LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

High Speed Trainset Facility
Sunnyside Yard
Queens, New York

December 3, 1996

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

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1.0 INTRODUCTION

At the request of the National Railroad Passenger Corporation (AMTRAK), Roux Associates, Inc. (Roux Associates) performed a Limited Phase II Environmental Site Assessment of a specific parcel of land (Site) within the Sunnyside Yard, located at 39-29 Honeywell Street, Queens, New York (Figure 1). The parcel of land (approximately 60 feet by 790 feet) has been designated as the Site for the proposed High Speed Trainset Facility (HSTF) Service and Inspection (S&I) Building (Figure 2). The adjacent land surrounding the Site is comprised of the remainder of the Sunnyside Yard, which is referenced in this document as the Adjacent Property. The investigation was designed to determine the nature and extent of any soil contamination within the proposed HSTF S&I Building footprint and to characterize ground-water quality, elevations and flow direction within the construction area.

1.1 Project Description

The HSTF Construction Project will consist of the construction of the proposed HSTF S&I Building which is approximately 60 feet in width by 790 feet in length. The construction project will include an excavation and may include partial demolition of an abandoned inspection pit and abandoned locomotive washer.

We understand that the finished top of rail at the HSTF Construction Project is currently planned for an elevation of 23 feet above mean sea level (MSL) NAVD 1988 Datum. Present land surface elevation varies from a high of approximately 23 feet above MSL at the eastern end of the Site to a low of approximately 18 feet above MSL at the western end. Preliminary construction drawings indicate that the majority of the building foundation will extend to 8 feet below top of rail (approximately 15 feet above MSL) and that two crossovers will extend to 10 feet below top of rail (approximately 11.5 feet and 9.5 feet above MSL at the eastern and western crossovers, respectively). Therefore, construction is anticipated to occur to a depth of approximately 8 feet below land surface (bls) at the eastern end of the Site, to approximately 3 feet bls at the western end, and to a depth of approximately 10 feet bls at the crossovers.

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 from within the proposed HSTF S&I Building footprint. In addition, ground-water quality, elevation and flow direction in and around the proposed construction area was characterized so that dewatering, if necessary during construction, may be managed effectively.

1.3 Report Format

This report is a summary of the findings for the Limited Phase II Environmental Site Assessment performed at the Site. To effectively communicate these findings, information in the remainder of the report is presented in the following sections:

- 2.0 Site and Adjacent Property Description and History;
- 3.0 Methods of Investigation;
- 4.0 Limited Phase II Environmental Site Assessment Results;
- 5.0 Summary and Conclusions
- 6.0 Report Limitations; and
- 7.0 References

2.0 SITE AND ADJACENT PROPERTY DESCRIPTION AND HISTORY

2.1 Proposed HSTF Site Description and History

The Site slopes gently from east to west and currently operates as a portion of an active railyard. Wheel Tracks No. 1 and No. 2, the Metroliner Shed Track and the No. 1 Engine House Track currently occupy the Site. The most readily apparent features of the Site are the rails, concrete and asphalt platforms, occasional concrete ruins, overhead electric catenary lines, and the ubiquitous presence of ballast.

The Site formerly housed an inspection pit/repair shed and a portion of a locomotive washer. The abandoned remains of these structures may be encountered during construction.

2.2 Adjacent Property Description and History

The Adjacent Property surrounding the Site is currently owned and operated by AMTRAK and is located in an urban area in northwestern Queens County, a borough of New York City, New York. The East River is located approximately one mile to the west (Figure 1). The Adjacent Property consists of approximately 105 acres. It functions primarily as a train maintenance and train make-up facility for electric locomotives and railroad cars. The Adjacent Property is surrounded by commercial, light industrial and residential areas.

The Adjacent Property and the Site were originally used in the early 1900's by the Pennsylvania Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad (later known as the Penn Central Transportation Company). On April 1, 1976, the Consolidated Rail Corporation (Conrail) acquired the Adjacent Property, and the same day conveyed it to AMTRAK.

2.3 Previous Investigations

The Sunnyside Yard (Site and Adjacent Property) 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, and the NYSDEC entered into Order on Consent (OOC) Index #W2-0081-87-06. In accordance with the OOC, previous investigations at the Sunnyside Yard included Phase I, Phase II, and Phase II Addendum Remedial Investigations and a health-based Risk Assessment performed by Roux

Associates. 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 remedial investigations and the risk assessment. During these investigations, Soil Boring S-26 (Phase I) and Monitoring Well MW-59 (Phase II) were completed closest to the boundary of the Site. These sampling locations are discussed below.

During the Phase I Remedial Investigation, Soil Boring S-26 (Figure 2) was completed and sampled as part of the facility-wide soil quality sampling program. The 0 to 2 feet bls interval was sampled and analyzed for polychlorinated biphenyls (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 parts per million (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.

A ground-water sample was collected from Monitoring Well MW-59 (Figure 2) during the Phase II Remedial Investigation and analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), 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 New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Services (TOGS 1.1.1.), Ambient Water Quality Standards and Guidance Values.

3.0 METHODS OF INVESTIGATION

An intrusive field investigation was performed at the Site and Adjacent Property to evaluate:

- surface and subsurface soil quality within the Site;
- ground-water quality and elevation; and
- the subsurface geology.

These objectives were achieved by installing soil borings, monitoring wells, and piezometers; the collection and analysis of soil and ground-water samples; and the collection of water-level measurements.

To ensure that the soil borings would not disrupt any unmapped underground utilities, AMTRAK requested that 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., shovel, 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 methods of the investigation are described below.

3.1 Confirmation of Separate-Phase Petroleum Delineation

As part of the remedial investigations performed at the Sunnyside Yard, the location of a separate-phase petroleum accumulation was delineated in a portion of the Sunnyside Yard known as Area 1 (Figure 2). Additional testing was performed as part of the current investigation to confirm that the location of this separate-phase petroleum accumulation had not changed in the vicinity of the Site.

To accomplish this task, on April 9, 1996, Roux Associates personnel completed five hand borings (TP-1 through TP-5) to approximately two feet below the water table (Figure 2). The boreholes were left open for approximately one hour and the presence of petroleum, if any was

noted. Finally, the borings were completed as temporary piezometers by installing 2-inch diameter 20-slot (0.020 inch) polyvinyl chloride (PVC) well screens in the open boreholes and the excavations were backfilled.

3.2 Soil Borings and Sampling

The soil boring and sampling program was completed during the period from April 17, 1996 to April 19, 1996. Ten soil borings (Figure 2) were completed by Aquifer Drilling and Testing, Inc. of Long Island City, New York (ADT) under the supervision of Roux Associates. Boring depths ranged from 2.5 to 9 feet bls. The soil borings were advanced from land surface to 5 feet bls using decontaminated hand tools (i.e., posthole digger, shovel, etc.) and soil samples were collected accordingly. Soil samples below 5 feet bls were collected with a split-spoon sampler Soil sample collection was performed by Roux Associates, the analytical program was completed by IEA, Inc., Monroe, Connecticut.

A total of 19 soil samples were submitted to the laboratory for analysis. Soil samples were collected from unsaturated soil (0 to 2 feet bls) at each boring location and a second soil sample was collected at or below the water table, with the exception of sample location HST-2 where refusal was encountered at 2.5 feet bls. 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. With the exception of samples collected for VOC analysis, soil samples from the 0 to 5 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 5 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. Soil samples were analyzed for specific chemical parameters including Target Compound List (TCL) VOCs by Method 8240A, TCL SVOCs by Method 8270A, PCBs by Method 8081, and Target Analyte List (TAL) metals by

Methods 6010/7471. In addition, three samples were extracted for pesticides using Toxicity Characteristic Leaching Procedure (TCLP) and analyzed by Methods 8081 and 8150, respectively, and six samples were extracted by TCLP and analyzed for lead using Method 6010.

All downhole equipment was decontaminated between each soil boring location and each soil sample collected. Decontamination procedures included steam cleaning of drilling equipment (i.e., augers, rods, hand tools, etc.) prior to initial setup, between borehole locations, and prior to leaving the site. All 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.

3.3 Monitoring Well and Piezometer Installation and Construction

To further evaluate hydrogeologic and ground-water quality conditions in and around the Site, five monitoring wells were installed outside the proposed HSTF S&I Building footprint between April 19 and April 24, 1996 (Figure 2). Monitoring wells were installed outside the proposed HSTF S&I Building footprint to preserve their integrity during construction activities in order to monitor ground-water quality and water levels during dewatering, if necessary. No soil samples were collected from the monitoring well pilot boreholes as they were located outside the proposed HSTF S&I Building footprint. Additionally, two soil boring locations (TP-6 and TP-7) within the proposed HSTF S&I Building footprint were completed as temporary piezometers to monitor water levels during construction (Figure 2). All monitoring wells and piezometers were installed by ADT, under the supervision of Roux Associates, in pilot boreholes drilled with a truck mounted hollow-stem auger drill rig.

The two temporary piezometers (TP-6 and TP-7) and the five monitoring wells (MW-64 through MW-68) were installed with the top of the well screen set between one and three feet above the existing water table.

Monitoring well and temporary piezometer construction details are summarized in Table 1. All monitoring wells were constructed with 10 feet of 4-inch diameter well screen and 4-inch diameter PVC riser pipe. Monitoring Well MW-67 was constructed with 20-slot (0.020 inch) PVC well screen. The remaining four monitoring wells were constructed with 10-slot (0.010 inch) PVC well screens. The temporary piezometers were constructed with five feet of 2-inch diameter, 20-slot PVC well screens and 2-inch diameter PVC riser casing.

All monitoring wells and temporary piezometers were packed with No. 1 Morie sand. The gravel pack extended approximately one to two feet above the top of the 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.

Following installation, each monitoring well and Temporary Piezometers TP-6 and TP-7 were developed to ensure hydraulic connection with the surrounding aquifer. Development (pump and surge) continued at each location until the discharge water remained clear. Development of all the newly installed monitoring wells and TP-6 and TP-7 was completed on April 25, 1996.

Each monitoring well and piezometer was surveyed for vertical coordinates by TOPO-Metric, Inc. (TMI), Hauppauge, New York with all elevations based upon benchmarks previously established for the HSTF mapping project for the Sunnyside Yard. The HSTF benchmarks were established relative to the NAVD 1988 Datum and all references to elevation for the HSTF construction project are relative to this datum. Elevations in the NAVD 1988 Datum are 1.08 feet lower than the NGVD 1929 Datum previously used for mapping at the Sunnyside Yard.

3.4 Water-Level and Separate-Phase Petroleum Measurements

On March 21, 1996, a comprehensive round of water-level and separate-phase petroleum measurements was performed at the Adjacent Property to determine current ground-water elevations and ground-water flow patterns and to determine the location of the separate-phase petroleum accumulation in the vicinity of the proposed HSTF S&I Building. These data were necessary to determine new monitoring well placement locations and soil sampling intervals within the footprint of the proposed HSTF S&I Building.

On May 2 and 3, 1996, following installation and development of the new monitoring wells and temporary piezometers, a second comprehensive round of water-level and separate-phase petroleum measurements was performed. Figure 3 depicts ground-water elevations and flow patterns in the proposed HSTF S&I Building area on May 2 and 3, 1996.

Water levels were measured to the nearest 0.01 foot using a steel measuring tape and chalk. In wells containing separate-phase petroleum, the water level and petroleum thickness were measured to the nearest 0.01 foot using an oil/water interface probe. Water-level elevations and separate-phase petroleum measurements are included in Table 2.

3.5 Ground-Water Sampling

On May 2 and 3, 1996, Roux Associates collected ground-water samples from the five new monitoring wells (MW-64 through MW-68) and three previously-installed monitoring wells (MW-57, MW-59 and MW-63) surrounding the proposed HSTF S&I Building footprint. Monitoring wells were purged and then sampled within 24 hours after purging was completed. Ground-water samples were collected using disposable Teflon™ bailers and new polypropylene rope. After collection, ground-water samples were packed on ice and submitted to IEA, Inc. for laboratory analyses.

All samples were analyzed for TCL VOCs by Method 8240A, TCL SVOCs by Method 8270A, TAL metals by Method 6010, mercury by Method 7470, and TCL PCBs by Method 8081. A replicate sample was collected from Monitoring Well MW-65 and analyzed for VOCs and metals.

In the event dewatering is necessary during construction, four samples (i.e., MW-59, MW-66, MW-67 and MW-68) were analyzed for the following sewer discharge parameters: oil & grease by Method 413.1, total suspended solids (TSS) by Method 160.2, biochemical oxygen demand (BOD) by Method 405.1, cyanide by Method 335.4, and petroleum hydrocarbons by Method 418.1. Sample MW-68 was additionally analyzed for diesel range organics (DRO) by Method 8015B. Conductivity, temperature and pH measurements were taken and recorded in the field.

3.6 Site Reconnaissance

Roux Associates conducted an inspection of the Site to assess the potential for asbestos containing material (ACM) and lead-based paint. The results of this inspection are discussed in Section 4.6.

4.0 LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT RESULTS

4.1 Confirmation of the Lateral Extent of the Separate-Phase Petroleum Accumulation

Confirmation of the lateral extent of the separate-phase petroleum accumulation was accomplished by completing five hand borings to approximately two feet below the water table (approximately 4 to 5 feet bls) along the previously delineated edge of the petroleum accumulation. Petroleum will float on water, therefore, open boreholes were appropriate as a screening technique for determining the presence or absence of petroleum (i.e., to verify the current extent of separate-phase petroleum). Because this task was designed as a screening tool, petroleum thickness measurements were not collected from the open boreholes. However, the borings were finished as temporary piezometers by installing 2-inch diameter PVC well screens, to allow for future monitoring for the presence of petroleum. The piezometers will be abandoned and backfilled when appropriate. The results of this task are presented below.

Screening Location	Observations
TP-1	Separate-phase petroleum droplets noted on water
TP-2	No separate-phase petroleum or sheen noted
TP-3	Separate-phase petroleum droplets noted on water
TP-4	Separate-phase petroleum droplets noted on water
TP-5	Petroleum sheen noted on water

Based on these visual observations, the previously determined extent of the separate-phase petroleum accumulation was confirmed near the western portion of the Site and is shown in Figure 2.

4.2 Soil Borings

A total of ten soil borings ranging in depth from 2.5 to 9 feet bls were completed for this task. Lithology encountered in each borehole is described in the boring logs in Appendix A. Borings, as shown in Figure 2, are designated HST-1 through HST-8, TP-6 and TP-7. Soil samples were collected for analysis from each boring. In general, samples from two distinct depth intervals were collected for analysis from all borings within the Site; one sample was collected from either

the 0 to 2 foot bls interval or 0 to 2 feet below the bottom of the ballast layer or concrete platform (as appropriate). A second sample was collected from the most notably impacted interval (based on staining, odors, etc.) or from just below the water table.

The lithology generally encountered in borings at the Site consisted of less than one foot of ballast with 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.

4.3 Ground Water

With the exception of Soil Boring HST-2 (refusal at 2.5 feet bls), ground water was encountered in all soil borings within the Site and occurred between 2.5 feet bls (HST-1) and 7 feet bls (HST-6).

Water-level measurements were collected from monitoring wells installed on the Adjacent Property and piezometers installed within the Site on May 2 and 3, 1996. Water-table elevations were then computed relative to NAVD 1988 mean sea level. Ground-water elevations and flow direction for the Site and Adjacent Property are shown in Figure 3. Ground water flows beneath the Site and the Adjacent Property toward the west and northwest.

4.4 Analytical Results

The NYSDEC Division of Hazardous Waste Remediation issued a Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (in 1994). This TAGM provides the basis and procedures to determine soil cleanup levels at inactive hazardous waste sites. At a minimum, these generic soil cleanup objectives are designed to eliminate all significant threats to human health and/or the environment. Although the recommended soil cleanup objectives (RSCOs) contained in this TAGM are considered to be overly protective for an active industrial facility located in an urban area, they will be used as a basis for comparison of VOC, SVOC (excluding polycyclic aromatic hydrocarbons [PAHs]), metals, and PCB detections in this report.

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 Site have the highest background PAH concentrations. ATSDR background ranges for PAHs in urban soil are available for five of the six PAHs detected above the RSCOs. Of these five PAHs, only two were detected at the Site above the ATSDR background ranges. These detections are discussed further in Section 4.4.1.

Metals are naturally occurring constituents of soil, and as such, detections of metals in soil were compared to both the RSCOs and the Sunnyside Yard background levels for metals developed during the Phase I RI. Only three borings, S-30, S-33, and S-35 completed during the Phase I RI, most closely met the criteria to be considered representative of background conditions and were, therefore, used to develop the background range of metals concentrations at the Sunnyside Yard. The samples consisted of medium to fine sand, which is representative of most of the material encountered during the investigation at the Yard.

To determine the need to manage the excavated soil as hazardous waste, the toxicity characteristic leaching procedure (TCLP) should be utilized and the corresponding analytical results compared to the toxicity characteristic (TC) criteria. The majority of the analyses performed during this investigation represent total concentrations. However, total results can be used in lieu of performing the TCLP if the "20-times" rule is applied.

In accordance with the NYSDEC memorandum dated May 27, 1993, "if the 'total constituent' result is less than 20 times the toxicity characteristic level or land disposal restriction extract level, it is impossible for the extract to 'fail' and the TCLP does not need to be performed." Analytes that did fail the "20-times" rule were analyzed for toxicity characteristics using TCLP to determine waste classification. PCBs are regulated by the Toxic Substance Control Act (TSCA) at levels greater than 50 parts per million (ppm), and have no toxicity characteristic regulatory level, therefore, the 20-times rule was not applicable.

4.4.1 Soil Quality

The analytical data are presented in Tables 3 through 8. The results of the laboratory analyses are discussed below.

It should be noted that soil borings HST-1 and HST-8 are located outside the footprint of the proposed HSTF S&I Building based on the May 20, 1996 drawing provided by AMTRAK (Figure 2). Therefore, results from soil samples which were collected at these locations may not be representative of soil quality at the Site.

Volatile Organic Compounds - As shown in Table 3, one or more of the following VOCs were detected in each of the 19 soil samples analyzed: acetone, methylene chloride, chloroform, toluene, ethylbenzene, and xylene. No VOCs were detected above the RSCOs. It should be noted that with the exception of xylene (detected in three samples) and ethylbenzene (detected in two samples) the VOCs detected are common laboratory contaminants and are not considered representative of conditions at the Site.

