an overview of ARARs in the remedy selection process is presented, the procedure used to identify ARARs for the Yard is outlined, and chemical-specific and location-specific ARARs for the Yard are presented.

5.1 Definition and Overview of ARARs

ARARs are defined as follows (40 CFR 300.5) (USEPA, 1990a).

Applicable requirements are:

> "Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations, promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable."

Relevant and appropriate requirements are:

> "Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate."

The three different types of ARARs are:

1. Ambient- or chemical-specific ARARS are health or risk-based numerical values or methodologies. Chemical-specific ARARs establish the amount or concentration of a chemical that may be found in, or discharged to, the environment;

2. Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes; and

3. Location-specific ARARs set restrictions on the concentration of hazardous substances or the conduct of activities based on the specific location of the site (USEPA, 1988).

In New York State, remedy selection must also conform to standards and criteria that are generally applicable, consistently applied, and officially promulgated. The site's program should be designed with consideration being given to guidance determined, after the exercise of engineering judgment, to be applicable on a case-specific basis.

The terms "standards and criteria" and "guidance" (SCGs) include both those of the state and those of the United States to the extent that they are more stringent than those of this state (6 NYCRR 375-1.10).

In addition to ARARs/SCGs, to-be-considered materials (TBCs) are also identified as part of the remedy selection process. TBCs are nonpromulgated advisories, criteria, or guidance developed by Federal or State governments that may be useful in developing CERCLA remedies (40 CFR 300.400[g][3]) (USEPA, 1990a).

CERCLA Section 121 requires selection of a remedial action that is protective of human health and the environment (42 USC 9621[b][1][G]). The two threshold criteria for selection of a remedial alternative are overall protection of human health and the environment and compliance with ARARs (40 CFR 300.430[f][1][i][A]) (USEPA, 1990a).

During the FS, remedial action objectives will be established and will specify contaminants and media of concern, potential exposure pathways, and remediation goals. Initially, preliminary remediation goals are determined based on readily available information, such as chemical-specific ARARs or other reliable information. Final remediation goals are determined when the remedy is selected. Remediation goals establish acceptable exposure levels that are protective of human health and the environment and are developed by consideration listed below.

- ARARs, if available, and the following factors:
  - For systemic toxicants, acceptable exposure levels shall represent concentrations to which the human population can be exposed without adverse effect during a lifetime or part of a lifetime, incorporating an adequate margin of safety;
  - For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6}. The 10^{-6} risk level is used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure;
  - Factors related to technical limitations such as detection/quantitation limits for contaminants;
  - Factors related to uncertainty;
  - Other pertinent information (40 CFR 300.430[e][2][i][A][1 through 5]) (USEPA, 1990a);

- Maximum Contaminant Level Goals (MCLGs) set at levels above zero are to be attained by remedial actions for ground water or surface waters that are current or potential sources of drinking water, where MCLGs are relevant and appropriate under the circumstances of the release based on the factors in 40 CFR 300.400(g)(2). If an MCLG is determined not to be relevant and appropriate, or if an MCLG is set at a level of zero, the corresponding Maximum Contaminant Level (MCL) shall be attained where relevant and appropriate to the circumstances of the release based on the factors in 40 CFR 300.400(g)(2) (USEPA, 1990a);

- In cases involving multiple contaminants or pathways where attainment of chemical-specific ARARs would result in cumulative risk in excess of 10-4, criteria listed at 40 CFR 300.430(e)(2)(i)(A) (USEPA, 1990a) may be considered when determining the cleanup level to be attained;

- Water quality criteria established under Sections 303 or 304 of the Clean Water Act are to be attained where relevant and appropriate under the circumstances of the release;

- An alternate concentration limit may be established in accordance with CERCLA Section 121(d)(2)(B)(ii); and

- Environmental evaluations are to be conducted to assess threats to the environment, especially sensitive habitats and critical habitats of species protected under the Endangered Species Act (40 CFR 300.430[e][2][i][B through G]) (USEPA, 1990a).

5.2 Procedure for Identifying ARARs

The process of identifying potential ARARs/SCGs and TBCs for the Yard consisted of the following activities.

- Pertinent facts concerning the chemicals detected in Yard media and the location of the Yard were identified.

- Federal regulations and State SCGs were reviewed to identify potential ARARs.

- The "CERCLA Compliance with Other Laws Manual" (USEPA, 1988) was reviewed for lists of all potential chemical- and location-specific Federal ARARs. Requirements contained in these lists, together with any requirements promulgated subsequent to the issuance of the "CERCLA Compliance with Other Laws Manual" were considered during the identification of potential Federal chemical- and location-specific ARARs for the Yard. The list of potential State ARARs, together with any requirements promulgated subsequent to the publication date of the list, were considered during the identification of potential State chemical- and location-specific ARARs for the Yard.

- Provisions of each potential ARAR were reviewed to obtain pertinent information, including the following:
  - substances regulated by the requirement;
  - types of facilities regulated by the requirement;
  - locations regulated by the requirement; and
  - persons or entities regulated or affected by the requirement.
- The concentrations of contaminants detected in Yard soils and facts concerning the type and location of facility were compared to the provisions of the identified potential ARARs/SCGs. If all pertinent provisions for a requirement were met, the requirement was deemed applicable. If all pertinent provisions for a requirement were not met, the following comparison of Yard-specific factors was made to determine if a requirement was both relevant and appropriate:
  - the purpose of the requirement and the purpose of the action at the Yard;
  - the medium regulated or affected by the requirement and the medium contaminated or affected at the Yard;
  - the substances regulated by the requirement and the substances found at the Yard;
  - the type of place regulated and the type of place affected by the release;
  - the type and size of structure or facility regulated and the type and size of structure or facility affected by the release; and
  - any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the Yard (40 CFR 300.400 [g] [2] [i through iii and vi through viii]) (USEPA, 1990a).

A requirement may have been determined to be potentially relevant because it closely matched the Yard on some of the factors listed above, but may have been determined to be not appropriate because the Yard circumstances differed significantly on other key factors. Portions of a requirement may be relevant and appropriate even if a requirement in its entirety is not (USEPA, 1988).

In addition to ARARs/SCGs, TBCs were also identified from the list contained in the "CERCLA Compliance with Other Laws Manual" (USEPA, 1988), as well as from TBCs issued after publication of the "CERCLA Compliance with Other Laws Manual."

5.3 Potential Chemical-Specific ARARs

The data developed during the RI were used to further define the potential chemical-specific ARARs/SCGs and TBCs for soil. Chemical-specific ARARs/SCGs and TBCs for soil are discussed below.

The NYSDEC recognizes that restoration to predisposal conditions is not always feasible, therefore, the Division of Hazardous Waste Remediation issued a Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (1994). This TAGM provides the basis and procedures to determine soil cleanup levels at State Superfund Sites. At a minimum, these generic soil cleanup objectives are designed to eliminate all significant threats to human health and/or the environment. A summary of compounds and metals that were detected above the recommended soil cleanup objectives (RSCOs) is presented below.

- Benzo(a)anthracene: Not detected (ND) to 1,200 µg/kg (1.2 ppm) detected; exceeded RSCO (224 µg/kg [0.224] ppm) in four samples.
- Benzo(a)pyrene: ND to 1,400 µg/kg (1.4 ppm) detected; exceeded RSCO (61 µg/kg [0.061 ppm]) in nine samples.
- Benzo(b)fluoranthene: ND to 1,700 µg/kg (1.7 ppm) detected; exceeded RSCO (1,100 µg/kg [1.1 ppm]) in two samples.
- Benzo(k) fluoranthene: ND to 1,600 µg/kg (1.6 ppm) detected; exceeded RSCO (1,100 µg/kg [1.1 ppm]) in one sample.
- Chrysene: ND to 1,500 µg/kg (1.5 ppm) detected; exceeded RSCO (400 µg/kg [0.400 ppm]) in two samples.
- Dibenzo(a,h)anthracene: ND to 56 µg/kg (0.056 ppm) detected; exceeded RSCO (14 µg/kg [0.014 ppm]) in five samples.
- PCBs: ND to 4,500 µg/kg (4.5 ppm) detected; exceeded RSCO for shallow soil (1,000 µg/kg [1.000 ppm]) in one sample.

The cleanup objectives for metals is presented with either a standard or Yard background, or in some instances (i.e., aluminum), as only Yard background. Three background samples were collected and analyzed during the Phase I RI to represent Yard background. These results are used for the comparisons stated below.

- Aluminum: 2,290 to 5,810 mg/kg (ppm) detected; exceeded Yard background concentrations (3,850 to 4,770 mg/kg [ppm]) in five samples.
- Arsenic: ND to 18.5 mg/kg (ppm) detected; exceeded RSCO (7.5 mg/kg [ppm]) in three samples.
- Beryllium: ND to 0.44 mg/kg (ppm) detected; exceeded RSCO (0.16 mg/kg [ppm]) in 19 samples.
- Cadmium: ND to 2.2 mg/kg (ppm) detected; exceeded RSCO (1.0 mg/kg [ppm]) in one sample.
- Chromium: 5.8 mg/kg (ppm) to 23.7 mg/kg (ppm) detected; exceeded RSCO (10 mg/kg [ppm]) in 11 samples and Yard background concentrations (7.5 to 13 mg/kg [ppm]) in six samples.
- Copper: 5.3 mg/kg (ppm) to 172 mg/kg (ppm) detected; exceeded RSCO (25 mg/kg [ppm]) in ten samples.
- Iron: 4,200 mg/kg (ppm) to 19,600 mg/kg (ppm) detected; exceeded RSCO (2,000 mg/kg [ppm]) in all 20 samples and Yard background concentrations (5,610 to 11,200 mg/kg [ppm]) in eight samples.
- Manganese: 32.4 mg/kg (ppm) to 297 mg/kg (ppm) detected; exceeded Yard background concentrations (165 to 224 mg/kg [ppm]) in three samples.
- Mercury: ND to 0.36 mg/kg (ppm) detected; exceeded RSCO (0.1 mg/kg [ppm]) in four samples.
- Nickel: 6.2 to 19.9 mg/kg (ppm) detected; exceeded RSCO (13 mg/kg [ppm]) in three samples.
- Zinc: 14.6 mg/kg (ppm) to 272 mg/kg (ppm) detected; exceeded RSCO (20 mg/kg [ppm]) in 19 samples and Yard background concentrations (18 to 22 mg/kg [ppm]) in 17 samples.

PAHs are ubiquitous in soil (ATSDR, 1994). For this reason, the Agency for Toxic Substances and Disease Registry (ATSDR) has provided background concentrations for rural, agricultural and urban soil. Due to the historical presence of industrial processes and automobiles, urban

areas such as the Yard have the highest background PAH concentrations. Therefore, the ATSDR Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons is considered a TBC. ATSDR background ranges for PAHs in urban soil are available for five of the six PAHs detected above the RSCO. Of these five PAHs, only two were detected at the Yard above the ATSDR background ranges. A summary of detected concentrations of PAHs which exceeded ATSDR background ranges are presented below.

- Chrysene: ND to 1,500 µg/kg (1.5 ppm) exceeded the ATSDR background range (251 to 640 µg/kg [0.251 to 0.64 ppm]) in two samples.
- Benzo(a)pyrene: ND to 1,400 µg/kg (1.4 ppm) exceeded the ATSDR background range (165 to 220 µg/kg [0.165 to 0.22 ppm]) in four samples.

