Hillside Maintenance Complex
93-59 183 Street
Hollis, NY 11423

James J. Dermody
President

Long Island Rail Road

March 3, 2006

Tara Diaz, Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12233-7015

Re: Voluntary Cleanup Agreement, Long Island Rail Road
Manhasset, Massapequa and Island Park Substations
Draft Delineation Phase 2 Site Assessment Investigation Report

Dear Ms. Diaz:

Enclosed for your review and comment please find three (3) copies of the following final report:

"Delineation Phase 2 Site Assessment for
Manhasset, Massapequa and Island Park Substations
Investigation Report
April 2005"

The enclosed final report has been revised in accordance with the New York State Department of Environmental Conservation (NYSDEC) comment report dated December 14, 2005, and our discussions during the February 10, 2006 conference call. Please note that in accordance with our discussions on February 10, 2006, the information requested to be added to Figure 1-2 for the Manhasset Substation site has been included on Drawing 1 due to the fact that Figure 1-2 is at a scale that would not allow the addition of this information.

If you have any questions or comments, please contact me at (718) 558-3620.

Very truly yours,

Andrew M. Wilson, P.E.
Project Manager

AMW/SET/tp
Enclosure
cc/encl.:
N. Walz, NYSDOH (1 copy)
D. D'Ambrosio, NYSDEC (1 copy)
C. Channer, Esq., MTA (1 copy)
cc: L. Wunderlich (LIRR)
T. Fox (D&B)
♦2015\MISC06LTR-02

METROPOLITAN TRANSPORTATION AUTHORITY
LONG ISLAND RAIL ROAD

DELINEATION PHASE 2 SITE ASSESSMENT
for
MANHASSET, MASSAPEQUA AND ISLAND PARK SUBSTATIONS

INVESTIGATION REPORT

Prepared for:

METROPOLITAN TRANSPORTATION AUTHORITY
LONG ISLAND RAIL ROAD

Prepared by:

DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK 11797

FEBRUARY 2006

LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT FOR
MANHASSET, MASSAPEQUA AND ISLAND PARK SUBSTATIONS
INVESTIGATION REPORT

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Section 1

1.0 INTRODUCTION

This Investigation Report presents the results of the Delineation Phase 2 Site Assessments, which were conducted at the Long Island Rail Road (LIRR) Manhasset, Massapequa, and Island Park substations and were completed in accordance with fully executed Voluntary Cleanup Agreement Nos. V-00396-1, V-00397-1 and V-00392-1, respectively. The New York State Department of Environmental Conservation (NYSDEC) index numbers for these substations are WI-0908-02-02, WI-0909-02-02 and W1-0910-02-02, respectively.

The objectives of the Delineation Phase 2 Site Assessments included the following:

- Define the nature and extent of impacts to surface and subsurface soil;
- Determine if site-related contaminants have impacted groundwater quality;
- Identify potential impacts to human health and/or the environment associated with site-related contaminants; and
- Obtain sufficient data to determine the need for Interim Remedial Measures (IRMs) and to evaluate remedial alternatives that may be implemented as a final long-term remedy for the sites.

Field activities and sampling procedures associated with the Delineation Phase 2 Site Assessments at each of the three substations were completed in accordance with the NYSDEC-approved "Investigation Work Plan," dated September 2002. It should be noted that as part of the Delineation Phase 2 Site Assessments, drainage structures that were identified as requiring closure pursuant to the United States Environmental Protection Agency (USEPA) Underground Injection Control (UIC) program were also investigated at each of the three substation sites. Analytical results associated with the investigation of these structures are, therefore, also discussed in this report. However, remediation and post-remediation endpoint sampling activities conducted subsequent to this investigation are documented in a separate report entitled, "Underground Injection Control Closure Report for Manhasset, Massapequa and Island Park Substations," dated September 2004. All field activities and sampling procedures utilized for the

investigation of UIC structures were performed in accordance with the USEPA-approved "Underground Injection Control Closure Plan," dated November 2002.

The LIRR has undertaken a long-term capital improvement project in which it is upgrading several electric substations to accommodate the new "M-7" electric train cars. In support of this project, the LIRR has been renovating the Manhasset and Massapequa substations and plans to reconstruct an entirely new substation to the east of the existing Island Park substation. As a result, the LIRR has undertaken additional environmental investigations at each of the three substations to identify any potentially impacted soil at locations where construction excavation activities are planned. These activities are collectively referred to as the Construction Excavation Investigations. Therefore, this report also documents the findings of these additional investigations conducted at the three substations. All associated field activities and sampling procedures conducted as part of the Construction Excavation Investigations were performed in accordance with the NYSDEC-approved "Construction Excavation Work Plan", dated September 2002. Excavation activities, which were subsequently conducted at the three sites, in support of substation renovation/construction, are documented in a separate report entitled, "Construction Excavation Completion Report for Manhasset, Massapequa and Island Park Substations."

The following subsections provide relevant project background information, including detailed descriptions of each of the three substation sites, as well as a summary of the findings of prior investigations.

1.1 Project Background

The LIRR built and operated substations from the early 1930s through 1951 that utilized mercury rectifiers. These rectifiers allowed the LIRR to receive 60-cycle, alternating current (AC) from local utilities and convert it to direct current (DC) for use as a source of electric power for its locomotives and electric passenger car fleet. The LIRR identified 20 substations located throughout Queens, Nassau and Suffolk Counties that once utilized mercury containing rectifiers.

It is believed that during the early 1980s, the mercury rectifiers were taken out of service and physically removed from these LIRR substations and replaced with non-mercury containing solid state equipment. However, due to uncertainties surrounding the work practices that may have been employed when managing the operation and maintenance of these mercury rectifiers, the LIRR believed it necessary to conduct environmental assessments at these 20 electric substations to determine the potential effects that may have occurred to the surrounding environment.

In 1999, the LIRR conducted environmental assessments at 20 of their electric substations, which previously utilized mercury-containing rectifiers. The results of these assessments were documented in a report prepared by Dvirka and Bartilucci Consulting Engineers (D&B), entitled, "Site Assessment of 20 Substations for Mercury Contamination," dated December 2000. Based on the findings of that report, mercury was identified in soil at all 20 substations at concentrations above NYSDEC recommended cleanup objectives. In order to further delineate and remediate impacted soil at the 20 substations, the LIRR has agreed to undertake and complete Delineation Phase 2 Site Assessments under the New York State Department of Environmental Conservation's (NYSDEC) Voluntary Cleanup Program (VCP).

Based on the findings of the 1999 site assessments, several substations were found to contain elevated levels of mercury in soil that had the potential to pose a human exposure pathway. As a result, an Interim Remedial Measures (IRM) program was conducted to eliminate the potential human exposure pathway by excavating mercury-impacted soil for proper off-site transportation and disposal. IRM activities were performed in the Spring of 2000 at 11 substations including Valley Stream, Lindenhurst, Far Rockaway, Floral Park, Shea, Bayside, Port Washington, Massapequa, Hempstead, Kew Gardens, and Island Park. The IRM program is documented in the report entitled, "Site Assessment of 20 Substations for Mercury Contamination - Interim Remedial Measures Oversight Report," dated January 2001, which was prepared by D&B. It should be noted that elevated levels of mercury still exist in subsurface soil at these 11 substations.

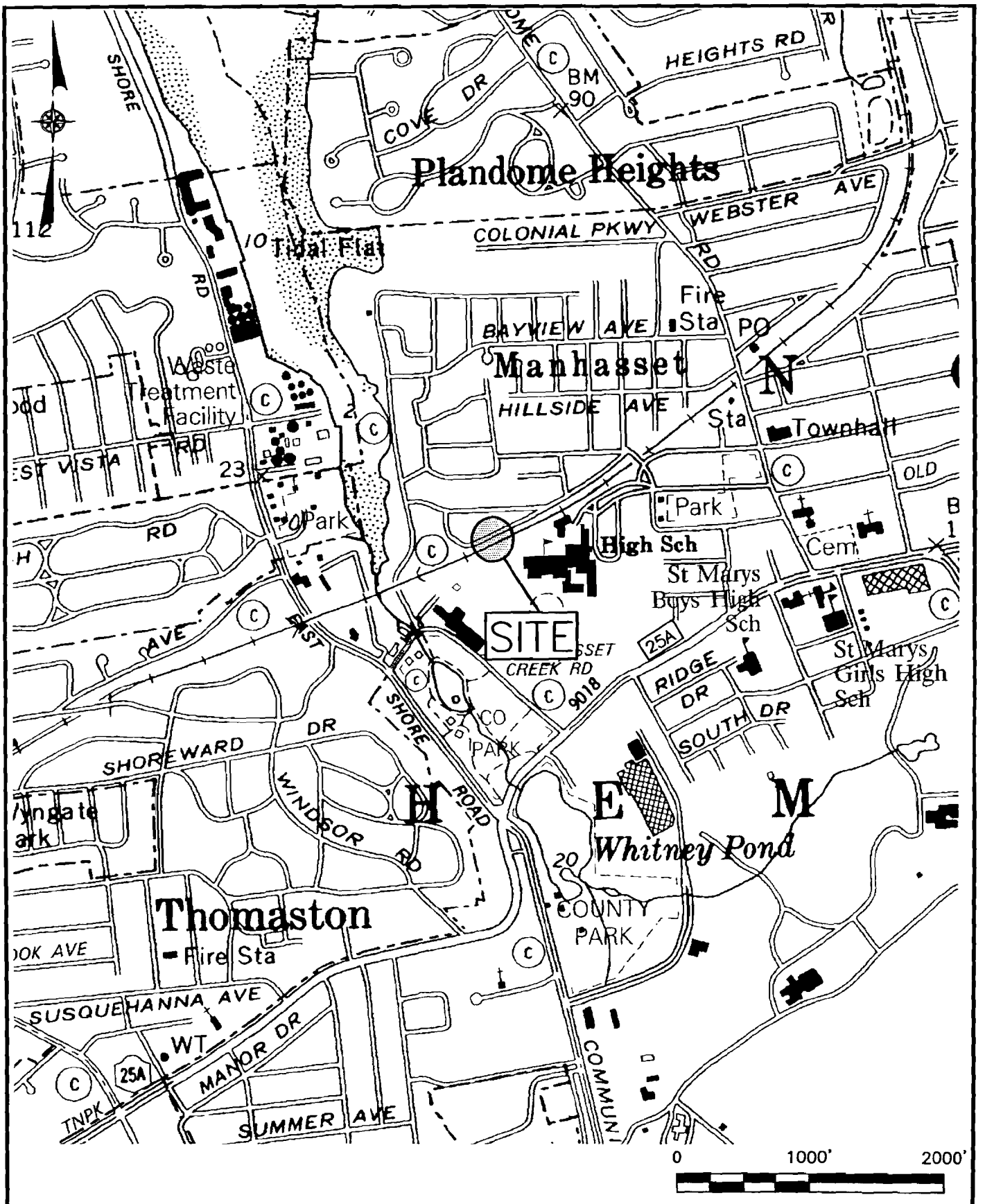
In support of a long-term capital improvement project in which it is upgrading several electric substations, the LIRR elected to initially conduct Delineation Phase 2 Site Assessments at 3 of the 20 substations, including the Manhasset, Massapequa and Island Park Substations. The field investigation for this work was completed in the Winter of 2003. However, based on the sample results, it was determined that additional data was needed to fully characterize the extent of mercury in soil at the Manhasset and Massapequa substations. Therefore, the LIRR developed a Supplemental Investigation Work Plan for this additional investigation that was approved by the NYSDEC in April 2004. The supplemental sampling activities were completed at the Manhasset and Massapequa substations in August 2004. The LIRR intends to further investigate the remaining 17 substations in the near future.

1.2 Site Description

Provided below is a brief description of each substation.

1.2.1 Manhasset Substation

The Manhasset substation site is located in Manhasset, Nassau County, New York (see Figure 1-1). The site consists of a 25-foot by 30-foot one-story brick building located within the LIRR right-of-way, 12 feet north of the train tracks as shown on Figure 1-2. A 30-foot by 30-foot transformer yard is located immediately east of the substation building. It should be noted that all transformers and associated equipment had been removed prior to the Delineation Phase 2 Site Assessment Program in support of above-mentioned Capital Improvement Project. The remaining portion of the site is a rectangular-shaped, partially developed, parcel of land. The Manhasset substation does not have a basement or a utility trench system. It should also be noted that the Manhasset substation formerly contained a bank of active lead-acid batteries located in the northwest corner of the substation to provide back-up electricity for the substation switch equipment in the event of a power failure. However, these batteries were also removed prior to the Delineation Phase 2 Site Assessment Program. The Manhasset substation does not house any sanitary or office facilities but is served by public water.



LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

SITE LOCATION MAP
MANHASSET SUBSTATION - N10

FIGURE 1-1

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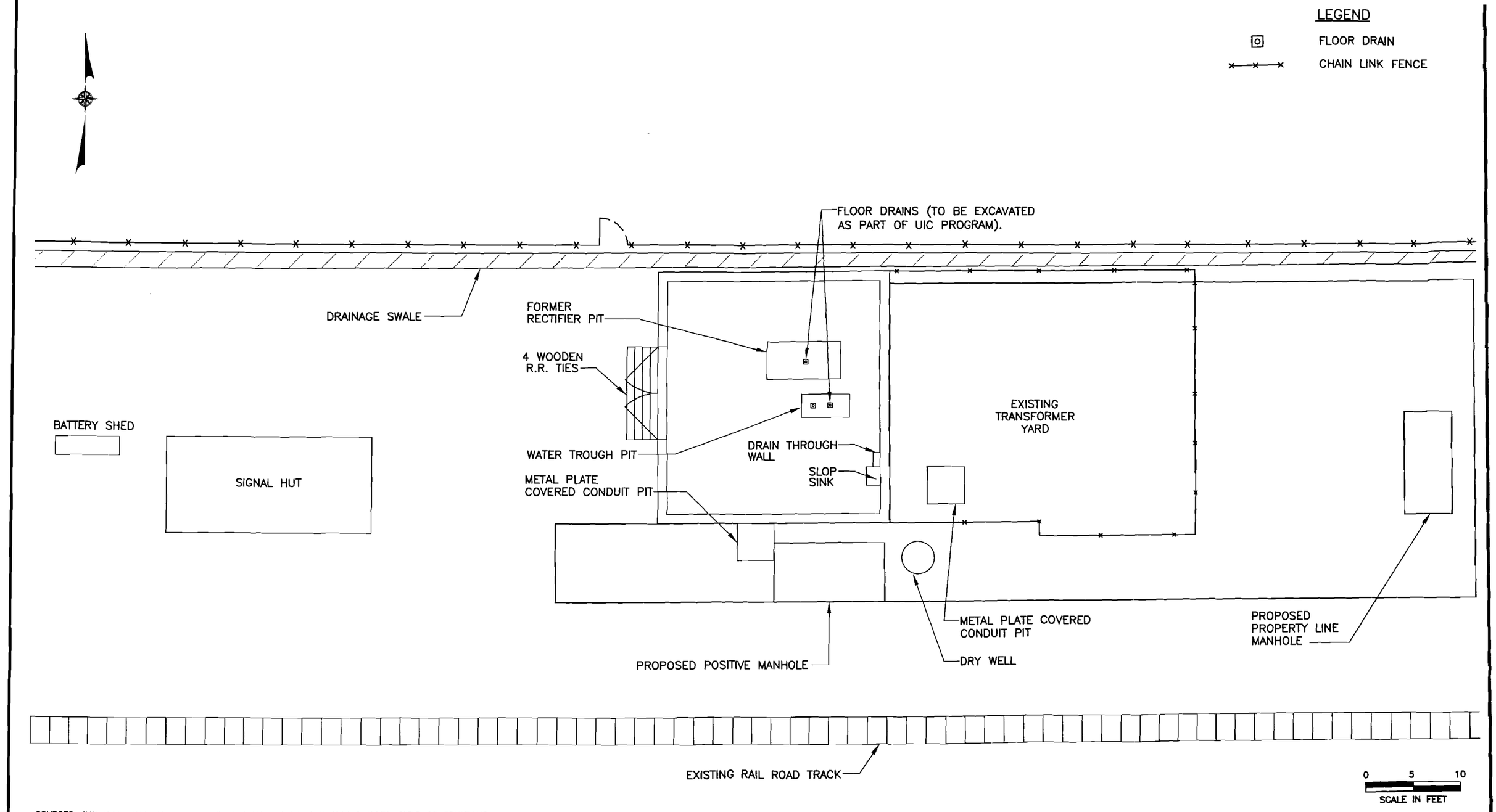

SOURCES: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS & D&B's FIELD OBSERVATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT
SITE PLAN

MANHASSET SUBSTATION - N10

FIGURE 1-2

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The substation complex is utilized to convert alternating current to direct current for the LIRR-Port Washington line. However, at the time of the Phase 2 Site Assessment, the complex was de-energized for renovations. The areas surrounding the substation and the former transformer yard are used for storage of equipment and supplies by the LIRR.

During the initial site assessment in 1999, the interior of the substation consisted of an active solid-state rectifier located over a pit that once supported a mercury-containing rectifier. However, as of a site inspection conducted by D&B on February 13, 2002, the solid-state rectifier had been removed in support of the ongoing overall capital improvement project for the Manhasset substation. The substation is also equipped with a second pit, referred to as a water trough on LIRR construction drawings, which is covered by a metal utility plate. During the initial site investigation conducted in 1999, D&B observed that the rectifier pit contained one floor drain and the water trough contained two floor drains. Also noted during the initial 1999 site investigation, the Manhasset substation was equipped with a slop sink along the eastern substation wall that discharged to the transformer yard located to the east of the substation. However, this slop sink was subsequently removed and was not present during the Delineation Phase 2 Site Assessment Program. Based on available information, the approximate groundwater flow direction is to the northwest and the approximate depth to groundwater is 75 feet below grade.

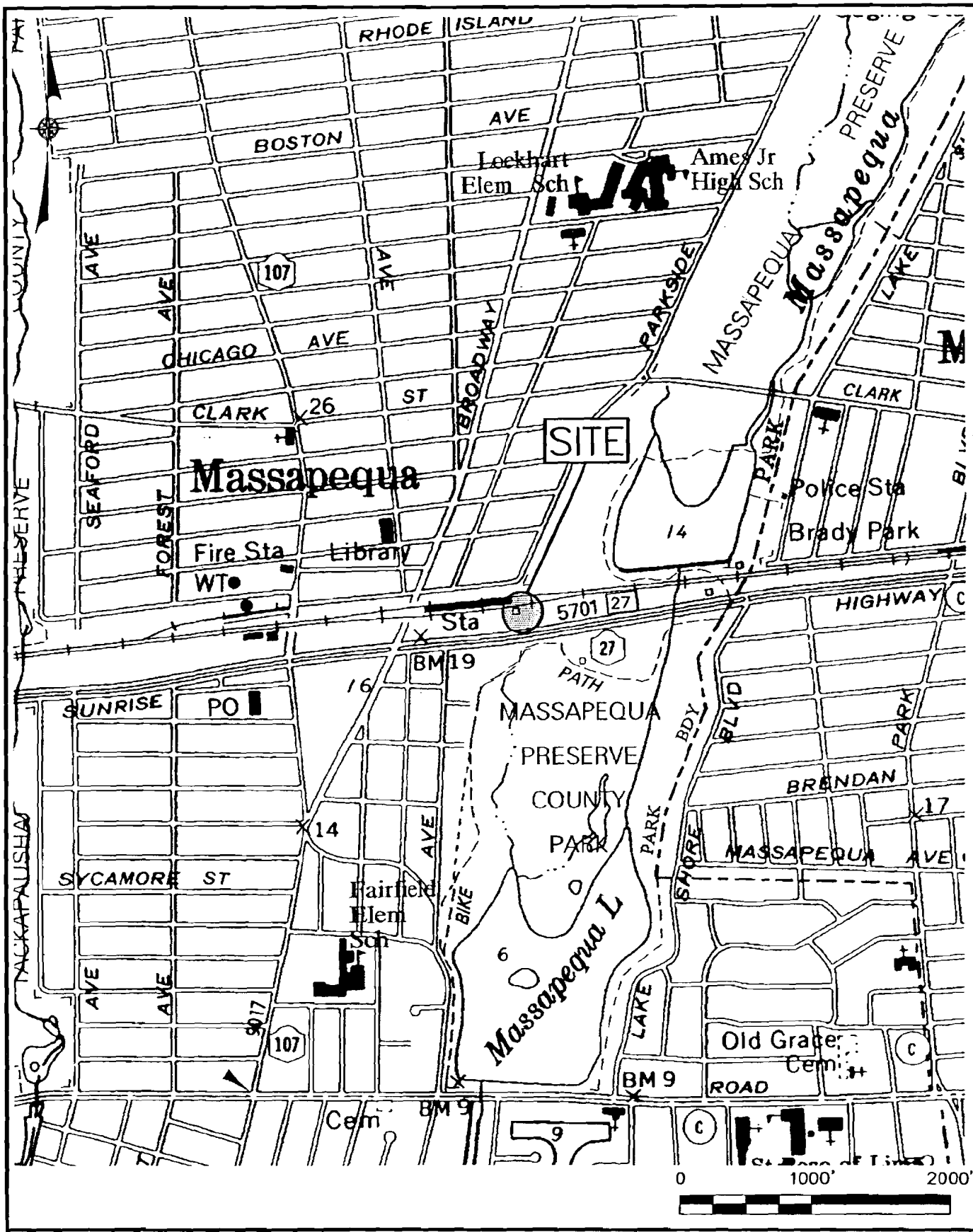
D&B observed that storm water drainage from the substation property is conveyed to an existing storm water drainage system. The storm water drainage system originates from an elevated area to the south of the substation and the LIRR right-of-way and is conveyed via a concrete pipe, which extends to the north running under the tracks. The concrete pipe discharges to a corrugated pipe, approximately 80 feet to the east of the substation. The corrugated pipe conveys storm water in a westerly direction and discharges to a drainage swale located immediately to the west of the substation. Storm water continues to flow west along the northern boundary of the substation approximately 800 feet, down an embankment to the headwaters of Manhasset Bay.

1.2.2 Massapequa Substation

The Massapequa substation site is located in Massapequa, Nassau County, New York (see Figure 1-3). The site consists of an approximately 625 square foot one-story brick building as shown in Figure 1-4. An approximately 2,500 square foot transformer yard is located adjacent to the substation to the west and is secured by a perimeter chain-linked fence. The substation complex is utilized to convert alternating current to direct current for the LIRR-Montauk line. The areas surrounding the substation and the transformer yard are currently utilized as vehicular parking and pedestrian traffic areas.

The Massapequa substation is not equipped with a basement or any sanitary or office facilities. During the Delineation Phase 2 field program, the interior of the substation consisted of an active solid-state rectifier located over a pit that once supported a mercury-containing rectifier. The substation is also equipped with a second pit, referred to as a water trough on LIRR construction drawings. In addition, the substation contains a water pipe trench with a concrete bottom located in the southeast corner of the substation.

A water service pit with an earthen bottom is located along the outside of the eastern wall of the substation. In addition, a dry well with a solid cover exists off the northwest corner of the substation located within the transformer yard. Based on flush tests conducted during the initial site assessment, it was determined that the drain in the rectifier pit discharges to the dry well located in the transformer yard. A steel plate covered control communications pit, containing a floor drain, is located within the transformer yard, and a steel plate covered positive breaker cable pit containing a floor drain exists along the north side of the substation. Available LIRR construction drawings indicate that a dry well is located approximately 10 feet north of the substation. However, this dry well, if present, would currently be located beneath the existing railroad tracks. Based on available information, the approximate groundwater flow direction is to the south and the approximate depth to groundwater is 15 feet below grade.



LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

SITE LOCATION MAP
MASSAPEQUA SUBSTATION - S15

FIGURE 1-3

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LEGEND

FLOOR DRAIN

CHAIN LINK FENCE

DRY WELL (TO BE EXCAVATED AS PART OF UIC PROGRAM)

STEEL PLATE COVERED POSITIVE BREAKER CABLE PIT

DRY WELL 6'–0" DIA. 9'–0" DEEP (NOT OBSERVED)

EXISTING ELEVATED TRAIN TRACKS

STEEL PLATE COVERED CONTROL COMMUNICATIONS PIT

CONCRETE RETAINING WALL

PROPOSED PROPERTY LINE MANHOLE

ELECTRICAL CONTROL PANNEL

UNPAVED AREA

WATER TROUGH PIT

RECTIFIER PIT

BITUMINOUS DRIVE WAY

EXISTING TRANSFORMER YARD

UNPAVED AREA

LIRR CONCRETE WALKWAY

PROPOSED NEGATIVE MANHOLE

GRASS COVERED AREA

CONCRETE PEDESTRIAN SIDEWALK

SOURCES: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS & D&B's FIELD OBSERVATIONS

0 5 10

SCALE IN FEET

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT
SITE PLAN

MASSAPEQUA SUBSTATION - S15

FIGURE 1-4

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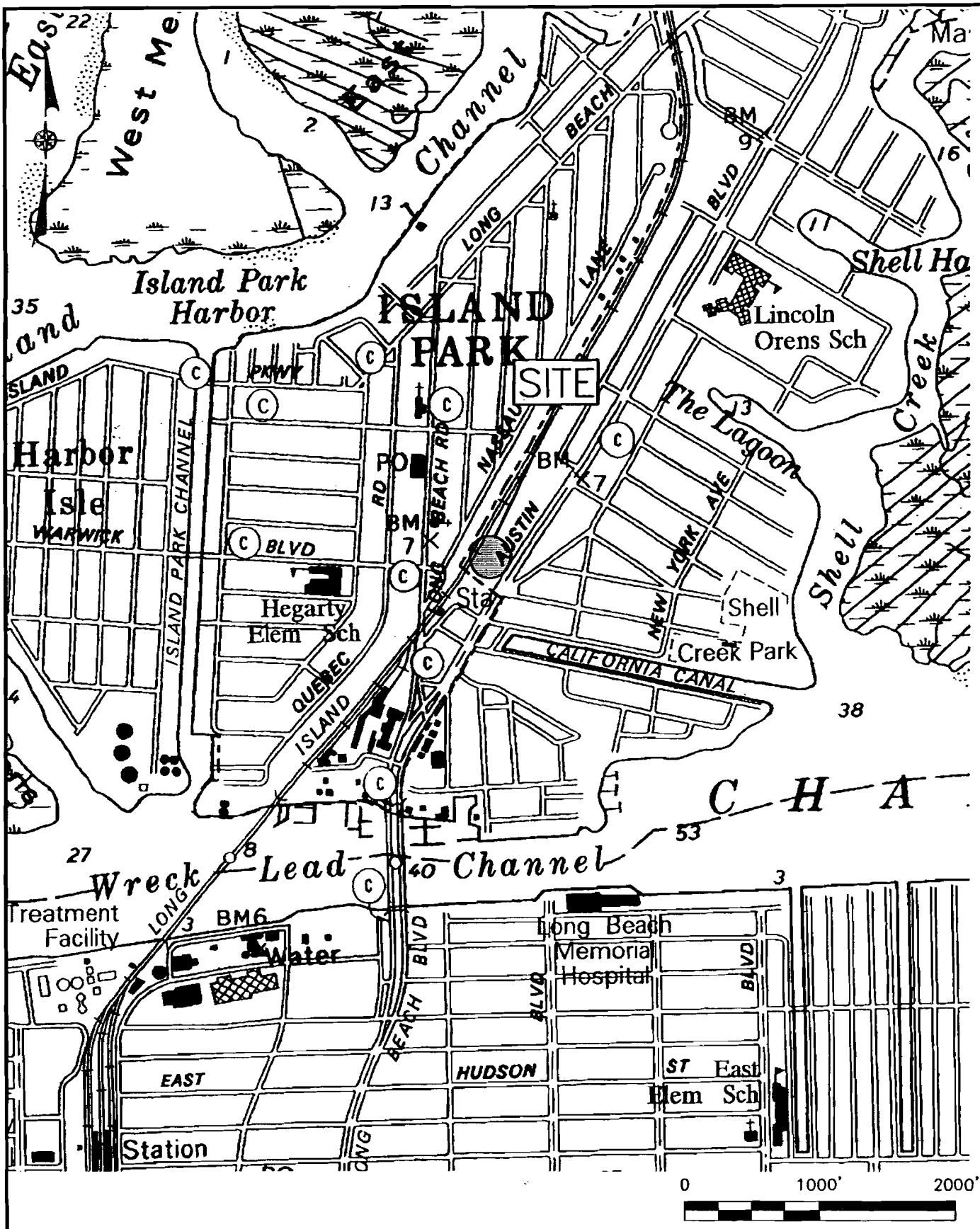
1.2.3 Island Park Substation

The Island Park substation site is located in Island Park, Nassau County, New York (see Figure 1-5). The site consists of an approximately 1,800 square foot one-story brick building as shown on Figure 1-6. An approximately 3,000 square foot transformer yard is located adjacent to the substation to the northeast and is secured by a perimeter chain-linked fence. The substation complex is presently utilized to convert alternating current to direct current for the LIRR-Long Beach line. The areas surrounding the substation and the transformer yard are currently utilized for vehicular parking.

The Island Park substation contains a basement, sanitary facilities, water service and a utility trench system. The sanitary facilities are active and discharge to a septic tank located to the south of the substation. A tile field, which extends further to the south, is connected to the septic tank. The interior of the substation consists of two active solid-state rectifiers located over two separate pits leading to the basement. These pits once supported the mercury-containing rectifiers. In addition, there is a water meter pit with an earthen bottom that is covered with a steel plate located off the northwest corner of the substation as shown in Figure 1-6. Based on available information, the approximate groundwater flow direction is to the southwest and the approximate depth to groundwater is 10 feet below grade.

1.3 Summary of Prior Investigations

As discussed in Section 1.1, the LIRR completed initial environmental assessments at each of the three substations in 1999 as documented in the report entitled, "Site Assessment of 20 Substations for Mercury Contamination," dated December 2000. Investigation methods utilized at the sites during the initial site assessments included site inspections, mercury vapor measurements, drainage determinations and geophysical surveys. In addition, samples of various environmental media were collected at each of the sites for laboratory analysis. These media included surface soil, subsurface soil, surface water sediment, groundwater and concrete. Analytical data from the initial assessment of the three substations is presented in Appendix A. Through these assessments, several areas of concern (AOC) were identified at each substation,



LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

SITE LOCATION MAP
ISLAND PARK SUBSTATION - L03

FIGURE 1-5

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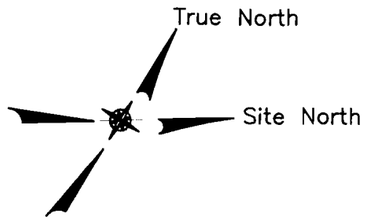
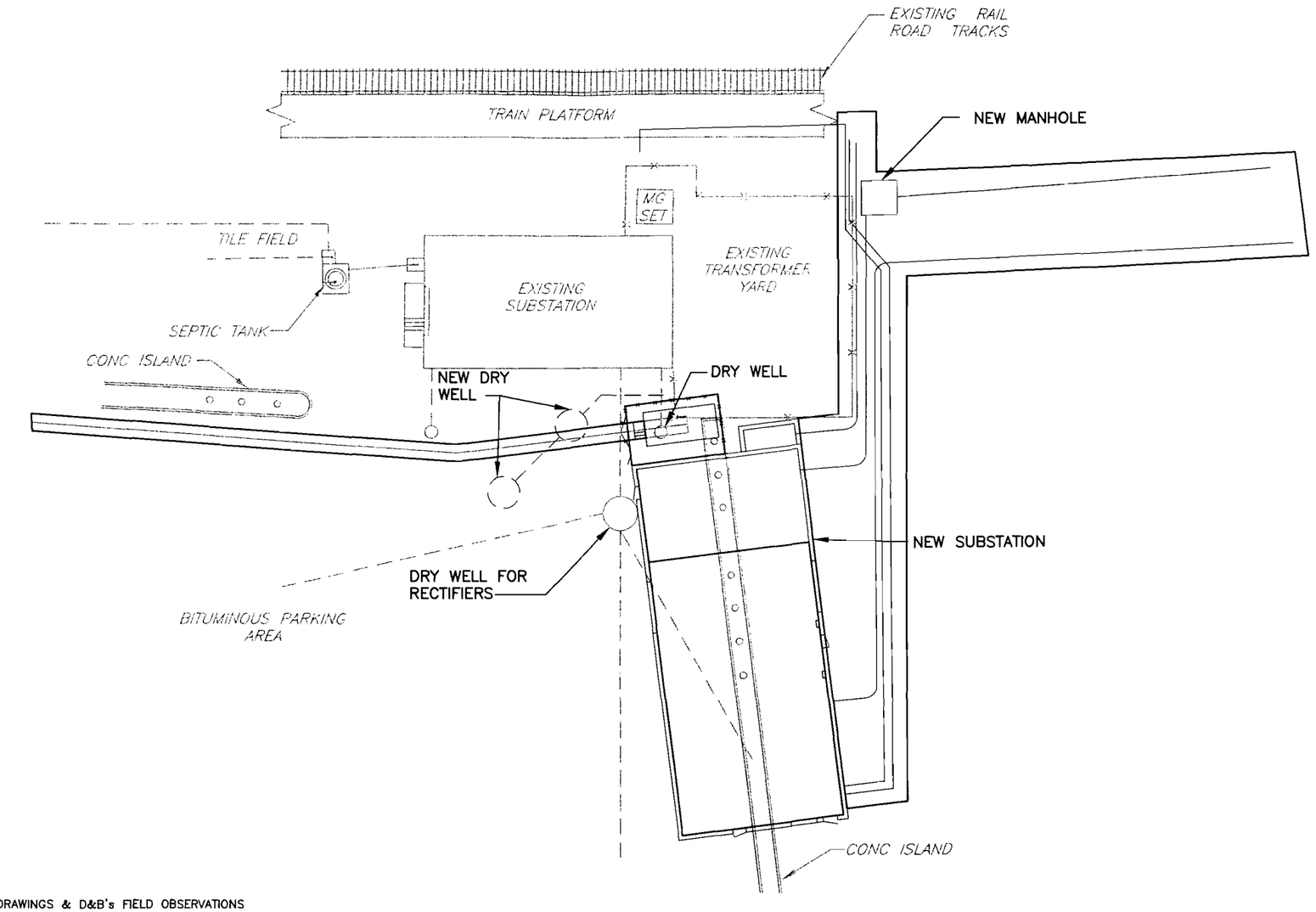


LEGEND

— — — PIPE CONNECTION BASED ON LIRR CONSTRUCTION DRAWINGS

×—×—× CHAIN LINK FENCE



SOURCES: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS & D&B's FIELD OBSERVATIONS

0 15 30

SCALE IN FEET

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LONG ISLAND RAIL ROAD
DELINEATION PHASE II SITE ASSESSMENT
SITE PLAN

ISLAND PARK SUBSTATION - L03

FIGURE 1-6

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which were found to warrant additional investigation. As discussed above, the LIRR elected to further investigate the Manhasset, Massapequa and Island Park substations first, in support of a long-term Capital Improvement Project. Below is a summary of the findings and recommendations that are based on the initial assessment of the three substations. Note that the recommendations presented below were used as the basis for developing the investigation scope of work for the Delineation Phase 2 Site Assessment of the three substations. This summary has been organized by each AOC identified at the three substations.

1.3.1 Manhasset Substation

Exterior Railroad Ties

Surface and subsurface soil samples were collected from the west side of the substation within the location of the Exterior Railroad Ties. Analytical sampling results identified mercury-impacted soil to a depth of 6 feet below grade at this location. As a result, additional soil sampling and analysis was recommended to delineate the horizontal and vertical extent of mercury-impacted soil in the vicinity of soil borings MHSBB-06 and MHSBB-07.

Drainage Swale

A drainage swale was identified just inside the northern border of the site. The swale traversed the site from the east to the west and terminated off-site at an outfall along the east shore of Manhasset Bay. A significant portion of the drainage swale extending to the west of the substation was identified to have been impacted by mercury to a depth of approximately 1-foot below grade with mercury concentrations ranging from nondetect to 9,880 mg/kg in this area.

It was also recommended to further investigate the drainage swale "upgradient" to the substation (to the east) to identify any potential off-site sources.

Outfall to Manhasset Bay

As discussed above, the on-site drainage swale was identified to discharge off-site at an outfall located on the eastern shore of Manhasset Bay. Mercury was detected in sediment sample MHSS-08 at the mouth of the outfall at a concentration of 1.3 mg/kg. The NYSDEC guidance values for mercury in surface water sediments ranges from 0.15 mg/kg to 1.3 mg/kg. In order to determine if the mercury identified in the sediment sample was associated with the discharge of storm water from the drainage swale, it was recommended that additional samples be collected from the drainage swale west of the substation, and that additional sediment samples be collected beyond the mouth of the outfall.

Slop Sink

A slop sink was identified inside the substation along the eastern wall. The sink was found to discharge to the ground on the west side of the transformer yard, and was therefore found to be in violation of the State Pollutant Discharge Elimination System (SPDES). A surface soil sample (MHSS-01) collected at the discharge point identified the soil to be impacted by mercury. As a result, it was recommended that the slop sink be removed and additional sampling be conducted adjacent to MHSS-01 to determine the horizontal and vertical extent of impacted soil within the vicinity of the slop sink discharge point.

Underground Injection Control

A dry well located off the southeast corner of the substation was found to receive drainage from an interior floor drain. As a result, its closure was noted to be regulated by the United States Environmental Protection Agency (USEPA) Underground Injection Control (UIC) program. Based on the initial site assessment field activities, soil within the dry well from at least 12.5 to 16.5 feet below grade was found to be impacted. Based on these results, additional sampling and analysis for UIC constituents was recommended to determine the vertical extent of impacted soil within the dry well.

A floor drain was discovered in both the rectifier and water trough pits that discharge directly to the subsurface soil immediately beneath the substation floor. As a result, the closure of these units was also noted to be regulated by the USEPA UIC program. Further investigation activities, including sampling and analysis, were recommended to determine the vertical extent of the impacted soil at both locations.

Lastly, it was recommended that all closure activities at the dry well, rectifier pit and water trough pit be conducted in accordance with the USEPA UIC program.

Potential Miscellaneous Releases

Due to the unknown historic use of the mercury containing rectifiers, it was determined that inadvertent, non-specific releases may have occurred in the areas immediately surrounding the substation. Analytical results indicated that, exterior areas not necessarily associated with known areas of concern (i.e., loading docks, entrance ways, dry wells, trenches, etc.) may have been impacted. Therefore, it was recommended that two soil borings be advanced along the south side of the substation to address potential releases not previously investigated.

Groundwater

Groundwater sampling results presented in the initial site assessment indicated that groundwater had not been impacted by mercury at the Manhasset substation. As a result, further investigation and/or remediation activities with respect to groundwater were not recommended.

1.3.2 Massapequa Substation

Substation Interior

Mercury was detected above NYSDEC soil cleanup objectives in soil at borings and concrete corings advanced within the former rectifier and water trough pits and water pipe trench located within the substation building. However, further sampling and/or remediation was not

recommended at that time. LIRR representatives had indicated that the Massapequa substation was scheduled for renovation, whereby the rectifier and water trough pits would be permanently backfilled to grade with concrete. It was anticipated that the structurally sound concrete cap will minimize, if not eliminate, any mercury migration through the subsurface soil immediately beneath these structures. It was noted that if the LIRR plans to remove the concrete cap or demolish this substation in the future, that would represent the best opportunity to delineate and remediate any mercury contaminated soil as necessary.

The initial site assessment report also noted that during a mercury vapor survey, elevated levels of mercury vapor were detected inside the conduit pipes located within the water trough pit. As a result, it was also recommended that these conduit pipes be permanently sealed with concrete.

East Side of Substation

Based on the analytical results from the initial site assessment, as well as the endpoint sample results from the IRM program, surface and subsurface soil was found to have been impacted by mercury in the area to the east of the substation. Additional sampling and analysis was therefore recommended to determine the horizontal and vertical extent of mercury contamination in this area; specifically, in the vicinity of soil boring MSSB-06 and surface soil samples MSSS-02 through MSSS-04.

West Side of Substation

The initial site assessment also identified mercury impacted surface soil along the western side of the substation within the transformer yard. Additional sampling and analysis was recommended to determine the horizontal and vertical extent of mercury contamination in this area; specifically, in the vicinity of surface soil sample MSSS-06 and MSSS-07.

Former Dry Well

LIRR construction drawings indicated the presence of a dry well located approximately 10 feet to the north of the substation. However, this dry well was not visible from grade during the initial site assessment since we believe that the unit may be located directly beneath the existing railroad tracks. Since this former dry well was inaccessible, further investigation activities were determined not to be feasible.

Miscellaneous Pits

A communications pit was identified to the west of the substation within the transformer yard that contained a floor drain that discharges directly to subsurface soil. Soil boring MSSB-05 was advanced through this structure and soil samples were collected. Mercury-impacted soil was identified to a depth of 11 feet below grade, but the vertical extent of contamination was not determined. Therefore, it was recommended that a soil boring be advanced through the floor drain (immediately adjacent to MSSB-05) to collect and analyze samples from a depth of 11 to 15 feet below grade.

A water service pit with an earthen bottom was identified adjacent to the east side of the substation. Soil boring MSSB-07 was advanced at this location and samples were collected. Mercury-impacted soil was identified to a depth of 7.5 feet below grade; however, the vertical extent of contamination was not determined. Therefore, it was recommended that a soil boring be advanced through the floor drain (immediately adjacent to MSSB-07) and samples be collected for analysis from a depth of 7.5 to 11.5 feet below grade.

Lastly, a positive breaker cable pit with an earthen bottom was discovered adjacent to the north side of the substation. Analytical results indicated that soil at a depth of 7 feet below grade had been impacted by mercury. A sample collected from 9 to 11 feet below grade did not exhibit any mercury exceedance. Therefore, no additional investigation was recommended at this structure. Instead, it was recommended that the mercury-impacted soil be excavated to a depth of 9 feet below grade for proper off-site transportation and disposal.

Underground Injection Control

A dry well was identified approximately 5 feet to the west of the substation, which receives drainage from an interior pit drain. As a result, the closure of this unit was determined to be regulated by the USEPA UIC program. Soil boring MSSB-04 was advanced to a depth of 12 feet below grade within this structure. The vertical extent of mercury contamination, however, was not determined during the initial site assessment program. Therefore, it was recommended that a soil boring be advanced immediately adjacent to soil boring MSSB-04 from a depth of 17 to 22 feet below grade. In addition, it was recommended that the interior drain pipe located in the rectifier pit that discharges to the dry well be permanently capped with concrete as part of the UIC closure program.

Potential Miscellaneous Releases

Due to the unknown historic use of the mercury containing rectifiers, it was determined that inadvertent, non-specific releases may have occurred in the areas immediately surrounding the substation, and that exterior areas not necessarily associated with known areas of concern (i.e., loading docks, entrance ways, dry wells, trenches, etc.) may have been impacted. Therefore, it was recommended that two soil borings be advanced along the south side and northeast corner of the substation to address potential releases not previously investigated.

1.3.3 Island Park Substation

Substation Interior

Mercury-impacted soil was identified beneath a sump pump pit located within the substation building. As a result, further investigation activities were recommended to determine the horizontal and vertical extent of the impacted soil. However, at the time of the initial site assessment, LIRR representatives indicated that the Island Park substation was scheduled to be

demolished. Consequently, it was recommended that delineation activities be performed in coordination with the demolition of the building, planned for the year 2005.

South Side of Substation

Mercury-impacted soil was identified to a depth of 6 feet below grade along the south side of the substation. As a result, it was recommended that additional subsurface soil sampling be conducted in the vicinity of IPSB-04 and IPSB-05 to delineate the horizontal and vertical extent of impacted soil.

Northwest Corner of Substation

Based on the results of endpoint samples that were collected and analyzed during the IRM program, mercury-impacted surface soil was noted to exist along the northwest corner of the substation. As a result, it was recommended that surface and subsurface soil sampling be conducted in the vicinity of surface soil samples IPSS-01 and IPSS-04 to further delineate the horizontal and vertical extent of impacted soil.

Western Drainage Line

D&B traced a drain pipe originating from within the substation basement and determined that it terminated approximately 21 feet from the west wall of the building beneath an unpaved area between the substation and the train tracks. However, this area could not be excavated to determine if a discharge feature existed due to the presence of numerous electric utilities. Consequently, it was recommended by D&B that this area be excavated at the time of building demolition (planned for the year 2005) when electric utilities in the area would normally be de-energized.

Rectifier Dry Well

D&B traced a drain pipe originating from within the substation basement that lead from the eastern wall of the substation and appeared to terminate under the parking lot approximately 30 feet east of the eastern wall of the building. This location roughly corresponded to the "dry well for rectifiers" identified on LIRR construction drawings. D&B subsequently conducted a geophysical survey to further investigate this area. This survey identified a magnetic anomaly in the vicinity of the rectifier dry well suggesting that a metal manhole cover was still present. Therefore, D&B advanced soil boring IPSB-08 to determine if this dry well area has been impacted. The soil sample results indicate that the rectifier dry well has not been impacted by mercury. It should be noted that D&B elected to advance soil boring IPSB-08 immediately down-gradient (from a groundwater perspective) of the rectifier dry well in order to minimize damage to the asphalt parking lot and to ensure that the soil boring would not meet refusal. Because soil boring IPSB-08 was not advanced through the rectifier dry well for the reasons described above, it was recommended that excavation activities be conducted in an attempt to locate this dry well. Once located, it was further recommended that a soil boring be advanced to a depth of at least 10 feet below the bottom of the dry well. It was also noted that if, upon excavation, the rectifier dry well is determined to be active, it would require proper closure pursuant to the USEPA UIC program.

Water Meter Pit

A water meter pit, located along the south side of the substation, was found to contain mercury-impacted soil from the bottom of the pit (2.5 feet below grade) to a depth of 6.5 feet below grade. Successful delineation of impacted soil was accomplished at this pit. As a result, no additional investigation activities were recommended. Instead, it was recommended that soil be excavated to a depth of 6.5 feet below grade from within the water meter pit for proper off-site transportation and disposal.

Underground Injection Control

Due to the fact that the Island Park substation had been scheduled for demolition, the active septic tank was recommended for closure pursuant to the USEPA UIC program. In addition, the rectifier dry well and tile field were recommended for UIC closure pending future successful identification of these features.

Potential Miscellaneous Releases

Due to the unknown historic use of the mercury containing rectifiers, it was determined that inadvertent, non-specific releases may have occurred in the areas immediately surrounding the substation. It appeared that exterior areas, not necessarily associated with known areas of concern (i.e., loading docks, entrance ways, dry wells, trenches, etc.), may have been impacted. As a result, it was recommended that two soil borings be advanced along the east and west sides of the substation to address potential releases not previously investigated.