Semivolatile Organic Compounds - Although numerous SVOCs were detected, only six, all of which are PAHs, were detected above the RSCOs. 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 soils, especially in low concentrations, may only reflect the composition of the trackbed fill material underlying the Site. As shown below and in Table 4, of the six PAHs detected above the RSCOs, benzo(a)anthracene (detected in four samples), chrysene (detected in four samples), benzo(b)fluoranthene (detected in one sample), benzo(k)fluoranthene (detected in one sample), benzo(a)pyrene (detected in six samples), and dibenzo(a,h)anthracene (detected in two samples), only chrysene, and benzo(a)pyrene exceed the ATSDR background ranges. Chrysene exceeded the background ranges in two samples and benzo(a)pyrene exceeded the background ranges in four samples.

Compound	Ranges of Concentrations (µg/kg)	RSCO (µg/kg)	ATSDR (µg/kg)
benzo(a)anthracene	ND - 1,800	224	169-59,000
chrysene	ND - 2,000	400	251-640
benzo(b)fluoranthene	ND - 5,900	1,100	15,000-62,000
benzo(k)fluoranthene	ND - 2,200	1,100	300-26,000
benzo(a)pyrene	ND - 2,200	61	165-220
dibenzo(a,h)anthracene	ND - 49J	14 or MDL	--

Notes: µg/kg - micrograms per kilogram (parts per billion)
ND - Not Detected
J - Estimated Concentration
MDL - Method Detection Limit

Metals - The NYSDEC TAGM states that if the calculated criteria for metals is less than the background values, the background values should be used as the cleanup objective. As shown below and in Table 5, 12 metals were detected above either the RSCOs or background levels developed during the Phase I RI at the Sunnyside Yard. However, one third of these (i.e., aluminum, antimony, arsenic, and cadmium) were each detected in only one boring and only slightly above background.

Metals Detected	Range of Concentrations (mg/kg)	Higher of RSCO or Background (mg/kg)
Aluminum	2,130 - 4,940	4,770
Antimony	ND - 20.4	2.4
Arsenic	ND - 17.1	7.5
Cadmium	ND - 4.4	1
Chromium	6.5 - 39.8	13
Copper	7.5 - 432	25
Iron	6,340 - 45,700	11,200
Lead	2.3 - 610	500
Manganese	120 - 788	224
Nickel	ND - 34	13
Selenium	ND - 5	2
Zinc	16 - 374	22

Notes: mg/kg - milligrams per kilogram (parts per million)
ND - Not Detected

Polychlorinated Biphenyls - As shown in Table 6, PCBs were detected in 16 of the 19 soil samples collected. However, concentrations detected were less than or equal to 460 µg/kg in 15 of the 16 samples. Only one sample (HST-2[0-2] at a concentration of 2,000 µg/kg) exceeded the RSCO of 1,000 µg/kg (Figure 2). The Environmental Protection Agency's TSCA requirements do not apply to PCBs at concentrations less than 50 mg/kg (50,000 µg/kg). As stated in the "Guidance on Remedial Actions for Superfund Sites with PCB Contamination" (USEPA, 1990), in order to achieve conditions which are protective of human health and the environment, the USEPA recommends a preliminary remediation goal for PCBs in soils of 25 mg/kg (25,000 µg/kg) at industrial sites. Although the RSCO is slightly exceeded for this sample, the soil concentration is well below the remediation goal. In addition, it should be noted that discussions are currently underway with the NYSDEC requesting a PCB action level of 25,000 µg/kg for all soils located within the Sunnyside Yard.

4.4.2 Waste Characterization

The soil to be excavated at the Site was evaluated to determine disposal and/or reuse options.

No VOC or SVOC total constituent result exceeded the "20-times" test. As a result, it is impossible to exceed the TC level and, therefore, the waste classification is considered non-hazardous.

All PCB concentrations were less than 50 parts per million and, therefore, the waste characterization is considered non-hazardous under New York State (6NYCRR371) or Toxic Substance Control Act (40CFR761).

Three samples were submitted for pesticide analysis using TCLP for extraction. No pesticides were detected in any of the three samples (Table 7), therefore, the waste classification is considered nonhazardous.

Lead was the only inorganic constituent to fail the "20-times" rule for the TC and only in six samples. Toxicity characteristic analyses for lead (Table 8) was performed on these six samples and all six were found to be below the regulatory limit and, therefore, the waste classification is considered nonhazardous.

Although most of the sample results were considered nonhazardous based on the "20-times" rule, landfill permit requirements may mandate that toxicity characteristic results be submitted. If soil is to be disposed offsite, based on the landfill requirements, analysis for RCRA characteristics (including TCLP) may be required prior to disposal.

4.5 Ground-Water Quality

To define current ground-water quality in the area of the proposed HSTF S&I Building, all the ground-water analytical results were compared to the current ground-water standards (TOGS 1.1.1 October 1993) and evaluated. The monitoring well locations are shown in Figure 3 and the analytical data are presented in Tables 9 through 13, and are summarized below.

Volatile Organic Compounds - Three VOCs, 1,2-dichloroethene (total), tetrachloroethene, and trichloroethene (all chlorinated solvents), were detected in ground-water samples from four monitoring wells (MW-63, MW-64, MW-65 and MW-67). However, only two monitoring wells contained VOCs in excess of the ground-water standard of 5 µg/L for these compounds. Tetrachloroethene at 7 µg/L was detected slightly above the standard in Monitoring Well MW-64, and both the primary and replicate sample from Monitoring Well MW-65 contained 1,2-dichloroethene at a concentration of 6 µg/L, again only slightly above the standard. Analytical results for VOCs are summarized in Table 9.

Based on ground-water flow patterns determined for the Site (i.e., generally westerly) and a knowledge of the compounds used at the Adjacent Property (Sunnyside Yard), these detections of chlorinated solvents are not attributable to Sunnyside Yard operations, but rather appear to be directly attributable to an off-site, upgradient/crossgradient source. Standard Motor Products, Inc. (SMP), which is located between Northern Boulevard and the Site, lies hydraulically

upgradient (east) of Monitoring Wells MW-63, MW-64, MW-65 and MW-67. As documented in the Remedial Investigation Report for Standard Motor Products, Inc. (Holzmacher, McLendon & Murrell, P.C., 1992), both soil and ground water beneath the SMP site have been contaminated with chlorinated solvents. The source of this contamination appears to be the SMP loading dock area, where drum washing took place and VOCs are present in soil at a depth greater than 20 feet bls.

As stated in the SMP RI Report, total VOCs were detected in SMP soil at concentrations of up to 35,300 µg/kg (35.3 ppm). However, many of the SMP soil samples were collected below the water table which suggests that the analytical results are more representative of ground-water quality. Known contamination reportedly extends to a depth of greater than 20 feet bls at the SMP Site (Holzmacher, McLendon & Murrell, P.C., 1992). All six wells installed on the SMP site contained VOCs. A total of ten different VOCs (including chlorinated solvents) were detected beneath the SMP site (Holzmacher, McLendon & Murrell, P.C., 1992). These solvents, which include the VOCs detected in Monitoring Wells MW-63, MW-64, MW-65 and MW-67, were detected in concentrations greater than those found in MW-63, MW-64, MW-65 and MW-67. In addition, the RI Report for SMP concluded that the contaminants detected at that site have migrated radially outward from the SMP loading dock in both stormwater runoff and ground water. Water-level data collected by Roux Associates indicate that ground water is flowing west/northwest from the SMP Site. However, the water table is nearly flat beneath this area (Figure 3), causing the VOC plume to spread radially outward from its source toward the northern part of the proposed HSTF S&I Building footprint.

It is important to note that the NYSDEC is aware of the contamination source at the SMP Site, removal actions were previously undertaken, the compounds appear to be attenuating over time and the NYSDEC and SMP are currently negotiating an Order on Consent to completely address the situation. In addition, there is no evidence to suggest soil contamination occurs on the Site or the Adjacent Property as a result of the SMP Site contamination.

Semivolatile Organic Compounds - Sixteen SVOCs were detected in the ground-water samples, however, none were detected above the corresponding ground-water standards. Three SVOCs [benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene], all PAHs, were detected at concentrations above the corresponding ground-water guidance value of 0.002 µg/L. Analytical results for SVOCs are summarized in Table 10.

Metals - Six metals (iron, magnesium, manganese, selenium, sodium and zinc) were detected in ground-water samples above the corresponding ground-water standard or guidance value. However, many of these detections are representative of upgradient ground-water conditions in this industrialized area, or are naturally occurring metals related to anoxic conditions (i.e., manganese and iron) and/or historic salt-water intrusion of the aquifer (i.e., sodium). Therefore, metals detected above ground-water standards (or guidance values) but within background ranges developed during the Phase II RI at the Sunnyside Yard are considered to be attributable to natural conditions and not related to activities at the Site or Adjacent Property.

With the exception of Monitoring Wells MW-57 and MW-67, manganese exceeded the background range in all wells sampled, selenium slightly exceeded the ground-water standard of 10 µg/L in only one sample, and zinc exceeded the ground-water standard of 300 µg/L in only one sample. Analytical results for metals, including ground-water standards and background ranges, are summarized in Table 11.

Polychlorinated Biphenyls - PCBs were not detected in ground water. Analytical results for PCBs are summarized in Table 12.

Sewer Discharge Parameters - Under Title 15 of the Rules of the City of New York Chapter 19 (Sewer Use Regulations) the New York City Department of Environmental Protection (NYCDEP) provides discharge limits for various chemical and physical parameters. To preliminarily evaluate ground-water effluent handling options should dewatering be required during construction, Roux Associates collected and analyzed four ground-water samples for these sewer discharge parameters typically requested by the NCDEP. These results are summarized in Table 11 and Table 13 and discussed below.

TSS ranged from 10 mg/L in sample MW-66 to 358 mg/L in sample MW-67. Only one sample (MW-67) exceeded the discharge limit (350 mg/L) for TSS. BOD and oil & grease were only detected in sample MW-68 at concentrations of 8 mg/L and 7.6 mg/L, respectively, which are well below the discharge limit of 50 mg/L. Additionally, petroleum hydrocarbons were detected in sample MW-68 at a concentration of 20.5 mg/L, which is well below the sewer discharge limit of 50 mg/L. Since petroleum hydrocarbons were detected in MW-68, additional DRO analysis was performed and indicates that the petroleum most closely resembles diesel fuel. Cyanide was not detected in the four samples analyzed and other regulated toxic metal concentrations were well below the permissible maximum concentration for sewer discharge.

4.6 Site Reconnaissance

No potential ACM or evidence of ACM was observed on the Site.

The only painted surfaces observed at the Site include a light pole and catenary poles. The lead content in these painted surfaces is unknown.

5.0 SUMMARY AND CONCLUSIONS

In summary, the analytical results for soil indicate the following:

- no VOCs were detected in soil above the RSCOs;
- six SVOCs (all of which were PAHs) were detected in soil above the RSCOs, however, only two PAHs (benzo[a]pyrene and chrysene) exceeded the ATSDR background ranges for PAHs in urban soils;
- twelve metals were detected in soil above the RSCOs or Sunnyside Yard background ranges, however, four were detected in only one sample each;
- PCBs were detected in one sample slightly above the RSCOs but well below the Sunnyside Yard action level currently being negotiated with the NYSDEC;
- no lead or pesticides were detected above toxicity characteristic regulatory levels; and
- for disposal purposes, the soils analyzed are classified as nonhazardous.

The analytical results for ground water indicate the following:

- two VOCs were detected above the ground-water standard (and are attributable to an off-site source);
- no SVOCs were detected above the ground-water standard;
- three metals were detected above both the Sunnyside Yard background and the ground-water standard; and
- no PCBs were detected in ground water.

As part of the construction of the S&I Facility, soils from the Site will be excavated and disposed in accordance with applicable State and Federal regulations or reused elsewhere in the Yard as permitted by the NYSDEC.

Based on the estimated depth of construction for the proposed HSTF S&I Building and current ground-water elevations, it appears likely that some dewatering may be necessary during construction. A construction plan will be developed and submitted separately to the NYSDEC which will address the following:

- handling, storage, and final disposition of soils excavated during the proposed HSTF S&I Building project;
- worker health and safety issues;
- ground-water issues (i.e., classification, treatment, disposal, etc.) should dewatering be necessary during construction; and
- isolating the separate-phase petroleum accumulation from the construction area if dewatering is necessary.

6.0 REPORT LIMITATIONS

Information and conclusions presented in this Limited Phase II Environmental Site Assessment report, including the appendix attached hereto, represents the results of Roux Associates' assessment to identify the potential presence of significant environmental issues affecting the property allocated for the HSTF S&I Building. The conclusions and recommendations presented herein represent the application of a variety of technical disciplines to material facts and conditions associated with the subject property and to environmental laws and regulations. Many of these facts, conditions and regulations are subject to change over time; accordingly, the conclusions and recommendations must be considered within this context. The assessment activities took place between April 1996 and May 1996.

Roux Associates has performed this environmental assessment in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. There is no warrantee, expressed or implied, that the user of this environmental assessment and report will qualify for the Innocent Landowner Defense as provided through the Superfund Amendments and Reauthorization Act.

Roux Associates shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld or not fully disclosed at the time this evaluation was performed.

This environmental assessment and report is not an appraisal or property value judgment. Roux Associates will not be held liable for any use of the assessment and report which results in property value loss or gain.

The report has been prepared for the exclusive use of the client named herein and Kalkines, Arky, Zall & Bernstein for specific application to the proposed project covered in this study. Any third party use of this report is the sole responsibility of the client.

Respectfully Submitted,

ROUX ASSOCIATES, INC.

Harry Gregory
Project Hydrogeologist/
Project Manager

Joseph D. Duminuco
Principal Hydrogeologist

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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	--	PVC	0.020	27	14 - 24	11 - 27	4 - 11	0 - 4	NM
MW-25(d)	11/17/90	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	--	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	--	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	--	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	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	NA	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	4/16/96	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

SS - Stainless steel continuous slot.
PVC - Polyvinyl chloride schedule 40.
(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. Summary of Water-Level Elevations and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

May 2 and 3, 1996

Well Designation	Measuring Point Elevation (ft above NAVD 1988 mean sea level)	Depth to Product (ft below measuring point)	Depth to Water (ft below measuring point)	Product Thickness (ft)	Water-Level Elevation (ft relative to mean sea level)
MW-13	17.3	--	3.03	--	14.27
MW-17	19.51	4.14	6.83	2.69	15.03 *
MW-19	20.13	--	6.97	--	13.16
MW-20	19.09	4.06	4.36	0.30	14.99 *
MW-21	19.6	--	4.27	--	15.33
MW-22	18.2	3.14	3.22	0.08	15.05
MW-23D	19.19	--	4.53	--	14.66
MW-25A	25.28	--	9.40	--	15.88
MW-27	21.5	--	10.45	--	11.05
MW-28	18.22	--	8.09	--	10.13
MW-29	12.29	--	3.86	--	8.43
MW-30	16.39	--	7.17	--	9.22
MW-31	14.35	--	4.34	--	10.01
MW-34	28.96	--	13.98	--	14.98
MW-35	18.68	--	5.22	--	13.46
MW-36	20.01	6.09	7.7	1.61	13.72 *
MW-37	17.87	--	5.2	--	12.67
MW-38D	20.27	--	5.89	--	14.38
MW-39D	20.12	--	6.4	--	13.72
MW-40D	21.59	--	6.44	--	15.15
MW-41	14.98	--	3.89	--	11.09
MW-42	15.71	--	6.2	--	9.51
MW-43	15.14	--	5.72	--	9.42
MW-44D	14.27	--	5	--	9.27
MW-45	22.64	--	12.04	--	10.60
MW-46	26.51	--	11.28	--	15.23
MW-47	27.78	--	7.22	--	20.56
MW-48D	28.97	--	10.82	--	18.15
MW-49	19.17	--	5.29	--	13.88
MW-50	19	4.22	7.82	3.60	14.33 *
MW-51	19.23	4.21	4.22	0.01	15.02 *
MW-52	18.02	3.28	3.81	0.53	14.67 *
MW-53	20.16	4.87	7.16	2.29	15.00 *
MW-54	19.35	4.07	5.16	1.09	15.14 *
MW-55	19.27	--	4.15	--	15.12
MW-56	21.62	--	6.47	--	15.15
MW-57	21.98	--	6.9	--	15.08
MW-58	18.37	--	3.25	--	15.12

Table 2. Summary of Water-Level Elevations and Separate-Phase Petroleum Thickness Measurements, Sunnyside Yard, Queens, New York.

Well Designation	Measuring Point Elevation (ft above NAVD 1988 mean sea level)	Depth to Product (ft below measuring point)	Depth to Water (ft below measuring point)	Product Thickness (ft)	Water-Level Elevation (ft relative to mean sea level)
		May 2 and 3, 1996			
MW-59	21.36	--	6.22	--	15.14
MW-60	23.31	8.14	8.82	0.68	15.08 *
MW-61	30.95	--	14.65	--	16.30
MW-62D	30.61	--	14.98	--	15.63
MW-63	20.92	--	5.87	--	15.05
MW-64	21.55	--	6.16	--	15.39
MW-65	21.02	--	5.35	--	15.67
MW-66	22.3	--	6.79	--	15.51
MW-67	22.46	--	7.57	--	14.89
MW-68	25.38	--	9.93	--	15.45
RW-2	19.69	--	NM	--	--
TP-6	18.92	--	NM	--	--
TP-7	20.96	--	NM	--	--

-- - No measurable product
NM - Not measured
* - Water-Level elevations corrected for presence of separate-phase petroleum. Correction assumes density of 0.874 (average specific gravity of petroleum samples collected at the Yard).