Regulations promulgated under the federal Toxic Substance Control Act (TSCA) establish criteria to determine the adequacy of the cleanup of spills resulting from the release of materials containing PCBs at concentrations of 50 ppm or greater [40 CFR 761.60(d)(1)]. Concentrations of PCBs in some areas of the Yard exceed 50 ppm, therefore, this regulation is considered potentially relevant and appropriate. TSCA requirements do not apply to PCBs at concentrations less than 50 ppm. The anti-dilution provision in TSCA (40 CFR 761.1[b]) was enacted to eliminate the dilution of waste in order to avoid regulation. However, under CERCLA the concentration of the PCB contamination is evaluated "as found" at the site; therefore, the anti-dilution provision of the PCB rules should not be applied. The TSCA spill cleanup policy establishes criteria to determine the adequacy of the cleanup of spills resulting from the release of materials containing PCBs at concentrations of 50 ppm or greater (40 CFR 761.120-135), which occur after May 4, 1987. This policy is not a regulation and applies only to recent spills; therefore, it is not an ARAR. However, this policy provides a technical and scientific evaluation for developing cleanup levels (25 to 50 ppm for soils). For this reason it is considered a TBC. PCBs were detected in OU-2 at concentrations up to 4.5 ppm.

As stated in the "Guidance on Remedial Actions for Superfund Sites with PCB Contamination" (USEPA, 1990b), there are various scenarios and considerations pertinent to determining the appropriate level of PCBs that may remain in soil to achieve protection of human health and the environment. For sites where the exposure scenario is industrial, 25 ppm is considered a

preliminary remediation goal. This document is a potential TBC for the remedy selection process for PCB-contaminated sites. As PCBs have been detected in OU-2, this guidance is retained as a potential TBC.

5.4 Site-Specific Soil Cleanup Levels

Based on an evaluation of the Yard conditions, the NYSDEC and NYSDOH recommended the following cleanup levels for the contaminants of concern for all operable units at the Yard:

- SVOCs - 10 ppm for both surface and subsurface soils for total carcinogenic PAHs;
- Lead - 1,000 ppm for both surface and subsurface soils; and
- PCBs - 25 ppm for both surface and subsurface soils.

There were no detections in OU-2 above these referenced cleanup levels.

6.0 SUMMARY AND CONCLUSIONS

In summary, the analytical results for OU-2 soil indicate the following:

- no PAHs were detected in soil above the Yard-specific cleanup levels;
- lead was not detected above the Yard-specific cleanup level;
- PCBs were not detected above the Yard-specific cleanup level;
- no RCRA characteristics were detected above regulatory levels; and
- no VOCs were detected in soil above the NYSDEC cleanup levels.

The analytical results indicate that no Yard-specific cleanup levels for the contaminants of concern were exceeded in any sample from OU-2 and, therefore, no remedial efforts are required for this operable unit. It is anticipated that soil excavated from OU-2, if any, as part of HSTF construction will be reused elsewhere in the Yard.

In conclusion, based on the results of this focused RI, Roux Associates, on behalf of Amtrak, is requesting that the NYSDEC confirm that no FS or other further action will be required for OU-2.

7.0 REFERENCES

Agency for Toxic Substances and Disease Registry, 1994. Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons (Update). Agency for Toxic Substances and Disease Registry.

Agrawal, H. (NYSDEC), 1997. Letter to Joseph Duminuco, Roux Associates, Inc., February 25, 1997.

New York State Department of Environmental Conservation, 1993. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values, October 1993.

New York State Department of Environmental Conservation, 1994. Division of Hazardous Waste Remediation Revised Technical and Administrative Guidance Memorandum on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Roux Associates, Inc., 1989. Work Plan for the Remedial Investigation and Feasibility Study, Sunnyside Yard, Queens, New York, March 1989.

Roux Associates, Inc., 1992. Phase I Remedial Investigation, Sunnyside Yard, Queens, New York, January 1992.

Roux Associates, Inc., 1995. Phase II Remedial Investigation, Sunnyside Yard, Queens, New York, February 15, 1995. Volumes I through V.

Roux Associates, Inc., 1996, Limited Phase II Environmental Site Assessment Report, High Speed Trainset Facility, Sunnyside Yard, Queens, New York, December 3, 1996.

Roux Associates, Inc., 1997, Scope of Work for the Focused Remedial Investigation of Operable Unit 2, Sunnyside Yard, Queens, New York, January 31, 1997.

Roux Associates, Inc., 1997, Operable Unit 1, Feasibility Study, Sunnyside Yard, Queens, New York, April 18, 1997.

Soren, Julian, 1971. Ground-Water and Geohydrologic Conditions in Queens County, Long Island, New York. United States Geological Survey Water-Supply Paper 2001-A.

United States Environmental Protection Agency, 1988. CERCLA Compliance With Other Laws Manual: Interim Final, August 1988.

United States Environmental Protection Agency, 1990a. National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR300 - Final Rule, March 8, 1990.

United States Environmental Protection Agency, 1990b. Guidance on Remedial Action for Superfund Sites with PCB Contamination. Office of Emergency and Remedial Response, August 1990. EPA 540/G-90/007.

TABLES

Table 1. Summary of Construction Details for Monitoring Wells, Sunnyside Yard, Queens, New York.

Well Number	Date(s) Installed	Land Surface Elevation (ft relative to 1988 NAVD mean sea level)	Measuring Point Elevation (ft above mean sea level)	Screen Type	Screen Slot Size	Depth of Boring (ft below land surface)	Screened Interval (ft below land surface)	Interval Gravel Packed (ft below land surface)	Interval Sealed with Bentonite (ft below land surface)	Interval Sealed with Grout (ft below land surface)	Screen Setting (ft relative to mean sea level)
MW-13(a)	11/6/90	16.50	17.30	SS	0.020	14	2 - 12	1 - 14	0.5 - 1	0 - 0.5	14.5 - 4.5
MW-16	11/7/90	NM	NM	SS	0.020	14	2.5 - 12.5	2 - 14	1 - 2	0 - 1	NM
MW-17	11/8/90	18.02	19.51	SS	0.020	13	2 - 12	1.3 - 13	0.5 - 1.3	0 - 0.5	16.02 - 6.02
MW-19	12/20/90	17.75	20.13	SS	0.020	15	4 - 14	2 - 15	0.5 - 2	0 - 0.5	13.75 - 3.75
MW-20	12/11/90	17.07	19.09	SS	0.020	14	2.5 - 12.5	1.5 - 14	0.5 - 1.5	0 - 0.5	14.57 - 4.57
MW-21	12/6/90	17.86	19.06	SS	0.020	14	2 - 12	1 - 14	0.3 - 1	0 - 0.3	15.86 - 5.86
MW-22	10/20/90	17.02	18.20	SS	0.020	12	1 - 11	0.5 - 12	0 - 0.5	+0.5 - 0	16.02 - 6.02
MW-23D	12/10/90	17.30	19.19	PVC	0.020	37.5	26.5 - 36.5	22 - 37.5	18 - 22 (b)	0 - 18	-9.2 - -19.2
MW-24(d)	11/28/90	NM	NM	PVC	0.020	27	14 - 24	11 - 27	4 - 11	0 - 4	NM
MW-25(d)	11/17/90	NM	NM	PVC	0.020	16.5	5.5 - 15.5	3.5 - 16.5	1.5 - 3.5	0 - 1.5	NM
MW-25A	1/6/93	22.14	25.28	PVC	0.010	15.5	4 - 14	2.5 - 15.5	1.5 - 2.5	0 - 1.5	18.14 - 8.14
MW-26(d)	12/5/90	NM	NM	PVC	0.020	22.5	11 - 21	8 - 22.5	1.5 - 8	0 - 1.5	NM
MW-27	12/1/90	20.07	21.50	PVC	0.020	19	8 - 18	6 - 19	2 - 6	0 - 2	12.07 - 2.07
MW-28	11/9/90	18.92	18.22	PVC	0.020	17	6 - 16	4 - 17	2 - 4	0 - 2	12.92 - 2.92
MW-29	11/17/90	9.11	12.29	PVC	0.020	12	1 - 11	0.5 - 12	0 - 0.5	0 (c)	8.11 - -1.89
MW-30	11/30/90	13.88	16.39	PVC	0.020	16	4 - 14	2.5 - 16	1 - 2.5	0 - 1	9.88 - -0.12
MW-31	11/8/90	14.34	14.35	PVC	0.020	13	2.5 - 12.5	1.5 - 13	0.5 - 1.5	0 - 0.5	11.84 - 1.84
MW-32(e)	10/4/90	NM	NM	PVC	0.020	17	2.6 - 12.6	1.5 - 17	0.5 - 1.5	0 - 0.5	NM
MW-33(e)	11/15/90	NM	NM	PVC	0.020	18.5	8 - 18	6 - 18.5	3 - 6	0 - 3	NM
MW-34	11/29/90	26.71	28.96	PVC	0.020	19	7.3 - 17.3	5 - 19	1.5 - 5	0 - 1.5	19.41 - 9.41
MW-35	1/15/91	16.35	18.68	PVC	0.020	14	3 - 13	2 - 14	1 - 2	0 - 1	13.35 - 3.35
MW-36	1/15/91	17.31	20.01	PVC	0.020	15	3 - 13	1.5 - 15	0.5 - 1.5	0 - 0.5	14.31 - 4.31
MW-37	12/14/93	15.68	17.87	PVC	0.010	14	1.5 - 11.5	0.6 - 14	0.1 - 0.6	0 - 0.1	14.18 - 4.18
MW-38D	12/10-11/93	17.45	20.27	PVC	0.010	44	29.5 - 39.5	25 - 44	23 - 25	0 - 23	-12.1 - -22.1
MW-39D	12/15-16/93	17.85	20.12	PVC	0.010	43.5	30.5 - 40.5	27 - 43.5	23 - 27	0 - 23	-12.7 - -22.7
MW-40D	11/9/93	19.61	21.59	PVC	0.010	42	29 - 39	26 - 42	22 - 26	0 - 22	-9.39 - -19.4
MW-41	10/30/91	15.58	14.98	SS	0.010	14	3.4 - 13.4	2 - 14	1 - 2	0 - 1	12.18 - 2.18
MW-42	1/18/93	14.71	15.71	PVC	0.010	13.5	2 - 12	0.8 - 13.5	0.2 - 0.8	0 - 0.2	12.71 - 2.71
MW-43	1/29/93	14.11	15.14	PVC	0.010	14	2.5 - 12.5	1.5 - 14	0.5 - 1.5	0 - 0.5	11.61 - 1.61
MW-44D	1/19-20/93	13.92	14.27	PVC	0.010	41	29.7 - 39.7	27.8 - 41	26 - 27.8	0 - 26	-15.8 - -25.8
MW-45	1/11/93	19.71	22.64	PVC	0.010	20	7 - 17	5 - 20	3.5 - 5	0 - 3.5	12.71 - 2.71
MW-46	1/11/93	24.55	26.51	PVC	0.010	19	6.7 - 16.7	4.5 - 19	3.0 - 4.5	0 - 3.0	17.85 - 7.85
MW-47	1/5/93	26.06	28.78	PVC	0.010	14.5	3 - 13	2 - 14.5	1 - 2	0 - 1	23.06 - 13.06
MW-48D	2/1/93	26.06	28.97	PVC	0.010	42	30 - 40	27 - 42	25 - 27	0 - 25	-3.94 - -13.9
MW-49	12/13/93	17.54	19.17	PVC	0.010	14	1.7 - 11.7	0.8 - 14	0.3 - 0.8	0 - 0.3	15.84 - 5.84

Table 1. Summary of Construction Details for Monitoring Wells, Sunnyside Yard, Queens, New York.