Section 2

2.0 INVESTIGATION METHODS

2.1 Introduction

This section provides a description of the field activities conducted at the three substation sites. As discussed in Section 1.0, this investigation report summarizes the results of a number of related investigation phases, including:

- Field work performed during January and February of 2003, as part of the Delineation Phase 2 Site Assessment, that was conducted in accordance with the NYSDEC-approved "Investigation Work Plan," dated September 2002.
- Field sampling performed during January and February 2003 as part of the UIC Investigation. This work was conducted in accordance with the USEPA-approved Underground Injection Control Closure Plan, dated November 2002.
- Field activities conducted as part of the Construction Excavation Investigation that was completed by D&B during January and February 2003 in accordance with the NYSDEC-approved Construction Excavation Work Plan, dated October 2002.
- Field work performed during August of 2004, as part of the Supplemental Sampling Program, that was conducted in accordance with the NYSDEC-approved Supplemental Delineation Phase 2 Sampling Program, Final Sampling Plan, dated April 2004.

Sample locations associated with this investigation are shown on Drawing 1 (Manhasset), Drawing 2 (Massapequa) and Drawing 3 (Island Park), provided in map pockets at the end of this section. In addition, sampling and analysis summaries for the above listed investigation phases (which include AOC designation, number of borings, and samples collected at each AOC) are provided in Tables 2-1 through 2-6.

2.2 Surface Soil Sampling

In general, surface soil samples were collected from a depth of 0 to 2 inches below ground surface (bgs). However, in some locations at the Manhasset Substation, the NYSDEC specified that additional samples be collected from 2 to 12 inches bgs. All samples were

TABLE 2-1
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Manhasset Substation - N10

Location	Sample Point ID	SOIL PROBES*			SURFACE WATER SEDIMENT	MONITORING WELLS		Analyses								Purpose for Sampling	Comments
		No. of Probes	No. of Geoprobe Samples	Soil Sampling Interval	No. of Samples	No. of Wells	Approx. Depth	Mercury	TAL Metals	RCRA Metals	VOCs	SVOCs	PCBs	TPHs	TOC		
Exterior Railroad Ties	MHSB-13(0-2") Through MHSB-16(0-2")			0-2" bgs				4								Delineate extent of Hg contamination associated with MHSBB-06 and MHSBB-07.	--
	MHSB-06A	1	2	6'-10' bgs Cont.				2									--
	MHSB-13 & 14	2	8	2-10' bgs Cont.				8									--
	MHSB-15 & 16	2	6	2-8' bgs Cont.				6									--
Exterior Railroad Ties Supplemental Sampling*	MHSS-32 through 43			0-2" bgs				12									--
	MHSB-24 Through 35	12	47	0-8' bgs Cont. except for MHSB-29 at 0-6' bgs Cont.				47									A hand-auger was utilized to aquire samples from MHSB-29 due to overhead utility lines.
Drainage Swale	MHSS-14 Through 16 & MHSS-27 Through MHSS-31 & MHSB-17(0-2") Through MHSB-19(0-2")			0-2" bgs				11								Delineate the extent of Hg contamination associated with the Drainage Swale.	--
	MHSS-17 Through 26			0-2" bsb				10									--
	MHSB-17, 18 & 19	3	9	2-8' bgs Cont.				9									--
Drainage Swale Supplemental Sampling*	MHSS-44 Through 74			0-2" and 2-12" bgs				62									--
	MHSS-75 Through 80			0-2" bsb				6									--

TABLE 2-1
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Manhasset Substation - N10

Location	Sample Point ID	SOIL PROBES			SURFACE WATER SEDIMENT	MONITORING WELLS		Analyses								Purpose for Sampling	Comments
		No. of Probes	No. of Geoprobe Samples	Soil Sampling Interval	No. of Samples	No. of Wells	Approx. Depth	Mercury	TAL Metals	RCRA Metals	VOCs	SVOCs	PCBs	TPHs	TOC		
Underground Injection Control	MHSB-20															Determine vertical extent of impacted soil in dry well (UIC).	Dry well appeared to have a solid bottom. Probe could not pentrate bottom.
	MHSB-21	1	4	0-12' bgs Cont.						4	4	4		4		Determine vertical extent of impacted soil in rectifier pit (UIC).	Probe initially supposed to be advanced to 10' bgs. However high MVA readings at depth warranted additional, deeper sampling.
	MHSB-22	1	3	6-30' Cont.						3	3	3		3		Determine vertical extent of impacted soil in water trough pit (UIC).	Probe initially supposed to be advanced to 10' bgs. However high MVA readings at depth warranted additional, deeper sampling.
Outfall to Manhasset Bay	MHSD-01A, 01, 02A, and 03A			0-2" bgs	4			4							4	4 sediment samples located at 5' intervals extending to the north from soil sample MHSS-08.	--
Groundwater	MHMW-01, MHMW-02 and MHMW-03					1	90		6**		3	3	3			Install one additional monitoring well. Collected and analyzed samples from three wells.	--

NOTES:

bgs: below ground surface.

bsb: below swale bottom

Cont.: Continuous 2-foot soil sampling

* Sample(s) collected during the Supplemental Sampling Program conducted in August of 2004.

** Filtered and unfiltered samples collected.

TABLE 2-2
Long Island Rail Road
CONSTRUCTION EXCAVATION SAMPLING PROGRAM
Sampling and Analysis Summary
Manhasset Substation - N10

Location	Sample Point ID	SOIL PROBES		Soil Sampling Interval	Analyses			Comments
		No. of Probes	No. of Geoprobe Samples		RCRA Metals	PCBs	SVOCs	
Existing Transformer Yard	MHSBX-01	1	8	4'-20' bgs Cont.	6	6	6	No recovery from 6-8' and 10-12' bgs.
	MHSBX-02	1	8	4'-20' bgs Cont.	8	8	8	--
	MHSBX-03	1	8	4'-20' bgs Cont.	8	8	8	--
	MHSBX-04	1	8	4'-20' bgs Cont.	6	6	6	No recovery from 16-20' bgs.
	MHSBX-05	1	8	4'-20' bgs Cont.	8	8	8	--
	MHSBX-06	1	3	4'-10' bgs Cont.	3	3	3	--
Property Line Manhole	MHSBX-07	1	5	10'-20' bgs Cont.	5	5	5	--
South of Existing Substation	MHSBX-08	1	8	4'-20' bgs Cont.	8	8	8	--
Positive Manhole	MHSBX-09	1	7	6'-20' bgs Cont.	7	7	7	--
Future Light Pole	MHSB-23	1	2	0'-8' bgs	2*			Soil samples collected from 0-4' and 4-8' bgs for mercury analysis at request of LIRR.

NOTES:

bgs: below ground surface.

Cont.: Continuous 2-foot soil sampling

*: Mercury analysis only

TABLE 2-3
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Massapequa Substation - S15

Location	Sample Point ID	SOIL PROBES		Soil Boring Interval	GROUNDWATER PROBES		Analyses							Purpose for Sampling	Comments
		No. of Probes	No. of Samples		No. of Probes	Depth of Groundwater Probes	Mercury	RCRA Metals	TCLP Metals	PCBs	VOCs	SVOCs	HTPHs		
East Side of Substation	MSSB-06A(0-2") and MSSB-09(0-2") Through MSSB-34(0-2")			0-2" bgs			27							Delineate extent of Hg contamination associated with MSSS-01 through MSSS-05 and MSSB-06 and MSSB-08	--
	MSSB-06A, 09, 10, 11, 12, 13, 14, & 15	8	15	2-6' bgs. Cont.			15								There was no recovery of soil from 2-4' bgs at MSSB-15.
	MSSB-16 Through 29	14	14	2-4' bgs Cont.			14								Several samples collected utilizing a hand auger.
	MSSB-30 & 31	2	2	2-4' bgs Cont.			2								MSSB-31 was advanced using a hand auger.
	MSSB-32, 33 & 34	3	12	2-10' bgs Cont.			12								--
East Side of Substation Supplemental Sampling*	MSSS-07A and MSSS-08 through 20			0-2" bgs			14								--
	MSSB-40 Through 52 & 54 Through 58	18	55	0-6' bgs Cont. except for MSSB-55 at 0-8' bgs Cont.			55								A hand-auger was utilized to acquire samples at soil borings MSSB-45 and MSSB-47 due to sloping topography.
	MSSB-53	1	3	0-2', 2-4', and 6-8' bgs			3								--
Underground Injection Control	MSSB-35													Boring in floor drain of communications pit. Determine vertical extent of contamination associated with MSSB-05.	This probe could not be advanced due to access constraints associated with the pit, and a solid concrete bottom.
	MSSB-36	1	2	7.5-11.5' bgs Cont.				2			2	2	2	Determine vertical extent of impacted soil associated with MSSB-07 advanced withing the water service pit (UIC).	This probe was added to UIC program after field inspection by NCDH.
	MSSB-37	1	4	12-22' bgs Cont.				4			4	4	4	Determine vertical extent of impacted soil in dry well (UIC).	No recovery from 20-22' bgs.
Groundwater	MSGP-01, 02, & 03				3	15			6*	3	3	3		Determine if groundwater has been impacted at the site.	--

TABLE 2-3
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Massapequa Substation - S15

Location	Sample Point ID	SOIL PROBES		Soil Sampling	GROUNDWATER PROBES		Analytes							Purpose for Sampling	Comments
		No. of Probes	No. of Composite Samples	Interval	No. of Probes	Depth of Groundwater Probes	Mercury	RCRA Metals	TAL Metals	PCBs*	VOCs	SVOCs	TPHs		
Potential Releases	MSSB-38(0-2") and MSSB-39(0-2")			0-2"				2		2		2			
	MSSB-38 & 39	2	2	2-4' bgs				2		2		2		Address potential releases not previously investigated.	MSSB-38 and MSSB-39 were advanced using a hand auger.

NOTES:

bgs: below ground surface.

bpb: below pit bottom.

Cont.: Continuous 2-foot soil sampling.

* Sample(s) collected during the Supplemental Sampling Program conducted in August of 2004.

** Unfiltered and filtered samples collected.

TABLE 2-4
Long Island Rail Road
CONSTRUCTION EXCAVATION SAMPLING PROGRAM
Sampling and Analysis Summary
Massapequa Substation - S15

Location	Sample Point ID	SOIL PROBES		Soil Sampling Interval	Analyses			Comments
		No. of Probes	No. of Geoprobe Samples		RCRA Metals	PCBs	SVOCs	
Existing Transformer Yard	MSSBX-01	1	8	4'-20' bgs Cont.	5	5	5	No recovery from 14'-20' bgs.
	MSSBX-02	1	8	4'-20' bgs Cont.	6	6	6	No recovery from 16'-20' bgs.
	MSSBX-03	1	8	4'-20' bgs Cont.	8	8	8	--
	MSSBX-04	1	8	4'-20' bgs Cont.	8	8	8	--
	MSSBX-05	1	8	4'-20' bgs Cont.	8	8	8	--
	MSSBX-06	1	2	4'-8' bgs Cont.	2	2	2	Due to physical access constraints these samples were collected using a hand auger. As a result, soil could only be sampled to a depth of 8' bgs.
Property Line Manhole	MSSBX-07	1	8	4'-20' bgs Cont.	5	5	5	No recovery from 14'-20' bgs.
North of Existing Substation	MSSBX-08							This soil probe was removed from the program due to physical access constraints associated with the Transformer Area.
Negative Manhole	MSSBX-09	1	8	4'-20' bgs Cont.	5	5	5	No recovery from 12'-16' bgs and 18'-20' bgs.
South of Existing Substation	MSSBX-10	1	8	4'-20' bgs Cont.	7	7	7	No recovery from 14'-16' bgs.

NOTES:

bgs: below ground surface.

Cont.: Continuous 2-foot soil sampling

TABLE 2-5
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Island Park Substation - L03

Location	Sample Point ID	SOIL PROBES		Soil Sampling	GROUNDWATER PROBES		Analyses							Purpose for Sampling	Comments
		No. of Probes	No. of Geoprobe Samples	Interval	No. of Probes	Depth of Groundwater Probes	Mercury	RCRA Metals	TAL Metals	PCBs	VOCs	SVOCs	TPHs		
Substation Interior	IPSB-01A													Delineate extent of Hg contamination associated with IPSB 01. Probe to be located adjacent to IPSB-01. Soil Samples will be collected after building demolition.	Soil boring postponed until after building demolition.
	IPSB-10 & 11													Delineate extent of Hg contamination associated with IPSB 01. Probes to be located 10' east and south of IPSB-01. Soil samples will be collected after building demolition.	Soil boring postponed until after building demolition.
West Side of Substation	IPSS-05 & 06			0-2" bgs			2							Surface soil samples to delineate extent of Hg contamination in the vicinity of the IRM work.	--
South Side of Substation	IPSB-12(0-2") Through IPSB-15(0-2")			0-2"			4								
	IPSB-04A	1	2	6'-10' bgs. Cont.			1	1		1	1	1		Delineate extent of Hg contamination associated with IPSB 04. Probe located adjacent to IPSB-04.	The 8-10' interval was analyzed for RCRA metals, PCBs, VOCs and SVOCs due to observed PID readings, odors and other characteristics.
	IPSB-12 & 13	2	7	2-10' bgs. Cont.			5	2		2	2	2		Delineate extent of Hg contamination associated with IPSB 04. Probes located 10' south and west of IPSB-04.	At IPSB-13, the 6-8', and 8-10' intervals were analyzed for RCRA metals, PCBs, VOCs and SVOCs due to observed PID readings, odors and other characteristics.
	IPSB-14 & 15	2	8	2-10' bgs. Cont.			8							Delineate extent of Hg contamination associated with IPSB 05. Probes located 10' south and east of IPSB-05.	--
Northwest Corner of Substation	IPSB-18(0-2")			0-2"			1								
	IPSB-16 & 17	2	4	0-4' bgs. Cont.			4							Delineate extent of Hg contamination associated with IPSS-04. Probes located adjacent to IPSS 04 and 10' north, east and west of IPSS-04.	--
	IPSB-18	1	1	2-4' bgs. Cont.			1							Delineate extent of Hg contamination associated with IPSS-04. Probes located adjacent to IPSS 04 and 10' north, east and west of IPSS-04.	--
	IPSB-20	1	2	0-4' bgs. Cont.			1	1						Delineate extent of Hg contamination associated with IPSS-01. Probes located adjacent to IPSS-01	The 2-4' interval was analyzed for RCRA metals.
Rectifier Dry Well	IPSB-21	1	5	10-20' bgs Cont.				5			5	5	5	Probe advanced after test pit excavated (UIC).	--
Tile Field	IPSB-22(0-2") Through IPSB-25(0-2")			0-2"				4			4	4	4	Investigate Tile Field (UIC).	--
	IPSB-22, 23, 24, 25	4	4	2-4' bgs Cont.				4			4	4	4		--
Groundwater	IPGP-01, 02 & 03 and IPTP-03				3	10		2*	6*	4	4	4		Determine if groundwater has been impacted at the site.	PCB and SVOC analyses added to program.

TABLE 2-3
Long Island Rail Road
DELINEATION PHASE 2 SITE ASSESSMENT
Sampling and Analysis Summary
Island Park Substation - L03

Location	Sample Point ID	SOIL PROBES		Soil Sampling	GROUNDWATER PROBES		Analyses							Purpose for Sampling	Comments
		No. of Probes	No. of Geoprobe Samples	Interval	No. of Probes	Depth of Groundwater Probes	Mercury	RCRA Metals	TAL Metals	PCBs	VOCs	SVOCs	TPHs		
Transformers	IPSB-19 (0-2"), IPSB-26(0-2") and IPSB-27(0-2")			0-2"			1	2		2		2		Investigate stained areas in the vicinity of transformers.	--
	IPSB-19	1	1	2-4' bgs. Cont.			1								--
	IPSB-26 & 27	2	4	0-4' bgs. Cont.				4		4		4			
Potential Releases	IPSB-28(0-2") and IPSB-29(0-2")			0-2"				2		2		2		Address potential releases not previously investigated. Probes located on the east and west sides of the substation.	--
	IPSB-28 & 29	2	2	2-4' bgs. Cont.				2		2		2			--

NOTES:
bgs: below ground surface.
Cont.: Continuous 2-foot soil sampling
* Unfiltered and filtered samples collected.

TABLE 2-6
Long Island Rail Road
CONSTRUCTION EXCAVATION SAMPLING PROGRAM
Sampling and Analysis Summary
Island Park Substation - L03

Location	Sample Point ID	SOIL PROBES		Soil Sampling Interval	Analyses			Comments
		No. of Probes	No. of Geoprobe Samples		RCRA Metals	PCBs	SVOCs	
South Trench	IPSBX-01	1	8	4'-20' bgs Cont.	8	8	8	--
South Dry Well	IPSBX-02	1	7	6'-20' bgs Cont.	7	7	7	--
North Dry Well	IPSBX-03	1	7	6'-20' bgs Cont.	7	7	7	--
New Substation - Cable Vault	IPSBX-04	1	8	4'-20' bgs Cont.	8	8	8	--
New Substation - Cable Vault	IPSBX-05	1	5	10'-20' bgs Cont.	5	5	5	--
New Substation	IPSBX-06	1	8	4'-20' bgs Cont.	7	7	7	No recovery from 10-12' bgs.
New Substation	IPSBX-07	1	8	4'-20' bgs Cont.	8	8	8	--
East Trench	IPSBX-08	1	8	4'-20' bgs Cont.	8	8	8	--
East Trench	IPSBX-09	1	8	4'-20' bgs Cont.	8	8	8	--
New Manhole	IPSBX-10	1	6	8'-20' bgs Cont.	5	5	5	No recovery from 18-20' bgs.
North Trench	IPSBX-11	1	8	4'-20' bgs Cont.	8	8	8	--
North Trench	IPSBX-12	1	8	4'-20' bgs Cont.	8	8	8	--

NOTES:
bgs: below ground surface.
Cont.: Continuous 2-foot soil sampling

collected utilizing a dedicated polyethylene scoop and placed into laboratory-supplied glass bottles. All samples were screened utilizing a mercury vapor analyzer (MVA) for the presence of mercury vapor and a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). In areas of the substations where the ground surface was covered with crushed stone or railroad ballast, this material was removed prior to collecting the surface soil sample.

2.3 Sediment Sampling

Sediment samples were only collected during the investigation of the Manhasset substation. Sediment samples were collected at the discharge point of the drainage swale outfall (to Manhasset Bay) (off-site). Each sample was collected from 0 to 2 inches below the surface of the sediment utilizing a long-handle polyethylene scoop.

2.4 Subsurface Soil Sampling

Subsurface soil samples were collected using a direct push (Geoprobe®) sampling technique with a decontaminated probe sampler. The samples were screened for mercury, utilizing an MVA, and for VOCs, utilizing a PID; inspected for staining, discoloration; checked for odors; and logged by a geologist in a dedicated field book. Boring logs are included in Appendix B.

Before commencement of soil probing, all "down-hole" probing equipment (i.e., macro-core samplers, probe rods, etc.) was decontaminated using a steam cleaner/pressure washer and/or Alconox and water daily at the decontamination pad. Soil probe samplers were also decontaminated between each use by thoroughly washing with Alconox and water, using a brush to remove particulate matter or surface film, followed by a thorough rinsing with tap water.

During soil probe installation, an MVA and a PID was used to monitor mercury vapor and VOCs, respectively, in the breathing zone and at the probe holes and boreholes. The PID

was calibrated on at least a daily basis, using isobutylene gas at a concentration of 100 parts per million (ppm) in air.

Upon completion of soil probes, recovered sample material that was not retained for laboratory analysis was returned to the borehole from which it came. The remainder of the borehole was filled with clean sand and/or bentonite pellets. All probe holes were restored at grade with the same material that was originally in place. For example, asphalt areas were replaced with asphalt, concrete areas were replaced with concrete and grass and soil areas were restored with grass and soil.

2.5 Test Pit Excavation and Sampling

Two test pits were excavated to a depth of 5 feet below ground surface at the Island Park Site in order to locate suspected drywells. The locations of these test pits are depicted on Drawing 3. At each location, asphalt was removed over a 10-foot by 10-foot area with a jackhammer and soil was excavated utilizing a mini-excavator. During excavation, an MVA and a PID was used to monitor mercury vapor and VOCs, respectively, in the breathing zone and in the excavation. Groundwater was observed at a depth of approximately 4 feet below ground surface at both locations. Any evidence of odors, sheens or the presence of free product was noted. All observations and results were logged in the project field books. A groundwater sample was collected from test pit IPTP-03 for laboratory analysis. Test pit logs are included in Appendix C.

2.6 Groundwater Monitoring Well Installation and Sampling

One groundwater monitoring well (MHMW-03) was installed at the Manhasset substation to assess the potential impact to groundwater downgradient of the site. The approximate location of the groundwater monitoring well is shown on Drawing 1. No other monitoring wells were installed as part of the Delineation Phase 2 Site Assessment.

MHMW-03 was installed to a depth of 86 feet utilizing a CME-55 rotary drill rig equipped with 4 1/4-inch hollow stem augers. All equipment, including the 4 1/4-inch hollow stem augers, was decontaminated utilizing a high-pressure steam cleaner. All decontamination water was contained in 55-gallon DOT drums for proper disposal. Fifteen feet of 2-inch diameter 0.010 slot schedule 40 flush joint threaded PVC screen and 70-feet of 2-inch diameter Schedule 40 flush joint thread PVC riser pipe was utilized for the well construction. A well construction log for MHMW-03 is presented in Appendix D.

All drill cuttings and well development water were contained in 55-gallon DOT drums for proper off-site transportation and disposal by LIRR. Number 1 Morie well gravel was utilized for the well screen annulus. The remainder of the annular void was filled with hydrated bentonite pellets and a cement and bentonite grout mix was installed as a seal. Subsequent well development activities reduced the turbidity of the well water to less than 50 NTU's. Nevertheless, the laboratory conducted filtered and unfiltered metals analyses for groundwater samples collected from this monitoring well.

One week subsequent to well development, groundwater samples were collected utilizing dedicated plastic bailers. Samples were not taken until pH, temperature and conductivity measurements were stabilized, and not before at least three well volumes were purged and well recovery was completed. Purge water was containerized in 55-gallon DOT drums for proper off-site disposal.

2.7 Groundwater Probe Installation and Sampling

Groundwater probe samples were collected only at the Massapequa and Island Park substations. These samples were collected by driving probe rods to the designated sample depth and retracting 4 feet to expose a decontaminated stainless steel screen. Dedicated polyethylene tubing and a decontaminated stainless steel check valve were inserted into the rod assembly and manually oscillated to purge approximately three casing volumes of groundwater from the screen and rod assembly. The check valve was decontaminated and new tubing was used between each interval. Any evidence of odors, sheens or the presence of free product was noted. All

observations and results were logged in the project field books. Groundwater samples were then collected from the tubing/check valve assembly into laboratory-supplied glass bottles.

Upon completion, each probe hole was backfilled with clean sand and/or bentonite pellets. All probe holes were restored at grade with the same material that was originally in place, as described previously.

2.8 Air Sampling

As discussed above, a Jerome Mercury Vapor analyzer was used to scan all surface and subsurface soil samples for the presence of mercury vapor. The mercury vapor results for subsurface soil are summarized on the boring logs provided in Appendix B. In addition, summary tables have been provided in Appendix H for all mercury vapor results measured at each surface soil sample location.

Section 3

3.0 FINDINGS

This section presents a discussion of the analytical data associated with the investigation phases conducted at the Manhasset, Massapequa and Island Park Substations, including:

- Field work performed during January and February of 2003, as part of the Delineation Phase 2 Site Assessment, that was conducted in accordance with the NYSDEC-approved "Investigation Work Plan," dated September 2002.
- Field sampling performed during January and February 2003 as part of the UIC Investigation. This work was conducted in accordance with the USEPA-approved Underground Injection Control Closure Plan, dated November 2002.
- Field activities conducted as part of the Construction Excavation Investigation that were completed by D&B during January and February 2003 in accordance with the NYSDEC-approved Construction Excavation Work Plan, dated October 2002.
- Field work performed during August of 2004, as part of the Supplemental Sampling Program, that was conducted in accordance with the NYSDEC-approved Supplemental Delineation Phase 2 Sampling Program, Final Sampling Plan, dated April 2004.