Table 3. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	HST-1 2-4 4/19/96	HST-2 0-2 4/17/96	HST-3 0-2 4/18/96	HST-3 4.5-6.5 4/18/96	HST-4 0-2 4/19/96
Benzene	--	6 U	29 U	6 U	26 U	29 U	5 U
Toluene	1,500	6 U	29 U	6 U	13 J	29 U	5 U
Ethylbenzene	5,500	6 U	29 U	6 U	160	140	5 U
1,1,1-Trichloroethane	--	6 U	29 U	6 U	26 U	29 U	5 U
1,1,2,2-Tetrachloroethane	--	6 U	29 U	6 U	26 U	29 U	5 U
1,1,2-Trichloroethane	--	6 U	29 U	6 U	26 U	29 U	5 U
1,1-Dichloroethane	--	6 U	29 U	6 U	26 U	29 U	5 U
1,1-Dichloroethene	--	6 U	29 U	6 U	26 U	29 U	5 U
1,2-Dichloroethane	--	6 U	29 U	6 U	26 U	29 U	5 U
1,2-Dichloroethene (total)	--	6 U	29 U	6 U	26 U	29 U	5 U
1,2-Dichloropropane	--	6 U	29 U	6 U	26 U	29 U	5 U
2-Butanone	300	11 U	59 U	11 U	53 U	57 U	11 U
2-Hexanone	--	11 U	59 U	11 U	53 U	57 U	11 U
4-Methyl-2-Pentanone	--	11 U	59 U	11 U	53 U	57 U	11 U
Acetone	200	40	180 B	26 B	180 B	160 B	12
Bromodichloromethane	--	6 U	29 U	6 U	26 U	29 U	5 U
Bromoform	--	6 U	29 U	6 U	26 U	29 U	5 U
Bromomethane	--	11 U	59 U	11 U	53 U	57 U	11 U
Carbon Disulfide	--	6 U	29 U	6 U	26 U	29 U	5 U
Carbon Tetrachloride	--	6 U	29 U	6 U	26 U	29 U	5 U
Chlorobenzene	--	6 U	29 U	6 U	26 U	29 U	5 U
Chloroethane	--	11 U	59 U	11 U	53 U	57 U	11 U
Chloroform	300	6 U	24 J	6 U	26 U	22 J	5 U
Chloromethane	--	11 U	59 U	11 U	53 U	57 U	11 U
cis-1,3-Dichloropropene	--	6 U	29 U	6 U	26 U	29 U	5 U
Dibromochloromethane	--	6 U	29 U	6 U	26 U	29 U	5 U
Methylene Chloride	100	7	36	2 JB	26 U	29 U	5 U

Table 3. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	HST-1 2-4 4/19/96	HST-2 0-2 4/17/96	HST-3 0-2 4/18/96	HST-3 4.5-6.5 4/18/96	HST-4 0-2 4/19/96
Styrene	--	6 U	29 U	6 U	26 U	29 U	5 U
Tetrachloroethene	--	6 U	29 U	6 U	26 U	29 U	5 U
trans-1,3-Dichloropropene	--	6 U	29 U	6 U	26 U	29 U	5 U
Trichloroethene	--	6 U	29 U	6 U	26 U	29 U	5 U
Vinyl Acetate	--	6 U	29 U	6 U	26 U	29 U	5 U
Vinyl Chloride	--	11 U	59 U	11 U	53 U	57 U	11 U
Xylene (total)	1,200	6 U	29 U	6 U	1000	370	5 U

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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 Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-4 Sample Depth (ft bls): 4-6 Sample Date: 4/19/96	Sample Designation: HST-5 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-5 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96	Sample Designation: HST-6 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-6 Sample Depth (ft bls): 7-9 Sample Date: 4/19/96	Sample Designation: HST-7 Sample Depth (ft bls): 0-2 Sample Date: 4/18/96
Benzene	--	5 U	5 U	6 U	5 U	6 U	6 U
Toluene	1,500	5 U	5 U	6 U	5 U	6 U	6 U
Ethylbenzene	5,500	5 U	5 U	6 U	5 U	6 U	6 U
1,1,1-Trichloroethane	--	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane	--	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	--	5 U	5 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	--	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	--	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	--	5 U	5 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	--	5 U	5 U	6 U	5 U	6 U	6 U
2-Butanone	300	11 U	11 U	11 U	11 U	12 U	11 U
2-Hexanone	--	11 U	11 U	11 U	11 U	12 U	11 U
4-Methyl-2-Pentanone	--	11 U	11 U	11 U	11 U	12 U	11 U
Acetone	200	68 B	15 B	18 B	39 B	43 B	12 B
Bromodichloromethane	--	5 U	5 U	6 U	5 U	6 U	6 U
Bromoform	--	5 U	5 U	6 U	5 U	6 U	6 U
Bromomethane	--	11 U	11 U	11 U	11 U	12 U	11 U
Carbon Disulfide	--	5 U	5 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride	--	5 U	5 U	6 U	5 U	6 U	6 U
Chlorobenzene	--	5 U	5 U	6 U	5 U	6 U	6 U
Chloroethane	--	11 U	11 U	11 U	11 U	12 U	11 U
Chloroform	300	5 U	4 J	4 J	5 U	6 U	5 J
Chloromethane	--	11 U	11 U	11 U	11 U	12 U	11 U
cis-1,3-Dichloropropene	--	5 U	5 U	6 U	5 U	6 U	6 U
Dibromochloromethane	--	5 U	5 U	6 U	5 U	6 U	6 U
Methylene Chloride	100	10	5 U	2 JB	6	6	6 U

Table 3. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	HST-4 4-6 4/19/96	HST-5 0-2 4/17/96	HST-5 5-7 4/17/96	HST-6 0-2 4/19/96	HST-6 7-9 4/19/96	HST-7 0-2 4/18/96
Styrene	--	5 U	5 U	6 U	5 U	6 U	6 U
Tetrachloroethene	--	5 U	5 U	6 U	5 U	6 U	6 U
trans-1,3-Dichloropropene	--	5 U	5 U	6 U	5 U	6 U	6 U
Trichloroethene	--	5 U	5 U	6 U	5 U	6 U	6 U
Vinyl Acetate	--	5 U	5 U	6 U	5 U	6 U	6 U
Vinyl Chloride	--	11 U	11 U	11 U	11 U	12 U	11 U
Xylene (total)	1,200	5 U	5 U	6 U	5 U	6 U	6 U

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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 Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-7 Sample Depth (ft bls): 6-8 Sample Date: 4/18/96	HST-8 0-2 4/19/96	HST-8 6-8 4/19/96	TP-6 0-2 4/17/96	TP-6 3-5 4/17/96	TP-7 0-2 4/17/96
Benzene	--	5 U	5 U	5 U	5 U	6 U	5 U
Toluene	1,500	5 U	5 U	5 U	5 U	6 U	0.8 J
Ethylbenzene	5,500	5 U	5 U	5 U	5 U	6 U	5 U
1,1,1-Trichloroethane	--	5 U	5 U	5 U	5 U	6 U	5 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	5 U	5 U	6 U	5 U
1,1,2-Trichloroethane	--	5 U	5 U	5 U	5 U	6 U	5 U
1,1-Dichloroethane	--	5 U	5 U	5 U	5 U	6 U	5 U
1,1-Dichloroethene	--	5 U	5 U	5 U	5 U	6 U	5 U
1,2-Dichloroethane	--	5 U	5 U	5 U	5 U	6 U	5 U
1,2-Dichloroethene (total)	--	5 U	5 U	5 U	5 U	6 U	5 U
1,2-Dichloropropane	--	5 U	5 U	5 U	5 U	6 U	5 U
2-Butanone	300	10 U	11 U	11 U	10 U	11 U	11 U
2-Hexanone	--	10 U	11 U	11 U	10 U	11 U	11 U
4-Methyl-2-Pentanone	--	10 U	11 U	11 U	10 U	11 U	11 U
Acetone	200	12 B	14	47 B	26 B	25 B	15 B
Bromodichloromethane	--	5 U	5 U	5 U	5 U	6 U	5 U
Bromoform	--	5 U	5 U	5 U	5 U	6 U	5 U
Bromomethane	--	10 U	11 U	11 U	10 U	11 U	11 U
Carbon Disulfide	--	5 U	5 U	5 U	5 U	6 U	5 U
Carbon Tetrachloride	--	5 U	5 U	5 U	5 U	6 U	5 U
Chlorobenzene	--	5 U	5 U	5 U	5 U	6 U	5 U
Chloroethane	--	10 U	11 U	11 U	10 U	11 U	11 U
Chloroform	300	5 U	5 U	5 U	5 U	6 U	5 U
Chloromethane	--	10 U	11 U	11 U	10 U	11 U	11 U
cis-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	6 U	5 U
Dibromochloromethane	--	5 U	5 U	5 U	5 U	6 U	5 U
Methylene Chloride	100	5 U	5 U	7	2 JB	2 JB	2 JB

Table 3. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

	Sample Designation:	HST-7	HST-8	HST-8	TP-6	TP-6	TP-7
	Sample Depth (ft bls):	6-8	0-2	6-8	0-2	3-5	0-2
	Sample Date:	4/18/96	4/19/96	4/19/96	4/17/96	4/17/96	4/17/96
Parameter (Concentrations in µg/kg)	**NYS RSCOs**						
Styrene	--	5 U	5 U	5 U	5 U	6 U	5 U
Tetrachloroethene	--	5 U	5 U	5 U	5 U	6 U	5 U
trans-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	6 U	5 U
Trichloroethene	--	5 U	5 U	5 U	5 U	6 U	5 U
Vinyl Acetate	--	5 U	5 U	5 U	5 U	6 U	5 U
Vinyl Chloride	--	10 U	11 U	11 U	10 U	11 U	11 U
Xylene (total)	1,200	5 U	5 U	5 U	5 U	6 U	2 J

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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 Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

	Sample Designation:	TP-7
	Sample Depth (ft bls):	5-7
	Sample Date:	4/17/96
Parameter (Concentrations in µg/kg)	**NYS RSCOs**	
Benzene	--	6 U
Toluene	1,500	6 U
Ethylbenzene	5,500	6 U
1,1,1-Trichloroethane	--	6 U
1,1,2,2-Tetrachloroethane	--	6 U
1,1,2-Trichloroethane	--	6 U
1,1-Dichloroethane	--	6 U
1,1-Dichloroethene	--	6 U
1,2-Dichloroethane	--	6 U
1,2-Dichloroethene (total)	--	6 U
1,2-Dichloropropane	--	6 U
2-Butanone	300	12 U
2-Hexanone	--	12 U
4-Methyl-2-Pentanone	--	12 U
Acetone	200	18 B
Bromodichloromethane	--	6 U
Bromoform	--	6 U
Bromomethane	--	12 U
Carbon Disulfide	--	6 U
Carbon Tetrachloride	--	6 U
Chlorobenzene	--	6 U
Chloroethane	--	12 U
Chloroform	300	6 U
Chloromethane	--	12 U
cis-1,3-Dichloropropene	--	6 U
Dibromochloromethane	--	6 U
Methylene Chloride	100	2 JB

Table 3. Analytical Results for Volatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

	Sample Designation:	TP-7
	Sample Depth (ft bls):	5-7
	Sample Date:	4/17/96
Parameter (Concentrations in µg/kg)	**NYS RSCOs**	
Styrene	--	6 U
Tetrachloroethene	--	6 U
trans-1,3-Dichloropropene	--	6 U
Trichloroethene	--	6 U
Vinyl Acetate	--	6 U
Vinyl Chloride	--	12 U
Xylene (total)	1,200	6 U

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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 Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	HST-1 2-4 4/19/96	HST-2 0-2 4/17/96	HST-3 0-2 4/18/96	HST-3 4.5-6.5 4/18/96
1,2,4-Trichlorobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
1,2-Dichlorobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
1,3-Dichlorobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
1,4-Dichlorobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,2'-oxybis(1-Chloropropane)	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,4,5-Trichlorophenol	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
2,4,6-Trichlorophenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,4-Dichlorophenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,4-Dimethylphenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,4-Dinitrophenol	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
2,4-Dinitrotoluene	--	--	370 U	330 U	1500 U	8700 U	1600 U
2,6-Dinitrotoluene	--	--	370 U	330 U	1500 U	8700 U	1600 U
2-Chloronaphthalene	--	--	370 U	330 U	1500 U	8700 U	1600 U
2-Chlorophenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
2-Methylnaphthalene	36,400	--	750	370	250 J	27000	8400
2-Methylphenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
2-Nitroaniline	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
2-Nitrophenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
3,3'-Dichlorobenzidine	NA	--	740 U	660 U	3100 U	17000 U	3100 U
3-Nitroaniline	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
4,6-Dinitro-2-methylphenol	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
4-Bromophenyl-phenylether	--	--	370 U	330 U	1500 U	8700 U	1600 U
4-Chloro-3-methylphenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
4-Chloroaniline	--	--	370 U	330 U	1500 U	8700 U	1600 U
4-Chlorophenyl-phenylether	--	--	370 U	330 U	1500 U	8700 U	1600 U
4-Methylphenol	900	--	370 U	330 U	110 J	8700 U	1600 U
4-Nitroaniline	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
4-Nitrophenol	50,000	--	1800 U	1600 U	7400 U	42000 U	7500 U

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-1 Sample Depth (ft bls): 2-4 Sample Date: 4/19/96	Sample Designation: HST-2 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-3 Sample Depth (ft bls): 0-2 Sample Date: 4/18/96	Sample Designation: HST-3 Sample Depth (ft bls): 4.5-6.5 Sample Date: 4/18/96
Acenaphthene	41,000	--	370 U	330 U	160 J	8700 U	440 J
Acenaphthylene	50,000	--	370 U	330 U	940 J	8700 U	1600 U
Anthracene	--	--	13 J	290 J	1000 J	8700 U	820 J
Benzo(a)anthracene	224	59,000	45 J	82 J	1800	8700 U	1600 U
Benzo(a)pyrene	61	220	42 J	89 J	2200	8700 U	110 J
Benzo(b)fluoranthene	1,100	62,000	57 J	120 J	5900	8700 U	120 J
Benzo(g,h,i)perylene	--	47,000	10 J	14 J	1300 J	8700 U	140 J
Benzo(k)fluoranthene	1,100	26,000	32 J	110 J	2200	8700 U	80 J
Benzoic acid	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
Benzyl alcohol	--	--	370 U	330 U	1500 U	8700 U	1600 U
bis(2-Chloroethoxy)methane	--	--	370 U	330 U	1500 U	8700 U	1600 U
bis(2-Chloroethyl)ether	--	--	370 U	330 U	1500 U	8700 U	1600 U
bis(2-Ethylhexyl)phthalate	50,000	--	370 U	330 U	580 JB	3900 JB	76 JB
Butylbenzylphthalate	50,000	--	36 J	330 U	77 J	8700 U	1600 U
Chrysene	400	640	68 J	100 J	2000	8700 U	97 J
Di-n-butylphthalate	8,100	--	30 JB	330 U	180 JB	8700 U	1600 U
Di-n-octylphthalate	50,000	--	370 U	330 U	1500 U	8700 U	230 J
Dibenzo(a,h)anthracene	14 or MDL	--	370 U	330 U	1500 U	8700 U	46 J
Dibenzofuran	6,200	--	9 J	330 U	230 J	8700 U	1600 U
Diethylphthalate	7,100	--	11 J	330 U	1500 U	8700 U	1600 U
Dimethylphthalate	2,000	--	370 U	330 U	1500 U	8700 U	1600 U
Fluoranthene	--	166,000	73 J	200 J	2700	8700 U	1600 U
Fluorene	50,000	--	370 U	200 J	190 J	7100 J	1800
Hexachlorobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
Hexachlorobutadiene	--	--	370 U	330 U	1500 U	8700 U	1600 U
Hexachlorocyclopentadiene	--	--	370 U	330 U	1500 U	8700 U	1600 U
Hexachloroethane	--	--	370 U	330 U	1500 U	8700 U	1600 U
Indeno(1,2,3-cd)pyrene	3,200	61,000	11 J	13 J	1100 J	8700 U	110 J

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	HST-1 2-4 4/19/96	HST-2 0-2 4/17/96	HST-3 0-2 4/18/96	HST-3 4.5-6.5 4/18/96
Isophorone	--	--	370 U	330 U	1500 U	8700 U	1600 U
N-Nitroso-di-n-propylamine	--	--	370 U	330 U	1500 U	8700 U	1600 U
N-Nitrosodiphenylamine (1)	--	--	370 U	330 U	1500 U	8700 U	1600 U
Naphthalene	13,000	--	200 J	330 U	320 J	5100 J	2300
Nitrobenzene	--	--	370 U	330 U	1500 U	8700 U	1600 U
Pentachlorophenol	--	--	1800 U	1600 U	7400 U	42000 U	7500 U
Phenanthrene	50,000	--	68 J	330 U	1200 J	12000	3400
Phenol	--	--	370 U	330 U	1500 U	8700 U	1600 U
Pyrene	--	147,000	72 J	190 J	3800	1100 J	280 J

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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
ATSDR - Background levels taken from Table 5-2, Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-4 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-4 Sample Depth (ft bls): 4-6 Sample Date: 4/19/96	Sample Designation: HST-5 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-5 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96	Sample Designation: HST-6 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96
1,2,4-Trichlørobenzene	--	--	350 U	380 U	350 U	380 U	350 U
1,2-Dichlorobenzene	--	--	350 U	380 U	350 U	380 U	350 U
1,3-Dichlorobenzene	--	--	350 U	380 U	350 U	380 U	350 U
1,4-Dichlorobenzene	--	--	350 U	380 U	350 U	380 U	350 U
2,2'-oxybis(1-Chloropropane)	--	--	350 U	380 U	350 U	380 U	350 U
2,4,5-Trichlorophenol	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
2,4,6-Trichlorophenol	--	--	350 U	380 U	350 U	380 U	350 U
2,4-Dichlorophenol	--	--	350 U	380 U	350 U	380 U	350 U
2,4-Dimethylphenol	--	--	350 U	380 U	350 U	380 U	350 U
2,4-Dinitrophenol	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
2,4-Dinitrotoluene	--	--	350 U	380 U	350 U	380 U	350 U
2,6-Dinitrotoluene	--	--	350 U	380 U	350 U	380 U	350 U
2-Chloronaphthalene	--	--	350 U	380 U	350 U	380 U	350 U
2-Chlorophenol	--	--	350 U	380 U	350 U	380 U	350 U
2-Methylnaphthalene	36,400	--	350 U	380 U	43 J	380 U	17 J
2-Methylphenol	--	--	350 U	380 U	350 U	380 U	350 U
2-Nitroaniline	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
2-Nitrophenol	--	--	350 U	380 U	350 U	380 U	350 U
3,3'-Dichlorobenzidine	NA	--	690 U	750 U	710 U	770 U	700 U
3-Nitroaniline	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
4,6-Dinitro-2-methylphenol	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
4-Bromophenyl-phenylether	--	--	350 U	380 U	350 U	380 U	350 U
4-Chloro-3-methylphenol	--	--	350 U	380 U	350 U	380 U	350 U
4-Chloroaniline	--	--	350 U	380 U	350 U	380 U	350 U
4-Chlorophenyl-phenylether	--	--	350 U	380 U	350 U	380 U	350 U
4-Methylphenol	900	--	350 U	16 J	350 U	380 U	350 U
4-Nitroaniline	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
4-Nitrophenol	50,000	--	1700 U	1800 U	1700 U	1900 U	1700 U