Well Number	Date(s) Installed	Land Surface Elevation (ft relative to 1988 NAVD mean sea level)	Measuring Point Elevation (ft above mean sea level)	Screen Type	Screen Slot Size	Depth of Boring (ft below land surface)	Screened Interval (ft below land surface)	Interval Gravel Packed (ft below land surface)	Interval Sealed with Bentonite (ft below land surface)	Interval Sealed with Grout (ft below land surface)	Screen Setting (ft relative to mean sea level)
MW-50	12/17/93	17.33	19.00	SS	0.020	15	2 - 12	1 - 15	0.3 - 1	0 - 0.3	15.33 - 5.33
MW-51	12/15/93	17.58	19.23	SS	0.020	14	1.5 - 11.5	0.7 - 14	0.2 - 0.7	0 - 0.2	16.08 - 6.08
MW-52	12/9/93	16.49	18.02	SS	0.020	14	1.7 - 11.7	1 - 14	0.6 - 1	0 - 0.6	14.79 - 4.79
MW-53	12/7/93	17.70	20.16	SS	0.020	14	1.5 - 11.5	0.8 - 14	0.2 - 0.8	0 - 0.2	16.2 - 6.2
MW-54	11/29/93	17.07	19.35	SS	0.020	14	1.3 - 11.3	0.7 - 14	0.2 - 0.7	0 - 0.2	15.77 - 5.77
MW-55	11/17/93	17.73	19.27	SS	0.020	14	1.5 - 11.5	1 - 14	0.5 - 1	0 - 0.5	16.23 - 6.23
MW-56	11/17/93	18.60	21.62	SS	0.020	13	2 - 12	1 - 13	0.5 - 1	0 - 0.5	16.6 - 6.6
MW-57	11/10/93	19.62	21.98	PVC	0.010	14.5	3 - 13	1 - 14.5	0.5 - 1	0 - 0.5	16.62 - 6.62
MW-58 (d)	12/8/93	16.92	18.37	SS	0.020	14	1.3 - 11.3	0.8 - 14	0.2 - 0.8	0 - 0.2	15.62 - 5.62
MW-59	12/3/93	17.85	21.36	PVC	0.010	12.5	1.5 - 11.5	0.5 - 12.5	0 - 0.5	0	16.35 - 6.35
MW-60	12/28/93	21.57	23.31	SS	0.020	18	4.5 - 14.5	3 - 18	1.5 - 3	0 - 1.5	17.07 - 7.07
MW-61	11/12-13/93	29.32	30.95	PVC	0.010	24	12 - 22	10 - 24	9 - 10	0 - 9	17.32 - 7.32
MW-62D	12/1/93	29.56	30.61	PVC	0.010	52	39 - 49	35 - 52	31 - 35	0 - 31	-9.44 - -19.4
MW-63	12/14/93	19.34	20.92	PVC	0.010	14	2.5 - 12.5	1.5 - 14	0.5 - 1.5	0 - 0.5	16.84 - 6.84
MW-64	4/23/96	20.43	21.55	PVC	0.010	15	4 - 14	2.5 - 15	0.5 - 2.5	0 - 0.5	16.43 - 6.43
MW-65	4/22/96	20.68	21.02	PVC	0.010	14.5	4 - 14	2 - 14.5	0.5 - 2	0 - 0.5	16.68 - 6.68
MW-66	4/23/96	21.43	22.30	PVC	0.010	15	4 - 14	2 - 15.5	0.5 - 2.5	0 - 0.5	17.43 - 7.43
MW-67	4/29/96	20.90	22.46	PVC	0.020	15	4 - 14	2 - 15	1 - 2	0 - 1	16.9 - 6.9
MW-68	4/24/96	24.80	25.38	PVC	0.010	17	6 - 16	4 - 17	2 - 4	0 - 2	18.8 - 8.8
TP-6 (d)	4/18/96	18.57	18.92	PVC	0.010	10	3.7 - 8.7	2 - 10	1 - 2	0 - 1	14.87 - 9.87
TP-7	4/23/96	20.15	20.96	PVC	0.010	8	3 - 8	2 - 8	1 - 2	0 - 1	17.15 - 12.15
TP-8	3/25/97	NM	NM	PVC	0.010	15	3 - 13	2 - 15	1 - 2	0 - 1	NA
TP-9	3/24/97	NM	NM	PVC	0.010	16	4 - 14	2.5 - 16	1.5 - 2.5	0 - 1.5	NA
TP-10	3/24/97	NM	NM	PVC	0.010	19	8 - 18	6.5 - 19	4 - 6.5	0 - 4	NA

NAVD - North American Vertical Datum
SS - Stainless steel continuous slot.
PVC - Polyvinyl chloride schedule 40.
NM - Not measured
NA - Not available
(a) - MW-13 replaced Geraghty & Miller Well No. 13 that had been destroyed.
(b) - Bentonite and formation collapse.
(c) - Cement grout around protective steel casing.
(d) - Abandoned on 11/11/93
(e) - Destroyed during Yard construction activities

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-9 Sample Depth: 0-2 Sample Date: 3/25/97	HST-9 2-4 3/25/97	HST-10 0-2 3/25/97	HST-10 2-4 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97	HST-12 0-2 3/25/97
Benzene	60	**2 J**	5 U	5 U	6 U	6 U	5 U	6 U
Toluene	1,500	**8**	5 U	**8**	6 U	**20**	**8**	**12**
Ethylbenzene	5,500	**2 J**	5 U	5 U	6 U	6 U	5 U	6 U
1,1,1-Trichloroethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,1,2-Trichloroethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,1-Dichloroethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,1-Dichloroethene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloroethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloroethene (total)	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloropropane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
2-Butanone	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Acetone	200	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Bromoform	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Bromomethane	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Carbon Disulfide	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Carbon Tetrachloride	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Chlorobenzene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Chloroethane	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Chloroform	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Chloromethane	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Dibromochloromethane	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Methylene Chloride	100	**1 J**	5 U	5 U	6 U	6 U	5 U	6 U
Styrene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

	Sample Designation:	HST-9	HST-9	HST-10	HST-10	HST-11	HST-11	HST-12
	Sample Depth:	0-2	2-4	0-2	2-4	0-2	4-6	0-2
	Sample Date:	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97
Parameter (Concentrations in µg/kg)	NYS RSCOs							
Tetrachloroethene	1,400	**12**	5 U	**4 J**	6 U	6 U	5 U	**6**
trans-1,3-Dichloropropene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Trichloroethene	--	6 U	5 U	5 U	6 U	6 U	5 U	6 U
Vinyl Acetate	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	--	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Xylene (total)	1,200	**3 J**	5 U	5 U	6 U	**3 J**	5 U	6 U

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-12 Sample Depth: 4-6 Sample Date: 3/25/97	HST-13 0-2 3/25/97	HST-13 4-6 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97	HST-15 0-2 3/24/97	HST-15 6-8 3/24/97
Benzene	60	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Toluene	1,500	5 U	**24**	**4 J**	**8**	5 U	5 U	6 U
Ethylbenzene	5,500	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,1-Trichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2-Trichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloropropane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
2-Butanone	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
2-Hexanone	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
4-Methyl-2-Pentanone	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Acetone	200	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Bromodichloromethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Bromoform	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Bromomethane	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Carbon Disulfide	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Carbon Tetrachloride	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chlorobenzene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chloroethane	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Chloroform	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chloromethane	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
cis-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Dibromochloromethane	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Methylene Chloride	100	5 U	5 U	5 U	5 U	5 U	**2 J**	6 U
Styrene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-12 Sample Depth: 4-6 Sample Date: 3/25/97	HST-13 0-2 3/25/97	HST-13 4-6 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97	HST-15 0-2 3/24/97	HST-15 6-8 3/24/97
Tetrachloroethene	1,400	5 U	5 U	5 U	5 U	5 U	5 U	6 U
trans-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Trichloroethene	--	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Vinyl Acetate	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	--	10 U	11 U	11 U	11 U	11 U	11 U	12 U
Xylene (total)	1,200	5 U	5 U	5 U	5 U	5 U	5 U	6 U

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: TP-8 Sample Depth: 0-2 Sample Date: 3/25/97	TP-8 4-6 3/25/97	TP-9 0-2 3/24/97	TP-9 4-6 3/24/97	TP-10 0-2 3/24/97	TP-10 9-11 3/24/97
Benzene	60	5 U	5 U	5 U	6 U	6 U	5 U
Toluene	1,500	5 U	5 U	**5**	6 U	6 U	**1 J**
Ethylbenzene	5,500	5 U	5 U	5 U	6 U	6 U	5 U
1,1,1-Trichloroethane	--	5 U	5 U	5 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	5 U	6 U	6 U	5 U
1,1,2-Trichloroethane	--	5 U	5 U	5 U	6 U	6 U	5 U
1,1-Dichloroethane	--	5 U	5 U	5 U	6 U	6 U	5 U
1,1-Dichloroethene	--	5 U	5 U	5 U	6 U	6 U	5 U
1,2-Dichloroethane	--	5 U	5 U	5 U	6 U	6 U	5 U
1,2-Dichloroethene (total)	--	5 U	5 U	5 U	6 U	6 U	5 U
1,2-Dichloropropane	--	5 U	5 U	5 U	6 U	6 U	5 U
2-Butanone	--	11 U	11 U	11 U	12 U	11 U	11 U
2-Hexanone	--	11 U	11 U	11 U	12 U	11 U	11 U
4-Methyl-2-Pentanone	--	11 U	11 U	11 U	12 U	11 U	11 U
Acetone	200	11 U	11 U	11 U	**9 J**	11 U	11 U
Bromodichloromethane	--	5 U	5 U	5 U	6 U	6 U	5 U
Bromoform	--	5 U	5 U	5 U	6 U	6 U	5 U
Bromomethane	--	11 U	11 U	11 U	12 U	11 U	11 U
Carbon Disulfide	--	5 U	5 U	5 U	6 U	6 U	5 U
Carbon Tetrachloride	--	5 U	5 U	5 U	6 U	6 U	5 U
Chlorobenzene	--	5 U	5 U	5 U	6 U	6 U	5 U
Chloroethane	--	11 U	11 U	11 U	12 U	11 U	11 U
Chloroform	--	5 U	5 U	5 U	6 U	6 U	5 U
Chloromethane	--	11 U	11 U	11 U	12 U	11 U	11 U
cis-1,3-Dichloropropene	--	5 U	5 U	5 U	6 U	6 U	5 U
Dibromochloromethane	--	5 U	5 U	5 U	6 U	6 U	5 U
Methylene Chloride	100	5 U	**6**	5 U	**5 J**	6 U	5 U
Styrene	--	5 U	5 U	5 U	6 U	6 U	5 U

Table 2. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

	Sample Designation:	TP-8	TP-8	TP-9	TP-9	TP-10	TP-10
	Sample Depth:	0-2	4-6	0-2	4-6	0-2	9-11
	Sample Date:	3/25/97	3/25/97	3/24/97	3/24/97	3/24/97	3/24/97
Parameter (Concentrations in µg/kg)	NYS RSCOs						
Tetrachloroethene	1,400	5 U	5 U	5 U	6 U	6 U	5 U
trans-1,3-Dichloropropene	--	5 U	5 U	5 U	6 U	6 U	5 U
Trichloroethene	--	5 U	5 U	5 U	6 U	6 U	5 U
Vinyl Acetate	--	11 U	11 U	11 U	12 U	11 U	11 U
Vinyl Chloride	--	11 U	11 U	11 U	12 U	11 U	11 U
Xylene (total)	1,200	5 U	5 U	5 U	6 U	6 U	5 U