Soil sample results are compared to the criteria included in Appendix A of the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) 4046 (referred to in this document as "NYSDEC TAGM Criteria"). Groundwater sampling results are compared to the Class GA Groundwater Standards/ Guidance Values listed in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1. Analytical results are summarized on Tables 1 through 49 located in Appendix E.

The analytical results are organized by each of the three substations with the discussion further organized by each area of concern (AOC) identified at each substation during the initial 1999 Site Assessment.

3.1 Manhasset Substation – Investigation Report

Surface soil, subsurface soil, groundwater and sediment samples were collected in support of the Delineation Phase 2 Site Assessment at the Manhasset Substation. The following presents a summary of the analytical results by AOC. All sample locations are shown on Drawing 1.

3.1.1 Exterior Railroad Ties

Sixteen surface soil samples (MHSB-13 [0 to 2 inches] through MHSB-16 [0 to 2 inches]) and MHSS-32 (0 to 2 inches) through MHSS-43 (0 to 2 inches) were collected below 6 to 8 inches of crushed stone in the location of the Exterior Railroad Ties. Table 1 summarizes the mercury data for the surface soil samples. In addition, 17 soil probes (MHSB-06A, MHSB-13 through MHSB-16, and MHSB-24 through MHSB-35) were advanced to varying depths of up to 10 feet bgs at this AOC. A total of 63 subsurface soil samples were collected from the 17 soil probes. All subsurface soil samples were analyzed for mercury, the results of which are summarized on Table 2.

Surface Soil

All 16 surface soil samples collected below 6 to 8 inches of crushed stone exhibited detectable levels of mercury, ranging from 0.34 mg/kg to a maximum of 332 mg/kg at MHSS-38, located in the central portion of this AOC. The second highest mercury concentration was 193 mg/kg, detected at MHSB-14 (0 to 2 inches). In addition, all 16 samples exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. In general, the highest mercury concentrations in this AOC were observed immediately south of the drainage swale hot spot (see Section 3.1.2) and east of the signal hut.

Subsurface Soil

Detectable levels of mercury were exhibited by 60 out of the 63 subsurface soil samples with concentrations ranging from 0.015 mg/kg to a maximum of 1,700 mg/kg at MHSB-30 (2 to 4 feet). A total of 36 samples exhibited concentrations of mercury exceeding the NYSDEC TAGM criterion of 0.1 mg/kg. Note that the highest mercury concentrations in subsurface soil were detected at MHSB-29 through MHSB-34 within the central portion of this AOC and directly south of the drainage swale hot spot (see Section 3.1.2). In general, the highest concentrations of mercury were detected in subsurface soil shallower than 4 feet bgs with concentrations greater closer to the surface.

3.1.2 Drainage Swale

A total of 89 surface soil samples were collected within and in the vicinity of the drainage swale as part of the Delineation Phase 2 Site Assessment and the associated Supplemental Investigation conducted in August of 2004, and analyzed for mercury, including:

- MHSB-17 (0 to 2 inches) through MHSB-19 (0 to 2 inches);
- MHSS-14 (0 to 2 inches) through MHSS-31 (0 to 2 inches);
- MHSS-44 (0 to 2 inches) through MHSS-80 (0 to 2 inches); and
- MHSS-44 (2 to 12 inches) through MHSS-74 (2 to 12 inches).

As shown on Drawing 1, samples were collected from within and in the vicinity of the drainage swale, a total distance of approximately 105 feet east of the northwest corner of the substation to approximately 870 feet west (downstream) of this point. The samples collected from within the drainage swale were collected below the stone blocks that line the swale. In addition, a number of surface soil samples were collected immediately to the north of the drainage swale and on adjacent off-site properties. The analytical data for the surface soil samples collected from the drainage swale is presented on Table 1.

In addition, three soil probes (MHSB-17, MHSB-18 and MHSB-19) were advanced in the vicinity of this AOC to a depth of 8 feet bgs. A total of nine subsurface soil samples were collected from these soil probes. All samples were analyzed for mercury. The analytical data for the subsurface soil samples is presented on Table 2.

Surface Soil

Surface soil samples collected from the drainage swale in 1999, as part of the initial Site Assessment, identified elevated levels of mercury within a portion of the swale from approximately 10 to 30 feet west of the northwest corner of the substation. Surface soil samples MHSS-11 (0 to 2 inches) and MHSS-13 (0 to 2 inches) collected within this hot spot area exhibited the highest detected mercury concentrations within the Manhasset Substation site at 9,800 mg/kg and 1,890 mg/kg, respectively. However, additional sampling performed as part of the Delineation Phase 2 Site Assessment indicate mercury concentrations are significantly lower to the west (downstream) and east (upstream) of this hot spot area. Surface soil samples to the west of the hot spot area exhibited mercury concentrations from a minimum of 0.093 mg/kg detected at MHSS-76 (0 to 2 inches) located approximately 820 feet west of this area to a maximum of 15.5 mg/kg detected at MHSS-19 (0 to 2 inches) located approximately 190 feet west of this area. Surface soil samples collected from within the drainage swale and east of the hot spot were also found to exhibit mercury concentrations at relatively low concentrations, but above the NYSDEC TAGM criterion of 0.1 mg/kg, with concentrations ranging from 0.05 mg/kg detected at MHSB-18 (0 to 2 inches) to a maximum of 6.4 mg/kg detected at MHSS-29 (0 to 2 inches). As discussed previously, all surface soil samples collected from the drainage swale were actually collected from below or underneath the stone blocks that line the swale.

Surface soil samples collected off-site immediately to the north of the drainage swale were found to exhibit relatively low mercury concentrations, but generally above the NYSDEC TAGM criterion of 0.1 mg/kg, with the majority of concentrations ranging from 0.1 mg/kg to less than 6.0 mg/kg. One exception to this general trend was the detection of mercury at 35.8 mg/kg at MHSS-54 (0 to 2 inches) located immediately in front of the substation fence gate.

While not completed as part of the Delineation Phase 2 Investigation, a total of 48 surface soil samples were collected immediately south of the drainage swale as part of the Post-Removal of Staged Soil Investigation conducted at the Manhasset Substation in June of 2004. All samples were analyzed for mercury. The October 4, 2004 letter report entitled, "Removal of Staged Soil at the Long Island Rail Road Manhasset Substation" is provided in Appendix F and includes the results of the analyses. The location of each of the post-soil removal surface soil samples is shown on Drawing 1. The review of the mercury data for the 48 surface soil samples indicates that the vast majority of the samples (45 of 48) exhibited mercury concentrations of less than 2.0 mg/kg. The exceptions include: SRSS-08 (0 to 2 inches) at 3.9 mg/kg, SRSS-31 (0 to 2 inches) at 3.3 mg/kg, and SRSS-32 (0 to 2 inches) at 7.5 mg/kg.

Subsurface Soil

Mercury was detected in only 2 out of the 9 subsurface soil samples collected from the drainage swale with concentrations of 0.018 mg/kg at MHSB-19 (2 to 4 feet) and 0.023 mg/kg at MHSB-17 (2 to 4 feet), both well below the NYSDEC TAGM criterion for mercury of 0.1 mg/kg.

3.1.3 Slop Sink

As discussed in Section 1.3, a Slop Sink was formerly located inside the substation, along the east wall. The sink discharged to grade outside the east wall of the substation, within the Existing Transformer Yard. One boring (MHSBX-06) was advanced from a depth of 4 to 10 feet below grade at this location as part of the Construction Excavation Investigation. Three subsurface soil samples were collected from this boring and analyzed for semivolatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals and polychlorinated biphenyls (PCBs). Results of this analysis are presented on Table 12 for RCRA metals, Table 13 for SVOCs and Table 14 for PCBs.

Mercury was not detected in any of the three samples collected from MHSBX-06. MHSBX-06 (6 to 8 feet) exhibited a chromium concentration of 144 mg/kg, exceeding the

NYSDEC TAGM criterion for chromium of 50 mg/kg. However, a deeper sample collected from 8 to 10 feet at this boring exhibited a chromium concentration of only 7.6 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

All SVOCs were found to be nondetectable in all three soil samples with the exception of di-n-butylphthalate detected at an estimated concentration of 48 ug/kg in MHSBX-06 (8 to 10 feet). The NYSDEC TAGM criterion for this compound is 8,100 ug/kg.

PCBs were not detected in any of the three subsurface soil samples.

3.1.4 Outfall to Manhasset Bay

Four surface water sediment samples (MHSD-01, MHSD-01A, MHSD-02A and MHSD-03A) were collected off-site at 5-foot intervals in front of the drainage swale outfall in Manhasset Bay at low tide. The outfall, which is located approximately 1,000 feet west of the substation, discharges storm water to Manhasset Bay conveyed by the on-site drainage swale. Samples were collected from 0 to 3 inches from the tidal flat portion of the bay directly downstream of the outfall. The samples were analyzed for mercury and total organic carbon (TOC).

The analytical data for the four sediment samples are presented on Table 3. All four sediment samples exhibited detectable levels of mercury, ranging from 0.077 mg/kg to a maximum of 0.19 mg/kg at MHSD-02A. Only MHSD-02A exceeded the "lowest effect level" of 0.15 mg/kg established for mercury for surface water sediment by the NYSDEC pursuant to the NYSDEC Technical Guidance for Screening Contaminated Sediment, dated November 22, 1993. All mercury concentrations were found to be well below the "severe effect level" of 1.3 mg/kg which is also included in the above-referenced NYSDEC guidance document.

3.1.5 Underground Injection Control (UIC) Drainage Structures

A total of three drainage structures were identified within the Manhasset substation that were considered UIC structures including the Rectifier Pit, the Water Trough Pit and a dry well located south of the substation building. With the exception of the dry well, soil samples were collected from each structure and analyzed for volatile organic compounds (VOCs), SVOCs, RCRA metals and total petroleum hydrocarbons (TPHs). Results of this analysis are presented on Table 4 for RCRA metals, Table 5 for volatile organic compounds (VOCs), Table 6 for semivolatile organic compounds (SVOCs), and Table 7 for TPHs.

Dry Well

During the field investigation, the sampling of a drywell located to the south of the substation was attempted with the advancement of MHSB-20; however, debris at the bottom of the drywell prevented the successful recovery of soil below the bottom. However, in June of 2003, this dry well was closed in accordance with USEPA and NCDH requirements by backfilling the structure with clean soil and capping the structure with the placement of a 1-foot thick concrete slab on top of the backfilled soil.

Rectifier Pit

Soil probe MHSB-21 was advanced within this structure to a depth of 12 feet bgs. Four subsurface soil samples were collected for analysis.

Two of the four subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 9.1 mg/kg at MHSB-21 (2 to 4 feet) and 473 mg/kg at MHSB-21 (4 to 6 feet), exceeding the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. MHSB-21 (4 to 6 feet) exhibited a lead concentration of 1,010 mg/kg, exceeding the NYSDEC TAGM criterion for lead of 500 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

VOCs were not detected in the four subsurface soil samples.

Two of the four subsurface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations of 34,678 ug/kg at MHSB-21 (4 to 6 feet) and 55,988 ug/kg at MHSB-21 (2 to 4 feet), both below the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. However, polycyclic aromatic hydrocarbons (PAHs) were the most prevalent SVOCs detected, and both samples exceeded the NYSDEC TAGM criterion for total carcinogenic PAHs (CaPAHs) of 10,000 ug/kg. In addition, soil sample MHSB-21 (4 to 6 feet) exhibited a phenol concentration of 81 ug/kg, which exceeds the NYSDEC TAGM criterion for phenol of 30 ug/kg.

Total petroleum hydrocarbons were detected in two of the four subsurface soil samples, with TPH concentrations of 450 mg/kg at MHSB-21 (2 to 4 feet) and 1,500 mg/kg at MHSB-21 (4 to 6 feet). A NYSDEC TAGM 4046 criteria for TPHs does not exist.

Based on these findings, the rectifier pit was remediated in June of 2003 in accordance with the USEPA-approved Underground Injection Control (UIC) Closure Plan, dated November 2002.

Water Trough Pit

Soil probe MHSB-22 was advanced within this structure to a depth of 26 feet bgs. Three subsurface soil samples were collected from this probe for chemical analysis.

All three subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, ranging from 0.045 mg/kg to a maximum of 553 mg/kg at MHSB-22 (18 to 20 feet). Two of the three samples that exhibited detectable concentrations of mercury also exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

One out of the three subsurface soil samples exhibited detectable concentrations of VOCs, with a total VOC concentration of 16 ug/kg at MHSB-22 (18 to 20 feet). None of the VOC compounds detected exceeded NYSDEC TAGM criteria.

One out of the three subsurface soil samples exhibited detectable concentrations of SVOCs, with a total SVOC concentration of 42,732 ug/kg at MHSB-22 (18 to 20 feet). The sample did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. However, the sample did exceed the NYSDEC TAGM criterion for CaPAHs of 10,000 ug/kg, with a total CaPAH concentration of 21,390 ug/kg.

Total petroleum hydrocarbons were detected in one of the three subsurface soil samples, with a TPH concentration of 480 mg/kg at MHSB-22 (18 to 20 feet).

Based on these findings, UIC closure activities were completed in accordance with the USEPA-approved UIC Closure Plan, dated November 2002. Approximately 6 feet of soil was excavated from the bottom of the Water Trough Pit in June of 2003 and then backfilled with clean soil. A 6-inch concrete slab was then placed on top of the clean soil completing the remediation and closure of this UIC structure.

3.1.6 Potential Miscellaneous Releases

Two soil probes (MHSBX-08 and MHSBX-09) were advanced during the Construction Excavation Investigation to investigate potential releases along the south side of the existing substation. Each probe was advanced to a depth of 20 feet bgs. A total of 15 subsurface soil samples were collected from the two soil probes and analyzed for SVOCs, RCRA metals and PCBs. Results of this analysis are presented on Table 12 for RCRA metals, Table 13 for SVOCs, and Table 14 for PCBs.

Two of the 15 subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 0.081 mg/kg at MHSBX-08 (8 to 10 feet) and 0.33 mg/kg at MHSBX-09 (14 to 16 feet). Of these two samples, only MHSBX-09 (14 to

16 feet) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

SVOCs were not detected in the 15 subsurface soil samples.

PCBs were not detected in any of the 15 subsurface soil samples.

3.1.7 Groundwater

Groundwater samples were collected from existing monitoring wells MHMW-01 and MHMW-02 as well as from monitoring well MHMW-03 installed as part of the Delineation Phase 2 Investigation. As shown on Drawing 1, MHMW-01 is located in the vicinity of the Exterior Railroad Ties and MHMW-02 is located in the Existing Transformer Yard. MHMW-03 is located off-site, on the north side of Virginia Drive. Each sample was analyzed for target analyte list (TAL) metals (see Table 8), VOCs (see Table 9), SVOCs (see Table 10), and PCBs (see Table 11).

Mercury was detected in the unfiltered samples from MHMW-01 and MHMW-02 at concentrations of 0.59 ug/l and 0.17 ug/l, respectively. The NYSDEC Class GA Groundwater standard for mercury is 0.7 ug/l. All three wells exceeded the NYSDEC Class GA Groundwater standard for iron in the unfiltered samples and for sodium in both the filtered and unfiltered samples. MHMW-01 and MHMW-03 exceeded the standard for manganese in both the filtered and unfiltered samples. In addition, the unfiltered sample from MHMW-01 exhibited an arsenic concentration of 25.4 ug/l, above the 25 ug/l standard. Arsenic was not detected in the filtered sample.

Two out of the three groundwater samples exhibited detectable concentrations of VOCs. MHMW-01 exhibited methyl tertiary-butyl ether (MTBE) at a concentration of 4 ug/l. MHMW-03 exhibited MTBE at a concentration of 2 ug/l and chloroform at 1 ug/l. There were no exceedances of NYSDEC Class GA Groundwater criteria.

One out of the three groundwater samples exhibited detectable concentrations of SVOCs, with a total SVOC concentration of only 9 ug/l at MHMW-01. There were no exceedances of NYSDEC Class GA Groundwater criteria.

PCBs were not detected in any of the groundwater samples.

3.2 Manhasset Substation – Construction Excavation Investigation

As a result of ongoing and/or future substation renovation/construction projects, a Construction Excavation Investigation was conducted at the Manhasset substation to identify any potentially impacted soil within locations to be utilized for construction. Nine soil probes (MHSBX-01 through MHSBX-09) were advanced as part of the Construction Excavation Investigation to varying depths up to 20 feet bgs to the south and east of the existing substation. However, soil probe MHSBX-06 was advanced to investigate the former Slop Sink and is discussed in Section 3.1.5. Soil probes MHSBX-08 and MHSBX-09 were advanced to investigate potential releases along the south side of the existing substation and are discussed in Section 3.1.7. A total of 41 samples were collected from the six remaining soil probes (MHSBX-01 through MHSBX-05 and MHSBX-07). All samples were analyzed for RCRA metals (see Table 12), SVOCs (see Table 13), and PCBs (see Table 14).

In addition, soil probe MHSB-23 was advanced within the Existing Transformer Yard and is considered a part of the Construction Excavation Investigation. Two samples were collected from this soil probe and were sampled only for mercury (see Table 12).

Nine of the 41 subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, ranging from 0.035 mg/kg to a maximum of 1.4 mg/kg at MHSBX-02 (12 to 14 feet). The nine samples exhibiting detectable levels of mercury were collected from soil probes located in the western portion of the Existing Transformer Yard at depths ranging from 8 to 18 feet bgs. Six of the nine samples also exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected. Of the two samples collected from MHSB-23, only MHSB-23 (0 to 4 feet) exhibited a

detectable concentration of mercury at 0.027 mg/kg. The sample did not exceed the NYSDEC TAGM criterion for mercury of 0.1 mg/kg

Three of the 41 subsurface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations ranging from 290 ug/kg to a maximum of 1,931 ug/kg at MHSBX-01 (8 to 10 feet). None of the three samples exceeded the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the most prevalent SVOCs detected in the three samples. Soil sample MHSBX-01 (8 to 10 feet) exhibited benzo(a)pyrene at a concentration of 80 ug/kg, which exceeds the NYSDEC TAGM criterion of 61 ug/kg. All three samples where SVOCs were detected were collected from soil probes located in the western portion of the Existing Transformer Yard.

PCBs were not detected in any of the 41 subsurface soil samples.

3.3 Massapequa Substation – Investigation Report

Surface soil, subsurface soil and groundwater samples were collected in support of the Delineation Phase 2 Site Assessment at the Massapequa Substation. The following presents a summary of the analytical results by AOC. All sample locations are shown on Drawing 2.

3.3.1 Substation Interior

During the Site Assessment of 20 Substations conducted in 1999, elevated levels of mercury were detected in soil borings and concrete corings advanced within the former Rectifier, water trough pits and water pipe trench located within the substation building. LIRR representatives indicated that the Rectifier and water trough pits would be permanently backfilled to grade with concrete during a future renovation. It was recommended that delineation and remediation of this AOC be conducted at a time when the concrete caps are removed or the substation demolished. Therefore, no work was completed at this AOC during the Delineation Phase 2 Site Assessment.

3.3.2 East Side of Substation

Forty-one surface soil samples (MSSB-06A [0 to 2 inches] and MSSB-09 [0 to 2 inches] through MSSB-34 [0 to 2 inches], MSSS-07A [0 to 2 inches] and MSSS-08 [0 to 2 inches] through MSSS-20 [0 to 2 inches]) were collected to the east of the existing substation and analyzed for mercury (see Table 15). The majority of the surface soil samples were collected below the asphalt pavement and below the crushed stone area, both located immediately east of the substation. However, a number of surface soil samples were also collected from grass-covered areas immediately outside the substation fenced area. In addition, 46 soil probes (MSSB-06A, MSSB-09 through MSSB-34, and MSSB-40 through MSSB-58) were advanced within this AOC. A total of 101 subsurface soil samples were collected from these locations. All subsurface soil samples were analyzed for mercury (see Table 18).

Surface Soil

All 41 surface soil samples exhibited detectable levels of mercury, ranging from 0.12 mg/kg to a maximum of 58.8 mg/kg at MSSB-12 (0 to 2 inches). In general, the highest mercury concentrations were detected in surface soil samples collected beneath the asphalt-paved driveway and the adjacent crushed stone area located immediately east of the substation , as indicated by the following sample results:

- MSSB- 09 (0 to 2 inches), 57.6 mg/kg
- MSSB-10 (0 to 2 inches), 54.6 mg/kg
- MSSB-12 (0 to 2 inches), 58.8 mg/kg
- MSSB-30 (0 to 2 inches), 30.5 mg/kg

The surface soil samples collected to the north and east of the asphalt driveway within the grass-covered area and inside the substation fence exhibited mercury concentrations ranging from a minimum of 0.23 mg/kg at MSSS-10 (0 to 2 inches) to a maximum of 6.7 mg/kg, detected at MSSS-07A (0 to 2 inches). The surface soil samples collected outside the substation

fence within grass-covered areas exhibited mercury concentrations ranging from a minimum of 0.40 mg/kg detected at MSSS-08 (0 to 2 inches) to a maximum of 13.6 mg/kg detected at MSSS-12 (0 to 2 inches).

Subsurface Soil

Ninety-five out of the 101 subsurface soil samples exhibited detectable levels of mercury, ranging from 0.015 mg/kg to a maximum of 154 mg/kg at MSSB-44 (4 to 6 feet). In addition, 68 of the 101 samples that exhibited detectable levels of mercury exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. However, the majority of subsurface samples (87 out of 101 samples) exhibited mercury at less than 5.0 mg/kg. Furthermore, the soil samples exhibiting mercury at concentrations above 5.0 mg/kg are randomly distributed within this AOC and do not indicate a defined area of significantly elevated mercury concentrations or hot spots within a specific subsurface soil horizon.

3.3.3 West Side of Substation

Three soil probes (MSSBX-04, MSSBX-06 and MHSBX-09) were advanced during the Construction Excavation Investigation to determine the horizontal and vertical extent of mercury contamination identified along the western side of the substation during the initial site assessment. MSSBX-04 was advanced to 20 feet, MSSBX-06 to 8 feet and MSSBX-09 to 20 feet. A total of 15 subsurface soil samples were collected from the three soil probes and analyzed for RCRA metals (see Table 29), SVOCs (see Table 30), and PCBs (see Table 31).

Two of the 15 subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 0.025 mg/kg at MSSBX-04 (4 to 6 feet) and 0.13 mg/kg at MSSBX-06 (6 to 8 feet). Soil sample MSSBX-06 (6 to 8 feet) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

All SVOCs were found to be nondetectable in all three soil borings with the exception of di-n-butylphthalate detected at an estimated concentration of 54 ug/kg in MSSBX-06 (6 to 8 feet). The NYSDEC TAGM criterion for this compound is 8,100 ug/kg.

PCBs were not detected in any of the 15 subsurface soil samples.

3.3.4 Underground Injection Control (UIC) Drainage Structures

A total of three drainage structures were identified within the Massapequa substation that were considered UIC structures including the dry well, Communications Pit and the Water Service Pit. With the exception of the Communications Pit, soil samples were collected from each structure and analyzed for VOCs, SVOCs, RCRA metals and total petroleum hydrocarbons (TPHs). Results of this analysis are presented on Table 21 for RCRA metals, Table 22 for VOCs, Table 23 for SVOCs, and Table 24 for TPHs.

Note that the Positive Breaker Cable Pit and the north and south Roof Drains have previously been investigated and remediated. Details are provided in the September 2004 Underground Injection Control Closure Report.

Communications Pit

The sampling of the Communications Pit located within the transformer yard was attempted, however, physical constraints associated with adjacent transformers prevented successful recovery of soil beneath this structure. However, in July of 2003, this UIC structure was remediated by the excavation of soil up to 10 feet below grade and then backfilled with clean soil to grade with an asphalt cap placed on top of the clean soil.