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-4 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-4 Sample Depth (ft bls): 4-6 Sample Date: 4/19/96	Sample Designation: HST-5 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-5 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96	Sample Designation: HST-6 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96
Acenaphthene	41,000	--	350 U	380 U	11 J	380 U	350 U
Acenaphthylene	50,000	--	350 U	380 U	95 J	380 U	7 J
Anthracene	--	--	7 J	380 U	110 J	380 U	7 J
Benzo(a)anthracene	224	59,000	18 J	380 U	190 J	5 J	52 J
Benzo(a)pyrene	61	220	17 J	380 U	150 J	380 U	51 J
Benzo(b)fluoranthene	1,100	62,000	22 J	380 U	640	5 J	100 J
Benzo(g,h,i)perylene	--	47,000	350 U	380 U	100 J	380 U	40 J
Benzo(k)fluoranthene	1,100	26,000	14 J	380 U	400	4 J	66 J
Benzoic acid	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
Benzyl alcohol	--	--	350 U	380 U	350 U	380 U	350 U
bis(2-Chloroethoxy)methane	--	--	350 U	380 U	350 U	380 U	350 U
bis(2-Chloroethyl)ether	--	--	350 U	380 U	350 U	380 U	350 U
bis(2-Ethylhexyl)phthalate	50,000	--	350 U	28 J	210 JB	33 JB	33 J
Butylbenzylphthalate	50,000	--	350 U	380 U	28 J	380 U	350 U
Chrysene	400	640	26 J	380 U	350	5 J	130 J
Di-n-butylphthalate	8,100	--	34 JB	23 JB	89 JB	61 JB	130 JB
Di-n-octylphthalate	50,000	--	350 U	66 J	350 U	380 U	350 U
Dibenzo(a,h)anthracene	14 or MDL	--	350 U	380 U	350 U	380 U	350 U
Dibenzofuran	6,200	--	350 U	380 U	61 J	380 U	8 J
Diethylphthalate	7,100	--	9 J	11 J	10 JB	12 JB	9 J
Dimethylphthalate	2,000	--	350 U	380 U	350 U	380 U	350 U
Fluoranthene	--	166,000	22 J	380 U	430	8 J	100 J
Fluorene	50,000	--	350 U	380 U	11 J	380 U	350 U
Hexachlorobenzene	--	--	350 U	380 U	350 U	380 U	350 U
Hexachlorobutadiene	--	--	350 U	380 U	350 U	380 U	350 U
Hexachlorocyclopentadiene	--	--	350 U	380 U	350 U	380 U	350 U
Hexachloroethane	--	--	350 U	380 U	350 U	380 U	350 U
Indeno(1,2,3-cd)pyrene	3,200	61,000	350 U	380 U	100 J	380 U	42 J

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-4 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-4 Sample Depth (ft bls): 4-6 Sample Date: 4/19/96	Sample Designation: HST-5 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-5 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96	Sample Designation: HST-6 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96
Isophorone	--	--	350 U	380 U	350 U	380 U	350 U
N-Nitroso-di-n-propylamine	--	--	350 U	380 U	350 U	380 U	350 U
N-Nitrosodiphenylamine (1)	--	--	350 U	380 U	350 U	380 U	350 U
Naphthalene	13,000	--	350 U	380 U	42 J	380 U	12 J
Nitrobenzene	--	--	350 U	380 U	350 U	380 U	350 U
Pentachlorophenol	--	--	1700 U	1800 U	1700 U	1900 U	1700 U
Phenanthrene	50,000	--	31 J	380 U	320 J	19 J	68 J
Phenol	--	--	350 U	380 U	350 U	380 U	350 U
Pyrene	--	147,000	21 J	380 U	460	8 J	100 J

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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
ATSDR - Background levels taken from Table 5-2, Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-6 Sample Depth (ft bls): 7-9 Sample Date: 4/19/96	Sample Designation: HST-7 Sample Depth (ft bls): 0-2 Sample Date: 4/18/96	Sample Designation: HST-7 Sample Depth (ft bls): 6-8 Sample Date: 4/18/96	Sample Designation: HST-8 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-8 Sample Depth (ft bls): 6-8 Sample Date: 4/19/96
1,2,4-Trichlorobenzene	--	--	380 U	350 U	360 U	350 U	370 U
1,2-Dichlorobenzene	--	--	380 U	350 U	360 U	350 U	370 U
1,3-Dichlorobenzene	--	--	380 U	350 U	360 U	350 U	370 U
1,4-Dichlorobenzene	--	--	380 U	350 U	360 U	350 U	370 U
2,2'-oxybis(1-Chloropropane)	--	--	380 U	350 U	360 U	350 U	370 U
2,4,5-Trichlorophenol	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
2,4,6-Trichlorophenol	--	--	380 U	350 U	360 U	350 U	370 U
2,4-Dichlorophenol	--	--	380 U	350 U	360 U	350 U	370 U
2,4-Dimethylphenol	--	--	380 U	350 U	360 U	350 U	370 U
2,4-Dinitrophenol	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
2,4-Dinitrotoluene	--	--	380 U	350 U	360 U	350 U	370 U
2,6-Dinitrotoluene	--	--	380 U	350 U	360 U	350 U	370 U
2-Chloronaphthalene	--	--	380 U	350 U	360 U	350 U	370 U
2-Chlorophenol	--	--	380 U	350 U	360 U	350 U	370 U
2-Methylnaphthalene	36,400	--	380 U	12 J	15 J	57 J	370 U
2-Methylphenol	--	--	380 U	350 U	360 U	350 U	370 U
2-Nitroaniline	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
2-Nitrophenol	--	--	380 U	350 U	360 U	350 U	370 U
3,3'-Dichlorobenzidine	NA	--	750 U	27 J	31 J	710 U	730 U
3-Nitroaniline	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
4,6-Dinitro-2-methylphenol	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
4-Bromophenyl-phenylether	--	--	380 U	350 U	360 U	350 U	370 U
4-Chloro-3-methylphenol	--	--	380 U	350 U	360 U	350 U	370 U
4-Chloroaniline	--	--	380 U	350 U	360 U	350 U	370 U
4-Chlorophenyl-phenylether	--	--	380 U	350 U	360 U	350 U	370 U
4-Methylphenol	900	--	380 U	350 U	360 U	350 U	370 U
4-Nitroaniline	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
4-Nitrophenol	50,000	--	1800 U	1700 U	1700 U	1700 U	1800 U

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-6 Sample Depth (ft bls): 7-9 Sample Date: 4/19/96	HST-7 0-2 4/18/96	HST-7 6-8 4/18/96	HST-8 0-2 4/19/96	HST-8 6-8 4/19/96
Acenaphthene	41,000	--	380 U	350 U	360 U	350 U	370 U
Acenaphthylene	50,000	--	380 U	200 J	150 J	80 J	370 U
Anthracene	--	--	380 U	120 J	130 J	84 J	370 U
Benzo(a)anthracene	224	59,000	380 U	390	400	300 J	370 U
Benzo(a)pyrene	61	220	380 U	440	320 J	490	370 U
Benzo(b)fluoranthene	1,100	62,000	380 U	1000	760	980	370 U
Benzo(g,h,i)perylene	--	47,000	380 U	89 J	60 J	86 J	370 U
Benzo(k)fluoranthene	1,100	26,000	380 U	680	540	520	370 U
Benzoic acid	--	--	1800 U	1700 U	1700 U	46 J	1800 U
Benzyl alcohol	--	--	380 U	350 U	360 U	350 U	370 U
bis(2-Chloroethoxy)methane	--	--	380 U	350 U	360 U	350 U	370 U
bis(2-Chloroethyl)ether	--	--	380 U	350 U	360 U	350 U	370 U
bis(2-Ethylhexyl)phthalate	50,000	--	16 J	31 JB	190 JB	37 J	17 J
Butylbenzylphthalate	50,000	--	380 U	11 J	18 J	350 U	370 U
Chrysene	400	640	380 U	550	550	640	370 U
Di-n-butylphthalate	8,100	--	29 JB	130 JB	80 JB	120 JB	26 JB
Di-n-octylphthalate	50,000	--	380 U	350 U	86 J	350 U	370 U
Dibenzo(a,h)anthracene	14 or MDL	--	380 U	49 J	360 U	9 J	370 U
Dibenzofuran	6,200	--	380 U	11 J	12 J	35 J	370 U
Diethylphthalate	7,100	--	380 U	350 U	10 JB	10 J	8 J
Dimethylphthalate	2,000	--	380 U	350 U	360 U	350 U	370 U
Fluoranthene	--	166,000	380 U	560	680	270 J	370 U
Fluorene	50,000	--	380 U	350 U	360 U	350 U	370 U
Hexachlorobenzene	--	--	380 U	350 U	360 U	350 U	370 U
Hexachlorobutadiene	--	--	380 U	350 U	360 U	350 U	370 U
Hexachlorocyclopentadiene	--	--	380 U	350 U	360 U	350 U	370 U
Hexachloroethane	--	--	380 U	350 U	360 U	350 U	370 U
Indeno(1,2,3-cd)pyrene	3,200	61,000	380 U	120 J	87 J	130 J	370 U

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: HST-6 Sample Depth (ft bls): 7-9 Sample Date: 4/19/96	HST-7 0-2 4/18/96	HST-7 6-8 4/18/96	HST-8 0-2 4/19/96	HST-8 6-8 4/19/96
Isophorone	--	--	380 U	350 U	360 U	350 U	370 U
N-Nitroso-di-n-propylamine	--	--	380 U	350 U	360 U	350 U	370 U
N-Nitrosodiphenylamine (1)	--	--	380 U	350 U	360 U	350 U	370 U
Naphthalene	13,000	--	380 U	14 J	14 J	60 J	370 U
Nitrobenzene	--	--	380 U	350 U	360 U	350 U	370 U
Pentachlorophenol	--	--	1800 U	1700 U	1700 U	1700 U	1800 U
Phenanthrene	50,000	--	380 U	100 J	120 J	160 J	370 U
Phenol	--	--	380 U	350 U	360 U	350 U	370 U
Pyrene	--	147,000	380 U	560	570	270 J	370 U

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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
ATSDR - Background levels taken from Table 5-2, Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: TP-6 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-6 Sample Depth (ft bls): 3-5 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96
1,2,4-Trichlorobenzene	--	--	350 U	360 U	350 U	370 U
1,2-Dichlorobenzene	--	--	350 U	360 U	350 U	370 U
1,3-Dichlorobenzene	--	--	350 U	360 U	350 U	370 U
1,4-Dichlorobenzene	--	--	350 U	360 U	350 U	370 U
2,2'-oxybis(1-Chloropropane)	--	--	350 U	360 U	350 U	370 U
2,4,5-Trichlorophenol	--	--	1700 U	1700 U	1700 U	1800 U
2,4,6-Trichlorophenol	--	--	350 U	360 U	350 U	370 U
2,4-Dichlorophenol	--	--	350 U	360 U	350 U	370 U
2,4-Dimethylphenol	--	--	350 U	360 U	350 U	370 U
2,4-Dinitrophenol	--	--	1700 U	1700 U	1700 U	1800 U
2,4-Dinitrotoluene	--	--	350 U	360 U	350 U	370 U
2,6-Dinitrotoluene	--	--	350 U	360 U	350 U	370 U
2-Chloronaphthalene	--	--	350 U	360 U	350 U	370 U
2-Chlorophenol	--	--	350 U	360 U	350 U	370 U
2-Methylnaphthalene	36,400	--	43 J	360 U	350 U	370 U
2-Methylphenol	--	--	350 U	360 U	350 U	370 U
2-Nitroaniline	--	--	1700 U	1700 U	1700 U	1800 U
2-Nitrophenol	--	--	350 U	360 U	350 U	370 U
3,3'-Dichlorobenzidine	NA	--	690 U	720 U	700 U	740 U
3-Nitroaniline	--	--	1700 U	1700 U	1700 U	1800 U
4,6-Dinitro-2-methylphenol	--	--	1700 U	1700 U	1700 U	1800 U
4-Bromophenyl-phenylether	--	--	350 U	360 U	350 U	370 U
4-Chloro-3-methylphenol	--	--	350 U	360 U	350 U	370 U
4-Chloroaniline	--	--	350 U	360 U	350 U	370 U
4-Chlorophenyl-phenylether	--	--	350 U	360 U	350 U	370 U
4-Methylphenol	900	--	350 U	360 U	350 U	370 U
4-Nitroaniline	--	--	1700 U	1700 U	1700 U	1800 U
4-Nitrophenol	50,000	--	1700 U	1700 U	1700 U	1800 U

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: TP-6 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-6 Sample Depth (ft bls): 3-5 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96
Acenaphthene	41,000	--	350 U	360 U	350 U	370 U
Acenaphthylene	50,000	--	93 J	360 U	18 J	7 J
Anthracene	--	--	92 J	360 U	16 J	7 J
Benzo(a)anthracene	224	59,000	180 J	4 J	38 J	18 J
Benzo(a)pyrene	61	220	140 J	8 J	32 J	16 J
Benzo(b)fluoranthene	1,100	62,000	610	10 J	96 J	31 J
Benzo(g,h,i)perylene	--	47,000	59 J	360 U	13 J	12 J
Benzo(k)fluoranthene	1,100	26,000	270 J	3 J	74 J	30 J
Benzoic acid	--	--	1700 U	1700 U	1700 U	1800 U
Benzyl alcohol	--	--	350 U	360 U	350 U	370 U
bis(2-Chloroethoxy)methane	--	--	350 U	360 U	350 U	370 U
bis(2-Chloroethyl)ether	--	--	350 U	360 U	350 U	370 U
bis(2-Ethylhexyl)phthalate	50,000	--	65 JB	99 JB	46 JB	99 JB
Butylbenzylphthalate	50,000	--	19 J	6 J	6 J	6 J
Chrysene	400	640	280 J	10 J	69 J	40 J
Di-n-butylphthalate	8,100	--	120 JB	38 JB	66 JB	57 JB
Di-n-octylphthalate	50,000	--	350 U	5 J	350 U	370 U
Dibenzo(a,h)anthracene	14 or MDL	--	350 U	360 U	350 U	370 U
Dibenzofuran	6,200	--	27 J	360 U	350 U	370 U
Diethylphthalate	7,100	--	10 JB	10 JB	9 JB	10 JB
Dimethylphthalate	2,000	--	350 U	360 U	350 U	370 U
Fluoranthene	--	166,000	300 J	12 J	64 J	37 J
Fluorene	50,000	--	350 U	360 U	350 U	370 U
Hexachlorobenzene	--	--	350 U	360 U	350 U	370 U
Hexachlorobutadiene	--	--	350 U	360 U	350 U	370 U
Hexachlorocyclopentadiene	--	--	350 U	360 U	350 U	370 U
Hexachloroethane	--	--	350 U	360 U	350 U	370 U
Indeno(1,2,3-cd)pyrene	3,200	61,000	63 J	360 U	18 J	12 J

Table 4. Analytical Results for Semivolatile Organic Compounds in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	ATSDR	Sample Designation: TP-6 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-6 Sample Depth (ft bls): 3-5 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 5-7 Sample Date: 4/17/96
Isophorone	--	--	350 U	360 U	350 U	370 U
N-Nitroso-di-n-propylamine	--	--	350 U	360 U	350 U	370 U
N-Nitrosodiphenylamine (1)	--	--	350 U	360 U	350 U	370 U
Naphthalene	13,000	--	32 J	360 U	350 U	370 U
Nitrobenzene	--	--	350 U	360 U	350 U	370 U
Pentachlorophenol	--	--	1700 U	1700 U	1700 U	1800 U
Phenanthrene	50,000	--	170 J	5 J	28 J	16 J
Phenol	--	--	350 U	360 U	350 U	370 U
Pyrene	--	147,000	310 J	9 J	56 J	30 J

µg/kg - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated value
B - Indicates that the analyte is found in the blanks as well as the sample, indicating possible contamination, and warns the data user to use caution when applying the results of this analyte
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
ATSDR - Background levels taken from Table 5-2, Draft Toxicological Profile for Polycyclic Aromatic Hydrocarbons

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-1 Sample Depth (ft bls): 2-4 Sample Date: 4/19/96	Sample Designation: HST-2 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96
Aluminum	SB	4770	4800	4940	3640
Antimony	SB	2.4	14.8 U	12.7 U	13 U
Arsenic	7.5 or SB	<1.2	3	3.3	13.2
Barium	300 or SB	32	49.2 U	42.4 U	112
Beryllium	0.16 or SB	<0.36	1.2 U	1.1 U	1.1 U
Cadmium	1 or SB	<1.1	1.2 U	1.1 U	4.4
Calcium	SB	6850	13900	5140	9170
Chromium	10 or SB	13	38.8	13.7	39.8
Cobalt	30 or SB	3.2	12.3 U	10.6 U	10.9 U
Copper	25 or SB	12	55.8	38.3	432
Iron	2,000 or SB	11200	13800	15000	45700
Lead**	500 or SB	8.8	225	137	610
Magnesium	SB	4260	2670	2630	2660
Manganese	SB	224	284	172	403
Mercury	0.1	<0.1	0.11 U	0.12 U	1.5
Nickel	13 or SB	11	31	11.4	34
Potassium	SB	861	1230 U	1420	1090 U
Selenium	2 or SB	<0.59	1.8	2.2	5
Silver	SB	<0.57	2.4 U	2.1 U	2.2 U
Sodium	SB	456	1230 U	1060 U	1090 U
Thallium	SB	<0.8	2.4 U	2.1 U	2.2 U
Vanadium	150 or SB	13	17	22.6	39
Zinc	20 or SB	22	66.8	48.7	374