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-9 Top of Interval: 0-2 Sample Date: 3/25/97	HST-9 2-4 3/25/97	HST-10 0-2 3/25/97	HST-10 2-4 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97	HST-12 0-2 3/25/97
1,2,4-Trichlorobenzene	--	370 U	350 U	**19 J**	370 U	360 U	350 U	370 U
1,2-Dichlorobenzene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
1,3-Dichlorobenzene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
1,4-Dichlorobenzene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,2'-oxybis(1-Chloropropane)	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,4,5-Trichlorophenol	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
2,4,6-Trichlorophenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,4-Dichlorophenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,4-Dimethylphenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,4-Dinitrophenol	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
2,4-Dinitrotoluene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2,6-Dinitrotoluene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2-Chloronaphthalene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2-Chlorophenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2-Methylnaphthalene	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2-Methylphenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
2-Nitroaniline	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
2-Nitrophenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
3,3'-Dichlorobenzidine	--	730 U	700 U	720 U	730 U	720 U	700 U	730 U
3-Nitroaniline	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
4,6-Dinitro-2-methylphenol	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
4-Bromophenyl-phenylether	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
4-Chloro-3-methylphenol	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
4-Chloroaniline	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
4-Chlorophenyl-phenylether	--	370 U	350 U	360 U	370 U	360 U	350 U	370 U
4-Methylphenol	900	370 U	350 U	**10 J**	370 U	360 U	350 U	370 U
4-Nitroaniline	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
4-Nitrophenol	--	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: HST-9 Top of Interval: 0-2 Sample Date: 3/25/97	HST-9 2-4 3/25/97	HST-10 0-2 3/25/97	HST-10 2-4 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97	HST-12 0-2 3/25/97
Acenaphthene	50,000		**9 J**	350 U	**65 J**	370 U	**9 J**	350 U	370 U
Acenaphthylene	41,000		**54 J**	350 U	**120 J**	370 U	**40 J**	350 U	**35 J**
Anthracene	50,000		**86 J**	**5 J**	**320 J**	370 U	**51 J**	**2 J**	**110 J**
Benzo(a)anthracene	224	C-PAH	**120 J**	**7 J**	**500**	370 U	**150 J**	350 U	**75 J**
Benzo(a)pyrene	61	C-PAH	**160 J**	**12 J**	**420**	370 U	**130 J**	350 U	**67 J**
Benzo(b)fluoranthene	1,100	C-PAH	**310 J**	**16 J**	**1300**	370 U	**320 J**	350 U	**170 J**
Benzo(g,h,i)perylene	50,000	C-PAH	**280 J**	**260 J**	**360**	370 U	**350 J**	350 U	**310 J**
Benzo(k)fluoranthene	1,100	C-PAH	370 U	350 U	**550**	370 U	360 U	350 U	370 U
Benzoic acid	2,700		1800 U	1700 U	**57 J**	1800 U	**32 J**	1700 U	**39 J**
Benzyl alcohol	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
bis(2-Chloroethoxy)methane	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
bis(2-Chloroethyl)ether	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
bis(2-Ethylhexyl)phthalate	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Butylbenzylphthalate	50,000		370 U	350 U	**59 J**	370 U	**18 J**	350 U	370 U
Carbazole	--		**34 J**	350 U	**160 J**	370 U	**30 J**	350 U	**38 J**
Chrysene	400	C-PAH	370 U	350 U	**760**	370 U	360 U	350 U	370 U
Di-n-butylphthalate	8,100		**82 J**	**14 J**	**69 J**	**10 J**	**42 J**	**22 J**	370 U
Di-n-octylphthalate	50,000		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Dibenzo(a,h)anthracene	14 or MDL	C-PAH	370 U	350 U	**50 J**	370 U	360 U	350 U	**27 J**
Dibenzofuran	6,200		**28 J**	350 U	**100 J**	370 U	**29 J**	350 U	**39 J**
Diethylphthalate	7,100		**40 J**	**8 J**	**36 J**	**9 J**	**34 J**	**33 J**	**40 J**
Dimethylphthalate	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Fluoranthene	50,000		**210 J**	**11 J**	**920**	370 U	**320 J**	**8 J**	**96 J**
Fluorene	50,000		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Hexachlorobenzene	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Hexachlorobutadiene	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Hexachlorocyclopentadiene	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Hexachloroethane	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: HST-9 Top of Interval: 0-2 Sample Date: 3/25/97	HST-9 2-4 3/25/97	HST-10 0-2 3/25/97	HST-10 2-4 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97	HST-12 0-2 3/25/97
Indeno(1,2,3-cd)pyrene	3,200	C-PAH	**44 J**	**17 J**	**220 J**	370 U	**140 J**	350 U	**79 J**
Isophorone	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
N-Nitroso-di-n-propylamine	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
N-Nitrosodiphenylamine (1)	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Naphthalene	13,000		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Nitrobenzene	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Pentachlorophenol	--		1800 U	1700 U	1700 U	1800 U	1800 U	1700 U	1800 U
Phenanthrene	50,000		**140 J**	**8 J**	**670**	370 U	**160 J**	**5 J**	**130 J**
Phenol	--		370 U	350 U	360 U	370 U	360 U	350 U	370 U
Pyrene	50,000		**160 J**	**11 J**	**1200**	370 U	**250 J**	**7 J**	**85 J**

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
MDL - Method Detection Limit
NA - Not applicable
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994
C-PAH - Carcinogenic Polycyclic Aromatic Hydrocarbon

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-12 Top of Interval: 4-6 Sample Date: 3/25/97	HST-13 0-2 3/25/97	HST-13 4-6 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97	HST-15 0-2 3/24/97	HST-15 6-8 3/24/97
1,2,4-Trichlorobenzene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
1,2-Dichlorobenzene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
1,3-Dichlorobenzene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
1,4-Dichlorobenzene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,2'-oxybis(1-Chloropropane)	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,4,5-Trichlorophenol	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
2,4,6-Trichlorophenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,4-Dichlorophenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,4-Dimethylphenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,4-Dinitrophenol	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
2,4-Dinitrotoluene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2,6-Dinitrotoluene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2-Chloronaphthalene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2-Chlorophenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2-Methylnaphthalene	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2-Methylphenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
2-Nitroaniline	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
2-Nitrophenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
3,3'-Dichlorobenzidine	--	700 U	690 U	700 U	710 U	690 U	760 U	730 U
3-Nitroaniline	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
4,6-Dinitro-2-methylphenol	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
4-Bromophenyl-phenylether	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
4-Chloro-3-methylphenol	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
4-Chloroaniline	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
4-Chlorophenyl-phenylether	--	350 U	350 U	350 U	350 U	340 U	380 U	370 U
4-Methylphenol	900	350 U	350 U	350 U	350 U	340 U	380 U	370 U
4-Nitroaniline	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
4-Nitrophenol	--	1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: HST-12 Top of Interval: 4-6 Sample Date: 3/25/97	HST-13 0-2 3/25/97	HST-13 4-6 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97	HST-15 0-2 3/24/97	HST-15 6-8 3/24/97
Acenaphthene	50,000		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Acenaphthylene	41,000		**5 J**	**24 J**	**8 J**	**48 J**	340 U	380 U	370 U
Anthracene	50,000		**15 J**	**34 J**	**9 J**	**40 J**	340 U	380 U	**10 J**
Benzo(a)anthracene	224	C-PAH	**7 J**	**110 J**	**29 J**	**260 J**	340 U	**10 J**	370 U
Benzo(a)pyrene	61	C-PAH	**18 J**	**110 J**	**29 J**	**250 J**	340 U	380 U	370 U
Benzo(b)fluoranthene	1,100	C-PAH	**15 J**	**240 J**	**68 J**	**450**	340 U	**15 J**	370 U
Benzo(g,h,i)perylene	50,000	C-PAH	**250 J**	**340 J**	**270 J**	**430**	340 U	380 U	370 U
Benzo(k)fluoranthene	1,100	C-PAH	350 U	350 U	350 U	350 U	340 U	380 U	370 U
Benzoic acid	2,700		**22 J**	1700 U	**20 J**	1700 U	1700 U	1800 U	1800 U
Benzyl alcohol	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
bis(2-Chloroethoxy)methane	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
bis(2-Chloroethyl)ether	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
bis(2-Ethylhexyl)phthalate	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Butylbenzylphthalate	50,000		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Carbazole	--		350 U	**21 J**	**6 J**	**29 J**	340 U	380 U	370 U
Chrysene	400	C-PAH	350 U	350 U	350 U	**42 J**	340 U	380 U	370 U
Di-n-butylphthalate	8,100		**28 J**	**39 J**	**29 J**	**71 J**	**7 J**	**8 J**	**7 J**
Di-n-octylphthalate	50,000		350 U	350 U	350 U	350 U	340 U	**8 J**	**7 J**
Dibenzo(a,h)anthracene	14 or MDL	C-PAH	350 U	**56 J**	**13 J**	350 U	340 U	380 U	370 U
Dibenzofuran	6,200		350 U	**23 J**	**6 J**	**20 J**	340 U	380 U	370 U
Diethylphthalate	7,100		**49 J**	**34 J**	**38 J**	**26 J**	**8 J**	380 U	370 U
Dimethylphthalate	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Fluoranthene	50,000		**13 J**	**150 J**	**42 J**	**370**	340 U	**10 J**	**12 J**
Fluorene	50,000		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Hexachlorobenzene	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Hexachlorobutadiene	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Hexachlorocyclopentadiene	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Hexachloroethane	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: HST-12 Top of Interval: 4-6 Sample Date: 3/25/97	HST-13 0-2 3/25/97	HST-13 4-6 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97	HST-15 0-2 3/24/97	HST-15 6-8 3/24/97
Indeno(1,2,3-cd)pyrene	3,200	C-PAH	**12 J**	**120 J**	**35 J**	**250 J**	340 U	380 U	370 U
Isophorone	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
N-Nitroso-di-n-propylamine	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
N-Nitrosodiphenylamine (1)	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Naphthalene	13,000		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Nitrobenzene	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Pentachlorophenol	--		1700 U	1700 U	1700 U	1700 U	1700 U	1800 U	1800 U
Phenanthrene	50,000		**10 J**	**100 J**	**28 J**	**140 J**	340 U	380 U	**6 J**
Phenol	--		350 U	350 U	350 U	350 U	340 U	380 U	370 U
Pyrene	50,000		**10 J**	**140 J**	**42 J**	**340 J**	340 U	**10 J**	**7 J**

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
MDL - Method Detection Limit
NA - Not applicable
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994
C-PAH - Carcinogenic Polycyclic Aromatic Hydrocarbon