Water Service Pit

It should be noted that the Water Service Pit was not considered a UIC structure during preparation of the Investigation Work Plan but rather was added to the program at the request of

the Nassau County Department of Health (NCDH). Soil probe MSSB-36 was advanced beneath this structure to a depth of 11.5 feet bgs. Two samples were collected from the soil probe for chemical analysis.

Both subsurface soil samples were analyzed for RCRA metals and exhibited detectable levels of mercury, with concentrations of 0.74 mg/kg at MSSB-36 (7.5 to 9.5 feet) and 0.074 mg/kg at MSSB-36 (9.5 to 11.5 feet). Soil sample MSSB-36 (7.5 to 9.5 feet) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Both subsurface soil samples exhibited detectable concentrations of VOCs. MSSB-36 (7.5 to 9.5 feet) exhibited acetone at a concentration of 4 ug/kg. MSSB-36 (9.5 to 11.5 feet) exhibited acetone at a concentration of 10 ug/kg and naphthalene at 4 ug/kg. However, none of the constituents exceeded their respective NYSDEC TAGM criteria.

The two subsurface soil samples did not exhibit detectable concentrations of SVOCs.

TPHs were not detected in the two subsurface soil samples.

Based on these findings, this UIC structure was remediated in August of 2003, in accordance with USEPA and NCDH requirements, by the excavation of soil to a depth of approximately 6 feet below grade. This structure was then backfilled with clean soil and capped with asphalt.

Dry Well

Soil probe MSSB-37 was advanced beneath this structure to a depth of 20 feet bgs and four samples selected for analysis.

The four subsurface soil samples analyzed for RCRA metals exhibited detectable levels of all targeted metals with the exception of mercury and selenium. However, all metals were detected at concentrations below respective NYSDEC TAGM criteria.

All four subsurface soil samples exhibited detectable concentrations of VOCs, with total VOC concentrations ranging from 4 ug/kg to a maximum of 41 ug/kg at MSSB-37 (18 to 20 feet). Acetone and methylene chloride were present in all four samples; however, none of the detected VOCs exceeded their respective NYSDEC TAGM criteria.

The four subsurface soil samples did not exhibit detectable concentrations of SVOCs.

TPHs were not detected in the four subsurface soil samples.

Based on these findings, this UIC was remediated in August of 2003, in accordance with the requirements of the USEPA and NCDH, by the excavation of soil up to 9 feet below grade. The structure was then backfilled with clean soil and an asphalt cap placed over the backfilled soil.

3.3.5 Potential Miscellaneous Releases

Two surface soil samples (MSSB-38 [0 to 2 inches] and MSSB-39 [0 to 2 inches]) were collected to investigate potential historic releases to the northeast and east of the existing substation. The surface soil samples were analyzed for RCRA metals (Table 15), SVOCs (Table 16) and PCBs (Table 17). In addition, two soil probes (MSSB-38 and MSSB-39) were advanced in this area and subsurface samples were collected from 2 to 4 feet bgs. All subsurface soil samples were analyzed for RCRA metals (see Table 18), SVOCs (see Table 19), and PCBs (see Table 20).

Surface Soil

Both surface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 3.3 mg/kg at MSSB-38 (0 to 2 inches) and 178 mg/kg at MSSB-39 (0 to 2 inches). Both samples exceeded the NYSDEC TAGM criterion for mercury of

0.1 mg/kg. No other metals were detected at concentrations exceeding respective NYSDEC TAGM criteria.

One of the two surface soil samples exhibited detectable concentrations of SVOCs, with a total SVOC concentration of 4,374 ug/kg at MSSB-38 (0 to 2 inches). The sample did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. However, PAHs were the predominant SVOCs detected in the sample with the individual NYSDEC TAGM criterion for benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene being exceeded.

PCBs were not detected in the two surface soil samples.

Subsurface Soil

Both subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 1.1 mg/kg at MSSB-38 (2 to 4 feet) and 5.6 mg/kg at MSSB-39 (2 to 4 feet). Both samples exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. In addition, soil sample MSSB-38 (2 to 4 feet) exhibited an arsenic concentration of 15.9 mg/kg, greater than the NYSDEC TAGM criterion for arsenic of 7.5 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

One of the two subsurface soil samples exhibited detectable concentrations of SVOCs, with a total SVOC concentration of 330 ug/kg at MSSB-38 (2 to 4 feet). The sample did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the predominant SVOCs detected in this sample; however, all PAH concentrations were below their respective NYSDEC TAGM criteria.

PCBs were not detected in the two subsurface soil samples.

3.3.6 Groundwater

Three groundwater samples (MSGP-01 through MSGP-03) were collected as part of the Delineation Phase 2 Site Assessment and analyzed for TAL metals (see Table 25), VOCs (see Table 26), SVOCs (see Table 27), and PCBs (see Table 28). As shown on Drawing 2, MSGP-01 was located northeast of the substation, upgradient of the site with respect to groundwater flow. MSGP-02 and MSGP-03 were located to the south of the substation, downgradient of the site with respect to groundwater flow.

Mercury was not detected in any of the groundwater samples. All three samples exceeded the NYSDEC Class GA Groundwater standard for iron and sodium in both the filtered and unfiltered samples and for manganese in the unfiltered samples. MSGP-02 also exceeded the manganese standard in the filtered sample. In addition, MSGP-01 exhibited antimony at a concentration of 3.7 ug/l in the unfiltered sample, above the standard of 3 ug/l. Antimony was not detected in the filtered sample.

Two of the three groundwater samples exhibited detectable concentrations of VOCs. MSGP-01 exhibited methylene chloride at a concentration of 1 ug/l and naphthalene at 3 ug/l. MSGP-02 exhibited methylene chloride at a concentration of 2 ug/l and tetrachloroethene at 1 ug/l. There were no exceedances of NYSDEC Class GA Groundwater criteria.

None of the three groundwater samples exhibited detectable concentrations of SVOCs.

PCBs were not detected in any of the groundwater samples.

3.4 Massapequa Substation – Construction Excavation Investigation

As a result of ongoing and/or future substation renovation/construction projects, a Construction Excavation Investigation has been conducted at the Massapequa substation to identify any potentially impacted soil within locations to be utilized for construction. Nine soil probes (MSSBX-01 through MSSBX-07, MSSBX-09 and MSSBX-10) were advanced as part of

the Construction Excavation Investigation. However, three soil probes (MSSBX-04, MSSBX-06 and MHSBX-09) were advanced to determine the horizontal and vertical extent of mercury contamination identified along the western side of the substation during the initial site assessment and are discussed in Section 3.3.3.

The six remaining probes were advanced within the Existing Transformer Yard to the west of the substation with the exception of MSSBX-10, which was advanced immediately to the south of the substation. All probes were advanced from 4 to 20 feet bgs. A total of 39 subsurface soil samples were collected from the six soil probes and were analyzed for RCRA metals (see Table 29), SVOCs (see Table 30), and PCBs (see Table 31).

One of the 39 subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with a concentration of 0.3 mg/kg at MSSBX-10 (8 to 10 feet), exceeding the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Three of the 39 subsurface soil samples exhibited detectable concentrations of SVOCs, ranging from 38 ug/kg to a maximum of 55 ug/kg at MSSBX-05 (8 to 10 feet). None of the three samples exceeded the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. In all three samples where SVOCs were detected, the total SVOCs were composed entirely of bis(2-ethylhexyl)phthalate. The NYSDEC TAGM criterion for bis(2-ethylhexyl)phthalate is 50,000 ug/kg.

PCBs were not detected in any of the 39 subsurface soil samples.

3.5 Island Park Substation - Investigation Report

Surface soil, subsurface soil and groundwater samples were collected in support of the Delineation Phase 2 Site Assessment at the Island Park Substation. The following presents a summary of the analytical results by AOC. All sample locations are provided on Drawing 3.

3.5.1 Substation Interior

Mercury-impacted soil was previously identified beneath a sump pump pit located within the substation building. Delineation activities were recommended to determine the horizontal and vertical extent of the impacted soil in coordination with the scheduled demolition of the building. The building has not yet been demolished but is scheduled for demolition in 2005. Therefore, no investigation activities were performed in this AOC during the Delineation Phase 2 Site Assessment.

3.5.2 South Side of Substation

Four surface soil samples (IPSB-12 [0 to 2 inches] through IPSB-15 [0 to 2 inches]) were collected below the asphalt pavement on the south side of the substation and analyzed for mercury (see Table 32). Five soil probes (IPSB-04A and IPSB-12 through IPSB-15) were also advanced in this area. A total of 17 subsurface soil samples were collected from the five soil probes. All samples were analyzed for mercury (see Table 35) except for IPSB-04A (8 to 10 feet), IPSB-13 (6 to 8 feet) and IPSB-13 (8 to 10 feet), which also were analyzed for RCRA metals (see Table 35), VOCs (see Table 36), SVOCs (see Table 37), and PCBs (see Table 38).

Surface Soil

All four surface soil samples exhibited detectable concentrations of mercury, ranging from 0.21 mg/kg to a maximum of 12.9 mg/kg at IPSB-13 (0 to 2 inches). All four samples exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg.

Subsurface Soil

Twelve of the 17 subsurface soil samples exhibited detectable levels of mercury, ranging from 0.028 mg/kg to a maximum of 11.3 mg/kg at IPSB-04A (6 to 8 feet). Eight of the 12 samples that exhibited detectable concentrations of mercury also exceeded the NYSDEC TAGM

criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

The three samples analyzed for VOCs exhibited detectable concentrations of methylene chloride and naphthalene, with total VOCs ranging from 1,860 ug/kg to a maximum of 50,260 ug/kg at IPSB-13 (6 to 8 feet). All three samples exceeded the NYSDEC TAGM criterion for methylene chloride of 100 ug/kg. In addition IPSB-13 (6 to 8 feet) and IPSB-13 (8 to 10 feet) exceeded the NYSDEC TAGM criterion for naphthalene of 13,000 ug/kg.

The three samples analyzed for SVOCs exhibited detectable concentrations of a number of PAHs, with total SVOCs ranging from 4,864 ug/kg to a maximum of 91,690 ug/kg at IPSB-13 (6 to 8 feet). The samples did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. However, a number of PAHs were found to exceed their respective NYSDEC TAGM criteria. including: naphthalene, benzo(a)anthracene, chrysene and benzo(a)pyrene.

PCBs were not detected in any of the subsurface soil samples.

3.5.3 Northwest Corner of Substation

One surface soil sample (IPSB-18 [0 to 2 inches]) was collected off the northwest corner of the substation and analyzed for mercury (see Table 32). In addition, four soil probes (IPSB-16 through IPSB-18 and IPSB-20) were advanced to 4 feet bgs. A total of seven subsurface soil samples were collected from the four soil probes. All samples were analyzed for mercury (see Table 35) except for IPSB-20 (2 to 4 feet), which was analyzed for RCRA metals (see Table 35).

Surface Soil

Mercury was detected at IPSB-18 (0 to 2 inches) at a concentration of 0.12 mg/kg, slightly exceeding the NYSDEC TAGM criterion for mercury of 0.1 mg/kg.

Subsurface Soil

Mercury was detected in all seven subsurface soil samples, ranging from 0.038 mg/kg to a maximum of 0.34 mg/kg at IPSB-20 (2 to 4 feet). Three of the seven samples also exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. Only IPSB-20 (2 to 4 feet) was analyzed for the full set of RCRA metals and no other exceedances of NYSDEC TAGM criteria were detected in the sample.

3.5.4 Western Drainage Line

During the Site Assessment of 20 Substations conducted in 1999, D&B traced a drain pipe originating from within the substation basement, which was found to terminate beneath an unpaved area between the substation and the train tracks, approximately 21 feet from the west wall of the building. It was recommended the area be excavated in an attempt to locate a possible drainage feature and that the excavation be coordinated with the demolition of the building so that electric utilities in that area can be de-energized. The building has not yet been demolished, but is scheduled for demolition in 2005. Therefore, no investigation activities were performed in this AOC during the Delineation Phase 2 Site Assessment.

3.5.5 Water Meter Pit

During the Site Assessment of 20 Substations conducted in 1999, a water meter pit, located along the south side of the substation, was found to contain mercury-impacted soil from the bottom of the pit (2.5 feet below grade) to a depth of 6.5 feet below grade. Successful delineation of impacted soil was accomplished at the pit. The recommended excavation and remediation will be performed after the rest of the substation is delineated. It should be noted that the Water Meter Pit was not considered a UIC structure upon NCDH inspection.

3.5.6 West Side of Substation

Two surface soil samples (IPSS-05 [0 to 2 inches] and IPSS-06 [0 to 2 inches]) were collected on the west side of the substation and were analyzed for mercury (see Table 32). Both surface soil samples exhibited detectable concentrations of mercury, with IPSS-05 (0 to 2 inches) at 0.52 mg/kg and IPSS-06 (0 to 2 inches) at 0.49 mg/kg. Both samples exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg

3.5.7 Transformers

Surface and subsurface soil samples were collected within the Transformer Yard to investigate staining found in the soil during the Site Assessment of 20 Substations conducted in 1999. Three surface soil samples (IPSB-19 [0 to 2 inches], IPSB-26 [0 to 2 inches] and IPSB-27 [0 to 2 inches]) were collected. IPSB-26 (0 to 2 inches) and IPSB-27 (0 to 2 inches) were analyzed for RCRA metals (see Table 32), SVOCs (see Table 33), and PCBs (see Table 34). IPSB-19 (0 to 2 inches) was analyzed only for mercury (see Table 32). In addition, three soil probes were advanced in these locations to 4 feet bgs, including IPSB-19, IPSB-26 and IPSB-27. A total of five subsurface soil samples were collected from the three soil probes. All samples were analyzed for RCRA metals (see Table 35), SVOCs (see Table 37), and PCBs (see Table 38) except for the subsurface soil sample collected from IPSB-19, which was analyzed only for mercury.

Surface Soil

Mercury was detected in 2 out of the 3 surface soil samples, with concentrations of 0.031 mg/kg at IPSB-27 (0 to 2 inches) and 1.3 mg/kg at IPSB-19 (0 to 2 inches). IPSB-19 (0 to 2 inches) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

One of the two surface soil samples analyzed for SVOCs exhibited detectable concentrations, with a total SVOC concentration of 42,567 ug/kg at IPSB-27 (0 to 2 inches).

The sample did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the most prevalent SVOCs detected in the sample and the total CaPAH concentration of 23,150 ug/kg exceeded the NYSDEC TAGM criterion for total CaPAHs of 10,000 ug/kg. A number of PAHs also exceeded their respective NYSDEC TAGM criteria, including: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene.

PCBs were not detected in any of the surface soil samples.

Subsurface Soil

Mercury was detected in two out of the five subsurface soil samples, with concentrations of 0.051 mg/kg at IPSB-26 (0 to 2 feet) and 0.05 mg/kg at IPSB-27 (0 to 2 feet). Neither sample exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Three out of the four samples that were analyzed for SVOCs exhibited detectable concentrations, with total SVOCs ranging from 1,597 ug/kg to a maximum of 9,590 ug/kg at IPSB-27 (0 to 2 feet). The samples did not exceed the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the most prevalent SVOCs detected in the samples and a number of PAHs exceeded their respective NYSDEC TAGM criteria, including: benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene.

PCBs were not detected in any of the subsurface soil samples.

3.5.8 Underground Injection Control (UIC) Drainage Structures

Two drainage structures were identified within the Island Park substation that were considered UIC structures including the dry well and the septic tank/tile field. Soil samples were collected from each structure and analyzed for VOCs, SVOCs, RCRA metals and TPHs. Results

of the analysis are presented on Table 39 for RCRA metals, Table 40 for VOCs, Table 41 for SVOCs, and Table 42 for TPHs.

Rectifier Dry Well

Soil probe IPSB-21 was advanced below the Rectifier Dry Well to a depth of 20 feet bgs (10 feet below the bottom). Five subsurface soil samples were collected for analysis.

Three out of the five subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations ranging from 0.058 mg/kg to a maximum of 5.4 mg/kg at IPSB-21 (10 to 12 feet). Two of the three subsurface soil samples that exhibited detectable levels of mercury exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. Mercury concentrations were greater in the shallower soil samples. In fact, the two subsurface soil samples that did not exhibit detectable concentrations of mercury were the two deepest subsurface soil samples collected from 16 to 20 feet bgs. In addition, IPSB-21 (10 to 12 feet), IPSB-21 (12 to 14 feet) and IPSB-21 (14 to 16 feet) exceeded the NYSDEC TAGM criterion for arsenic of 7.5 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

All five subsurface soil samples exhibited detectable concentrations of VOCs, with total VOC concentrations ranging from 44 ug/kg to a maximum of 446 ug/kg at IPSB-21 (14 to 16 feet). The most prevalent compounds were acetone, carbon disulfide and methylene chloride. IPSB-21 (12 to 14 feet) and IPSB-21 (14 to 16 feet) exceeded the NYSDEC TAGM criteria for acetone and methylene chloride.

Three out of the five subsurface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations ranging from 174 ug/kg to a maximum of 104,950 ug/kg at IPSB-21 (10 to 12 feet). PAHs were the most prevalent SVOCs detected in the three samples. IPSB-21 (10 to 12 feet) exceeded the NYSDEC TAGM criteria for total PAHs and CaPAHs. Soil samples IPSB-21 (10 to 12 feet) and IPSB-21 (12 to 14 feet) exhibited a number of PAHs exceeding their respective NYSDEC TAGM criteria including: benzo(a)anthracene,

chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. However, the samples collected from the Rectifier Dry Well indicate that the PAH contamination does not extend below 18 feet bgs at this location.

TPHs were detected in three of the five subsurface soil samples ranging from 23 mg/kg to a maximum concentration of 330 mg/kg at IPSB-21 (10 to 12 feet). The shallower soil samples exhibited significantly greater concentrations of TPHs than the deeper soil samples.

In June of 2003, this UIC structure was remediated in accordance with the requirements of the USEPA and NCDH, by the excavation of soil to a depth of 10.5 feet below grade. In addition, the dry well leaching rings were removed. The excavation was then backfilled with clean soil and capped with asphalt.

Septic Tank/Tile Field

Soil probes IPSB-22 through IPSB-25 were each advanced to a depth of 4 feet bgs at the location of the Septic Tank/Tile Field. Four surface soil samples were collected, one from each of IPSB-22 through IPSB-25. One subsurface soil sample was collected from each of the four soil probes from a depth of 2 to 4 feet bgs for chemical analysis.

Surface Soil

All four surface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations ranging from 0.028 mg/kg to a maximum of 0.99 mg/kg at IPSB-23 (0 to 2 inches). Soil samples IPSB-23 (0 to 2 inches) and IPSB-25 (0 to 2 inches) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. In addition, arsenic was detected at a concentration of 8.5 mg/kg in surface soil sample IPSB-23 (0 to 2 inches), slightly above the NYSDEC TAGM criterion on 7.5 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

All four surface soil samples exhibited detectable concentrations of VOCs, with total VOC concentrations ranging from 67 ug/kg to a maximum of 118 ug/kg at IPSB-23 (0 to 2 inches). The most prevalent VOCs included acetone, methylene chloride, toluene and naphthalene. None of the VOC compounds detected exceeded their respective NYSDEC TAGM criteria.

All four surface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations ranging from 775 ug/kg to a maximum of 10,337 ug/kg at IPSB-23 (0 to 2 inches). The PAHs were the most prevalent SVOCs detected. All four samples exceeded the NYSDEC TAGM criterion for benzo(a)pyrene. In addition, soil sample IPSB-23 (0 to 2 inches) exceeded the NYSDEC TAGM criterion for benzo(a)anthracene, chrysene and dibenzo(a,h) anthracene.

TPHs were detected in all four surface soil samples ranging from 69 mg/kg to a maximum concentration of 810 mg/kg at IPSB-24 (0 to 2 inches).

Subsurface Soil

All four subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations ranging from 0.047 mg/kg to a maximum of 0.79 mg/kg at IPSB-24 (2 to 4 feet). Three of the four subsurface soil samples that exhibited detectable levels of mercury exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. In addition, IPSB-25 (2 to 4 feet) exceeded the NYSDEC TAGM criterion for arsenic of 7.5 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

All four subsurface soil samples exhibited detectable concentrations of VOCs, with total VOC concentrations ranging from 35 ug/kg to a maximum of 268 ug/kg at IPSB-23 (2 to 4 feet). The most prevalent VOCs were acetone, carbon disulfide and methylene chloride. IPSB-23 (2 to 4 feet) exceeded the NYSDEC TAGM criteria for methylene chloride.

All four subsurface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations ranging from 5,260 ug/kg to a maximum of 310,540 ug/kg at IPSB-24 (2 to 4 feet). The most prevalent SVOCs were PAHs. IPSB-24 (2 to 4 feet) exceeded the NYSDEC TAGM criteria for total PAHs and CaPAHs. In addition, a number of PAHs exceeded their respective NYSDEC TAGM criteria at IPSB-24 (2 to 4 feet) including pyrene.

TPHs were detected in all four subsurface soil samples ranging from 40 mg/kg to a maximum concentration of 1,600 mg/kg at IPSB-24 (2 to 4 feet).

As part of the UIC closure program conducted in June of 2003, the LIRR attempted to locate the tile field which was reportedly located south of the associated septic tank. However, after completing two separate exploratory trenches in this area, no evidence of the tile field could be found. Currently, the septic tank is actively being used for the discharge of sanitary wastes from the substation building. The LIRR intends to close the septic tank upon demolition of the substation building in 2005.

3.5.9 Potential Miscellaneous Releases

Two surface soil samples (IPSB-28 [0 to 2 inches] and IPSB-29 [0 to 2 inches]) were collected along the east and west sides of the substation to address potential releases at the Island Park Substation that previously have not be investigated. The surface soil samples were analyzed for RCRA metals (see Table 32), SVOCs (see Table 33), and PCBs (see Table 34). In addition, two soil probes (IPSB-28 and IPSB-29) were advanced to a depth of 4 feet bgs at each of these locations. One sample was collected at each boring at a depth of 2 to 4 feet bgs. All samples were analyzed for RCRA metals (see Table 35), SVOCs (see Table 37), and PCBs (see Table 38).

Surface Soil

Both surface soil samples exhibited detectable levels of mercury, with concentrations of 0.16 mg/kg at IPSB-29 (0 to 2 inches) and 0.087 mg/kg at IPSB-28 (0 to 2 inches). Soil sample

IPSB-29 (0 to 2 inches) exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Both surface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations of 1,726 ug/kg at IPSB-29 (0 to 2 inches) and 177 ug/kg at IPSB-28 (0 to 2 inches). Neither sample exceeded the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the most prevalent SVOCs detected in both samples and soil sample IPSB-29 (0 to 2 inches) exceeded the NYSDEC TAGM criterion for benzo(a)pyrene.

PCBs were not detected in the two surface soil samples.

Subsurface Soil

Both subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, with concentrations of 0.11 mg/kg at IPSB-29 (2 to 4 feet) and 0.14 mg/kg at IPSB-28 (2 to 4 feet). Both samples exceeded the NYSDEC TAGM criterion for mercury of 0.1 mg/kg. No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Both subsurface soil samples exhibited detectable concentrations of SVOCs, with total SVOC concentrations of 10,063 ug/kg at IPSB-29 (2 to 4 feet) and 2,979 ug/kg at IPSB-28 (2 to 4 feet). Neither sample exceeded the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs were the most predominant SVOCs detected and both samples exceeded the NYSDEC TAGM criterion for benzo(a)anthracene and benzo(a)pyrene. In addition, IPSB-29 (2 to 4 feet) exceeded the NYSDEC TAGM criterion for chrysene and dibenzo(a,h)anthracene.