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: HST-3 Sample Depth (ft bls): 0-2 Sample Date: 4/18/96	HST-3 4.5-6.5 4/18/96	HST-4 0-2 4/19/96
Aluminum	SB	4770	4260	2610	3140
Antimony	SB	2.4	12.5 U	12.1 U	20.4
Arsenic	7.5 or SB	<1.2	2.1 U	2 U	2.8
Barium	300 or SB	32	41.8 U	40.5 U	39.3 U
Beryllium	0.16 or SB	<0.36	1 U	1 U	0.98 U
Cadmium	1 or SB	<1.1	1 U	1 U	0.98 U
Calcium	SB	6850	1150	1010 U	982 U
Chromium	10 or SB	13	10.8	10	10.5
Cobalt	30 or SB	3.2	10.4 U	10.1 U	9.8 U
Copper	25 or SB	12	18.3	11.6	58.7
Iron	2,000 or SB	11200	9340	6730	8440
Lead**	500 or SB	8.8	18.2	5.9	428
Magnesium	SB	4260	2590	1340	1440
Manganese	SB	224	162	120	177
Mercury	0.1	<0.1	0.096 U	0.1 U	0.092 U
Nickel	13 or SB	11	12.9	8.1 U	7.8 U
Potassium	SB	861	1040 U	1010 U	982 U
Selenium	2 or SB	<0.59	1 U	1 U	1.7
Silver	SB	<0.57	2.1 U	2 U	2 U
Sodium	SB	456	1040 U	1010 U	982 U
Thallium	SB	<0.8	2.1 U	2 U	2 U
Vanadium	150 or SB	13	13.5	10.1 U	11.4
Zinc	20 or SB	22	40.3	48.6	48.1

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: HST-4 Sample Depth (ft bls): 4-6 Sample Date: 4/19/96	HST-5 0-2 4/17/96	HST-5 5-7 4/17/96
Aluminum	SB	4770	2780	3330	2250
Antimony	SB	2.4	13.2 U	10.3 U	12.5 U
Arsenic	7.5 or SB	<1.2	2.2 U	3.6	2.1 U
Barium	300 or SB	32	44 U	37.3	41.7 U
Beryllium	0.16 or SB	<0.36	1.1 U	0.86 U	1 U
Cadmium	1 or SB	<1.1	1.1 U	1	1 U
Calcium	SB	6850	1100 U	855 U	1040 U
Chromium	10 or SB	13	9.8	15.5	7
Cobalt	30 or SB	3.2	11 U	8.6 U	10.4 U
Copper	25 or SB	12	12	151	11.7
Iron	2,000 or SB	11200	7140	13400	6340
Lead**	500 or SB	8.8	12.2	95.3	7.6
Magnesium	SB	4260	1530	1670	1620
Manganese	SB	224	179	232	187
Mercury	0.1	<0.1	0.1 U	0.14	0.1 U
Nickel	13 or SB	11	10.9	13	8.3 U
Potassium	SB	861	1100 U	855 U	1040 U
Selenium	2 or SB	<0.59	1.1 U	1.7	1 U
Silver	SB	<0.57	2.2 U	1.7 U	2.1 U
Sodium	SB	456	1100 U	855 U	1040 U
Thallium	SB	<0.8	2.2 U	1.7 U	2.1 U
Vanadium	150 or SB	13	11 U	19	10.4 U
Zinc	20 or SB	22	16	79.9	26.3

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: HST-6 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-6 Sample Depth (ft bls): 7-9 Sample Date: 4/19/96	Sample Designation: HST-7 Sample Depth (ft bls): 0-2 Sample Date: 4/18/96
Aluminum	SB	4770	2730	2340	3560
Antimony	SB	2.4	10.2 U	11 U	11.1 U
Arsenic	7.5 or SB	<1.2	4.4	1.8 U	3.6
Barium	300 or SB	32	33.9 U	36.8 U	37 U
Beryllium	0.16 or SB	<0.36	0.85 U	0.92 U	0.92 U
Cadmium	1 or SB	<1.1	0.85 U	0.92 U	0.92 U
Calcium	SB	6850	848 U	920 U	925 U
Chromium	10 or SB	13	8.4	6.5	8.4
Cobalt	30 or SB	3.2	8.5 U	9.2 U	9.2 U
Copper	25 or SB	12	53.8	7.5	48.4
Iron	2,000 or SB	11200	8260	6740	8270
Lead**	500 or SB	8.8	54.8	2.3	17
Magnesium	SB	4260	1240	1250	1540
Manganese	SB	224	142	302	211
Mercury	0.1	<0.1	0.089 U	0.1 U	0.12
Nickel	13 or SB	11	8.4	7.4 U	17
Potassium	SB	861	848 U	920 U	925 U
Selenium	2 or SB	<0.59	1.4	0.92 U	1.3
Silver	SB	<0.57	1.7 U	1.8 U	1.8 U
Sodium	SB	456	848 U	920 U	925 U
Thallium	SB	<0.8	1.7 U	1.8 U	1.8 U
Vanadium	150 or SB	13	9.7	9.2 U	10.6
Zinc	20 or SB	22	21	29.4	74.2

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: HST-7 Sample Depth (ft bls): 6-8 Sample Date: 4/18/96	HST-8 0-2 4/19/96	HST-8 6-8 4/19/96
Aluminum	SB	4770	3700	3040	2130
Antimony	SB	2.4	11.4 U	12.2 U	11.3 U
Arsenic	7.5 or SB	<1.2	5.5	9.8	1.9 U
Barium	300 or SB	32	74.1	55.2	37.6 U
Beryllium	0.16 or SB	<0.36	0.95 U	1 U	0.94 U
Cadmium	1 or SB	<1.1	0.95 U	1 U	0.94 U
Calcium	SB	6850	1340	1020 U	939 U
Chromium	10 or SB	13	12	12	7
Cobalt	30 or SB	3.2	9.5 U	10.2 U	9.4 U
Copper	25 or SB	12	82.1	164	10.1
Iron	2,000 or SB	11200	14900	17200	10400
Lead**	500 or SB	8.8	54.8	410	3.8
Magnesium	SB	4260	1930	1200	1220
Manganese	SB	224	788	160	136
Mercury	0.1	<0.1	0.17	0.2	0.1 U
Nickel	13 or SB	11	13.1	22.5	7.5 U
Potassium	SB	861	950 U	1020 U	939 U
Selenium	2 or SB	<0.59	1.7	2.2	1.2
Silver	SB	<0.57	1.9 U	2 U	1.9 U
Sodium	SB	456	950 U	1020 U	939 U
Thallium	SB	<0.8	1.9 U	2 U	1.9 U
Vanadium	150 or SB	13	22.7	18.3	9.4 U
Zinc	20 or SB	22	56	32.1	22.4

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/kg)	NYS RSCOs	Yard Background*	Sample Designation: TP-6 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: TP-6 Sample Depth (ft bls): 3-5 Sample Date: 4/17/96	Sample Designation: TP-7 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96
Aluminum	SB	4770	2880	3930	3790
Antimony	SB	2.4	12.2 U	13.1 U	12 U
Arsenic	7.5 or SB	<1.2	4.4	2.2 U	17.1
Barium	300 or SB	32	40.8 U	43.6 U	40.1 U
Beryllium	0.16 or SB	<0.36	1 U	1.1 U	1 U
Cadmium	1 or SB	<1.1	1 U	1.1 U	1 U
Calcium	SB	6850	1020 U	1090 U	1000 U
Chromium	10 or SB	13	10.4	13.4	12.9
Cobalt	30 or SB	3.2	10.2 U	10.9 U	10 U
Copper	25 or SB	12	71.4	14.9	60.2
Iron	2,000 or SB	11200	11500	8950	12400
Lead**	500 or SB	8.8	138	5.7	54.2
Magnesium	SB	4260	1280	2070	1420
Manganese	SB	224	213	186	122
Mercury	0.1	<0.1	0.084	0.099 U	0.11 U
Nickel	13 or SB	11	8.3	9.2	9.7
Potassium	SB	861	1020 U	1090 U	1000 U
Selenium	2 or SB	<0.59	1.7	1.2	2
Silver	SB	<0.57	2 U	2.2 U	2 U
Sodium	SB	456	1020 U	1090 U	1000 U
Thallium	SB	<0.8	2 U	2.2 U	2 U
Vanadium	150 or SB	13	14.3	10.9 U	20
Zinc	20 or SB	22	56.8	51.3	31.5

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 5. Analytical Results for Metals in Soil Samples Collected from Sunnyside Yard, Queens, New York.

		Sample Designation:	TP-7
		Sample Depth (ft bls):	5-7
		Sample Date:	4/17/96
Parameter (Concentrations in mg/kg)	**NYS RSCOs**	**Yard Background***	
Aluminum	SB	4770	3460
Antimony	SB	2.4	11.3 U
Arsenic	7.5 or SB	<1.2	1.9 U
Barium	300 or SB	32	37.7 U
Beryllium	0.16 or SB	<0.36	0.94 U
Cadmium	1 or SB	<1.1	0.94 U
Calcium	SB	6850	942 U
Chromium	10 or SB	13	11.8
Cobalt	30 or SB	3.2	9.4 U
Copper	25 or SB	12	21.6
Iron	2,000 or SB	11200	9300
Lead**	500 or SB	8.8	13
Magnesium	SB	4260	1880
Manganese	SB	224	211
Mercury	0.1	<0.1	0.086 U
Nickel	13 or SB	11	9.6
Potassium	SB	861	942 U
Selenium	2 or SB	<0.59	0.97
Silver	SB	<0.57	1.9 U
Sodium	SB	456	942 U
Thallium	SB	<0.8	1.9 U
Vanadium	150 or SB	13	14.1
Zinc	20 or SB	22	51.5

mg/kg - Milligrams per kilogram (parts per million)
U - Indicates that the compound was analyzed for but not detected.
SB - Site background
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.
* Developed from Phase I RI metals data for soil samples S-30, S-33 and S-35
** Average background level in metropolitan or suburban areas

Table 6. Analytical Results for PCBs in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-1 Top of Interval: 0-2 Sample Date: 4/19/96	HST-1 2-4 4/19/96	HST-2 0-2 4/17/96	HST-3 0-2 4/18/96	HST-3 4.5 4/18/96
Aroclor-1016	--	38 U	38 U	390 U	69 U	38 U
Aroclor-1221	--	76 U	77 U	800 U	140 U	76 U
Aroclor-1232	--	38 U	38 U	390 U	69 U	38 U
Aroclor-1242	--	38 U	38 U	390 U	69 U	38 U
Aroclor-1248	--	38 U	38 U	390 U	69 U	38 U
Aroclor-1254	--	38 U	38 U	390 U	69 U	38 U
Aroclor-1260	--	190	56	2000	22 J	120
Total Aroclors	1,000					

µg/kg - Micrograms per liter (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 PCBs in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-4 Top of Interval: 0-2 Sample Date: 4/19/96	HST-4 4-6 4/19/96	HST-5 0-2 4/17/96	HST-5 5-7 4/17/96	HST-6 0-2 4/19/96
Aroclor-1016	--	35 U	38 U	71 U	38 U	35 U
Aroclor-1221	--	70 U	77 U	140 U	77 U	71 U
Aroclor-1232	--	35 U	38 U	71 U	38 U	35 U
Aroclor-1242	--	35 U	38 U	71 U	38 U	35 U
Aroclor-1248	--	35 U	8.8 J	71 U	38 U	35 U
Aroclor-1254	--	35 U	38 U	71 U	38 U	35 U
Aroclor-1260	--	35 U	38 U	310	38 U	7.1 J
Total Aroclors	1,000					

µg/kg - Micrograms per liter (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 PCBs in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: HST-6 Top of Interval: 7-9 Sample Date: 4/19/96	HST-7 0-2 4/18/96	HST-7 6-8 4/18/96	HST-8 0-2 4/19/96	HST-8 6-8 4/19/96
Aroclor-1016	--	38 U	36 U	39 U	190 U	36 U
Aroclor-1221	--	78 U	73 U	80 U	380 U	74 U
Aroclor-1232	--	38 U	36 U	39 U	190 U	36 U
Aroclor-1242	--	38 U	36 U	39 U	190 U	36 U
Aroclor-1248	--	38 U	36 U	39 U	190 U	36 U
Aroclor-1254	--	38 U	36 U	39 U	190 U	36 U
Aroclor-1260	--	38 U	72	100	460	22 J
Total Aroclors	1,000					

µg/kg - Micrograms per liter (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 PCBs in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	NYS RSCOs	Sample Designation: TP-6 Top of Interval: 0-2 Sample Date: 4/17/96	TP-6 3-5 4/17/96	TP-7 0-2 4/17/96	TP-7 5-7 4/17/96
Aroclor-1016	--	35 U	37 U	35 U	38 U
Aroclor-1221	--	71 U	74 U	72 U	78 U
Aroclor-1232	--	35 U	37 U	35 U	38 U
Aroclor-1242	--	35 U	37 U	35 U	38 U
Aroclor-1248	--	35 U	37 U	35 U	38 U
Aroclor-1254	--	35 U	37 U	35 U	38 U
Aroclor-1260	--	150	22 J	98	46
Total Aroclors	1,000				

µg/kg - Micrograms per liter (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 7. Analytical Results for Toxicity Characteristic Pesticides in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Sample Designation:	HST-1	TP-6	TP-7
Top of Interval:	0-2	0-2	0-2
Sample Date:	5/9/96	4/17/96	5/9/96
Parameter (Concentrations in µg/kg)			
Endrin	0.0005 U	0.0005 U	0.0005 U
gamma-BHC (Lindane)	0.00025 U	0.00025 U	0.00025 U
Heptachlor	0.00025 U	0.00025 U	0.00025 U
Heptachlor Epoxide	0.00025 U	0.00025 U	0.00025 U
Methoxychlor	0.0025 U	0.0025 U	0.0025 U
Technical Chlordane	0.001 U	0.001 U	0.001 U
Toxaphene	0.005 U	0.005 U	0.005 U
2,4-D	0.0025 U	0.0025 U	0.0025 U
Silvex	0.0025 U	0.0025 U	0.0025 U

Table 8. Analytical Results for Toxicity Characteristic Lead in Soil Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/kg)	TCLP Regulatory Levels	Sample Designation: HST-1 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-1 Sample Depth (ft bls): 2-4 Sample Date: 4/19/96	Sample Designation: HST-2 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96	Sample Designation: HST-4 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: HST-8 Sample Depth (ft bls): 0-2 Sample Date: 4/19/96	Sample Designation: TP-6 Sample Depth (ft bls): 0-2 Sample Date: 4/17/96
Lead	5,000	37.3	324	1230	2360	398	169

Table 9. Analytical Results for Volatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	MW-57 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-65 5/3/96 REPLICATE
Benzene	--	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	--	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	--	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	--	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	--	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	2 J	5 U	6	6
1,2-Dichloropropane	--	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	--	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	--	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	--	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	--	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	--	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	--	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	--	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	--	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	--	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	--	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	--	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	--	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	--	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	--	5 U	5 U	5 U	5 U	5 U	5 U

Table 9. Analytical Results for Volatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-57 Sample Date: 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-65 5/3/96 REPLICATE
Tetrachloroethene	5	5 U	5 U	5 U	7	5 U	5 U
trans-1,3-Dichloropropene	--	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	2 J	5 U	5 U	5 U
Vinyl Acetate	--	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	--	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	--	5 U	5 U	5 U	5 U	5 U	5 U

µg/L - Micrograms per liter (parts per billion)

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

J - Estimated values

* - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.), Ambient Water Quality Standards and Guidance Values. Standards are only for those compounds for which concentrations were detected.

Table 9. Analytical Results for Volatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-66 Sample Date: 5/3/96	MW-67 5/3/96	MW-68 5/3/96
Benzene	--	5 U	5 U	5 U
Toluene	--	5 U	5 U	5 U
Ethylbenzene	--	5 U	5 U	5 U
1,1,1-Trichloroethane	--	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	--	5 U	5 U	5 U
1,1,2-Trichloroethane	--	5 U	5 U	5 U
1,1-Dichloroethane	--	5 U	5 U	5 U
1,1-Dichloroethene	--	5 U	5 U	5 U
1,2-Dichloroethane	--	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U
1,2-Dichloropropane	--	5 U	5 U	5 U
2-Butanone	--	10 U	10 U	10 U
2-Hexanone	--	10 U	10 U	10 U
4-Methyl-2-Pentanone	--	10 U	10 U	10 U
Acetone	--	10 U	10 U	10 U
Bromodichloromethane	--	5 U	5 U	5 U
Bromoform	--	5 U	5 U	5 U
Bromomethane	--	10 U	10 U	10 U
Carbon Disulfide	--	5 U	5 U	5 U
Carbon Tetrachloride	--	5 U	5 U	5 U
Chlorobenzene	--	5 U	5 U	5 U
Chloroethane	--	10 U	10 U	10 U
Chloroform	--	5 U	5 U	5 U
Chloromethane	--	10 U	10 U	10 U
cis-1,3-Dichloropropene	--	5 U	5 U	5 U
Dibromochloromethane	--	5 U	5 U	5 U
Methylene Chloride	--	5 U	5 U	5 U
Styrene	--	5 U	5 U	5 U

Table 9. Analytical Results for Volatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-66 Sample Date: 5/3/96	MW-67 5/3/96	MW-68 5/3/96
Tetrachloroethene	5	5 U	3 J	5 U
trans-1,3-Dichloropropene	--	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U
Vinyl Acetate	--	10 U	10 U	10 U
Vinyl Chloride	--	10 U	10 U	10 U
Xylene (total)	--	5 U	5 U	5 U

µg/L - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
J - Estimated values
* - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.), Ambient Water Quality Standards and Guidance Values. Standards are only for those compounds for which concentrations were detected.