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: TP-8 Top of Interval: 0-2 Sample Date: 3/25/97	TP-8 4-6 3/25/97	TP-9 0-2 3/24/97	TP-9 4-6 3/24/97	TP-10 0-2 3/24/97	TP-10 9-11 3/24/97
1,2,4-Trichlorobenzene	--	360 U	350 U	360 U	400 U	390 U	360 U
1,2-Dichlorobenzene	--	360 U	350 U	360 U	400 U	390 U	360 U
1,3-Dichlorobenzene	--	360 U	350 U	360 U	400 U	390 U	360 U
1,4-Dichlorobenzene	--	360 U	350 U	360 U	400 U	390 U	360 U
2,2'-oxybis(1-Chloropropane)	--	360 U	350 U	360 U	400 U	390 U	360 U
2,4,5-Trichlorophenol	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
2,4,6-Trichlorophenol	--	360 U	350 U	360 U	400 U	390 U	360 U
2,4-Dichlorophenol	--	360 U	350 U	360 U	400 U	390 U	360 U
2,4-Dimethylphenol	--	360 U	350 U	360 U	400 U	390 U	360 U
2,4-Dinitrophenol	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
2,4-Dinitrotoluene	--	360 U	350 U	360 U	400 U	390 U	360 U
2,6-Dinitrotoluene	--	360 U	350 U	360 U	400 U	390 U	360 U
2-Chloronaphthalene	--	360 U	350 U	360 U	400 U	390 U	360 U
2-Chlorophenol	--	360 U	350 U	360 U	400 U	390 U	360 U
2-Methylnaphthalene	--	360 U	350 U	360 U	400 U	390 U	360 U
2-Methylphenol	--	360 U	350 U	360 U	400 U	390 U	360 U
2-Nitroaniline	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
2-Nitrophenol	--	360 U	350 U	360 U	400 U	390 U	360 U
3,3'-Dichlorobenzidine	--	720 U	700 U	720 U	800 U	780 U	720 U
3-Nitroaniline	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
4,6-Dinitro-2-methylphenol	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
4-Bromophenyl-phenylether	--	360 U	350 U	360 U	400 U	390 U	360 U
4-Chloro-3-methylphenol	--	360 U	350 U	360 U	400 U	390 U	360 U
4-Chloroaniline	--	360 U	350 U	360 U	400 U	390 U	360 U
4-Chlorophenyl-phenylether	--	360 U	350 U	360 U	400 U	390 U	360 U
4-Methylphenol	900	360 U	350 U	360 U	400 U	**20 J**	360 U
4-Nitroaniline	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
4-Nitrophenol	--	1800 U	1700 U	1700 U	2000 U	1900 U	1700 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: TP-8 Top of Interval: 0-2 Sample Date: 3/25/97	TP-8 4-6 3/25/97	TP-9 0-2 3/24/97	TP-9 4-6 3/24/97	TP-10 0-2 3/24/97	TP-10 9-11 3/24/97
Acenaphthene	50,000		**13 J**	350 U	360 U	400 U	**420**	360 U
Acenaphthylene	41,000		**57 J**	350 U	**10 J**	400 U	**210 J**	360 U
Anthracene	50,000		**84 J**	350 U	**14 J**	400 U	**700**	**3 J**
Benzo(a)anthracene	224	C-PAH	**270 J**	350 U	**70 J**	400 U	**1200**	**8 J**
Benzo(a)pyrene	61	C-PAH	**270 J**	350 U	**70 J**	400 U	**1400**	360 U
Benzo(b)fluoranthene	1,100	C-PAH	**660**	350 U	**150 J**	400 U	**1700**	**11 J**
Benzo(g,h,i)perylene	50,000	C-PAH	**300 J**	350 U	**300 J**	400 U	**510**	360 U
Benzo(k)fluoranthene	1,100	C-PAH	**13 J**	350 U	360 U	400 U	**1600**	360 U
Benzoic acid	2,700		**36 J**	1700 U	1700 U	2000 U	1900 U	1700 U
Benzyl alcohol	--		360 U	350 U	360 U	400 U	390 U	360 U
bis(2-Chloroethoxy)methane	--		360 U	350 U	360 U	400 U	390 U	360 U
bis(2-Chloroethyl)ether	--		360 U	350 U	360 U	400 U	390 U	360 U
bis(2-Ethylhexyl)phthalate	--		360 U	350 U	360 U	400 U	390 U	360 U
Butylbenzylphthalate	50,000		**18 J**	350 U	360 U	400 U	**86 J**	360 U
Carbazole	--		**48 J**	350 U	**9 J**	400 U	**220 J**	360 U
Chrysene	400	C-PAH	**300 J**	350 U	360 U	400 U	**1500**	360 U
Di-n-butylphthalate	8,100		**150 J**	**13 J**	**22 J**	400 U	**71 J**	**10 J**
Di-n-octylphthalate	50,000		360 U	350 U	360 U	**38 J**	390 U	360 U
Dibenzo(a,h)anthracene	14 or MDL	C-PAH	**44 J**	350 U	**26 J**	400 U	390 U	360 U
Dibenzofuran	6,200		**70 J**	350 U	**8 J**	400 U	**250 J**	360 U
Diethylphthalate	7,100		**40 J**	**10 J**	**26 J**	400 U	**56 J**	**8 J**
Dimethylphthalate	--		360 U	350 U	360 U	400 U	390 U	360 U
Fluoranthene	50,000		**470**	350 U	**110 J**	400 U	**2600**	**10 J**
Fluorene	50,000		360 U	350 U	360 U	400 U	**57 J**	360 U
Hexachlorobenzene	--		360 U	350 U	360 U	400 U	390 U	360 U
Hexachlorobutadiene	--		360 U	350 U	360 U	400 U	390 U	360 U
Hexachlorocyclopentadiene	--		360 U	350 U	360 U	400 U	390 U	360 U
Hexachloroethane	--		360 U	350 U	360 U	400 U	390 U	360 U

Table 3. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs		Sample Designation: TP-8 Top of Interval: 0-2 Sample Date: 3/25/97	Sample Designation: TP-8 Top of Interval: 4-6 Sample Date: 3/25/97	Sample Designation: TP-9 Top of Interval: 0-2 Sample Date: 3/24/97	Sample Designation: TP-9 Top of Interval: 4-6 Sample Date: 3/24/97	Sample Designation: TP-10 Top of Interval: 0-2 Sample Date: 3/24/97	Sample Designation: TP-10 Top of Interval: 9-11 Sample Date: 3/24/97
Indeno(1,2,3-cd)pyrene	3,200	C-PAH	**110 J**	350 U	**73 J**	400 U	**380 J**	360 U
Isophorone	--		360 U	350 U	360 U	400 U	390 U	360 U
N-Nitroso-di-n-propylamine	--		360 U	350 U	360 U	400 U	390 U	360 U
N-Nitrosodiphenylamine (1)	--		360 U	350 U	360 U	400 U	390 U	360 U
Naphthalene	13,000		360 U	350 U	360 U	400 U	**10 J**	360 U
Nitrobenzene	--		360 U	350 U	360 U	400 U	390 U	360 U
Pentachlorophenol	--		1800 U	1700 U	1700 U	2000 U	1900 U	1700 U
Phenanthrene	50,000		**280 J**	350 U	**54 J**	400 U	**2200**	**8 J**
Phenol	--		360 U	350 U	360 U	400 U	390 U	360 U
Pyrene	50,000		**360**	350 U	**100 J**	400 U	**1700**	**9 J**

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
MDL - Method Detection Limit
NA - Not applicable
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994
C-PAH - Carcinogenic Polycyclic Aromatic Hydrocarbon