PCBs were not detected in the two subsurface soil samples.

3.5.10 Groundwater

Three groundwater probes, IPGP-01 through IPGP-03, were advanced as part of the Delineation Phase II Site Assessment. As shown in Drawing 3, IPGP-01 was advanced north of

the Transformer Yard, upgradient of the site with respect to groundwater flow. IPGP-02 and IPGP-03 were advanced south of the substation, downgradient of the site with respect to groundwater flow. A groundwater sample was also collected from test pit IPTP-03, located at the Rectifier Dry Well east of the substation. All samples were analyzed for TAL metals (see Table 43), VOCs (see Table 44), SVOCs (see Table 45) , and PCBs (see Table 46). However, IPTP-03 was analyzed for RCRA metals instead of TAL metals (see Table 43).

Mercury was detected in the unfiltered samples from all four locations, ranging from 0.16 ug/l to a maximum concentration of 0.64 ug/l at IPGP-03. The NYSDEC Class GA Groundwater standard for mercury is 0.7 ug/l. A number of metals were found at concentrations above their respective NYSDEC Class GA Groundwater Standard including antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, manganese, nickel, sodium, thallium and zinc. However, the majority of these exceedances were detected in the unfiltered samples and, therefore, likely are biased high due to the turbidity of the samples.

Three of the four groundwater samples exhibited detectable concentrations of VOCs. MTBE was detected in the three samples with a maximum concentration of 6 ug/l in IPGP-03. The NYSDEC Class GA Groundwater standard for MTBE is 10 ug/l. IPGP-02 exhibited a naphthalene concentration of 18 ug/l, above the NYSDEC standard of 10 ug/l. There were no other exceedances of NYSDEC Class GA Groundwater criteria.

Two of the four groundwater samples, IPGP-02 and IPGP-03, exhibited detectable concentrations of SVOCs. PAHs were the most common SVOCs detected. There were no exceedances of NYSDEC Class GA Groundwater criteria in IPGP-03; however, IPGP-02 exceeded the NYSDEC standards for naphthalene, acenaphthene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and indeno(1,2,3-cd)pyrene.

PCBs were not detected in any of the groundwater samples.

3.6 Island Park Substation – Construction Excavation Investigation

As a result of ongoing and/or future substation renovation/construction projects, a Construction Excavation Investigation has been conducted at the Island Park substation to identify any potentially impacted soil within locations to be utilized for construction. Twelve soil probes (IPSBX-01 through IPSBX-12) were advanced as part of the Construction Excavation Investigation. IPSBX-01 was located to the southeast of the substation. IPSBX-02 through IPSBX-09 were located on the east side of the substation while IPSBX-10 through IPSBX-12 were located north of the Transformer Yard. All probes were advanced no greater than 20 feet bgs. A total of 87 subsurface soil samples were collected from the twelve soil probes. All samples were analyzed for RCRA metals (see Table 47), SVOCs (see Table 48), and PCBs (see Table 49).

Twelve of the 87 subsurface soil samples analyzed for RCRA metals exhibited detectable levels of mercury, ranging from 0.019 mg/kg to a maximum of 0.25 mg/kg at IPSBX-03 (16 to 18 feet). Of the 12 samples that exhibited detectable concentrations of mercury, three exceeded the NYSDEC TAGM criterion of 0.1 mg/kg. In addition, 15 of the 87 subsurface soil samples exceeded the NYSDEC TAGM criterion for arsenic of 7.5 mg/kg, with a maximum concentration of 25.7 mg/kg at IPSBX-12 (4 to 6 feet). No other exceedances of NYSDEC TAGM criteria for RCRA metals were detected.

Sixty of the 87 subsurface soil samples exhibited detectable concentrations of SVOCs, ranging from 44 ug/kg to a maximum of 56,300 ug/kg at IPSBX-01 (12 to 14 feet). However, none of the samples exceeded the NYSDEC TAGM criterion for total SVOCs of 500,000 ug/kg. PAHs and to a lesser extent phenols were the most prevalent SVOCs detected in the samples. The PAHs most commonly found to exceed their respective NYSDEC TAGM criteria included: naphthalene, benzo(a)anthracene, chrysene, and benzo(a)pyrene. In addition, 18 of the 87 subsurface soil samples exceeded the NYSDEC TAGM criteria for phenol or 2-methyl phenol. Based on the extensive nature of fill material identified throughout subsurface soil within the vicinity of the substation, it is suspected that the source of the PAHs and phenols detected in subsurface is the

fill material and these contaminants are not directly related to past or present substation activities.

PCBs were not detected in any of the subsurface soil samples collected as part of the Construction Excavation Investigation.

3.7 Data Usability Summary Report (DUSR)

Investigations were conducted at three substations: Manhasset, Massapequa and Island Park.

Mitkem Corporation, a subcontractor to Dvirka and Bartilucci Consulting Engineers, analyzed all samples in accordance with the USEPA SW-846 methods as stipulated in the work plan. The data packages submitted by Mitkem have been reviewed by Ms. Robbin Petrella, D&B's Quality Assurance/Quality Control Officer. Ms. Petrella meets the NYSDEC requirements of a data validator as listed in the Draft DER-10 Technical Guidance for Site Investigation and Remediation, and her resume is included in Appendix I.

The data packages have been reviewed for completeness and compliance with NYSDEC QA/QC requirements, as well as the requirements for development of Data Usability Summary Reports as listed in Appendix 2B of the Draft DER-10 Technical Guidance for Site Investigations and Remediation dated December 2002. Each data package was reviewed for the following:

- Was a NYSDEC Category B deliverable data package submitted?
- Have all holding times been met?
- Does all QA/QC data fall within QA/QC limits and specifications?
- Were appropriate methods followed?
- Does the raw data conform to that reported on the data summary sheets?
- Have the correct data qualifiers been utilized?

The findings of the data review process are summarized below by site.

3.7.1 Manhasset Substation

NYSDEC ASP Category B deliverable data packages have been submitted for all sample delivery groups (SDG).

Manhasset Delineation Program

Subsurface soil, surface soil, sediment and groundwater samples were collected as part of the January 2003 delineation investigation of the LIRR Manhasset Substation. The soil and sediment samples were analyzed for mercury, with the sediment samples also being analyzed for total organic carbon (TOC). Seven of the subsurface soil samples were analyzed for VOCs, SVOCs, RCRA metals and TPHs. The groundwater samples were analyzed for VOCs, SVOCs, PCBs and RCRA metals. In August 2004, additional soil samples were collected as part of the delineation program and analyzed for mercury only.

All samples were analyzed within the method-specified holding times, with the exception of the mercury analysis for sample MHSS-72 (2 to 12 inches), that was run two days out of hold. Qualification of this sample result is not required.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

Methylene chloride has been qualified as nondetect in all of the subsurface soil samples due to laboratory contamination. That is, the method blank associated with the samples also contained methylene chloride, and the sample concentrations were less than ten times the concentration found in the blank. Qualified data summary sheets are contained in Appendix J.

Three samples, MHSB-21 (2 to 4 feet), MHSB-21 (4 to 6 feet) and MHSB-22 (18 to 20 feet), required reanalysis of the semivolatile fraction due to compound concentrations exceeding the instrument calibration range in the initial undiluted analysis. The results for the affected compounds were taken from the diluted analysis and have been flagged 'D' on the data summary tables. Corrected data summary sheets are contained in Appendix J.

Sample MHSS-72 had percent solids of 43%; therefore; the mercury result of 4.6 mg/kg is deemed estimated possibly biased high.

Manhasset Construction Excavation Investigation

Subsurface soil samples were collected during the January 2003 field program for the construction excavation investigation at the LIRR Manhasset Substation. The samples were analyzed for SVOCs, PCBs and RCRA metals.

All samples were analyzed within the method specified holding times.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

3.7.2. Massapequa Substation

NYSDEC ASP Category B deliverable data packages have been submitted for all SDGs.

Massapequa Delineation Program

Subsurface soil, surface soil and groundwater samples were collected as part of the February 2003 delineation investigation of the LIRR Massapequa Substation. The soil samples were primarily analyzed for SVOCs, PCBs and mercury. Several of the soil samples were also analyzed for VOCs and RCRA metals. The groundwater samples were analyzed for VOCs,

SVOCs, PCBs and RCRA metals. In August 2004, additional soil samples were collected as part of the delineation program and analyzed for mercury only.

All samples were analyzed within the method specified holding times.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

Massapequa Construction Excavation Investigation

Subsurface soil samples were collected during the February 2003 field program for the construction excavation investigation at the LIRR Massapequa Substation. The samples were analyzed for SVOCs, PCBs and RCRA metals.

All samples were analyzed within the method specified holding times.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

Three samples; MSSBX-01 (12 to 14 feet), MSSBX-06 (6 to 8 feet) and MSSBX-02 (6 to 8 feet) were re-extracted outside of holding time due to surrogate recoveries being outside QC limits in the initial extract. The data from the re-extract is considered the most compliant and has been included on the data summary tables. Copies of the data summary sheets have been included in Appendix J.

3.7.3 Island Park Substation

NYSDEC ASP Category B deliverable data packages have been submitted for all SDGs.

Island Park Delineation Program

Subsurface soil, surface soil, and groundwater samples were collected as part of the January 2003 delineation investigation of the LIRR Manhasset Substation. The soil samples were primarily analyzed for mercury, with several of the samples also being analyzed for VOCs, SVOCs, RCRA metals and TPHs. The groundwater samples were analyzed for VOCs, SVOCs, PCBs and RCRA metals.

All samples were analyzed within the method specified holding times.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

Island Park Construction Excavation Investigation

Subsurface soil samples were collected during the January 2003 field program for the construction excavation investigation at the LIRR Island Park Substation. The samples were analyzed for SVOCs, PCBs and RCRA metals.

All samples were analyzed within the method specified holding times.

All surrogate recoveries, internal standard area counts and spike recoveries were within QC limits. Initial and continuing calibrations were analyzed at the method specified frequency.

Several samples required re-extraction of the semivolatile fraction due to surrogate recoveries being outside QC limits, and the re-extraction was performed outside of the method specified holding times. The data from both the initial analysis and analysis of the re-extracts

were comparable; therefore, the data from the initial runs are considered the 'best set' and has been summarized on the analytical data tables.

No other problems were found with the sample results for all three sites. All of the results have been deemed valid and usable, as qualified above, for environmental assessment purposes.

Section 4

4.0 MANHASSET SUBSTATION - FISH AND WILDLIFE RESOURCES IMPACT ANALYSIS

4.1 Ecology

This section provides an overall habitat-based assessment of the LIRR Manhasset Substation. This assessment conforms to the guidelines contained in Step IIA of the NYSDEC Technical and Administrative Guidance Memorandum entitled, "A Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (October, 1994)." The purpose of this section is to provide a description of the existing ecology of the site, including a site specific description of major habitat types with associated wildlife populations, the identification of other significant on-site wildlife resources and evaluate potential impacts to these resources. The information contained in this section was obtained during the Phase I remedial investigation field investigation and supplemented with data from outside sources, including the NYSDEC, U.S. Fish and Wildlife Service, and New York State Historic Preservation Officer. The field survey for this assessment was conducted during March and June of 2003.

4.1.1 Major Habitat Types

The Manhasset Substation is an upland area located near the high point of a geologic moraine above Manhasset Bay. The site is bordered on the north by residential housing and to the south by paved parking for the rail station. A drainage swale exists on the north side of the property which collects overland storm water runoff and conveys it to a culvert which discharges into the extreme southern end of Manhasset Bay. The upland portion of the site is largely disturbed and consists of the railway, an electric substation and the associated railway right-of-way. The railway right-of-way area consists of low growth vegetation to facilitate rail operations, which extends approximately 40 feet north of the tracks to a cyclone fence that serves to protect against unauthorized access to the railway. Overland storm water flow enters the drainage swale at the northern edge of the property adjacent to the fence that feeds into a closed pipe. This underground pipe conveys flow from the railroad right-of-way area down an embankment with the ultimate discharge to Manhasset Bay. This embankment is approximately 50 feet above the Bay with a slope of approximately 60 degrees. The on-site major habitat types

associated with the site are limited to developed land (building, railway) and disturbed low grasslands along the track right-of-way. Beyond the site is residential and commercial development immediately north, south and east, with the headwaters of Manhasset Bay to the west. This area of Manhasset Bay is largely disturbed along the banks by encroachment of businesses and maintained lawn. This area has undergone extensive historic filling and many of the wetland values in this area have been lost.

A list of vegetative species observed on the Manhasset Substation Site is provided in Table 4-1.

4.1.2 Wetlands

There are no wetlands located on the Manhasset Substation property. Storm water discharges from the property are conveyed to Manhasset Bay. The area near the discharge point is an unvegetated tidal flat that rapidly transitions into a small stand of common reed (Phragmites communis) along the east and west banks. This growth band is typically less than 10 feet wide leading to upland areas, which are maintained as lawn area. The base of the railway bridge supports freshwater wetland vegetation such as skunk cabbage which is supported by apparent freshwater seeps emanating from beneath the adjacent roadway, which is likely related to the drainage of the moraine. These wetlands, associated with Manhasset Bay, are mapped and regulated by both New York State and the federal government. Further to the south, additional wetlands are present which are associated with Whitney Pond, but are outside the potential zone of influence of the Manhasset Substation.

4.1.3 Mammals

The isolated nature of the Manhasset Substation site relative to Manhasset Bay to the west, residential development to the north and east, and paved parking to the south limit the mammals that would inhabit the site to those that are tolerant of human presence and with limited home ranges. It is likely that only small mammals inhabit the area because of the numerous manmade barriers as well as topographic changes, which would act as deterrent

Table 4-1

VEGETATIVE SPECIES OBSERVED ON THE MANHASSET SUBSTATION SITE

Common Name	Scientific Name
Herbaceous Plants	
Common ragweed	Ambrosia artemisiifolia
Common lambsquarters	Chenopodium album
Daisy	Chrysanthemum sp.
Chickory	Cichorium intybus
Crown vetch	Coronilla varia
Crabgrass	Digitaria sp.
Butter and eggs	Linaria vulgaris
Yellow woodsorrel	Oxalis stricta
Fall panicum	Panicum dichotomiflorum
Common reed grass	Phragmites communis
Ground cherry	Physalis heterophylla
Pokeweed	Phytolacca americana
Broadleaf plantain	Plantago major
Smartweed, Knotweed	Polygonum sp.
Nightshade	Solanum dulcamara
Common goldenrod	Solidago juncea
Early flowering goldenrod	Solidago nemoralis
Stiff goldenrod	Solidago rigida
Common mullein	Verbascum thapsus
Vetch	Vicia sp.
Shrubs and Vines	
Forsythia	Forsythia sp.
Japanese honeysuckle	Lonicera japonica
Virginia creeper	Parthenocissus quinquefolia
Poison ivy	Rhus radicans
Multiflora rose	Rosa multiflora
Catbrier	Smilax rotundifolia
Trees	
Red maple	Acer rubrum
Flowering dogwood	Cornus florida
White pine	Pinus strobus
Black cherry	
White oak	Quercus alba
Black oak	Quercus velutina
Black locust	Robinia pseudoacacia

barriers and likely prohibit movement. The only mammal observed during the site walkover was the Norway rat (Rattus norvegicus). In addition, runways and scats were observed that would indicate the presence of white footed mice (Peromyscus leucopus), house mouse (Mus musculus), cottontail rabbits (Sylvilagus floridanus), and raccoons (Procyon lotor). Probable mammal inhabitants are listed in Table 4-2.

Table 4-2

MAMMALS LIKELY TO INHABIT THE MANHASSET SUBSTATION SITE

Common Name	Scientific Name
Eastern chipmunk	Tamias striatus
Gray Squirrel	Sciurus carolinensis
Cottontail rabbit	Sylvilagus floridanus
White-footed mouse	Peromyscus leucopus
House mouse	Mus musculus
Norway rat	Rattus norvegicus
Raccoon	Procyon lotor

4.1.4 Birds

Birds were present and actively feeding in the railway right-of-way and a number of small trees outside the cyclone fence. Mourning doves (Zenaida macroura) were especially prominent and frequently moved along the railway area, as well as other ground foraging birds, including finches (Carpodacus sp.), mockingbirds (Mimus polyglottus), starlings (Sturnus vulgaris) and American robins (Turdus migratorius). Although no hawk species were observed, the opportunities for several species to rest and feed at this location along the Atlantic Flyway were present.

Waterfowl were observed within the open water areas of Manhasset Bay near the substation discharge area. Mallards and Canadian geese were common to the area. No breeding was observed, although breeding indications would be limited at the time of the site field survey. Although no concentrated vegetation stands were present that would afford feeding opportunities to wintering waterfowl, it is likely that the vegetative screening and high embankments provide

shielding for wintering waterfowl in this area. A subset of the New York State Bird Atlas listing for Suffolk County, New York is presented in Table 4-3, providing species observed or expected to utilize this area of Manhasset Bay.

4.1.5 Fish

There is no standing water at the Manhasset Substation site; therefore, the site is not suitable to support any fish species. The area where storm water is discharged to Manhasset Bay likely provides a protective feeding and nursery area to a variety of saltwater finfish and crustaceans. Common species present include the Atlantic silverside (Menidia menidia) and mummichog (Fundulus heteroclitus). Seasonal species of commercial/recreational importance that routinely inhabit this habitat include striped bass (Morone saxatilis), bluefish (Pomatomus saltatrix), and winter flounder (Pseudopleuronectes americana). A list of finfish species, which likely frequent this area on a seasonal basis, are provided in Table 4-4.

4.1.6 Reptiles and Amphibians

Reptiles or amphibians were not observed on the Manhasset Substation site. The property includes discarded construction materials that would offer cover to snakes common to the area. Low vegetation likely provides habitat for common toad species. Table 4-5 contains a list of reptiles and amphibians common to the area that could likely inhabit the site and/or surrounding areas.

4.1.7 Rare Species and Critical Habitats

Based on a review of the New York Natural Heritage files maintained at the NYSDEC Wildlife Resources Center, there are no rare species or critical habitats known to occur on or adjacent to the Manhasset Substation site. In addition, except for occasional transient individuals, no federally listed or proposed endangered, or threatened species exist within a 2-mile radius of the site according to the U.S. Department of the Interior, Fish and Wildlife

Table 4-3

AVIFAUNA LIKELY TO INHABIT THE MANHASSET SUBSTATION/MANHASSET BAY AREA

Common Name	Scientific Name
Canada goose	Branta canadensis
Mallard	Anas platyrhynchos
Black duck	Anas rubripes
Red-tailed hawk	Buteo jamaicensis
Kestrel	Falco sparverius
Killdeer	Charadrius vociferus
Herring gull	Larus argentatus
Great black-backed gull	Larus marinus
Mourning dove	Zenaida macroura
Eastern kingbird	Tyrannus tyrannus
American crow	Corvus brachyrhynchos
Blue jay	Cyanocitta cristata
Black-capped chickadee	Parus atricapillus
Tufted titmouse	Parus bicolor
White-breasted nuthatch	Sitta carolinensis
Red-breasted nuthatch	Sitta canadensis
Brown creeper	Certhia americana
House wren	Troglodytes aedon
Winter wren	Troglodytes troglodytes
Carolina wren	Thryothorus ludovicianus
Gray catbird	Dumetella carolinensis
Northern mockingbird	Mimus polyglottos
Eastern bluebird	Stalia sialis
American robin	Turdus migratorius
Wood thrush	Hyocichla mustelina
Cedar waxwing	Bonbycilla cedrorum
Solitary vireo	Vireo solitarius
Yellow warbler	Dendroica petechia
Ovenbird	Seirus aurocapillus
Common yellowthroat	Geothlypis trichas
Common grackle	Quiscalus quiscula
European starling	Sturnus vulgaris
House sparrow	Passer domesticus
Northern cardinal	Cardinalis cardinalis
Brown-headed cowbird	Molothrus ater
House finch	Carpodacus mexicanus
Purple finch	Carpodacus purpureus
American goldfinch	Carduelis tristis
Chipping sparrow	Spizella passerina
Field sparrow	Spizella pusilla
Song sparrow	Melospiza melodia
White-throated sparrow	Zonotrichia albicollis

Table 4-4

FINFISH LIKELY TO SEASONALLY INHABIT MANHASSET BAY

Common Name	Scientific Name
American eel	Anguilla rostrata
Blueback herring	Alosa aestivalis
Atlantic menhaden	Brevoortia tyrannus
Bay anchovy	Anchoa mitchilli
Oyster toadfish	Opsanus tao
Mummichog	Fundulus heteroclitus
Striped killifish	Fundulus majalis
Atlantic silverside	Menidia menidia
Tidewater silverside	Menidia beryllina
Northern pipefish	Syngnathus fuscus
Striped bass	Morone saxatilis
Bluefish	Pomatomus saltatrix
Scup	Stenotomus chrysops
Weakfish	Cynoscion regalis
Northern kingfish	Menticirrhus saxatilis
Northern searobin	Prionotus carolinus
Striped searobin	Prionotus evolans
Sea raven	Hemitripterus americanus
Winter flounder	Pseudopleronectes americanus
Summer flounder	Paralichthys oblongus
Windowpane	Lophopsetta maculata
Northern puffer	Sphoeroides maculatus

Table 4-5

REPTILES AND AMPHIBIANS LIKELY TO INHABIT THE MANHASSET SUBSTATION SITE

Common Name	Scientific Name
Box turtle	Terrapene carolina
Eastern garter snake	Thamnophis sirtalis
Eastern ribbon snake	Thamnophis sauritis
Fowler's toad	Bufo woodhousei fowleri

Service. Table 4-6 provides a list of all federally listed and proposed threatened or endangered species in New York State.

4.1.8 Biological Associations Found in the Project Vicinity

The areas within a 2.5-mile radius surrounding the Manhasset Substation vary greatly. Manhasset Bay lies to the west of the site and exerts a major influence on the aquatic species of the area. South of the site beyond the parking field is Whitney Pond Park, which is a suburban park with fresh water ponds, forested edge area and open recreational areas. Residential development is present north and east of the area. Small commercial establishments line the west bank of Manhasset Bay and intersperse with open areas along the east bank. An association of cover types with common dominant species is presented in Table 4-7. The biological associations observed are common for this general area.

4.1.9 Observations of Stress Potentially Related to Site Contaminants

Other than physically disturbed areas, there were no indications of visibly stressed vegetation that could be attributed to contaminants. Past disturbance and multiple contamination sources, including overland storm water runoff from commercial development and storm water runoff discharges from roadways, has impacted water quality in lower Manhasset Bay. As discussed under Section 3.1.4, four surface water sediment samples were collected at low tide adjacent to the drainage swale outfall in Manhasset Bay. All four sediment samples exhibited detectable levels of mercury, ranging from 0.077 mg/kg to a maximum of 0.19 mg/kg at MHSD-02A. Only MHSD-02A exceeded the "lowest effect level" of 0.15 mg/kg established for mercury for surface water sediment by the NYSDEC pursuant to the NYSDEC Technical Guidance for Screening Contaminated Sediment, dated November 22, 1993. All mercury concentrations were found to be well below the "severe effect level" of 1.3 mg/kg, which is also included in the above-referenced NYSDEC guidance document.