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	MW-57 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-65 5/3/96 REPLICATE
1,2,4-Trichlorobenzene	5	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	--	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	--	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	--	10 U	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	--	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	--	50 U	50 U	50 U	50 U	50 U	50 U
2,4,6-Trichlorophenol	--	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	--	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	--	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	--	50 U	50 U	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	--	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Chloronaphthalene	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	--	50 U	50 U	50 U	50 U	50 U	50 U
2-Nitrophenol	--	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	--	20 U	20 U	20 U	20 U	20 U	20 U
3-Nitroaniline	--	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	--	50 U	50 U	50 U	50 U	50 U	50 U
4-Bromophenyl-phenylether	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	--	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	--	50 U	50 U	50 U	50 U	50 U	50 U

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	MW-57 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-65 5/3/96 REPLICATE
Acenaphthene	--	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	--	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	(50)	10 U	0.2 J	10 U	10 U	10 U	10 U
Benzo(a)anthracene	--	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	ND	10 U	0.2 J	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	(0.002)	10 U	0.2 J	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	--	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	(0.002)	10 U	0.3 J	10 U	10 U	10 U	10 U
Benzoic acid	--	50 U	50 U	50 U	50 U	50 U	50 U
Benzyl alcohol	--	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	--	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	--	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	50	0.3 JB	0.9 JB	0.6 JB	1 JB	0.4 JB	2 JB
Butylbenzylphthalate	(50)	10 U	0.2 J	10 U	10 U	10 U	0.2 J
Chrysene	--	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	50	2 JB	0.7 JB	0.5 JB	0.6 JB	0.6 JB	0.8 JB
Di-n-octylphthalate	(50)	10 U	0.3 J	0.3 J	0.2 J	10 U	0.3 J
Dibenzo(a,h)anthracene	--	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	NS	10 U	10 U	0.2 J	10 U	10 U	10 U
Diethylphthalate	(50)	0.4 JB	0.2 J	10 U	10 U	0.2 JB	0.3 JB
Dimethylphthalate	--	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	(50)	10 U	0.2 J	10 U	10 U	10 U	10 U
Fluorene	(50)	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	--	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	--	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	--	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	--	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	(0.002)	10 U	0.2 J	10 U	10 U	10 U	10 U

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	MW-57 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-65 5/3/96 REPLICATE
Isophorone	--	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	--	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	--	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	--	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	--	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	--	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	(50)	10 U	0.1 J	10 U	10 U	10 U	10 U
Phenol	--	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	(50)	10 U	0.2 J	10 U	10 U	10 U	10 U

µg/L - Microgams per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected.
J - Estimated value
* - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.), Ambient Water Quality Standards and Guidance Values. Guidance Values (in parentheses) and Standards are only for those compounds for which concentrations were detected.
ND - Not detected
NS - No Standard or Guidance Value available

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-66 Sample Date: 5/3/96	MW-67 5/3/96	MW-68 5/3/96
1,2,4-Trichlorobenzene	5	0.6 J	10 U	10 U
1,2-Dichlorobenzene	--	10 U	10 U	10 U
1,3-Dichlorobenzene	--	10 U	10 U	10 U
1,4-Dichlorobenzene	--	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	--	10 U	10 U	10 U
2,4,5-Trichlorophenol	--	50 U	50 U	50 U
2,4,6-Trichlorophenol	--	10 U	10 U	10 U
2,4-Dichlorophenol	--	10 U	10 U	10 U
2,4-Dimethylphenol	--	10 U	10 U	10 U
2,4-Dinitrophenol	--	50 U	50 U	50 U
2,4-Dinitrotoluene	--	10 U	10 U	10 U
2,6-Dinitrotoluene	--	10 U	10 U	10 U
2-Chloronaphthalene	--	10 U	10 U	10 U
2-Chlorophenol	--	10 U	10 U	10 U
2-Methylnaphthalene	--	10 U	10 U	10 U
2-Methylphenol	--	10 U	10 U	10 U
2-Nitroaniline	--	50 U	50 U	50 U
2-Nitrophenol	--	10 U	10 U	10 U
3,3'-Dichlorobenzidine	--	20 U	20 U	20 U
3-Nitroaniline	--	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	--	50 U	50 U	50 U
4-Bromophenyl-phenylether	--	10 U	10 U	10 U
4-Chloro-3-methylphenol	--	10 U	10 U	10 U
4-Chloroaniline	--	10 U	10 U	10 U
4-Chlorophenyl-phenylether	--	10 U	10 U	10 U
4-Methylphenol	--	10 U	10 U	10 U
4-Nitroaniline	--	20 U	20 U	20 U
4-Nitrophenol	--	50 U	50 U	50 U

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-66 Sample Date: 5/3/96	MW-67 5/3/96	MW-68 5/3/96
Acenaphthene	--	10 U	10 U	10 U
Acenaphthylene	--	10 U	10 U	10 U
Anthracene	(50)	10 U	10 U	10 U
Benzo(a)anthracene	--	10 U	10 U	10 U
Benzo(a)pyrene	ND	10 U	10 U	10 U
Benzo(b)fluoranthene	(0.002)	10 U	10 U	0.1 J
Benzo(g,h,i)perylene	--	10 U	10 U	10 U
Benzo(k)fluoranthene	(0.002)	10 U	10 U	0.1 J
Benzoic acid	--	50 U	50 U	50 U
Benzyl alcohol	--	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	--	10 U	10 U	10 U
bis(2-Chloroethyl)ether	--	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	50	1 JB	0.4 JB	0.6 JB
Butylbenzylphthalate	(50)	10 U	10 U	10 U
Chrysene	--	10 U	10 U	10 U
Di-n-butylphthalate	50	0.6 JB	1 JB	0.7 JB
Di-n-octylphthalate	(50)	0.2 J	0.1 J	1 J
Dibenzo(a,h)anthracene	--	10 U	10 U	10 U
Dibenzofuran	NS	10 U	10 U	10 U
Diethylphthalate	(50)	0.2 JB	0.3 JB	10 U
Dimethylphthalate	--	10 U	10 U	10 U
Fluoranthene	(50)	10 U	10 U	0.3 J
Fluorene	(50)	10 U	10 U	3 J
Hexachlorobenzene	--	10 U	10 U	10 U
Hexachlorobutadiene	--	10 U	10 U	10 U
Hexachlorocyclopentadiene	--	10 U	10 U	10 U
Hexachloroethane	--	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	(0.002)	10 U	10 U	10 U

Table 10. Analytical Results For Semivolatile Organic Compounds in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard*	Sample Designation: MW-66 Sample Date: 5/3/96	MW-67 5/3/96	MW-68 5/3/96
Isophorone	--	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	--	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	--	10 U	10 U	10 U
Naphthalene	--	10 U	10 U	10 U
Nitrobenzene	--	10 U	10 U	10 U
Pentachlorophenol	--	50 U	50 U	50 U
Phenanthrene	(50)	10 U	10 U	10 U
Phenol	--	10 U	10 U	10 U
Pyrene	(50)	10 U	10 U	0.2 J

µg/L - Microgams per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected.
J - Estimated value
* - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.), Ambient Water Quality Standards and Guidance Values. Guidance Values (in parentheses) and Standards are only for those compounds for which concentrations were detected.
ND - Not detected
NS - No Standard or Guidance Value available

Table 11. Analytical Results for Metals in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	Upper Limit Background Range*	NYS Standard**	Sample Designation: MW-57 Sample Date: 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96
Aluminum	11,900	NS	1770 E	752 E	402 E	5940 E
Antimony	46.9B	(3)	6 U	6 U	6 U	6 U
Arsenic	3.6B	25	4 U	4 U	4 U	4 U
Barium	199B	1,000	66.9 B	30.2 B	126 B	119 B
Beryllium	1.0U	(3)	1 U	1 U	1 U	1 U
Cadmium	2.2B	10	1 U	1 U	1 U	1 U
Calcium	108,000	NS	51500	40200	66000	21300
Chromium	39.1	50	3.6 B	2.5 B	1.5 B	16.8
Cobalt	11.3B	NS	3 B	1.7 B	1.4 B	10.8 B
Copper	62.0	200	17.9 B	6.8 B	8.3 B	29.2
Iron	28,500	300	2980	1630	1520	21500
Lead	19.0	25	8.6	4	2 U	9.6
Magnesium	42,900	(35,000)	12000	3160	20600	7420
Manganese	721	300	522	1200	1370	1500
Mercury	0.20U	2	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	24.5B	NS	7.3 B	4 B	8.1 B	22 B
Potassium	11,900	NS	5440	3900	3560	2710
Selenium	4.7B	10	5.4	4 U	5.8	4.5 B
Silver	3.0U	50	1 U	1 U	1 U	1 U
Sodium	130,000	20,000	76700	21200	38300	17500
Thallium	2.0U	(4)	6 U	6 U	6 U	6 U
Vanadium	53.5	NS	5 B	3 B	2.6 B	19 B
Zinc	67.4	300	47.6	37.3	13.6 B	534

µg/L - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
B - Indicates analyte result between MDL and practical quanitation limit (PQL)
E - The reported value is estimated due to interference
* - Background ranges for metals were determined from analytical results for upgradient Monitoring Wells MW-47, MW-48D, MW-61 and MW-62D
** - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.), Ambient Water Quality Standards and Guidance Values. Guidance Values (in parentheses) and Standards are only for those compounds for which concentrations were detected.
NS - No Standard or Guidance Value available

Note: NYS Standard for Iron and Manganese combined is 500 µg/L.

Table 11. Analytical Results for Metals in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	Upper Limit Background Range*	NYS Standard**	Sample Designation: MW-65 Sample Date: 5/3/96	MW-65 5/3/96 REPLICATE	MW-66 5/3/96	MW-67 5/3/96
Aluminum	11,900	NS	290 E	500 E	16300 E	142 BE
Antimony	46.9B	(3)	6 U	6 U	6 U	6 U
Arsenic	3.6B	25	4 U	4 U	5.2 B	4 U
Barium	199B	1,000	74.6 B	77.9 B	282	22.9 B
Beryllium	1.0U	(3)	1 U	1 U	1 U	1 U
Cadmium	2.2B	10	1 U	1 U	1 U	1 U
Calcium	108,000	NS	107000	109000	95200	51000
Chromium	39.1	50	1.3 B	1.7 B	31	1.1 B
Cobalt	11.3B	NS	2.2 B	2.5 B	10.9 B	1 U
Copper	62.0	200	3.9 B	5.6 B	42.1	2 U
Iron	28,500	300	803	1540	23100	219
Lead	19.0	25	2 U	2 U	17.5	2 U
Magnesium	42,900	(35,000)	39500	40300	40700	19900
Manganese	721	300	1680	1710	1570	252
Mercury	0.20U	2	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	24.5B	NS	7.7 B	5 B	19.5 B	3.3 B
Potassium	11,900	NS	8030	8230	14900	2350
Selenium	4.7B	10	4 U	4.1 B	11.4	4 U
Silver	3.0U	50	1 U	1 U	1 U	1 U
Sodium	130,000	20,000	89100	92500	95400	37500
Thallium	2.0U	(4)	6 U	6 U	6 U	6 U
Vanadium	53.5	NS	1 U	1.8 B	43.7 B	1 U
Zinc	67.4	300	12.5 B	22.6	42.9	14.8 B

µg/L - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
B - Indicates analyte result between MDL and practical quanitation limit (PQL)
E - The reported value is estimated due to interference
* - Background ranges for metals were determined from analytical results for upgradient Monitoring Wells MW-47, MW-48D, MW-61 and MW-62D
** - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.) Ambient Water Quality Standards and Guidance Values. Guidance Values (in parentheses) and Standards are only for those compounds for which concentrations were detected.
NS - No Standard or Guidance Value available

Note: NYS Standard for Iron and Manganese combined is 500 µg/L.

Table 11. Analytical Results for Metals in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	Upper Limit Background Range*	NYS Standard**	Sample Designation: MW-68 Sample Date: 5/3/96
Aluminum	11,900	NS	1290 E
Antimony	46.9B	(3)	6 U
Arsenic	3.6B	25	4 U
Barium	199B	1,000	95.2 B
Beryllium	1.0U	(3)	1 U
Cadmium	2.2B	10	1 U
Calcium	108,000	NS	19600
Chromium	39.1	50	4.3 B
Cobalt	11.3B	NS	3.9 B
Copper	62.0	200	11.1 B
Iron	28,500	300	13000
Lead	19.0	25	3.6
Magnesium	42,900	(35,000)	6880
Manganese	721	300	4750
Mercury	0.20U	2	0.2 U
Nickel	24.5B	NS	8.2 B
Potassium	11,900	NS	2850
Selenium	4.7B	10	4.6 B
Silver	3.0U	50	1 U
Sodium	130,000	20,000	28300
Thallium	2.0U	(4)	6 U
Vanadium	53.5	NS	5.1 B
Zinc	67.4	300	42.6

µg/L - Micrograms per liter (parts per billion)
U - Indicates that the compound was analyzed for but not detected
B - Indicates analyte result between MDL and practical quanitation limit (PQL)
E - The reported value is estimated due to interference
* - Background ranges for metals were determined from analytical results for upgradient Monitoring Wells MW-47, MW-48D, MW-61 and MW-62D
** - NYS Standards and Guidance Values taken from October, 1993 New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series (1.1.1.) Ambient Water Quality Standards and Guidance Values. Guidance Values (in parentheses) and Standards are only for those compounds for which concentrations were detected.
NS - No Standard or Guidance Value available

Note: NYS Standard for Iron and Manganese combined is 500 µg/L.

Table 12. Analytical Results for PCBs in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard* (µg/L)	Sample Designation: MW-57 Sample Date: 5/2/96	MW-59 5/3/96	MW-63 5/2/96	MW-64 5/3/96	MW-65 5/3/96	MW-66 5/3/96
Aroclor-1016	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Aroclor-1221	--	2 U	2.2 U	2 U	2.2 U	2.2 U	2.5 U
Aroclor-1232	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Aroclor-1242	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Aroclor-1248	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Aroclor-1254	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Aroclor-1260	--	1 U	1.1 U	1 U	1.1 U	1.1 U	1.2 U
Total Aroclors	0.1						

Notes:

µg/L - Micrograms per liter (parts per million)

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

* - NYS Standards taken from October 1993 NYSDEC Division of Water, T.O.G.S (1.1.1.), Amibient Water Quality Standards and Guidance Values

Table 12. Analytical Results for PCBs in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in µg/L)	NYS Standard* (µg/L)	Sample Designation: MW-67 Sample Date: 5/3/96	Sample Designation: MW-68 Sample Date: 5/3/96
Aroclor-1016	--	1 U	1 U
Aroclor-1221	--	2.1 U	2.1 U
Aroclor-1232	--	1 U	1 U
Aroclor-1242	--	1 U	1 U
Aroclor-1248	--	1 U	1 U
Aroclor-1254	--	1 U	1 U
Aroclor-1260	--	1 U	1 U
Total Aroclors	0.1		

Notes:

µg/L - Micrograms per liter (parts per million)

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

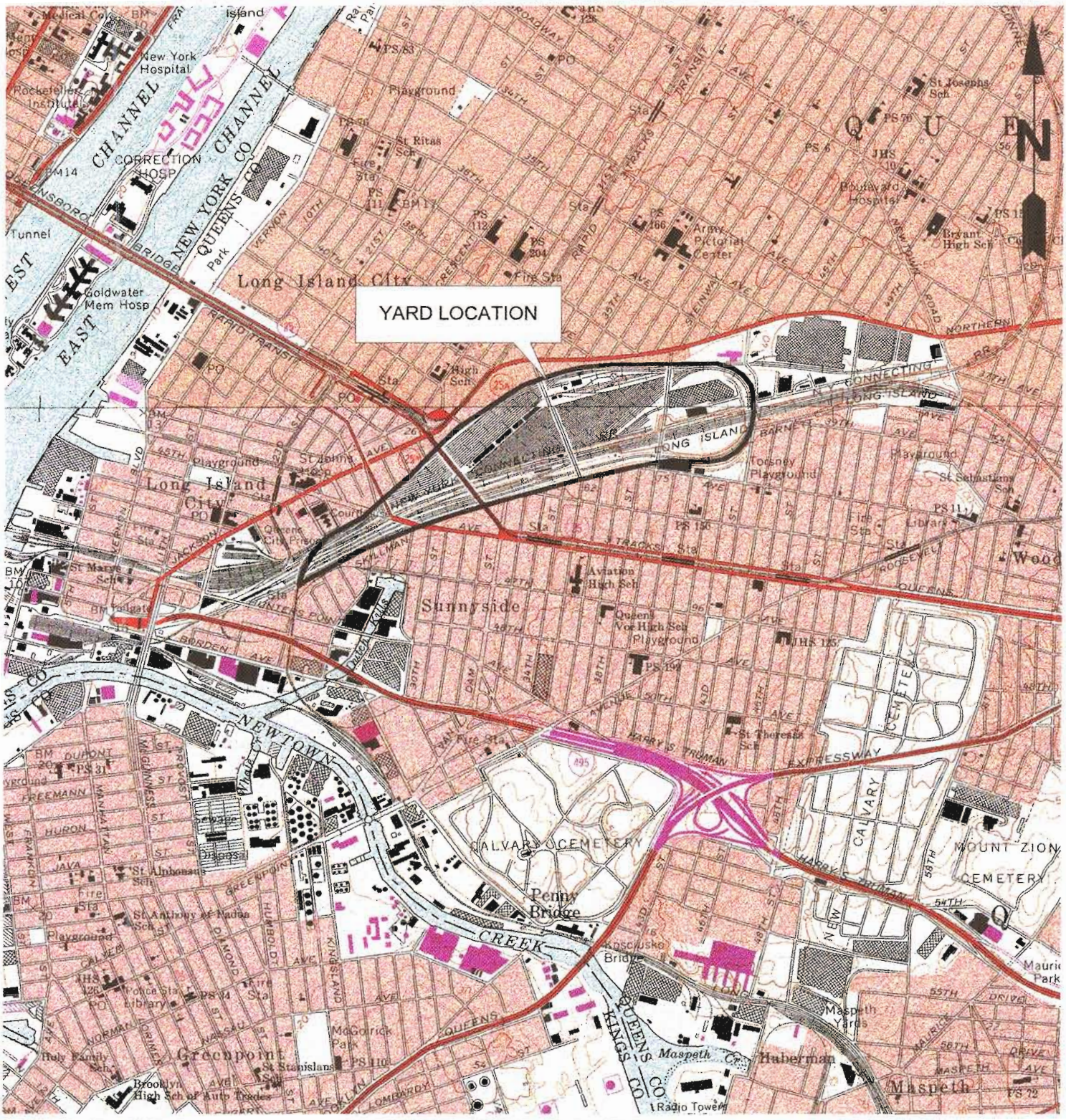
* - NYS Standards taken from October 1993 NYSDEC Division of Water, T.O.G.S (1.1.1.), Amibient Water Quality Standards and Guidance Values

Table 13. Analytical Results for Sewer Discharge Parameters in Ground-Water Samples Collected from Sunnyside Yard, Queens, New York.