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: HST-9 Sample Depth: 0-2 Sample Date: 3/25/97	Sample Designation: HST-9 Sample Depth: 2-4 Sample Date: 3/25/97	Sample Designation: HST-10 Sample Depth: 0-2 Sample Date: 3/25/97
Aluminum	SB	3,850N - 4,770	**4790**	**3440**	**2290**
Antimony	SB	<1.6JN - 2.4BN	**2.1 B**	0.62 U	**1.3 B**
Arsenic	7.5 or SB	<0.68W - <1.2	**7.4**	**1.6**	**4.1**
Barium	300 or SB	14BJ - 32B	**80**	**28.8 B**	**37 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.35 B**	**0.22 B**	0.18 U
Cadmium	1 or SB	<0.73 - <1.1	**2.2**	0.15 U	**0.58 B**
Calcium	SB	1,400 - 6,850	**1620**	**894**	**741 B**
Chromium	10 or SB	7.5JN - 13N	**13.3**	**6.9**	**16.8**
Cobalt	30 or SB	3.0B - 3.2BJ	**5.8 B**	**3.3 B**	**4.4 B**
Copper	25 or SB	7.8 - 12	**94.6**	**21**	**172**
Iron	2,000 or SB	5,610 - 11,200	**14000**	**7040**	**16000**
Lead	500 or SB	3.5 - 8.8N	**213**	**11.4**	**94.7**
Magnesium	SB	1,510 - 4,260J	**1990**	**1600**	**1060**
Manganese	SB	165 - 224	**291**	**172**	**145**
Mercury	0.1	<0.1	**0.33**	0.1 U	**0.25**
Nickel	13 or SB	4.7BJ - 11	**14**	**6.2 B**	**11.4**
Potassium	SB	567B - 861B	**462 B**	**382 B**	**310 B**
Selenium	2 or SB	<0.56N - <0.59NW	**1.5**	0.31 U	**0.88 B**
Silver	SB	<0.51 - <0.57	0.18 U	0.15 U	**0.42 B**
Sodium	SB	88BJ - 456B	**72.8 B**	**66.9 B**	**95.3 B**
Thallium	SB	<0.62 - <0.8	0.35 U	0.31 U	0.37 U
Vanadium	150 or SB	11B - 13	**19.2**	**8.8**	**21.4**
Zinc	20 or SB	18J - 22	**226**	**24.4**	**59.7**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: HST-10 Sample Depth: 2-4 Sample Date: 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97
Aluminum	SB	3,850N - 4,770	**2510**	**3860**	**3300**
Antimony	SB	<1.6JN - 2.4BN	0.71 U	**2.4 B**	0.77 U
Arsenic	7.5 or SB	<0.68W - <1.2	**0.81 B**	**18.5**	**1.7 B**
Barium	300 or SB	14BJ - 32B	**26.9 B**	**77.6**	**23.6 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.21 B**	**0.35 B**	**0.3 B**
Cadmium	1 or SB	<0.73 - <1.1	**0.28 B**	**0.25 B**	0.19 U
Calcium	SB	1,400 - 6,850	**816 B**	**471 B**	**340 B**
Chromium	10 or SB	7.5JN - 13N	**5.8**	**23.7**	**11.7**
Cobalt	30 or SB	3.0B - 3.2BJ	**3.4 B**	**4 B**	**3.5 B**
Copper	25 or SB	7.8 - 12	**13.9**	**91**	**16.4**
Iron	2,000 or SB	5,610 - 11,200	**6010**	**14200**	**7110**
Lead	500 or SB	3.5 - 8.8N	**2.8**	**208**	**5.6**
Magnesium	SB	1,510 - 4,260J	**1300**	**1250**	**1410**
Manganese	SB	165 - 224	**155**	**187**	**121**
Mercury	0.1	<0.1	0.095 U	0.095 U	0.1 U
Nickel	13 or SB	4.7BJ - 11	**8.7**	**9.8**	**6.4 B**
Potassium	SB	567B - 861B	**413 B**	**405 B**	**384 B**
Selenium	2 or SB	<0.56N - <0.59NW	**0.61 B**	**1.7**	**0.67 B**
Silver	SB	<0.51 - <0.57	0.18 U	0.17 U	0.19 U
Sodium	SB	88BJ - 456B	**64.1 B**	**169 B**	**204 B**
Thallium	SB	<0.62 - <0.8	0.36 U	0.34 U	0.38 U
Vanadium	150 or SB	11B - 13	**7.4 B**	**28.6**	**10.3**
Zinc	20 or SB	18J - 22	**58.6**	**60**	**20.7**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: HST-12 Sample Depth: 0-2 Sample Date: 3/25/97	Sample Designation: HST-12 Sample Depth: 4-6 Sample Date: 3/25/97	Sample Designation: HST-13 Sample Depth: 0-2 Sample Date: 3/25/97
Aluminum	SB	3,850N - 4,770	**4330**	**3520**	**2730**
Antimony	SB	<1.6JN - 2.4BN	**2.2 B**	0.64 U	0.72 U
Arsenic	7.5 or SB	<0.68W - <1.2	**15.6**	**2.2**	**2.6**
Barium	300 or SB	14BJ - 32B	**91.4**	28.7	**31.9 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.37 B**	**0.32 B**	**0.3 B**
Cadmium	1 or SB	<0.73 - <1.1	**0.81 B**	**0.17 B**	**0.44 B**
Calcium	SB	1,400 - 6,850	**756 B**	**549 B**	**517 B**
Chromium	10 or SB	7.5JN - 13N	**17.5**	**7.7**	**6**
Cobalt	30 or SB	3.0B - 3.2BJ	**6.4 B**	**3.6 B**	**3.8 B**
Copper	25 or SB	7.8 - 12	**125**	**27.2**	**98**
Iron	2,000 or SB	5,610 - 11,200	**19600**	**6980**	**8420**
Lead	500 or SB	3.5 - 8.8N	**130**	**12.2**	**42.6**
Magnesium	SB	1,510 - 4,260J	**1290**	**1760**	**1270**
Manganese	SB	165 - 224	**222**	**184**	**284**
Mercury	0.1	<0.1	0.11 U	0.1 U	0.073 U
Nickel	13 or SB	4.7BJ - 11	**19.9**	**8.5**	**9.6**
Potassium	SB	567B - 861B	**400 B**	**542 B**	**349 B**
Selenium	2 or SB	<0.56N - <0.59NW	**1.7**	**0.62 B**	**0.88 B**
Silver	SB	<0.51 - <0.57	0.21 U	0.16 U	0.18 U
Sodium	SB	88BJ - 456B	**94 B**	**65.2 B**	**59 B**
Thallium	SB	<0.62 - <0.8	0.42 U	0.32 U	0.36 U
Vanadium	150 or SB	11B - 13	**26.6**	**10.7**	**8 B**
Zinc	20 or SB	18J - 22	**137**	**24.2**	**120**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: HST-13 Sample Depth: 4-6 Sample Date: 3/25/97	HST-14 0-2 3/25/97	HST-14 6-8 3/25/97
Aluminum	SB	3,850N - 4,770	**2990**	**4020**	**2860**
Antimony	SB	<1.6JN - 2.4BN	0.74 U	**0.86 B**	0.69 U
Arsenic	7.5 or SB	<0.68W - <1.2	**1.2 B**	**5.3**	**0.94 B**
Barium	300 or SB	14BJ - 32B	**27.3 B**	**44.6**	**22.4 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.25 B**	**0.36 B**	**0.27 B**
Cadmium	1 or SB	<0.73 - <1.1	**0.35 B**	0.16 U	0.17 U
Calcium	SB	1,400 - 6,850	**726 B**	**518 B**	**453 B**
Chromium	10 or SB	7.5JN - 13N	**7.5**	**10.3**	**7.1**
Cobalt	30 or SB	3.0B - 3.2BJ	**3.5 B**	**5.8 B**	**2.9 B**
Copper	25 or SB	7.8 - 12	**21.5**	**61.6**	**7.3**
Iron	2,000 or SB	5,610 - 11,200	**8470**	**13000**	**6720**
Lead	500 or SB	3.5 - 8.8N	**15.3**	**59.3**	**2**
Magnesium	SB	1,510 - 4,260J	**1710**	**1550**	**1360**
Manganese	SB	165 - 224	**128**	**297**	**206**
Mercury	0.1	<0.1	0.11 U	0.1 U	0.099 U
Nickel	13 or SB	4.7BJ - 11	**8.7**	**8.9**	**6.3 B**
Potassium	SB	567B - 861B	**370 B**	**515 B**	**389 B**
Selenium	2 or SB	<0.56N - <0.59NW	0.37 U	**1.1**	**0.46 B**
Silver	SB	<0.51 - <0.57	0.19 U	0.16 U	0.17 U
Sodium	SB	88BJ - 456B	**77.3 B**	**53.6 B**	**64 B**
Thallium	SB	<0.62 - <0.8	0.37 U	0.33 U	0.34 U
Vanadium	150 or SB	11B - 13	**8.8 B**	**13.2**	**8.3 B**
Zinc	20 or SB	18J - 22	**76.1**	**38**	**20.4**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: HST-15 Sample Depth: 0-2 Sample Date: 3/24/97	HST-15 6-8 3/24/97	TP-8 0-2 3/25/97
Aluminum	SB	3,850N - 4,770	**5800**	**5140**	**3150**
Antimony	SB	<1.6JN - 2.4BN	0.79 U	0.77 U	**2.3 B**
Arsenic	7.5 or SB	<0.68W - <1.2	**0.82 B**	**0.56 B**	**8.4**
Barium	300 or SB	14BJ - 32B	**31.6 B**	**32.5 B**	**71.1**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.22 B**	**0.23 B**	**0.31 B**
Cadmium	1 or SB	<0.73 - <1.1	0.2 U	0.19 U	**0.3 B**
Calcium	SB	1,400 - 6,850	**513 B**	**673 B**	**734 B**
Chromium	10 or SB	7.5JN - 13N	**9.8**	**12.9**	**10.5**
Cobalt	30 or SB	3.0B - 3.2BJ	**3.5 B**	**4.8 B**	**4.3 B**
Copper	25 or SB	7.8 - 12	**6.6**	**16.4**	**151**
Iron	2,000 or SB	5,610 - 11,200	**5290**	**5390**	**14500**
Lead	500 or SB	3.5 - 8.8N	**3.4**	**2.5**	**322**
Magnesium	SB	1,510 - 4,260J	**1740**	**2360**	**1200**
Manganese	SB	165 - 224	**36.6**	**36.1**	**189**
Mercury	0.1	<0.1	0.089 U	0.087 U	**0.18**
Nickel	13 or SB	4.7BJ - 11	**9.8**	**10.1**	**9.4**
Potassium	SB	567B - 861B	**430 B**	**695 B**	**372 B**
Selenium	2 or SB	<0.56N - <0.59NW	0.39 U	0.38 U	**1.6**
Silver	SB	<0.51 - <0.57	0.2 U	0.19 U	0.19 U
Sodium	SB	88BJ - 456B	**67.4 B**	**73.1 B**	**70.6 B**
Thallium	SB	<0.62 - <0.8	0.39 U	0.38 U	0.38 U
Vanadium	150 or SB	11B - 13	**9 B**	**11.8**	**15.6**
Zinc	20 or SB	18J - 22	**23**	**32.2**	**272**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: TP-8 Sample Depth: 4-6 Sample Date: 3/25/97	TP-9 0-2 3/24/97	TP-9 4-6 3/24/97
Aluminum	SB	3,850N - 4,770	**2860**	**5810**	**4800**
Antimony	SB	<1.6JN - 2.4BN	0.59 U	0.8 U	0.72 U
Arsenic	7.5 or SB	<0.68W - <1.2	**0.93 B**	**3.8**	**0.41 B**
Barium	300 or SB	14BJ - 32B	**23.2 B**	**45**	**28.8 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.24 B**	**0.35 B**	**0.36 B**
Cadmium	1 or SB	<0.73 - <1.1	0.15 U	0.2 U	**0.24 B**
Calcium	SB	1,400 - 6,850	**684 B**	**989 B**	**795 B**
Chromium	10 or SB	7.5JN - 13N	**7.6**	**12**	**13.7**
Cobalt	30 or SB	3.0B - 3.2BJ	**3.2 B**	**5.3 B**	**4.3 B**
Copper	25 or SB	7.8 - 12	**6.7**	**44.7**	**11.8**
Iron	2,000 or SB	5,610 - 11,200	**8480**	**13300**	**7670**
Lead	500 or SB	3.5 - 8.8N	**2.6**	**68.8**	**3.1**
Magnesium	SB	1,510 - 4,260J	**1240**	**1510**	**1660**
Manganese	SB	165 - 224	**134**	**158**	**73.2**
Mercury	0.1	<0.1	0.1 U	0.11 U	0.11 U
Nickel	13 or SB	4.7BJ - 11	**7.5**	**10.3**	**10.7**
Potassium	SB	567B - 861B	**355 B**	**641 B**	**628 B**
Selenium	2 or SB	<0.56N - <0.59NW	0.53	**1**	**0.45 B**
Silver	SB	<0.51 - <0.57	0.15 U	0.2 U	0.18 U
Sodium	SB	88BJ - 456B	**57.7 B**	**91 B**	**68.9 B**
Thallium	SB	<0.62 - <0.8	0.3 U	0.4 U	0.36 U
Vanadium	150 or SB	11B - 13	**8.2**	**16.1**	**18.3**
Zinc	20 or SB	18J - 22	**113**	**52.2**	**51.9**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 4. Analytical Results for Metals in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Site Background Range	Sample Designation: TP-10 Sample Depth: 0-2 Sample Date: 3/24/97	Sample Designation: TP-10 Sample Depth: 9-11 Sample Date: 3/24/97
Aluminum	SB	3,850N - 4,770	**4510**	**3800**
Antimony	SB	<1.6JN - 2.4BN	**0.87 B**	0.65 U
Arsenic	7.5 or SB	<0.68W - <1.2	**7**	**0.68 B**
Barium	300 or SB	14BJ - 32B	**61.1**	**15.3 B**
Beryllium	0.16 or SB	<0.34 - <0.36	**0.44 B**	**0.16 B**
Cadmium	1 or SB	<0.73 - <1.1	**0.56 B**	0.16 U
Calcium	SB	1,400 - 6,850	**2490**	**733 B**
Chromium	10 or SB	7.5JN - 13N	**17.4**	**7.6**
Cobalt	30 or SB	3.0B - 3.2BJ	**6 B**	**2.4 B**
Copper	25 or SB	7.8 - 12	**78.9**	**5.3**
Iron	2,000 or SB	5,610 - 11,200	**18400**	**4200**
Lead	500 or SB	3.5 - 8.8N	**157**	**1.5**
Magnesium	SB	1,510 - 4,260J	**1970**	**1500**
Manganese	SB	165 - 224	**153**	**32.4**
Mercury	0.1	<0.1	**0.36**	0.1 U
Nickel	13 or SB	4.7BJ - 11	**15.8**	**6.6**
Potassium	SB	567B - 861B	**466 B**	**429 B**
Selenium	2 or SB	<0.56N - <0.59NW	**2**	0.32 U
Silver	SB	<0.51 - <0.57	0.22 U	0.16 U
Sodium	SB	88BJ - 456B	**137 B**	**82.1 B**
Thallium	SB	<0.62 - <0.8	0.44 U	0.32 U
Vanadium	150 or SB	11B - 13	**19**	**6.7 B**
Zinc	20 or SB	18J - 22	**145**	**14.6**

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
B - Estimated value
SB - Site background
N - Spiked sample recovery not within control limits
W - Post-digest spike recovery out of range
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 5. Analytical Results for PCBs in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-9 Sample Depth: 0-2 Sample Date: 3/25/97	HST-9 2-4 3/25/97	HST-10 0-2 3/25/97	HST-10 2-4 3/25/97	HST-11 0-2 3/25/97	HST-11 4-6 3/25/97	HST-12 0-2 3/25/97
Aroclor-1016	--	360 U	350 U	1800 U	36 U	360 U	35 U	180 U
Aroclor-1221	--	730 U	700 U	3600 U	74 U	730 U	71 U	370 U
Aroclor-1232	--	360 U	350 U	1800 U	36 U	360 U	35 U	180 U
Aroclor-1242	--	360 U	350 U	1800 U	36 U	360 U	35 U	180 U
Aroclor-1248	--	360 U	350 U	1800 U	36 U	360 U	35 U	180 U
Aroclor-1254	--	360 U	350 U	1800 U	36 U	**170 J**	**2.9 J**	180 U
Aroclor-1260	--	**900**	**540**	**4500**	**23 J**	**440**	**6.5 J**	**500**
Total Aroclors	1,000							

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 5. Analytical Results for PCBs in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

	Sample Designation:	HST-12	HST-13	HST-13	HST-14	HST-14	HST-15	HST-15
	Sample Depth:	4-6	0-2	4-6	0-2	6-8	0-2	6-8
	Sample Date:	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97	3/24/97	3/24/97
Parameter (Concentrations in µg/kg)	NYS RSCOs							
Aroclor-1016	--	35 U	180 U	69 U	35 U	34 U	35 U	36 U
Aroclor-1221	--	70 U	360 U	140 U	72 U	70 U	70 U	74 U
Aroclor-1232	--	35 U	180 U	69 U	35 U	34 U	35 U	36 U
Aroclor-1242	--	35 U	180 U	69 U	35 U	34 U	35 U	36 U
Aroclor-1248	--	35 U	180 U	69 U	35 U	34 U	35 U	36 U
Aroclor-1254	--	35 U	180 U	69 U	35 U	34 U	35 U	36 U
Aroclor-1260	--	**38**	**360**	**270**	**1.9 J**	34 U	35 U	36 U
Total Aroclors	1,000							

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 5. Analytical Results for PCBs in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: TP-8 Sample Depth: 0-2 Sample Date: 3/25/97	TP-8 4-6 3/25/97	TP-9 0-2 3/24/97	TP-9 4-6 3/24/97	TP-10 0-2 3/24/97	TP-10 9-11 3/24/97
Aroclor-1016	--	35 U	36 U	36 U	40 U	38 U	35 U
Aroclor-1221	--	72 U	73 U	73 U	82 U	78 U	71 U
Aroclor-1232	--	35 U	36 U	36 U	40 U	38 U	35 U
Aroclor-1242	--	35 U	36 U	36 U	40 U	38 U	35 U
Aroclor-1248	--	35 U	36 U	36 U	40 U	38 U	35 U
Aroclor-1254	--	35 U	36 U	36 U	40 U	**59**	**1.2 J**
Aroclor-1260	--	**200**	36 U	**26 J**	40 U	**52**	35 U
Total Aroclors	1,000						

µg/kg - Micrograms per kilogram (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
NYS RSCOs - Recommended soil cleanup objectives - taken from the NYSDEC Division of Hazardous Waste Remediation Revised TAGM on Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Table 6. Analytical Results for Toxicity Characteristic Herbicides in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

Sample Designation:	HST-10	HST-11	HST-12	HST-14	TP-8
Sample Depth:	0-2	0-2	0-2	0-2	0-2
Sample Date:	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97
Parameter (Concentrations in µg/L)					
2,4-D	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Silvex	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

µg/L - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected

Table 7. Analytical Results for RCRA Characteristics in Soil Samples Collected from Operable Unit 2, Sunnyside Yard, Queens, New York.