Table 4-6

FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED SPECIES IN NEW YORK STATE

Common Name	Scientific Name	Status	Distribution
Fishes			
Sturgeon, shortnose	Asipenser brevirostrum	E	Hudson River and other Atlantic coastal rivers
Reptiles			
Turtle, bog	Clemmys muhlenbergii	PT	Albany, Columbia, Dutchess, Genesee, Orange, Oswego, Putnam, Seneca, Ulster, Wayne, and Westchester Counties
Turtle, green	Chelonia mydas	T	Oceanic summer visitor coastal waters
Turtle, hawksbill	Eretmochelys imbricata	E	Oceanic summer visitor coastal waters
Turtle, leatherback	Dermochelys coriacea	E	Oceanic summer visitor coastal waters
Turtle, loggerhead	Caretta caretta	T	Oceanic summer visitor coastal waters
Turtle, Atlantic ridley	Lepidochelys kempii	E	Oceanic summer visitor coastal waters
Birds			
Eagle, bald	Haliaeetus leucocephalus	T	Entire state
Falcon, peregrine	Falco peregrinus	E	Entire state - re-establishment to former breeding range in progress
Plover, piping	Charadrius melodus	E	Great Lakes Watershed
		T	Remainder of coastal New York
Tern, roseate	Sterna dougallii dougallii	E	Southeastern coastal portions of state

Table 4-6 (continued)

FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED SPECIES IN NEW YORK STATE

Common Name	Scientific Name	Status	Distribution
Mammals			
Bat, Indiana	Myotis sodalis	E	Entire State
Cougar, eastern	Felis concolor cougar	E	Entire State - probably extinct
Whale, blue	Balaenoptera musculus	E	Oceanic
Whale, finback	Balaenoptera physalus	E	Oceanic
Whale, humpback	Megaptera novaeangliae	E	Oceanic
Whale, right	Eubalaena glacialis	E	Oceanic
Whale, sei	Balaenoptera borealis	E	Oceanic
Whale, sperm	Physeter catodon	E	Oceanic
Mollusks			
Snail, Chittenango ovate amber	Succinea chittenangoensis	T	Madison County
Mussel, dwarf wedge	Alasmidonta heterodon	E	Orange County - lower Neversink River
Butterflies			
Butterfly, Karner blue	Lycaeides melissa samuelis	E	Albany, Saratoga, Warren, and Schenectady Counties
Plants			
Monkshood, northern wild	Aconitum noveboracense	T	Ulster, Sullivan, and Delaware Counties
Pogonia, small whorled	Isotria medeoloides	T	Entire State
Swamp pink	Helonias bullata	T	Staten Island - presumed extirpated
Gerardia, sandplain	Agalinis acuta	E	Nassau and Suffolk Counties
Fern, American hart's-tongue	Asplenium scolopendrium var. Americana	T	Onondaga and Madison Counties
Orchid, estern prairie fringed	Platanthera leucophea	T	Not relocated in New York
Bulrush, northeastern	Scirpus ancistrochaetus	E	Not relocated in New York

Table 4-6 (continued)

FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED SPECIES IN NEW YORK STATE

Common Name	Scientific Name	Status	Distribution
Roseroot, Leedy's	Sedum integrifolium ssp. Leedyi	T	West shore of Seneca Lake
Amaranth, seabeach	Amaranthus pumilus	T	Atlantic coastal plain beaches
Goldenrod, Houghton's	Solidago houghtonii	T	Genesee County

Table 4-7

FLORAL AND FAUNAL ASSOCIATIONS OBSERVED WITHIN 2.5 MILES OF THE MANHASSET SUBSTATION SITE

Species	Grassland/ Field	Forested/ Grassland/ Field	Forested	Freshwater Wetlands/ Ponds	Estuarine Wetlands	Cultivated Lawn
Plants						
Common ragweed	X	X				
Daisy	X	X				
Crown vetch	X	X		X		
Fescue						X
Goldenrod	X	X		X		
Virginia creeper		X	X			X
Multiflora rose	X	X		X		
Red maple			X			X
Flowering Dogwood		X	X			X
Black locust		X	X			X
Animals						
Striped bass					X	
Gray Squirrel		X	X			X
Mice/voles/shrews	X	X	X	X		X
Black Duck					X	
Hawks	X	X	X	X		
Finches		X	X			X
Sparrows	X	X	X			X
Northern spring peeper				X		
Eastern garter snake	X	X		X		

4.1.10 Habitat Values of Vegetative Zones Within the Project Site

The assessment of habitat value provides for assessments of primary functions, such as food chain production, specialized habitat and hydrologic interactions. As part of the analysis, cultural values concerning recreation, aesthetics or other special features must be taken into consideration.

The information gathered during the initial site assessment conducted in 1999 can provide for a hierarchy of habitat values for the cover types found at the Manhasset Substation. It should be noted that this approach is highly subjective. Those functions assumed to be valuable in relative efficiency or importance are ranked as 3 (high), 2 (moderate), 1 (low) or 0 (non-existent). Specific factors and brief descriptions, which were utilized in the habitat value analysis of the site's qualitative evaluation, are as follows:

- Nutrient Transport Function - Transport of nutrients in detrital-based food chains is strongly dependent on the hydrologic characteristics of the particular ecosystem. For example, wetlands located in lower lying areas export more detrital material than do the higher marsh areas infrequently affected by creek/river overflow. Similarly, detrital transport in the riverine systems is dependent on the river flow regime, especially during periods of peak discharge. In contrast, very little detrital material is exported from isolated ponds and marshes, except during periods of episodic overflow resulting from exceptionally high precipitation.

- Food Chain Support - This function refers to the secondary productivity values of consumer species that a particular ecosystem can support. Secondary productivity is an overall measure of the efficiency of the habitat in terms of nutrient to transfer higher trophic levels.

- Hydroperiod - This factor refers to the frequency of inundation either by river flow runoff or direct precipitation. Areas of good hydrologic linkage help maintain a regular interchange of nutrients and other materials necessary to support diverse flora and fauna.

- Elevational Location - From the above, it is apparent that hydrologic relationships will progressively deteriorate as the depth of flooding decreases. The weakest hydrologic linkages exist in those areas physically isolated from other areas in the system.

- Cultural Evaluation - This particular factor is difficult to assess in detail because of the number of socio-economic considerations, which may be involved. Hence, the evaluation in relation to local residential, commercial, or industrial development is largely left to the professional judgement of the project personnel on a specific case-by-case basis.

- Recreation - Recreation is a vital personal and social need, which provides opportunity for self-expression, physical exercise, and a change of pace from normal or routine activities. Outdoor recreation is a major leisure activity and is growing in national importance with a trend towards a higher standard of living. A significant portion of the total recreational output is water based or water related. As such, greater weight is given to those types of habitats.

- Socio-Economic - This factor pertains to benefits, which can be attributed directly to renewable resources, recreational enjoyment, or other features associated with a particular habitat.

- Aesthetics - Selected types of habitats are distinctive landscape features which can please the aesthetic sense through the intrinsic appreciation of natural beauty. Wetlands, or any other type of natural landscape, can also be offensive if their features have been adversely modified by incompatible human activities. Aesthetic value can be largely determined by the degree of visual diversity and contrast between the physical elements, such as landforms, water bodies, vegetation types and land use types.

- Food Chain Production - This factor determines the growth of vegetation in a habitat and influences the populations and secondary productivity of animals that feed on the plants, or that feed at high trophic levels in the community.

- Primary Productivity - Primary productivity is a measure of the stored food potential of the vegetation in excess of that used by the plants in metabolism. This determination provides an overall measure of the energy input directly available to the consumer species. It should be noted that the possible range of productivity values, both within and between particular environments, is extremely variable and dependent on a number of local conditions. For the present analysis, literature values for primary productivity as a function of biomass were utilized.

- Water Purification Factor - Through a variety of physical, biological, and chemical processes, some habitats function to naturally purify water by removing organic and mineral particulate matter from runoff and/or rivers and streams. For example, wetlands may be significant in minimizing some of the harmful effects of pollutants introduced into natural ecological systems by the activities of man. Thus, wetlands, especially when part of riverine or estuarine systems, can be an integral part of water quality and pollution control objectives.

Based upon the above factors, a qualitative analysis of the habitat value of the vegetative and aquatic communities at the Manhasset Substation are presented in Table 4-8. Based upon these results, the wetlands habitats associated with Manhasset Bay are moderately high value habitats. These wetlands function as a typical estuarine in primary productivity, nutrient transport and food chain support, while also providing aesthetic and recreational opportunities to the local community that would not likely otherwise be available in this location. The Manhasset Substation is a man-maintained corridor that has an important socio-economic function as a mass transportation corridor. As such the property is not managed for and does not present opportunities for ecological diversity or development. Control of contaminants on location is important to minimize impacts to Manhasset Bay. Due to the high tidal amplitude and flushing abilities of Manhasset Bay coupled with the affinity of contaminants under investigation to closely adhere to local sediments, it is unlikely that significant ecological disturbance has resulted from past practices of the Manhasset Substation.

Table 4-8

QUALITATIVE HABITAT VALUE ANALYSIS WITHIN THE MANHASSET SUBSTATION SITE

Evaluation Factor	Disturbed Upland	Manhasset Bay Discharge Site
Food Chain Production	1	2
Primary Productivity	1	2
Nutrient Transport	1	2
Food Chain Support	1	2
Hydroperiod	1	2
Elevational Location	1	2
Cultural Location	3	2
Recreation	0	2
Socio-Economic	3	1
Aesthetics	1	2
Water Purification Factor	1	2
Totals	*14*	*21*

Section 5

5.0 QUALITATIVE EXPOSURE ASSESSMENT

5.1 Introduction

The purpose of this exposure assessment is to determine how and when an individual might be exposed to contaminants of potential concern associated with the LIRR Manhasset, Massapequa and Island Park substations. A contaminant of potential concern (COPC) is any chemical detected above the NYSDEC cleanup guidelines in a medium, which could produce adverse health effects under the right conditions of dose and exposure. For exposure to occur, there must be a complete "pathway of exposure" where a person can come into contact with contaminants of potential concern. For a pathway to be complete, there must be: 1) a source or medium containing the COPC; 2) a location where human contact could take place (i.e., an exposure point); and 3) a feasible means for the COPC to enter into the person's body. The person who could come into contact with the COPC at an exposure point is called a "receptor." The ways in which the COPC can enter the body are called "routes of exposure." Ingestion (by mouth), dermal (contact with skin) and inhalation (breathing into the lungs) are the routes of exposure considered in this and other human health risk assessments. Consistent with the New York State Department of Health (NYSDOH) and other regulatory agencies, this assessment considers both current and potential future exposures.

As with any exposure assessment, it is not intended to predict disease outcome, but rather, is meant to be used as a tool to make decisions regarding the need for remediation or the institution of precautionary measures, such as limiting the affected area to nonresidential land uses. Given the available information for each site, and keeping the purpose of the assessment in mind, the following evaluation for the three LIRR substations and surrounding off-site areas is qualitative in nature.

5.2 Properties, Fate and Transport of Mercury

The following is a summary of the properties, fate and transport of mercury (Hg) in surface and shallow subsurface soil. The mercury found at Long Island Rail Road substations is

assumed to have entered in the soil in the form of liquid elemental mercury that was utilized in mercury-containing rectifiers. Elemental mercury (Hg^0) is a heavy, silver-white metal with a specific gravity approximately 13.5 times that of water and is the only metal to exist in the liquid phase at room temperature. Hg^0 has a relatively high vapor pressure and is the most volatile of all metals. Overall, however, it is considered only slightly volatile when compared to most liquids. Hg^0 volatilizes into a colorless, odorless and tasteless gas.

Mercury is a naturally occurring element that has been distributed throughout the environment by natural processes. Mercury exists in three possible oxidation states: elemental mercury (Hg^0), mercurous (Hg^{1+}), and mercuric (Hg^{2+} or Hg[II]). Atmospheric deposition to the surface from anthropogenic and natural air emissions is considered a major source of mercury in the environment and is primarily in the form of Hg(II), either during precipitation events or adsorbed onto airborne particulates. The mercurous and mercuric forms of mercury will complex and form numerous organic and inorganic compounds. Hg(II) is commonly found as mercuric sulfide (HgS), a stable inorganic species that is essentially insoluble in water and is therefore considered a major long term sink for mercury in soils. Moderately soluble forms of Hg(II), such as mercuric chloride ($HgCl_2$), can potentially contaminate surface and groundwater. Both the mercurous and mercuric forms of mercury will adsorb to clay minerals, oxides and organic matter and tend not to leach. Methylmercury (MeHg) is the most widespread organic form of mercury in the environment and is formed from the methylation of inorganic mercury by bacteria in aquatic environments. Methylation is generally negligible in terrestrial soils.

Liquid elemental mercury has a tendency to form globules or beads and therefore is generally not uniformly distributed among soil particles. It will sink under the force of gravity and split up into available pore spaces. Despite this fact, Hg^0 is only slightly soluble in water and, therefore, is unlikely to leach into groundwater via infiltrating precipitation. In fact, spills of liquid mercury to shallow subsurface soil have been found to be persistent in this environment. Elemental mercury is assumed to be removed from unsaturated soil primarily through its potential to volatilize to the soil vapor and the outside air. Although liquid mercury is volatile, the process is not rapid and globules of Hg^0 may persist for a long time before completely volatilizing. In addition, mercury globules can become coated with a stable layer of insoluble

HgS, especially in anaerobic conditions, and can remain inert for a long time. Mercury vapor released to the outdoor air will dissipate rapidly into the atmosphere.

5.3 General Findings and Conditions

As indicated by the chemical data presented in Section 3.0, mercury is the primary COPC detected in surface and subsurface soil associated with the three substation sites. However, groundwater at each substation does not appear to be impacted by mercury. In addition, a number of PAH compounds have been detected in surface and subsurface soil. Relatively low concentrations of several VOCs have been detected in several UIC structures; however, these structures have been remediated as part of the UIC closure program. Several VOCs were detected in groundwater, including MTBE in groundwater samples collected from the three substations at trace to low concentrations not exceeding 18 ug/l. However, these groundwater contaminants appear to be from upgradient, off-site sources and are not associated with activities conducted at the three substations.

All three substations are actively used by the LIRR to convert alternating current (AC) obtained from the local electrical provider, the Long Island Power Authority (LIPA), to direct current (DC) for use in powering the LIRR's electric train fleet. As discussed in Section 1.1, the substations have been used for this purpose since the early 1930's and the LIRR intends to continue to use these facilities for this purpose in the foreseeable future.

The substations are only accessible by authorized LIRR personnel and their subcontractors. In addition, the substations are not occupied by LIRR personnel on a continuous or full-time basis. Under normal operating conditions, access to the substation properties only occurs when equipment requires monitoring, maintenance or repair. Each substation building is locked at all times and all associated outside electrical equipment (i.e., transformers) are secured by a locked fence. In addition, the property surrounding the Manhasset and Massapequa substations is fenced, preventing public access to these properties.

All three substations are serviced by public water and on-site groundwater is not used for any purpose.

While soil contamination has been documented within certain areas of each substation, the LIRR maintains strict control over conducting soil excavation activities within LIRR properties known to contain contaminants in order to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures. Provided as Appendix G is the LIRR Procedure/Instruction EE03-001 which defines the procedures that must be undertaken prior to conducting excavation activities at LIRR properties.

The following sections discuss the exposure assessment for each of the three substations.

5.4 Manhasset Substation

Surface and Subsurface Soil

Elevated concentrations of mercury were detected within surface soil and subsurface soil within the Manhasset substation. The highest mercury concentrations were detected in surface soil within the drainage swale, and in surface soil and shallow subsurface soil within the Exterior Railroad Tie AOC located south of the drainage swale and west of the substation building. However, surface soil within the drainage swale is covered by stone blocks that line the swale and the Exterior Railroad Tie AOC, as well as the surrounding area, is covered with 6 to 8 inches of crushed stone. Therefore, direct exposure to mercury contamination of LIRR workers (on-site receptors) who are required to periodically enter the site for equipment maintenance and repair is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contaminant source during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed above, the LIRR has in place procedures to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures. In addition, the Manhasset substation is secured with a fence eliminating the potential of trespassers entering the site.

Surface soil samples collected from off-site locations immediately north of the drainage swale exhibited relatively low concentrations of mercury with the majority of surface soil samples exhibiting mercury concentrations ranging from 0.1 mg/kg to less than 6.0 mg/kg. While the majority of these concentrations were found to be low, they are located in an area that has unrestricted access by the public. Therefore, exposure of off-site receptors to this contaminant source could occur through dermal contact, ingestion and inhalation of windblown dust. However, due to the low volatility of mercury and the relatively low concentrations, inhalation of mercury vapor is not expected. This is supported by the fact that all mercury vapor readings were nondetectable for all surface soil samples collected from this area.

Groundwater

As discussed in Section 1.3.7, groundwater has not been adversely impacted by the presence of mercury in on-site soil. In addition, on-site groundwater is not used as a potable water source or for any other uses. Therefore, groundwater is not considered a potential exposure pathway.

Air

VOCs were only detected at trace concentrations of less than 10 ug/kg within a former UIC structure that was remediated in 2003. As a result, inhalation of contaminants released to the air through volatilization of contaminants from surface soil and subsurface soil does not represent a potential exposure pathway for on-site or off-site receptors. However, as discussed above, inhalation of windblown dust of surface soil does represent a potential for exposure to off-site receptors. While the volatilization of mercury present in the subsurface can occur, this process occurs at a very slow rate and inhalation of mercury vapor from on-site sources is not expected to be a significant exposure pathway.

Future Use of Manhasset Substation

The Manhasset substation is an integral component of the LIRR rail system and will remain as an electric substation for the foreseeable future.

5.5 Massapequa Substation

Elevated levels of mercury were detected in surface and subsurface soil within the Massapequa substation. The highest mercury concentrations were detected in surface soil located immediately east of the substation building, and below an asphalt driveway as well as an area covered by 6 to 8 inches of crushed stone. Therefore, direct exposure of LIRR workers (on-site receptors) to this contaminant source who need to periodically enter the site for equipment monitoring, maintenance and repair is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contaminant source during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed above, the LIRR has in place procedures to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures. In addition, the Massapequa substation is secured with a fence eliminating the potential of trespassers entering the site.

Surface soil samples collected outside the substation fence within nearby grass-covered areas also exhibited mercury at concentrations ranging from 0.40 mg/kg to a maximum of 13.6 mg/kg. These grass-covered areas are accessible to the public, therefore, exposure of off-site receptors to this contaminant source could occur through dermal contact, ingestion and inhalation of windblown dust. Therefore, the LIRR has erected temporary fencing to restrict the public from access to these areas.

Groundwater

As discussed in Section 3.3.6, groundwater has not been adversely impacted by the presence of mercury in on-site soil. Furthermore, on-site groundwater is not used as a potable

water source or for any other uses. Therefore, groundwater is not considered a potential exposure pathway.

5.6 Island Park Substation

Surface and Subsurface Soil

The highest mercury concentrations detected in surface and subsurface soil within the Island Park substation were observed in samples collected from an area adjacent to the south side of the substation building. However, mercury concentrations did not exceed 13 mg/kg in this area and it is currently covered by asphalt pavement. Therefore, direct exposure of LIRR workers (on-site receptors) to this contaminant source who need to periodically enter the site for equipment maintenance and repair is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contamination during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed above, the LIRR has in place procedures to avoid the excavation and handling of contaminated soil without undertaking appropriate health and safety measures.

Subsurface soil samples collected throughout the Island Park substation site exhibited elevated concentrations of a number of PAHs and, to a lesser extent, arsenic and phenols. However, based on soil conditions observed during the advancement of borings, much of the site soil appears to be comprised of non-native fill. In addition, while undertaking excavation activities in accordance with the construction excavation program, subsurface soil was found to be comprised of fill material and debris, including automobile parts, mattresses, bottles, tools and related material. Based on these findings, it is apparent that the PAHs, arsenic and phenols identified in subsurface soil is associated with this fill material and is not associated with LIRR operations, past or present. Regardless of their origin, the areas where these contaminants have been observed are covered with asphalt pavement and, therefore, exposure of LIRR workers who periodically access the site is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contamination during excavation activities as the result of dermal contact and inhalation of windblown dust. However, as discussed above, the LIRR has instituted

procedures to prevent the excavation of contaminated soil without undertaking appropriate health and safety measures.

Groundwater

As discussed in Section 3.5.10, mercury was not detected above NYSDEC Class GA groundwater standards in groundwater samples collected from the site. A number of metals were detected above their respective NYSDEC Class GA groundwater standard; however, the majority of these exceedances was detected in unfiltered groundwater samples and, therefore, does not represent true dissolved-phase concentrations. In addition, groundwater samples exhibited low concentrations of several VOCs including MTBE, a common gasoline additive. Finally, groundwater samples exhibited a number of PAHs exceeding NYSDEC standards which would be expected given the concentrations observed in subsurface soil as the result of the fill material. Furthermore, on-site groundwater is not used as a potable water source or for any other uses. Therefore, groundwater is not considered a potential exposure pathway.

Section 6

6.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents a discussion of the conclusions and recommendations associated with the investigation of the presence of any chemical constituents of concern at the Manhasset, Massapequa and Island Park substations and surrounding off-site properties. It is important to note that the conclusions and recommendations presented take into consideration the completed Fish and Wildlife Resources Impact Analysis presented in Section 4.0, the findings of the Qualitative Human Health Exposure Assessment presented in Section 5.0, as well as the intended future use of the substation sites.

Note that, upon approval of this investigation report by the NYSDEC, the LIRR intends to proceed with development of a Remedial Action Selection report that will identify the selected remedial technologies that will be used to successfully remediate each substation site in accordance with the recommendations presented below.

6.1 Manhasset Substation

Mercury was detected in surface and shallow subsurface soil at the Manhasset Substation. The most significant mercury contamination has been identified in soil collected immediately beneath the stone blocks lining the drainage swale at concentrations of up to 9,800 mg/kg. Soil samples collected from the drainage swale indicate a mercury "hot spot" located between 10 and 30 feet west of the northwest corner of the existing substation building. However, mercury concentrations within the drainage swale decrease rapidly to the west (downstream) and east (upstream) of this hot spot area. The drainage swale conveys storm water runoff from the substation property, as well as properties located "upstream" and to the east and south of the substation. The storm water is ultimately discharged to Manhasset Bay via an outfall located approximately 1,000 feet west of the substation. However, surface water sediment samples collected from Manhasset Bay immediately downstream of the outfall indicate that mercury concentrations are only marginally above the "lowest effect level" standard of 0.15 mg/kg and well below the "severe effect level" of 1.3 mg/kg, which has been established by the NYSDEC for mercury in surface water sediments.

Mercury has been identified in surface soil and shallow subsurface soil immediately to the south of the drainage swale hot spot discussed above and immediately west of the substation building at concentrations of up to 1,700 mg/kg.

In addition, surface soil samples collected from the soil median and from off-site properties immediately north of the drainage swale exhibited concentrations of mercury above the NYSDEC TAGM criteria of 0.1 mg/kg with the majority of these samples exhibiting relatively low mercury concentrations ranging from 0.1 mg/kg to less than 6.0 mg/kg.

Groundwater has not been impacted by the presence of mercury in on-site soil.

All UIC structures identified within the Manhasset Substation have been remediated and closed in accordance with USEPA and NCDH requirements.

Exposure of on-site workers to mercury-contaminated soil is not expected due to the fact that the soil comprising the drainage swale is "lined" by stone blocks and soil south of the swale is covered with 6 to 8 inches of crushed stone. Furthermore, the LIRR has instituted procedures to prevent the excavation of contaminated soil at LIRR properties without undertaking appropriate health and safety measures. Off-site receptors could be potentially exposed to surface soil exhibiting mercury above the NYSDEC TAGM criteria of 0.1 mg/kg located off-site and north of the drainage swale.

Based on the above findings, we recommend the following:

Drainage Swale

In order to remediate the mercury concentrations in surface soil within the drainage swale, excavate all soil and stone blocks from the drainage swale to a total depth of 3 feet below grade in an area beginning approximately 2 feet west of the northwest corner of the substation

and extending to a point approximately 50 feet west. Subsequent to completing this remedial action, the swale should be replaced with a concrete culvert and backfilled with clean fill.