Parameter (Concentrations in mg/L)	*Discharge Limits	Sample Designation: MW-59 Sample Date: 5/3/96	MW-66 5/3/96	MW-67 5/3/96	MW-68 5/3/96
Biochemical Oxygen Demand	NA	2 U	2 U	2 U	8
Cyanide	0.2	0.01 U	0.01 U	0.01 U	0.01 U
Total Suspended Solids	350	34	10	358	116
Hydrocarbons	50	1 U	1 U	1 U	20.5
Oil & Grease	50	1 U	1 U	1 U	7.6
Cadmium	2	0.001 U	0.001 U	0.001 U	0.001 U
Copper	5	0.007 B	0.0421	0.001 U	0.0039 B
Lead	2	0.004	0.0175	0.002	0.0036 B
Mercury	0.05	0.0002	0.0002 U	0.0002 U	0.0002 U
Nickel	3	0.004 B	0.0195	0.0033 B	0.0082 B
Zinc	5	0.037	0.0429	0.0148 B	0.0426

Notes:

mg/L - Milligrams per liter (parts per million)
* - Taken from 15 RNYC Chapter 19
NA - Not applicable
U - Indicates that compound was analyzed for but not detected
B - Indicates analyte result between method detection limit and practical quantitation limit (PQL)



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

Title:

YARD LOCATION MAP

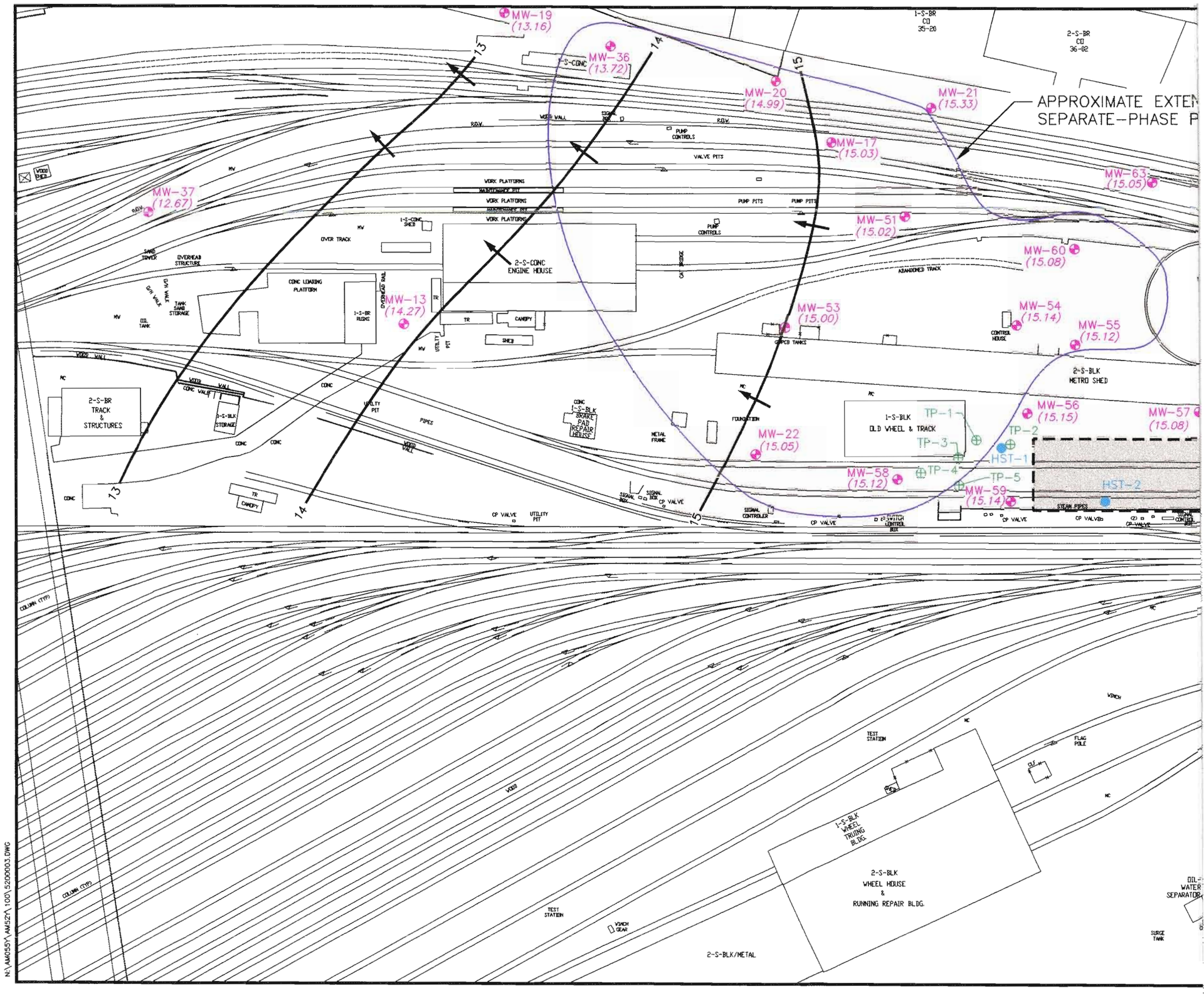
SUNNYSIDE YARD
39-29 HONEYWELL STREET
QUEENS, NEW YORK

Prepared For:

AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by:	J.D.	Date:	5/96	FIGURE
Prepared by:	R.R.	Scale:	1"=2,000'	1
Project Mgr:	J.D.	Revision:		
File No:	05552004	Project:	05552Y	



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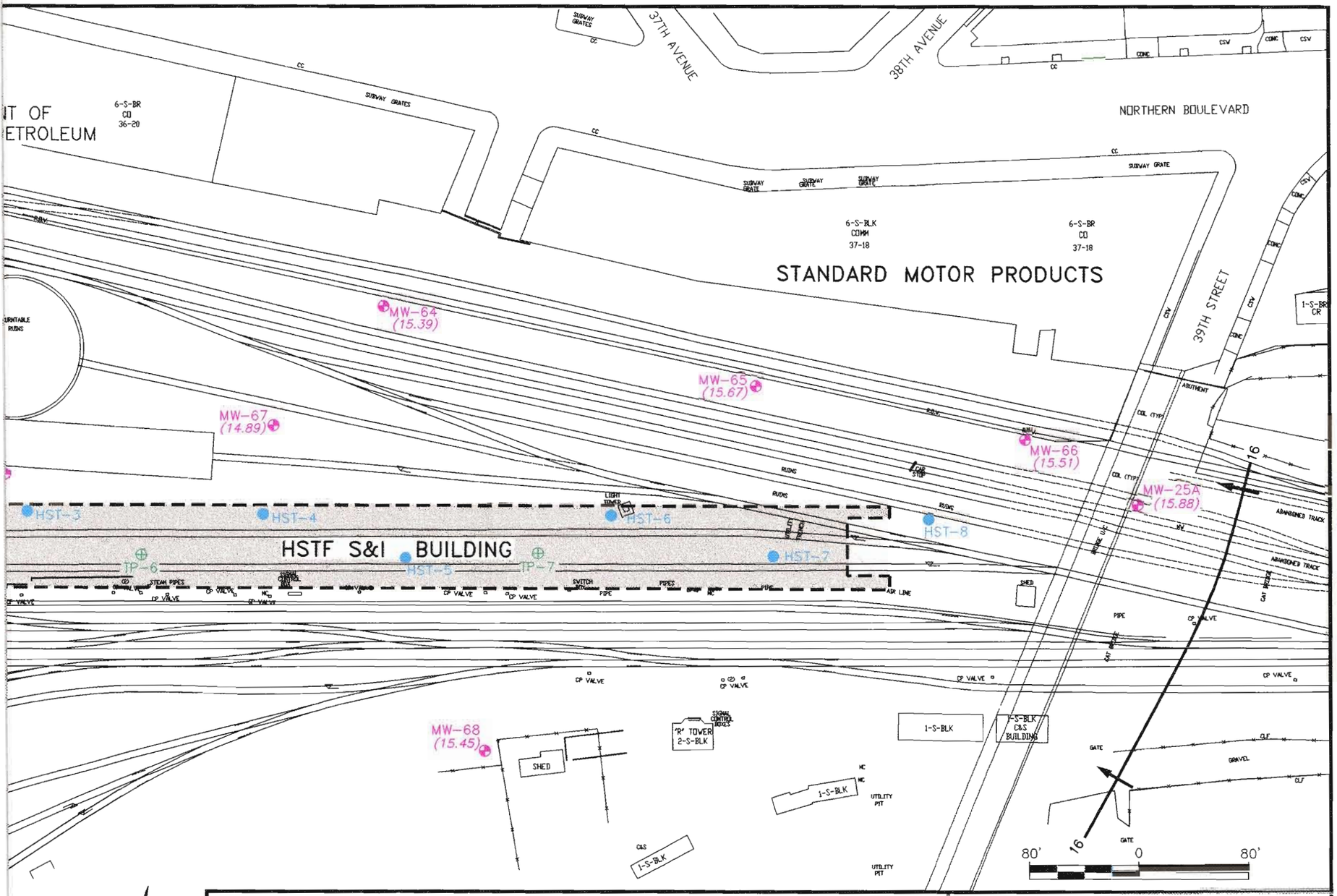


LEGEND

- APPROXIMATE HSTF S&I BUILDING LOCATION (SITE)
- MW-68 — MONITORING WELL LOCATION AND DESIGNATION
- (15.45) — WATER-TABLE ELEVATION RELATIVE TO NAVD 1988 MEAN SEA LEVEL
- HST-8 — SOIL BORING LOCATION AND DESIGNATION
- TP-7 — TEMPORARY PIEZOMETER LOCATION AND DESIGNATION
- 16 — LINE OF EQUAL GROUND-WATER ELEVATION
- APPROXIMATE DIRECTION OF GROUND-WATER FLOW

Title:

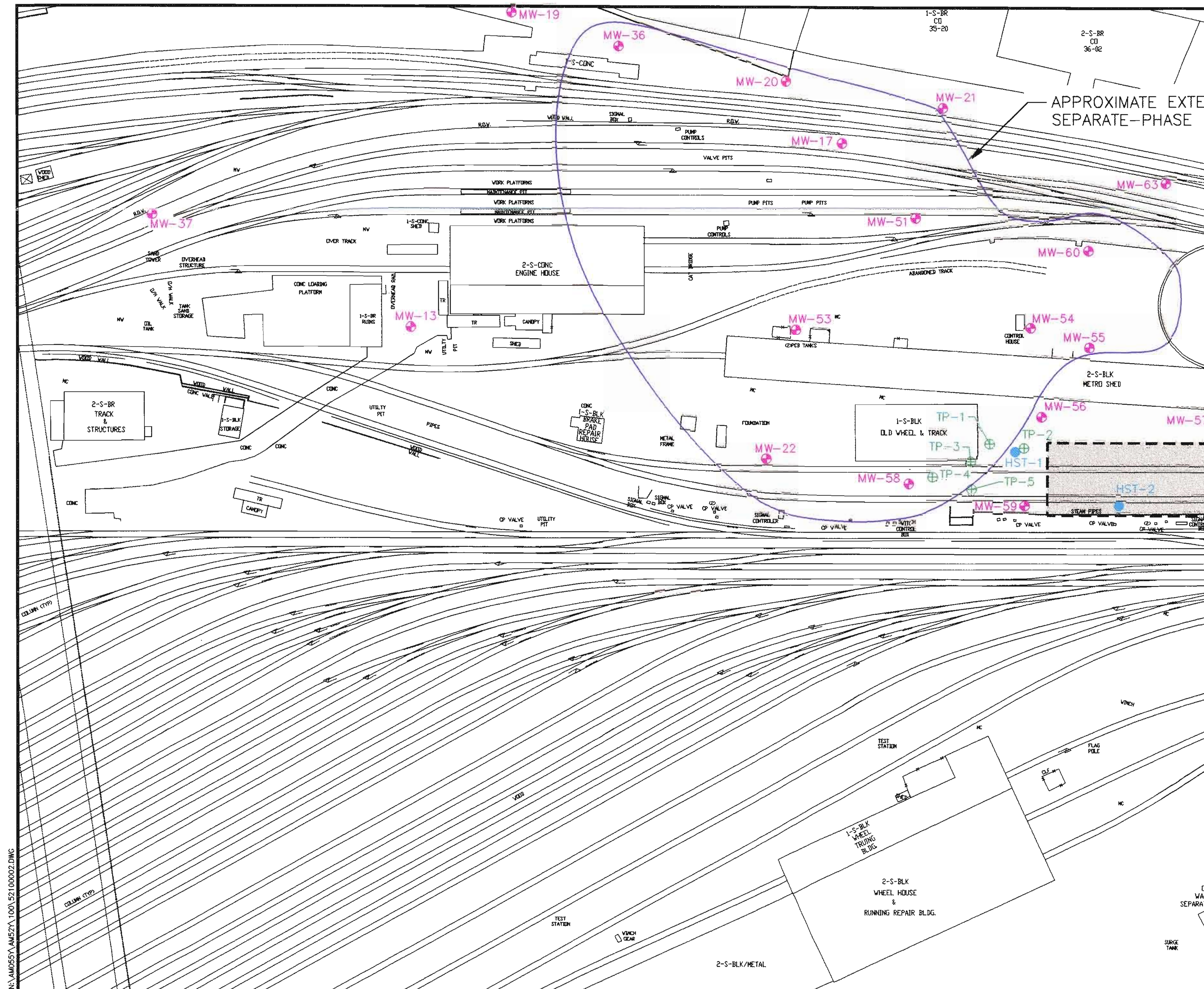
WATER-TABLE ELEVATIONS MAY 2 AND 3, 1996

SUNNYSIDE YARD
QUEENS, N.Y.

Prepared For:
AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: H.G.	Date: 5/96	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	3
Project Mgr: J.D.D.	Revision:	
File No: 52100003	Project: 05552Y	



MW-19
MW-36
MW-20
MW-21
MW-17
MW-63
MW-37
MW-51
MW-60
MW-13
MW-53
MW-54
MW-55
MW-56
MW-57
MW-22
MW-58
MW-59
TP-1
TP-2
TP-3
TP-4
TP-5
HST-1
HST-2
APPROXIMATE EXTEN
SEPARATE-PHASE P
2-S-CONC ENGINE HOUSE
2-S-BR TRACK & STRUCTURES
1-S-BLK OLD WHEEL & TRACK
2-S-BLK METRO SHED
1-S-BLK WHEEL TRUING BLDG.
2-S-BLK WHEEL HOUSE & RUNNING REPAIR BLDG.
2-S-BLK/METAL
CONC LOADING PLATFORM
1-S-BLK BRAKE PAD REPAIR HOUSE
OIL-WATER SEPARATOR
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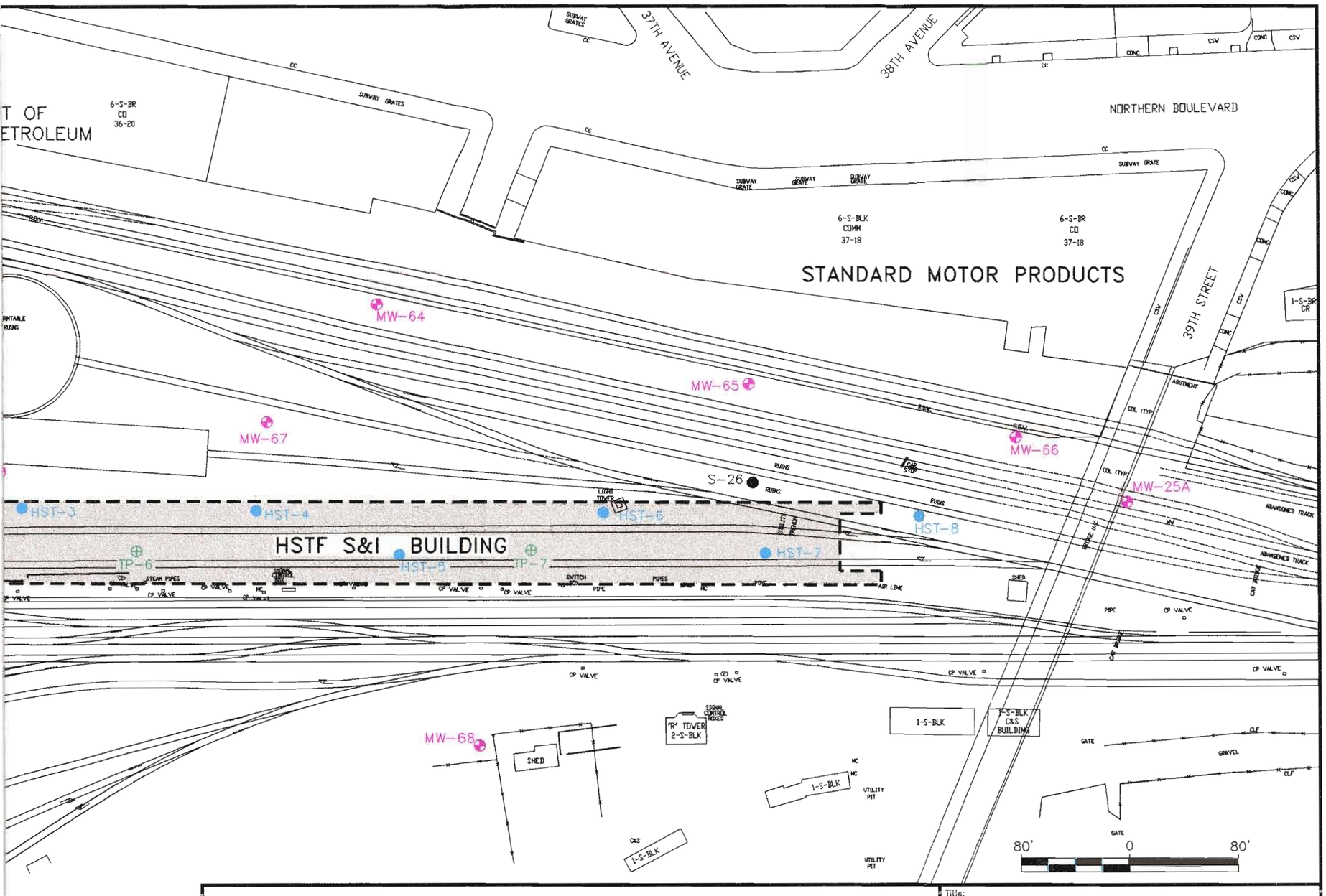

LEGEND

APPROXIMATE HSTF S&I BUILDING LOCATION (SITE)

MW-68 MONITORING WELL LOCATION AND DESIGNATION

S-26 PHASE I SOIL BORING LOCATION AND DESIGNATION

HST-8 SOIL BORING LOCATION AND DESIGNATION

TP-7 TEMPORARY PIEZOMETER LOCATION AND DESIGNATION

Title:

SITE MAP PROPOSED HSTF S&I BUILDING

SUNNYSIDE YARD
QUEENS, N.Y.