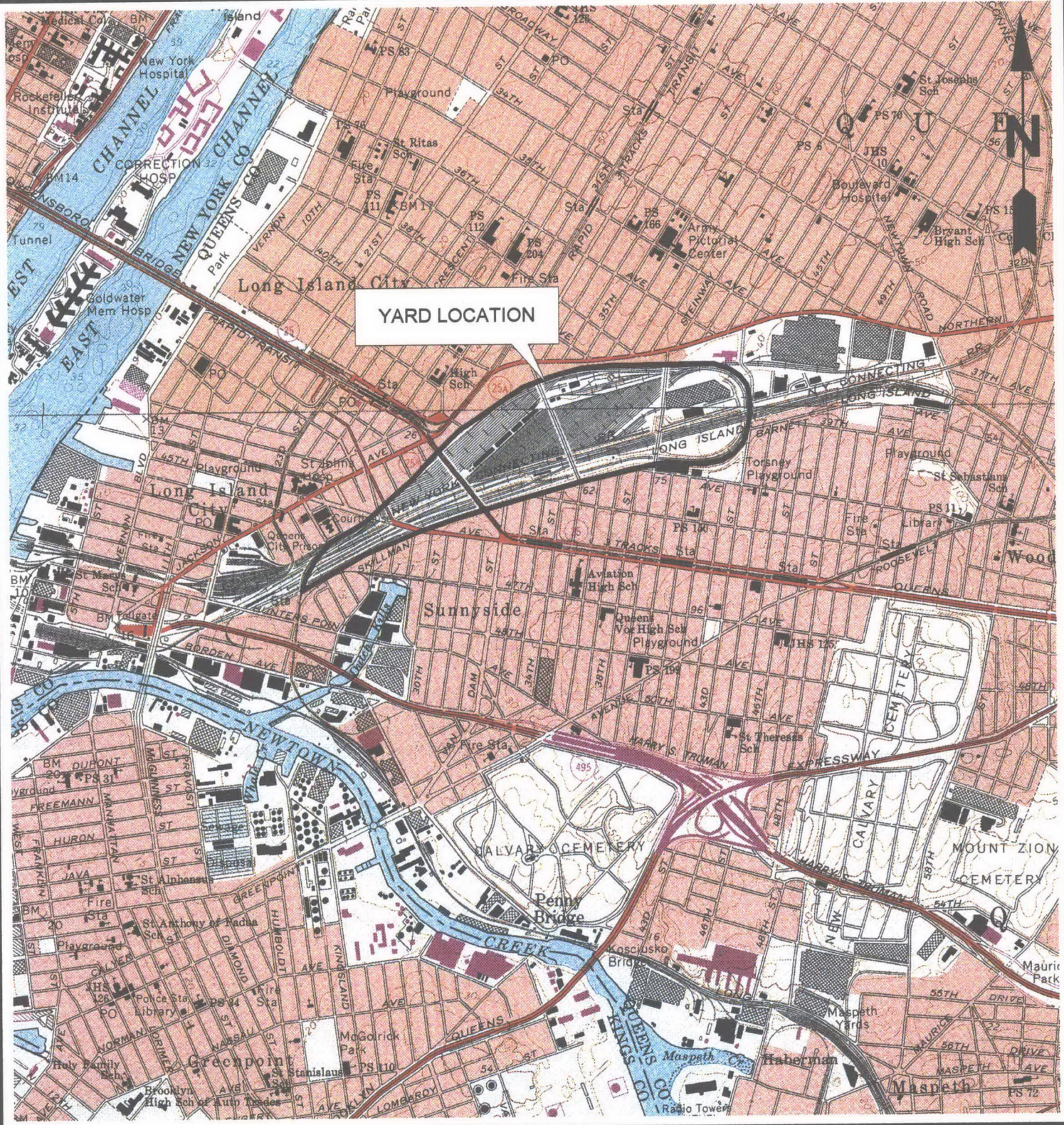
	Sample Designation:	HST-10	HST-11	HST-12	HST-14	TP-8
	Top of Interval:	0-2	0-2	0-2	0-2	0-2
	Sample Date:	3/25/97	3/25/97	3/25/97	3/25/97	3/25/97
Parameter (Concentrations in mg/kg)	RCRA Characteristic Regulatory Limit					
Corrosivity	--	N	N	N	N	N
Ignitability	--	N	N	N	N	N
Reactive Cyanide	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Reactive Sulfide	500	**11**	10 U	10 U	10 U	10 U
Reactivity	--	N	N	N	N	N

mg/kg - Milligrams per kilogram (parts per million)

U - Indicates that the compound was analyzed for but not detected

N - Test results negative for reaction

FIGURES



SOURCE:
CENTRAL PARK AND BROOKLYN, NEW YORK
QUADRANGLE 7.5 MINUTE SERIES (TOPOGRAPHIC)

Title:

YARD LOCATION MAP

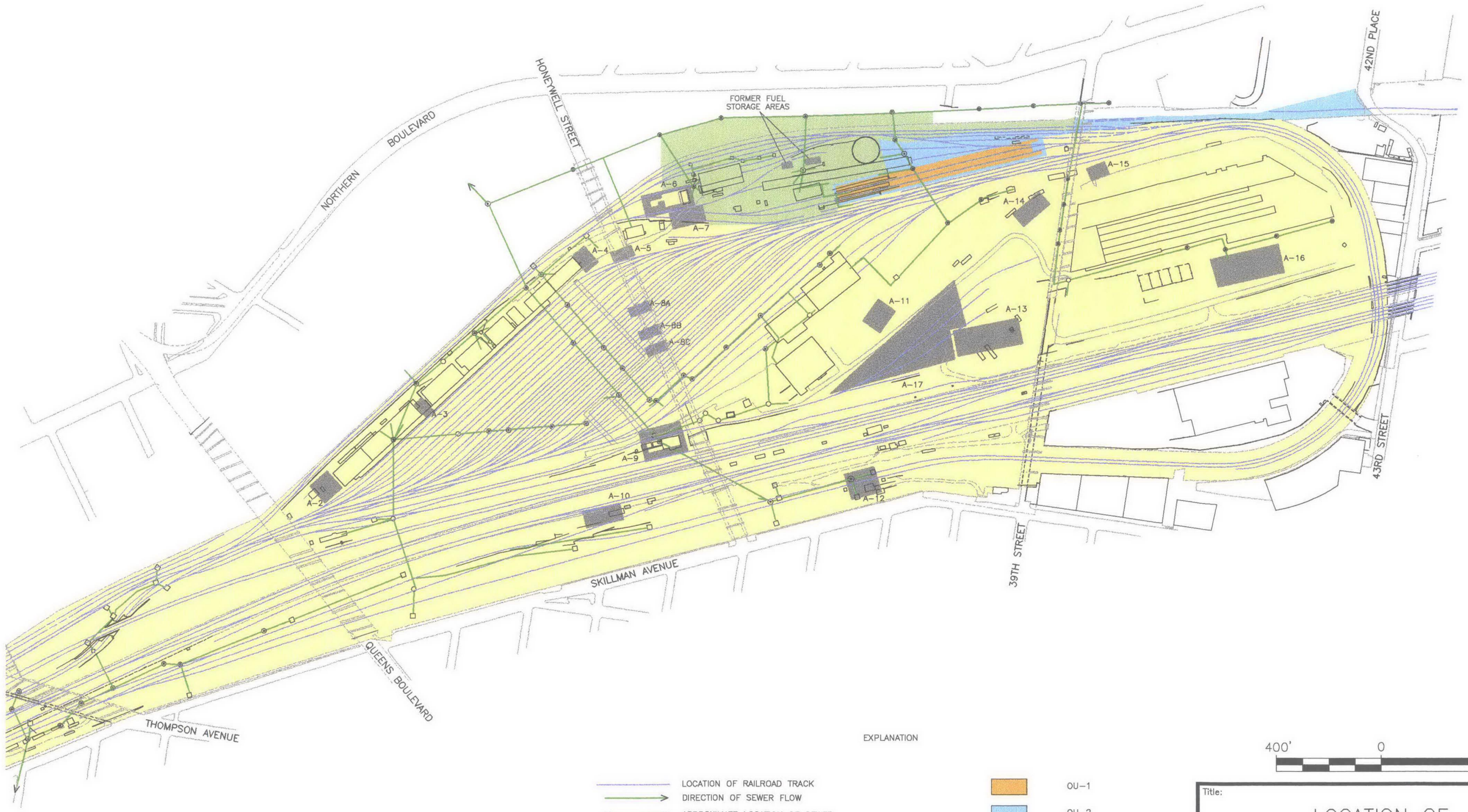
SUNNYSIDE YARD
39-29 HONEYWELL STREET
QUEENS, NEW YORK

Prepared For:

AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by:	J.D.	Date:	5/97	FIGURE
Prepared by:	R.R.	Scale:	1"=2,000'	1
Project Mgr:	J.D.	Status:	Final	
File No:	52123012	Project:	05552Y	



EXPLANATION

- LOCATION OF RAILROAD TRACK
- DIRECTION OF SEWER FLOW
- APPROXIMATE LOCATION OF SEWER
- GRATE COVER CATCH BASIN LOCATION
- SOLID COVER MANHOLE LOCATION
- GRATE COVER MANHOLE LOCATION
- A-2 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN
- APPROXIMATE PROPERTY BOUNDARY

- OU-1
- OU-2
- OU-3
- OU-4
- OU-5

NOTES:

1. LOCATIONS AND DIAMETERS OF SEWER COMPONENTS BASED UPON A REVIEW OF AMTRAK-SUPPLIED ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY.
2. OU-6, GROUND WATER BENEATH THE YARD, IS NOT SHOWN.

Title:

LOCATION OF OPERABLE UNITS

SUNNYSIDE YARD, QUEENS, NEW YORK

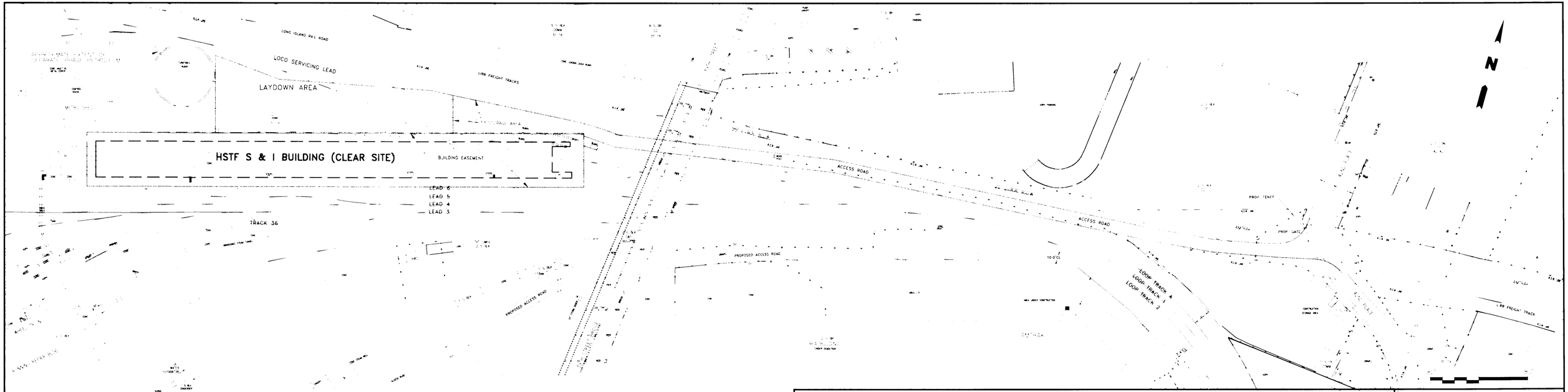
Prepared For:

AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: H.G.	Date: 5/97	FIGURE
Prepared by: G.S.	Scale: AS SHOWN	2
Project Mgr: H.G.	Status: FINAL	
File No: 52123011	Project: 05552Y02	

N:\AM059\AM052\119\52123011.DWG



SITE MAP
OPERABLE UNIT 2

ROUX

3

APPENDICES

APPENDIX A

APPENDIX A

Geologic and Monitoring Well Construction Logs

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. TP-8**
Date Started: **3/25/97** Completed: **3/25/97**	Measuring Point Elevation: Total Depth: **15.0 ft**
Logged By: **H. Gregory** Checked By: **J.Dominuco**	Water Level During Drilling: **6.0 ft** Post-Development: **6.0 ft**
Drilling Co: **L.A.W.** Driller:	Casing: **2-inch Schedule 40 PVC** Drill Bit Diameter: **6**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **3** to **13**
Drilling Equipment: **B-61 Rig**	Pack: **#1 Gravel** from **2** to **15**
Sampler: **140lb / 30" split-spoon**	Seal: **Bentonite Pellets** from **1** to **2** **Cement Grout** from **0** to **1**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown fine to medium SAND, trace Silt, trace Gravel, trace Cinders; Dry	SW				0.0	Casing finished as stick-up 2 feet above land surface
	Orange-brown fine to medium SAND, trace Gravel; Dry to moist					0.0	
	Orange-brown fine to coarse SAND; Moist to wet					0.0	
5	Orange-brown fine to coarse SAND, some coarse Gravel; Wet					0.0	Wet at 6 feet below land surface
	Orange-brown fine to coarse SAND, some coarse Gravel; Wet					0.0	
10	Orange-brown fine to coarse SAND, some coarse Gravel; Wet					0.0	
	Orange-brown fine to coarse SAND, some coarse Gravel; Wet					0.0	
	Brown to orange-brown fine to coarse SAND; Wet					0.0	
15							Bottom of boring at 15 feet below land surface
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. TP-9**
Date Started: **3/24/97** Completed: **3/24/97**	Measuring Point Elevation: Total Depth: **16.0 ft**
Logged By: **H. Gregory** Checked By: **J.Dominuco**	Water Level During Drilling: **6.2 ft** Post-Development: **6.2 ft**
Drilling Co: **L.A.W.** Driller:	Casing: **2-inch Schedule 40 PVC** Drill Bit Diameter: **6**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **4** to **14**
Drilling Equipment: **B-61 Rig**	Pack: **#1 Gravel** from **2.5** to **16**
Sampler: **140lb / 30" split-spoon**	Seal: **Bentonite Pellets** from **1.5** to **2.5** **Cement Grout** from **0** to **1.5**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to orange-brown fine to coarse SAND, trace Gravel, trace Silt; Dry	SW				0.0	Casing finished as stick-up 2 feet above land surface
	Orange-brown fine to medium SAND, trace Gravel, trace Silt; Dry					0.0	
	Orange-brown fine SAND and Silt, little Clay; dry to moist	SM				0.0	
5							
	Brown to orange-brown SILT and Clay; Wet	ML				0.0	Wet at 6.2 feet below land surface
	Brown to orange-brown SILT and Clay; Wet					0.0	
10	Brown to orange-brown SILT and Clay; Wet					0.0	
	Grey-brown fine SAND and Silt; Wet	SM				0.0	
	Orange-brown fine to coarse SAND, trace Silt; Wet	SW				0.0	
15							Bottom of boring at 16 feet below land surface
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. TP-10**
Date Started: **3/24/97** Completed: **3/24/97**	Measuring Point Elevation: Total Depth: **19.0 ft**
Logged By: **H. Gregory** Checked By: **J.Dominuco**	Water Level During Drilling: **11.0 ft** Post-Development: **11.0 ft**
Drilling Co: **L.A.W.** Driller:	Casing: **2-inch Schedule 40 PVC** Drill Bit Diameter: **6**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **8** to **18**
Drilling Equipment: **B-61 Rig**	Pack: **#1 Gravel** from **6.5** to **19**
Sampler: **140lb / 30" split-spoon**	Seal: **Bentonite Pellets** from **4** to **6.5**
	Cement Grout from **0** to **4**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Dark brown fine to medium loomy SAND, trace Gravel, trace Silt; Dry	SW				0.0	Casing finished as stick-up 2 feet above land surface
	Dark brown fine to medium loomy SAND, some Cinders, trace Gravel, trace Silt; Dry					0.0	
	Brown to orange-brown fine to coarse SAND, trace Gravel, trace Silt, trace Clay; Dry						
	Brown to light brown fine to medium SAND; Dry					0.0	
5	Light brown fine to medium SAND; Dry						
	Light brown fine to medium SAND; Dry					0.0	
	Light brown fine to medium SAND; Moist to wet					0.0	
10	Light brown fine to medium SAND; Wet					0.0	
	Light brown to tan medium to coarse SAND, trace Gravel; Wet						Wet at 11 feet below land surface
						0.0	
	Light brown to tan medium to coarse SAND, trace Gravel; Wet					0.0	
15							
	Light brown to tan medium to coarse SAND, trace Gravel; Wet					0.0	
						0.0	
20							Bottom of boring at 19 feet below land surface
25							

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. **HST-9**	
Logged By: **H. Gregory**	Checked By: **J.Dominuco**	Date Started: **3/25/97**	Date Completed: **3/25/97**
Drilling Co: **L.A.W.**		Drill Bit Diameter: **4.25**	Total Depth: **4.0 ft**
Driller:		Backfill Material: **cuttings**	from **0 ft** to **4 ft**
Drilling Method: **Hollow-Stem Auger**		Sampler: **140lb / 30" split-spoon**	
Drilling Equipment: **B-61 Rig**		Depth to Water at Time of Drilling: **Not Encountered**	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Dark brown fine to medium SAND, trace Gravel, trace Silt, trace Cinders; Dry	SW			0.0	
	Orange-brown fine to medium SAND, trace Gravel; Dry				0.0	
	Orange-brown fine to medium SAND, trace Gravel; Dry					Wet at 4 feet below land surface.
5						Bottom of boring at 4 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-10	
Logged By: H. Gregory	Checked By: J.Dominuco	Date Started: 3/25/97	Date Completed: 3/25/97
Drilling Co: L.A.W.		Drill Bit Diameter: 4.25	Total Depth: 4.0 ft
Driller:		Backfill Material: cuttings	from 0 ft to 4 ft
Drilling Method: Hollow-Stem Auger		Sampler: 140lb / 30" split-spoon	
Drilling Equipment: B-61 Rig		Depth to Water at Time of Drilling: 4.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
0	Dark brown fine to medium SAND, trace Gravel, trace Silt, trace Cinders; Dry	SW			0.0	
	Tan fine to medium SAND, trace Gravel; Dry				0.0	
	Tan fine to medium SAND, trace Gravel; Moist to wet					Wet at 4 feet below land surface
4						Bottom of boring at 4 feet below land surface
5						
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-11	
Logged By: H. Gregory	Checked By: J.Dominuco	Date Started: 3/25/97	Date Completed: 3/25/97
Drilling Co: L.A.W.		Drill Bit Diameter: 4.25	Total Depth: 6.0 ft
Driller:		Backfill Material: cuttings	from 0 ft to 6 ft
Drilling Method: Hollow-Stem Auger		Sampler: 140lb / 30" split-spoon	
Drilling Equipment: B-61 Rig		Depth to Water at Time of Drilling: 6.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to Black fine to coarse SAND, trace Cinders, trace Gravel; Dry	SW			0.0	
	Orange-brown fine to coarse SAND, trace Gravel; Dry				0.0	
	Orange-brown fine to coarse SAND, trace Gravel; Dry to moist				0.0	
5	Orange-brown fine to coarse SAND, trace Gravel; Moist to wet					Wet at 6 feet below land surface Bottom of boring at 6 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-12	
Logged By: H. Gregory	Checked By: J.Dominuco	Date Started: 3/25/97	Date Completed: 3/25/97
Drilling Co: L.A.W.		Drill Bit Diameter: 4.25	Total Depth: 6.0 ft
Driller:		Backfill Material: cuttings	from 0 ft to 6 ft
Drilling Method: Hollow-Stem Auger		Sampler: 140lb / 30" split-spoon	
Drilling Equipment: B-61 Rig		Depth to Water at Time of Drilling: 6.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to Black fine to coarse SAND, trace Gravel, trace Cinders, trace Silt; Dry	SW			0.0	
	Orange-brown fine to coarse SAND, trace Gravel; Dry				0.0	
5	Orange-brown fine to coarse SAND, trace Gravel; Dry to moist				0.0	
	Orange-brown fine to coarse SAND, trace Gravel; Moist to wet					Wet at 6 feet below land surface Bottom of boring at 6 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-13	
Logged By: H. Gregory	Checked By: J.Dominuco	Date Started: 3/25/97	Date Completed: 3/25/97
Drilling Co: L.A.W.		Drill Bit Diameter: 4.25	Total Depth: 6.0 ft
Driller:		Backfill Material: cuttings	from 0 ft to 6 ft
Drilling Method: Hollow-Stem Auger		Sampler: 140lb / 30" split-spoon	
Drilling Equipment: B-61 Rig		Depth to Water at Time of Drilling: 6.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Dark brown fine to medium SAND, trace Gravel,trace Silt; Dry	SW			0.0	
	Orange-brown fine to medium SAND, trace Gravel; Dry				0.0	
	Orange-brown fine to medium SAND, trace Gravel; Dry to moist				0.0	
5	Orange-brown fine to medium SAND, trace Gravel; Moist to wet					Wet at 6 feet below land surface Bottom of boring at 6 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. **HST-14**	
Logged By: **H. Gregory**	Checked By: **J.Dominuco**	Date Started: **3/25/97**	Date Completed: **3/25/97**
Drilling Co: **L.A.W.**		Drill Bit Diameter: **4.25**	Total Depth: **10.0 ft**
Driller:		Backfill Material: **cuttings**	from **0 ft** to **10 ft**
Drilling Method: **Hollow-Stem Auger**		Sampler: **140lb / 30" split-spoon**	
Drilling Equipment: **B-61 Rig**		Depth to Water at Time of Drilling: **8.0** **feet**	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to orange-brown fine to medium SAND, trace Gravel, trace Cobbles; Dry	SW			0.0	
	Brown to orange-brown fine to medium SAND, trace Gravel, trace Cobble fragments; Dry				0.0	
	Brown fine to medium SAND, trace Silt; Dry to moist				0.0	
5	Orange-brown fine to coarse SAND; Moist to wet				0.0	
	Orange-brown fine to coarse SAND, trace Gravel; Wet				0.0	Wet at 8 feet below land surface
10						Bottom of boring at 10 feet below land surface
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-15	
Logged By: H. Gregory	Checked By: J.Dominuco	Date Started: 3/24/97	Date Completed: 3/24/97
Drilling Co: L.A.W.		Drill Bit Diameter: 4.25	Total Depth: 8.0 ft
Driller:		Backfill Material: cuttings	from 0 ft to 8 ft
Drilling Method: Hollow-Stem Auger		Sampler: 140lb / 30" split-spoon	
Drilling Equipment: B-61 Rig		Depth to Water at Time of Drilling: 8.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown fine to medium SAND, trace Gravel, trace Silt; Dry	SW			0.0	
	Brown fine to medium SAND, trace Gravel; Dry				0.0	
	Brown to light brown fine to medium SAND; Dry					
	Tan fine SAND; Dry to moist				0.0	
5						
	Tan fine SAND; Moist to wet				0.0	
						Wet at 8 feet below land surface
						Bottom of boring at 8 feet below land surface
10						
15						
20						
25						