Prepared For:
AMTRAK

ROUX
ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: H.G.	Date: 5/96	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	2
Project Mgr: J.D.D.	Revision:	
File No: 52100002	Project: 05552Y	

APPENDIX A

Geologic and Monitoring Well Construction Logs

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-1	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/19/96	Date Completed: 4/19/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 4.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 4 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 2.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to black fine to coarse SAND, some Gravel, some Cinders; Dry	SW	G		1.3	Lithology derived from cuttings Sample from 0-2 feet collected for laboratory analysis
	Brown to grey stained fine to coarse SAND, some Gravel; Moist to wet		G		15.6	Wet at 2 feet below land surface Slight sheen, hydrocarbon odor and product from 2-4 feet below land surface Sample from 2-4 feet collected for laboratory analysis 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-2	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/17/96	Date Completed: 4/17/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 2.5 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 2.5 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: Not Encountered	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to black fine to coarse SAND, some Gravel, some Brick, some Cinders; Dry	SW			NR	Lithology derived from cuttings
						Sample from 0-2 feet was collected for laboratory analysis
	Brown to black fine to coarse SAND, some Gravel, some Brick, some Concrete; Dry					Refusal at 2.5 feet below land surface; bottom of boring
5						
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-3	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/18/96	Date Completed: 4/18/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 7.5 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 7.5 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 5.5 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Grey stained fine to coarse SAND, some Gravel; Dry	SW	G		22.1	Lithology derived from cuttings A 12-inch concrete pad was present at the surface Slight hydrocarbon odor 0-7.5 feet below land surface Sample from 0-2 feet collected for laboratory analysis
	Grey stained fine to coarse SAND, some Gravel; Dry				0	
	Grey stained fine to coarse SAND, some Gravel; Moist to wet					
5	Grey stained fine to coarse SAND, some Gravel; Wet		G			Wet at 4.5 feet below land surface Sample from 4.5-6.5 collected for laboratory analysis
	Grey stained to tan fine to coarse SAND, trace Gravel; Wet					
						Bottom of boring at 7.5 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-4	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/19/96	Date Completed: 4/19/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 6.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 6 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 4.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
0	Brown to black fine to coarse SAND, some Cinders; Dry	SW			NR	Lithology derived from cuttings
	Orange to tan fine to coarse SAND, trace Gravel; Dry					Sample from 0-2 feet collected for laboratory analysis
	Orange to tan fine to coarse SAND, trace Gravel; Dry to moist		G			
	Orange to tan fine to coarse SAND, trace Gravel; Wet					Wet at 4 feet below land surface
5						Sample from 4-6 feet collected for laboratory analysis
						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-5	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/17/96	Date Completed: 4/17/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 7.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 9 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 5.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
0	Brown to black fine to coarse SAND, some Gravel; Dry	SW			NR	Lithology derived from cuttings
	Orange tan medium to coarse SAND, trace Cinders, trace Gravel; Dry					Sample from 0-2 feet collected for laboratory analysis
	Orange tan medium to coarse SAND, trace Cinders, trace Gravel, trace Cobbles; Dry to moist					
	Orange tan medium to coarse SAND, trace Gravel, trace Cinders, trace Cobbles; Moist to wet					Wet at 5 feet below land surface
5	Orange tan medium to coarse SAND, trace Gravel; Wet					Sample from 5-7 feet collected for laboratory analysis
						Bottom of boring at 7 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-6	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/19/96	Date Completed: 4/19/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 9.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 9 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 7.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown fine to coarse SAND, some Cinders, some Gravel, some Asphalt; Dry	SW			NR	Lithology derived from cuttings
	Orange tan fine to coarse SAND, trace Gravel; Dry					Sample from 0-2 feet collected for laboratory analysis
	Orange tan fine to coarse SAND, trace Gravel; Dry		G			
5	Orange tan fine to coarse SAND, trace Gravel; Dry to moist					
	Orange tan fine to coarse SAND, trace Gravel; Wet					Wet at 7 feet below land surface
						Iron staining fron 7-9 feet below land surface
						Sample from 7-9 feet was collected for laboratory analysis
10						Bottom of boring at 9 feet below land surface
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-7	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/18/96	Date Completed: 4/18/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 8.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 8 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 6.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Black fine to coarse SAND, trace Gravel; Dry	SW			0	Lithology derived from cuttings
	Brown to tan fine to coarse SAND, trace Gravel; Dry					Sample from 0-2 collected for laboratory analysis
	Orange to tan medium to coarse SAND, some Gravel; Dry to moist		G			
5	Orange to tan medium to coarse SAND; some Gravel; Moist to wet				NR	
	Orange tan to orange medium to coarse SAND; Wet		G			Wet at 6 feet below land surface
						Sample from 6-8 feet collected for laboratory analysis
						Bottom of boring at 8 feet below land surface
10						
15						
20						
25						

ROUX

Project: AMTRAK - Sunnyside Yard HST Queens, New York		Log of Soil Boring No. HST-8	
Logged By: H. Gregory	Checked By: J.Duminuco	Date Started: 4/18/96	Date Completed: 4/18/96
Drilling Co:		Drill Bit Diameter:	Total Depth: 8.0 ft
Driller:		Backfill Material: Cuttings	from 0 ft to 8 ft
Drilling Method:		Sampler:	
Drilling Equipment:		Depth to Water at Time of Drilling: 6.0 feet	

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Black to brown fine to coarse SAND, some Ballast, some Cinders; Dry	SW				Lithology derived from cuttings
	Orange tan fine to coarse SAND, some Gravel; Dry					Sample from 0-2 feet collected for laboratory analysis
	Tan medium to coarse SAND, trace Gravel; Dry					
5	Tan medium to coarse SAND, trace Gravel; Dry to moist		G			
	Tan medium to coarse SAND, trace Gravel; Wet					Wet at 6 feet below land surface
						Sample from 6-8 feet collected for laboratory analysis
						Bottom of boring at 8 feet below land surface
10						
15						
20						
25						

ROUX

Project: **AMTRAK - Sunnyside Yard HST Queens, New York**	**Log of Well No. TP-6**
Date Started: **4/17/96** Completed: **4/18/96**	Measuring Point Elevation: Total Depth: **10.0 ft**
Logged By: **H. Gregory** Checked By: **J.Duminuco**	Water Level During Drilling: **6.0 ft** Post-Development: **3.6 ft**
Drilling Co: **ADT** Driller:	Casing: **2-inch Schedule 40 PVC** Drill Bit Diameter: **3**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **8.7** to **3.7**
Drilling Equipment: **Mobil Drill B-57**	Pack: **#1 Gravel** from **10** to **2.0**
Sampler:	Seal: **Bentonite Pellets** from **2.0** to **1.0**
	Grout from **1.0** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Brown to black fine to coarse SAND, some Gravel; Dry	SW		G			Lithology derived from cuttings
	Orange tan to brown fine to coarse SAND, trace Gravel						Sample from 0-2 feet was collected for laboratory analysis
	Orange tan to brown fine to coarse SAND, trace Gravel; Dry to moist						
	Orange tan medium to coarse SAND, trace Gravel; Wet						Wet at 3 feet below land surface
	Orange tan medium to coarse SAND, trace Gravel; moist to wet						Sample from 3-5 feet collected for laboratory analysis
5							
	Orange tan medium to coarse SAND, trace Gravel; Wet						
	Orange tan medium to coarse SAND, trace Gravel; Wet						
10							Bottom of boring at 10 feet below land surface
15							
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST Queens, New York**	**Log of Well No. TP-7**
Date Started: **4/17/96** Completed: **4/23/96**	Measuring Point Elevation: Total Depth: **8.0 ft**
Logged By: **H. Gregory** Checked By: **J.Duminuco**	Water Level During Drilling: **4.5 ft** Post-Development: **5.7 ft**
Drilling Co: **ADT** Driller:	Casing: **2-inch Schedule 40 PVC** Drill Bit Diameter: **3**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **8.0** to **3.0**
Drilling Equipment: **Mobil Drill B-57**	Pack: **#1 Gravel** from **8.0** to **2.0**
Sampler:	Seal: **Bentonite Pellets** from **2.0** to **1.0**
	Grout from **1.0** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Black to brown fine to medium SAND, some Gravel; Dry	SW		G			Lithology derived from cuttings
	Orange to tan medium to coarse SAND, some Gravel, little Silt; Dry to moist						Sample from 0-2 feet collected for laboratory analysis
5	Orange to tan medium to coarse SAND, some Gravel, little Silt; Moist to wet						Wet at 4.5 feet below land surface
	Orange to tan medium to coarse SAND, some Gravel, little Silt; Wet						Sample from 5-7 feet collected for laboratory analysis
10							Bottom of boring at 8 feet below land surface
15							
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. MW-64**
Date Started: **4/23/96** Completed: **4/23/96**	Measuring Point Elevation: Total Depth: **15.0 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **7.0 ft** Post-Development: **5.0 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **14** to **4**
Drilling Equipment:	Pack: **#1 Gravel** from **15** to **2.5**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **2.5** to **0.5**
	Grout from **0.5** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Black to brown fine to medium SAND, some Silt; Dry	SW				0	Lithology derived from cuttings
	Black to brown fine to medium SAND, some Silt; Dry						
	Black to brown fine to medium SAND, some Silt; Dry to moist					0	
5	Orange to tan medium to coarse SAND, some Silt, little Gravel; Moist to wet						
	Tan medium to coarse SAND, trace Gravel; Wet						Wet at 7 feet below land surface
						0	
	Tan medium to coarse SAND, trace Gravel; Wet						
10	Tan medium to coarse SAND, trace Gravel; Wet						
	Tan medium to coarse SAND, trace Gravel; Wet						
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. **MW-65**
Date Started: **4/22/96** Completed: **4/22/96**	Measuring Point Elevation: Total Depth: **14.5 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **7.0 ft** Post-Development: **5.2 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **14** to **4**
Drilling Equipment:	Pack: **#1 Gravel** from **14.5** to **2.0**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **2.0** to **0**
	rout from to

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Dark brown to black fine to medium SAND, some Silt, some coal; Dry	SW		G		0	Lithology derived from cuttings
	Dark brown to black fine to medium SAND, some Silt, some Coal; Dry						
	Dark brown to black fine to medium SAND, some Silt, some Coal; Dry					0	
5	Orange brown to tan medium to coarse SAND, some Silt, some Gravel; Dry to moist						
	Orange brown to tan medium to coarse SAND, some Silt, some Gravel; Moist to wet					0	Wet at 7 feet below land surface
	Orange brown to tan medium to coarse SAND, some Silt, some Gravel; Wet						
10	Orange brown to tan medium to coarse SAND, some Silt, some Gravel; Wet						
	Orange brown to tan medium to coarse SAND, some Silt, some Gravel; Wet						
15							Bottom of boring at 14.5 feet below land surface
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. MW-66**
Date Started: **4/23/96** Completed: **4/23/96**	Measuring Point Elevation: Total Depth: **15.0 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **6.5 ft** Post-Development: **5.3 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **14** to **4**
Drilling Equipment:	Pack: **#1 Gravel** from **15** to **2.5**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **2.5** to **0.5**
	Grout from **0.5** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler Blows per 6"	PID (ppm)	REMARKS
	Dark brown to black fine to medium SAND, little Silt, little Gravel; Dry	SW			0	Lithology derived from cuttings
	Orange brown medium to coarse SAND, some Gravel; Dry					
	Orange brown medium to coarse SAND, some Gravel; Dry				0	
5	Orange brown medium to coarse SAND, little Gravel; Dry to moist					
	Orange brown medium to coarse SAND, little Gravel; Moist to wet					Wet at 6.5 feet below land surface
	Orange brown medium to coarse SAND, little Gravel; Wet				0	
10	Orange to tan fine to medium SAND, little Silt; Wet					
	Orange to tan fine to medium SAND; little Silt; Wet					
	Orange to tan fine to medium SAND, little Silt; Wet					
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. **MW-67**
Date Started: **4/19/96** Completed: **4/19/96**	Measuring Point Elevation: Total Depth: **17.0 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **6.5 ft** Post-Development: **5.9 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **20-Slot** from **14** to **4**
Drilling Equipment:	Pack: **#1 Gravel** from **15** to **2.0**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **2.0** to **1.0**
	Grout from **1.0** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Dark brown to black fine to coarse SAND, trace cement, trace Gravel; Dry	SW				0	Lithology derived from cuttings
	Black brown to tan fine to coarse SAND, trace cement, trace Gravel; Dry						
	Black brown to tan fine to coarse SAND, trace cement, trace Gravel; Dry					0	
5	Orange brown fine to coarse SAND, trace Gravel; Dry to moist						
	Orange brown fine to coarse SAND, trace Gravel; Wet						Wet at 6.5 feet below land surface
	Orange brown fine to coarse SAND, trace Gravel; Wet					0	
10	Orange to tan medium to coarse SAND, trace Gravel; Wet						
	Orange to tan medium to coarse SAND, trace Gravel; Wet						
	Orange to tan medium to coarse SAND, trace Gravel; Wet						
15	Orange to tan fine to coarse SAND, trace Gravel; Wet						Bottom of boring at 15 feet below land surface
20							
25							

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. MW-68**
Date Started: **4/24/96** Completed: **4/24/96**	Measuring Point Elevation: Total Depth: **17.0 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **14.0 ft** Post-Development: **9.4 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **16** to **6**
Drilling Equipment:	Pack: **#1 Gravel** from **17** to **4.0**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **4.0** to **2.0**
	Grout from **2.0** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler Blows per 6"	PID (ppm)	REMARKS
	Black to brown fine to medium SAND, some Gravel, some Cobbles; Dry	SW		10 15 16 12	0	
	Black to brown fine to medium SAND, some Gravel, some Cobbles; Dry					
	Black to brown fine to medium SAND, some coarse Gravel, some Cobbles; Dry					
5	Orange to tan fine to medium SAND, some Silt; Dry			15 17 10 7	50	
	Orange to tan fine to medium SAND, some Silt; Dry					
10	Dark black to brown fine to medium SAND, some Silt; Dry			9 7 9 6	70	
	Dark black to brown fine to medium SAND, some Silt; Dry to moist					
	Dark black to brown fine to medium SAND, some Silt; Moist					Slight water content from 14 feet below land surface
15	Dark black to brown fine to medium SAND, some Silt; Moist					
						Bottom of boring at 17 feet below land surface
20						
25						

ROUX

Project: **AMTRAK - Sunnyside Yard HST** **Queens, New York**	**Log of Well No. MW-69D**
Date Started: **4/24/96** Completed: **4/24/96**	Measuring Point Elevation: Total Depth: **35.0 ft**
Logged By: **M. Pancoast** Checked By: **H. Gregory**	Water Level During Drilling: **10.0 ft** Post-Development: **9.5 ft**
Drilling Co: **ADT** Driller:	Casing: **4-inch Schedule 40 PVC** Drill Bit Diameter: **8-inch**
Drilling Method: **Hollow-Stem Auger**	Perforation: **10-Slot** from **33** to **23**
Drilling Equipment:	Pack: **#1 Gravel** from **35** to **21**
Sampler: **2-inch Split Spoon**	Seal: **Bentonite Pellets** from **21** to **19**
	Grout from **19** to **0**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler Blows per 6"	PID (ppm)	REMARKS
	Black to brown fine to medium SAND, some Gravel, some Cobbles; Dry	SW			0	
	Black to brown fine to medium SAND, some Gravel, some Cobbles; Dry					
	Orange to tan medium to coarse SAND; Dry					
5				60 NR NR NR	0	
	Orange to tan medium to coarse SAND; Dry				10	
	Orange to tan medium to coarse SAND; Dry					
10	Orange to tan medium to coarse SAND; Dry to moist			11 13 11 10	46	Wet at 10 feet below land surface
	Orange to tan medium to coarse SAND, some Silt, some Gravel; Wet					Strong petroleum odor from 10 to 15 feet below land surface
	Orange to tan medium to coarse SAND, some Gravel, some Silt; Wet					
15				17 17 15 15	35	
	Orange to tan medium to coarse SAND, some Gravel, some Silt; Wet				40	
	Orange to tan medium to coarse SAND, little Silt; Wet					
20	Orange to tan medium to coarse SAND, little Silt; Wet			10 15 14 15	50	
	Orange to tan medium to coarse SAND, little Silt; Wet				62	
	Orange to tan medium to coarse SAND, little Silt; Wet					
25						

Continued Next Page

ROUX

Project: **AMTRAK - Sunnyside Yard HST**
Queens, New York

Log of Well No. **MW-69D**

Depth (feet)	LITHOLOGIC DESCRIPTION	Lithology	Monitoring Well Construction	Sampler	Blows per 6"	PID (ppm)	REMARKS
	Orange to tan fine to coarse SAND, some Silt; Wet				10 11 10 10	20	
	Orange to tan fine to coarse SAND, some Silt; Wet						
30	Orange to tan fine to coarse SAND, some Silt, Wet				13 12 10 9	0	
	Orange to tan fine to coarse SAND, some Silt; Wet						
	Orange to tan fine to coarse SAND, some Silt; Wet						
35							Bottom of boring at 35 feet below land surface
40							
45							
50							