Exterior Railroad Ties AOC

Soil south of the drainage swale, north of the signal hut and west of the substation containing elevated levels of mercury should be remediated to a depth of between 2 and 4 feet below grade, depending on the results of the completed surface soil sampling. This area is approximately 1,400 square feet in area and would require the excavation of approximately 130 cubic yards of soil. After removal of the contaminated soil, this area should be backfilled with clean soil and a layer of crushed stone placed on top of the area.

Off-site Soil

Due to the potential for exposure to off-site receptors, shallow soil up to 1 foot in depth should be remediated within the soil median located immediately to the north of the drainage swale. This would include the narrow strip of exposed soil located between the drainage swale and the curb of Virginia Drive. The area requiring excavation includes a distance of approximately 440 feet, starting approximately 80 feet east of the substation building and continuing west along Virginia Drive. In addition, a narrow strip of soil approximately 550 feet in length located on the two private properties west of Virginia Drive and adjacent to the drainage swale should be remediated to a depth of up to 1 foot below grade. Assuming a strip 3 feet in width, the area to be remediated consists of approximately 110 cubic yards of soil. After remediation, the excavated area should be backfilled with clean soil and the surface restored to pre-remediation conditions including the restoration of lawns and other landscaped areas.

6.2 Massapequa Substation

Mercury has been detected in surface soil and shallow subsurface soil at the Massapequa Substation. The highest mercury concentrations have been identified in surface soil and shallow subsurface soil located immediately east of the eastern side of the substation building with

mercury concentrations of up to 178 mg/kg. This portion of the site is covered by asphalt pavement and crushed stone. Exposure of on-site workers to mercury contamination is not expected due to the fact that it is covered by asphalt pavement or crushed stone. Furthermore, the LIRR has instituted procedures to prevent the excavation of contaminated soil at its properties without undertaking appropriate health and safety measures.

In addition, surface soil samples collected outside the substation fence within grass covered areas to the south and east exhibited mercury concentrations ranging from 0.4 to 13.6 mg/kg. In addition, subsurface soil sample MSSB-53 (2 to 4 feet) collected within a grass covered area immediately south of the substation fence exhibited a mercury concentration of 103 mg/kg. These grass-covered areas are accessible to the public and, therefore, exposure of off-site receptors to this contaminant source could occur through dermal contact, ingestion and/or inhalation of windblown dust. Note that, based on these findings, the LIRR has placed temporary fencing around these grass areas in order to prevent access while a permanent remedy is selected to mitigate this potential exposure pathway.

Groundwater has not been impacted by the presence of mercury in on-site soil.

All UIC structures identified within the Massapequa Substation have been remediated and closed in accordance with USEPA and NCDH requirements.

Based on these findings, we recommend the following:

On-site Locations

Replace the area of crushed stone located immediately east of the substation building with asphalt pavement in order to further isolate any residual mercury-impacted soil from on-site workers and to reduce the degree to which groundwater can infiltrate through this soil.

Off-site Locations

Excavate the mercury-impacted soil in grass covered areas to the south and east of the substation fence to a depth of 2 feet below grade. Replace the excavated soil with clean soil and cover with asphalt pavement or concrete to prevent future access by the public.

6.3 Island Park Substation

Mercury was detected in surface and shallow subsurface soil within the Island Park Substation. The highest mercury concentrations were detected in samples collected from an area adjacent to the south side of the substation building. However, mercury concentrations did not exceed 13 mg/kg in this area and is currently covered by asphalt pavement. Therefore, direct exposure of LIRR workers to this area who need to periodically enter the site for equipment maintenance and repair is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contamination during excavation activities as a result of dermal contact and/or inhalation of windblown dust. However, as discussed above, the LIRR has procedures in place to prevent the excavation of contaminated soil at its properties without undertaking appropriate health and safety measures.

Subsurface soil samples collected throughout the Island Park substation site exhibited elevated concentrations of a number of PAHs and, to a lesser extent, arsenic and phenols. However, during the advancement of borings, much of the site soil appears to be comprised of nonnative fill. In addition, while undertaking excavation activities in accordance with the construction excavation program, subsurface soil was found to be comprised of fill material and debris, including automobile parts, mattresses, bottles, tools and related material. Based on these findings, it is apparent that the PAHs, arsenic and phenols identified in subsurface soil is associated with this fill material and is not associated with LIRR operations, past or present. Regardless of the origin, the areas where these contaminants have been observed are covered with asphalt pavement and, therefore, exposure of LIRR workers who periodically access the site is highly unlikely. LIRR workers and subcontractors could be potentially exposed to this contamination during excavation activities as the result of dermal contact and/or inhalation of

windblown dust. However, as discussed above, the LIRR has instituted procedures to prevent the excavation of contaminated soil at its properties without undertaking appropriate health and safety measures.

Mercury was not detected above NYSDEC Class GA groundwater standards in groundwater samples collected from the site. A number of metals were detected above their respective NYSDEC Class GA groundwater standard; however, the majority of these exceedances were detected in unfiltered groundwater samples that exhibited turbidity values well in excess of 50 NTUs and, therefore, do not represent true dissolved-phase concentrations. Groundwater samples exhibited relatively low concentrations of several VOCs (not exceeding 18 ug/l) including MTBE, a common gasoline additive. In addition, groundwater samples exhibited a number of PAHs exceeding NYSDEC standards which would be expected given the concentrations of PAHs observed in subsurface soil as the result of the fill material.

The rectifier dry well was remediated and closed as part of the Island Park UIC closure program in accordance with the requirements of the USEPA and NCDH.

The existing Island Park electric substation building is scheduled to be demolished in 2005. After demolition is completed, we recommend the following:

Sump Pump Pit

During the initial site assessment conducted in 1999, mercury-impacted soil was detected beneath a sump pump pit located within the substation building. Therefore, delineation activities are recommended to determine the horizontal and vertical extent of the impacted soil after demolition of the building.

Basement Drain Pipe

During the initial site assessment conducted in 1999, a drain pipe originating from within the substation basement was found to terminate beneath an area between the substation and the train tracks, approximately 21 feet from the west wall of the building. Investigation of this area could not be completed due to the presence of active utilities. Therefore, it is recommended that additional investigations be completed in this area to locate the discharge point associated with the basement drain after the demolition of the building so that electric utilities in that area can be de-energized.

Septic Tank

After building demolition, the LIRR recommends closing the active septic tank associated with the building by pumping out all material present in the tank and backfilling the tank with clean soil.

Appendix A

APPENDIX A

ANALYTICAL DATA FROM INITIAL SITE ASSESSMENT OF THE THREE SUBSTATIONS

TABLE D-1A

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - MANHASSET-N10
MERCURY

LOCATION	Rectifier Pit		Water Trough Pit		Southeast Exterior Conduit Pit			
SAMPLE ID	MHSBB-01	MHSBB-01	MHSBB-02	MHSBB-02	MHSBB-03	MHSBB-03	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-2	2-3	2-4	4-6	7-9	9-11	Detection	Background
DATE OF COLLECTION	6/24/99	6/24/99	6/22/99	6/22/99	6/21/99	6/21/99	Limits	Levels[1]
PERCENT SOLIDS	88	91	92	94	92	97		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	171	392	514	247	0.054 U	0.043 U	0.1	0.001 - 0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:
U: Constituent analyzed for but not detected.

TABLE D-1A (continued)

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - MANHASSET-N10
MERCURY

LOCATION	West of Substation							
SAMPLE ID SAMPLE DEPTH (ft.) DATE OF COLLECTION PERCENT SOLIDS UNITS	**MHSBB-12** **0-2** 6/22/99 92 (mg/kg)	**MHSBB-12** **4-6** 6/22/99 87 (mg/kg)					**Instrument Detection Limits** (ug/L)	**Eastern USA Background Levels[1]** (mg/kg)
Mercury	0.057 B	0.063 B					0.1	0.001 - 0.2

NOTES:

[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:

B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-1A (continued)

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - MANHASSET-N10
MERCURY

LOCATION	South of West Rail Road Ties	North of West-End Rail Road Ties		Drainage Swale				
SAMPLE ID	MHSBB-06	MHSBB-07	MHSBB-07	MHSBB-08	MHSBB-08	MHSBB-09	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	4-6	2-4	4-6	0-2	4-6	0-2	Detection	Background
DATE OF COLLECTION	6/22/99	6/22/99	6/22/99	6/22/99	6/22/99	6/21/99	Limits	Levels[1]
PERCENT SOLIDS	93	94	91	94	89	60		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	1.1	38.2	0.050 U	0.046 U	0.066 B	1.3	0.1	0.001 - 0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-1B

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SURFACE SOIL SAMPLING RESULTS - MANHASSET-N10
MERCURY

LOCATION	Slop Sink Discharge Point	Drainage Swale				North of West-End Rail Road Ties		
SAMPLE ID	MHSS-01	MHSS-02	MHSS-03	MHSS-04	MHSS-05	MHSS-06	Instrument Detection Limits	Eastern USA Background Levels[1]
SAMPLE DEPTH (in.)	0-6	0-6	0-6	0-6	0-6	0-6		
DATE OF COLLECTION	6/21/99	6/21/99	6/21/99	6/21/99	6/21/99	6/21/99		
PERCENT SOLIDS	86	85	94	85	79	86		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	25.1	2.1	0.75	3.6	7.4	143	0.1	0.001 - 0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

TABLE D-7A

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - ISLAND PARK-L03
MERCURY

LOCATION	Sump Pump Pit		West Corner Utility Trench		Exterior Water Meter Pit			
SAMPLE ID	IPSB-01	IPSB-01	IPSB-02	IPSB-02	IPSB-03	IPSB-03	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-2	2-4	0-2	4-6	2.5-4.5	6.5-8.5	Detection	Background
DATE OF COLLECTION	10/4/99	10/4/99	10/4/99	10/4/99	8/10/99	8/10/99	Limits	Levels[1]
PERCENT SOLIDS	80	78	89	85	82	95		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	0.10 B	0.24	0.056 U	0.074 B	0.44	0.047 U	0.1	0.001-0.2

NOTES:
(1) Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-7A (continued)

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - ISLAND PARK-L03
MERCURY

LOCATION	South Dry Well		South of Dry Well For Rectifiers		East of West Dry Well			
SAMPLE ID	IPSB-07	IPSB-07	IPSB-08	IPSB-08	IPSB-09	IPSB-09	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	5-7	9-11	5-7	9-11	5-7	9-11	Detection	Background
DATE OF COLLECTION	10/5/99	10/5/99	10/5/99	10/5/99	10/5/99	10/5/99	Limits	Levels[1]
PERCENT SOLIDS	82	68	83	36	80	51		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	0.049 U	0.070 U	0.060 U	0.14 U	0.060 U	0.085 U	0.1	0.001 - 0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:
U: Constituent analyzed for but not detected.

TABLE D-7B

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SURFACE SOIL SAMPLING RESULTS - ISLAND PARK-L03
MERCURY

LOCATION	South of Rear Concrete Platform	West of Rear Concrete Steps\Pad	North of Rear Concrete Steps\Pad	East of Rear Concrete Steps\Pad				
SAMPLE ID	IPSS-01	IPSS-02	IPSS-03	IPSS-04			Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-6	0-6	0-6	0-6			Detection	Background
DATE OF COLLECTION	8/10/99	8/10/99	8/10/99	8/10/99			Limits	Levels[1]
PERCENT SOLIDS	88	84	87	85				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(ug/L)	(mg/kg)
Mercury	12.2	35.4	10.8	27			0.1	0.001-0.2

NOTES:
(1) Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

TABLE D-12A

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - MASSAPEQUA-S15
MERCURY

LOCATION	Interior Water Trough Pit	Rectifier Pit	North-end Positive Breaker Cable Pit		Northwest Dry Well			
SAMPLE ID	MSSB-01	MSSB-02	MSSB-03	MSSB-03	MSSB-04	MSSB-04	Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-2	0-2	5-7	9-11	6-8	10-12	Detection	Background
DATE OF COLLECTION	11/23/99	11/23/99	11/23/99	11/23/99	11/23/99	11/23/99	Limits	Levels[1]
PERCENT SOLIDS	90	99	94	97	87	85		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	4.4	10	1.8	0.072 B	42.3	0.20	0.1	0.001-0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

QUALIFIERS:
B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-12A (continued)

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SOIL BORING SAMPLING RESULTS - MASSAPEQUA-S15
MERCURY

LOCATION	East of East-Side Bituminous Entrance							
SAMPLE ID	MSSB-08	MSSB-08	MSFB-01				Instrument	Eastern USA
SAMPLE DEPTH (ft.)	0-2	4-6	----				Detection	Background
DATE OF COLLECTION	11/23/99	11/23/99	11/23/99				Limits	Levels[1]
PERCENT SOLIDS	96	91	----					
UNITS	(mg/kg)	(mg/kg)	(ug/L)				(ug/L)	(mg/kg)
Mercury	11.3	0.072 B	0.17 U				0.1	0.001-0.2

NOTES:

[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

----: Not applicable.

QUALIFIERS:

U: Constituent analyzed for but not detected.

B: Constituent concentration is less than the CRDL, but greater than the IDL.

TABLE D-12B

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
SURFACE SOIL SAMPLING RESULTS - MASSAPEQUA-S15
MERCURY

LOCATION	Northeast of Exterior Water Service Pit	Far East of Southeast Substation Corner	Far East of East-Side Wood Plank Double Swing Doors	East of Southeast Chain Link Double Swing Doors	South off Southeast Exterior Substation Corner	Northwest Exterior Corner of Substation		
SAMPLE ID	MSSS-01	MSSS-02	MSSS-03	MSSS-04	MSSS-05	MSSS-06	Instrument Detection Limits	Eastern USA Background Levels[1]
SAMPLE DEPTH (in.)	0-6	0-6	0-6	0-6	0-6	0-6		
DATE OF COLLECTION	11/23/99	11/23/99	11/23/99	11/23/99	11/23/99	11/23/99		
PERCENT SOLIDS	92	93	93	93	90	92		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)
Mercury	25.3	8	0.86	1.1	169	13.5	0.1	0.001 - 0.2

NOTES:
[1] Background level for mercury provided in NYSDEC TAGM 4046 Appendix A.

TABLE D-12C

LONG ISLAND RAIL ROAD SUBSTATION INVESTIGATION
CONCRETE CORE SAMPLING RESULTS - MASSAPEQUA-S15
MERCURY

LOCATION	Interior Water Trough Pit	Rectifier Pit	Interior Water Pipe Trench				
SAMPLE ID	MSCC-01	MSCC-02	MSCC-03	MSFB-02			Instrument Detection Limits
DATE OF COLLECTION	11/23/99	11/23/99	11/23/99	11/23/99			
PERCENT SOLIDS	94	97	93	----			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)			(ug/L)
Mercury	68	682	12.5	0.16	U		0.1

NOTES:
----: Not applicable.

QUALIFIERS:
U: Constituent analyzed for but not detected.

Appendix B

APPENDIX B

BORING LOGS

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-06A Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/15/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/15/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
6' - 8'	1	GP	24	.000	0.0	Tan very fine silty sand, moist to wet (not saturated)	
8' - 10'	2	GP	24	.006	0.0	Tan fine to medium sand with some orange (oxidation), dry	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both sampled intervals collected for analysis of mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive		**Boring No.:** MHSB-13 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 01/15/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/15/03	**Boring Completion Depth:** 10' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.010	0.0	Tan/brown medium silty sand with some black staining at 1' bgs.	
2' - 4'	2	GP	24	.017	0.0	Gray/tan very fine silty sand, moist	
4' - 6'	3	GP	24	.000	0.0	Tan very fine silty sand	
6' - 8'	4	GP	24	.000	0.0	Tan very fine silty sand, wet (perched water table condition)	
8' - 10'	5	GP	24	.000	0.0	Tan medium sand, less silt, loose, moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of mercury. However only the 0-2" section collected from the 0-2' interval.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-14 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/15/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/15/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand with a 3" layer of black-stained sand, rocky	
2' - 4'	2	GP	24	.004	0.0	Brown/tan medium sand becoming more silty with depth	
4' - 6'	3	GP	18	.000	0.0	Tan medium silty sand, moist to wet	
6' - 8'	4	GP	18	.000	0.0	Same, but less moist	
8' - 10'	5	GP	24	.000	0.0	Same, wet from 8-9'	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-15 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/15/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/15/03	Boring Completion Depth: 8' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	0-6" – Black/brown coarse sand, small rocks (1 cm diameter) 6"-2' – Brown medium sand with medium rock	
2' - 4'	2	GP	24	.000	0.0	2-3' – Reddish brown medium to coarse sand with pebbles 3-4' – Tan/white very fine sand, moist	
4' - 6'	3	GP	24	.000	0.0	Light tan very fine sand, medium stiffness	
6' - 8'	4	GP	24	.000	0.0	Same, but moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive	**Boring No.:** MHSB-16 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 01/15/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/15/03	**Boring Completion Depth:** 8' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown/gray fine to coarse sand with quartz pebbles	
2' - 4'	2	GP	24	.000	0.0	2-2.5' – Black stained medium sand 2.5-4' – Tan fine to medium silty sand, some quartz pebbles	
4' - 6'	3	GP	24	.000	0.0	Tan fine to medium slity sand rather stiff from 5-6' bgs	
6' - 8'	4	GP	24	.000	0.0	6-7' – Reddish brown medium sand 7-8' – Tan/white fine sand, loose	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-17 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.006	0.0	0-1' – Brown/black medium sand, loose 1-2' – Brown/black medium sand, a little stiff	
2' - 4'	2	GP	24	.005	0.0	Tan fine to medium sand, moist, a little stiff	
4' - 6'	3	GP	24	.006	0.0	Tan fine to medium sand, stiff, moist	
6' - 8'	4	GP	24	.005	0.0	Same (slightly lighter colored tan)	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island RailRoad
Manhasset Substation
Virginia Drive

Boring No.: MHSB-18
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: LAWES
Driller: Carl Pederson
Drill Rig: Geoprobe
Date Started: 01/17/03

Geologist: Albert Albano
Drilling Method: Direct Push
Drive Hammer Weight: NA
Date Completed: 01/17/03

Boring Completion Depth: 8'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.004	0.0	0-2" – Black "topsoil" 2"-2' – Brown medium sand with sporadic quartz pea gravel, sand getting finer and stiffer with depth	
2' - 4'	2	GP	24	.009	0.0	Brown fine sand, medium stiffness and packed	
4' - 6'	3	GP	18	.007	0.0	Tan/brown fine to medium sand with some pea gravel, moist to wet	
6' - 8'	4	GP	18	.007	0.0	Same, with a slight orange coloring	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-19 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.009	0.0	0-6" – Brown/black "topsoil" 6"-2' – Brown medium sand getting fine and moist at 2' bgs	
2' - 4'	2	GP	24	.006	0.0	Tan fine sand, moist	
4' - 6'	3	GP	24	.006	0.0	Same	
6' - 8'	4	GP	24	.006	0.0	Same, but getting stiffer and more packed with depth	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sample intervals were analyzed for mercury. In addition, a surface sample was collected and analyzed for mercury from 0"-2".

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive	**Boring No.:** MHSB-21 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 01/15/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/15/03	**Boring Completion Depth:** 12' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.473	1.2	Black stained medium sand, small to medium sized pea gravel	
2' - 4'	2	GP	24	.131	1.0	Tan/Brown fine to medium silty sand	
4' - 6'	3	GP	18	.003	0.2	Tan fine to medium silty sand	
6' - 8'	4	GP	18	.000	0.2	Tan fine to medium silty sand, some "clayey" rock	
8' - 10'	5	GP	18	.000	0.0	Tan medium silty sand	
10' - 12'	6	GP	18	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
This probe was initiated at 1.5' below the floor of the substation (since the pit was about 1 foot deep, and there was a 6" gap between the top of the drain and actual soil). Samples were collected from 2-4', 4-6', 6-8', and 10-12' below the top of soil (1.5' below substation floor) for analysis of UIC constituents (VOCs, SVOCs, RCRA metals, and PCBs).

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-22 Sheet 1 of 2 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/14/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/14/03	Boring Completion Depth: 30' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
6'-8'	1	GP	24	.220	0.0	Tan medium silty sand, some quartz rock	
8' – 10'	2	GP	24	.384	0.0	Same	
10' – 12'	3	GP	24	.400	0.0	Brown and black rocky medium sand (rocks 1" in diameter)	
12'-14'	4	GP	24	.450	0.0	Tan medium silty sand	
14'-16'	5	GP	18	.300	0.0	Tan medium silty packed sand	
16'-18'	6	GP	18	.358	0.0	Tan medium loose granular sand	
18'-20'	7	GP	12	.700	0.0	Brown and tan medium sand, some quartz rock, moist	
20'-22'	8	GP	18	.700	0.0	Same	
22'-24'	9	GP	18	.532	0.0	Tan medium loose sand orange (oxidation) sections	
24'-26'	10	GP	24	.500	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Notes summarized at the bottom of the following page.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-22 Sheet 2 of 2 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/14/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/14/03	Boring Completion Depth: 30' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
26'-28'	11	GP	0	N/A	N/A	No recovery	
28' – 30'	12	GP	0	N/A	N/A	Geoprobe sampling rods broke, could not sample deeper.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
During sampling activities, there was a portion of time where breathing zone levels of mercury were detected at .011. Respirators were donned during this period of time.

In addition, levels of mercury were found to be much higher when soil was screened immediately after being exposed to ambient air.

Sampling was initiated at 3' below the floor of the substation. The pit was approximately 1' deep, and there was a 2' void from the top of the pits drain to the underlying soil.

Samples collected from 8-10', 18-20', and 24-26' for analysis of UIC constituents (VOCs, SVOCs, RCRA Metals, and TPH).

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-23 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 8' Ground Surface Elevation: — Boring Diameter: 1"

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (feet)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 4'	1	GP	4	0.0	.003	Reddish brown coarse to very coarse loose sand	
4' - 8'	2	GP	4	0.0	.003	Tan fine silty sand, moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Probe added to program at LIRR request.

2 composite soil samples collected for analysis of mercury. 1 composite from 0-4', and another from 4-8' bgs.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive	**Boring No.:** MHSB-24 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/12/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/12/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.000		0'-1' – Brown silty topsoil. 1'-2' – Reddish tan fine to medium sand, light rock.	
2' – 4'	2	GP	12	.000		Light tan medium silty sand, moist.	
4' – 6'	3	GP	24	.000		Same as above.	
6'-8'	4	GP	24	.000		Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4' and 4'-6' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-25 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/12/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/12/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	18	N/A	--	Light brown medium silty sand.	
2' – 4'	2	GP	18	N/A	--	Reddish brown/ fine silty sand, very light rock.	
4' – 6'	3	GP	24	N/A	--	Light tan medium silty sand.	
6' - 8'	4	GP	24	N/A	--	Light tan medium silty sand, moist.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4' and 4'-6' were analyzed for mercury.
N/A: Not available. Mercury Vapor Analyzer not working properly.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive	**Boring No.:** MHSB-26 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	24	.000	--	Brown medium silty sand mixed with black stained topsoil, medium to heavy rock.	
2' – 4'	2	GP	24	.000	--	Tan fine silty sand, light rock.	
4' – 6'	3	GP	24	.000	--	Tan silty fine sand, moist.	
6' – 8'	4	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Rail Road Manhasset Substation Virginia Drive		**Boring No.:** MHSB-27 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	18	.000	--	Tan medium silty sand.	
2'-4'	2	GP	18	.000	--	Tan medium silty sand, moist.	
4'-6'	3	GP	12	.000	--	Tan medium silty sand, wet.	
6'-8'	4	GP	12	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-28 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/13/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/13/04	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	18	.024	--	0'-1.5' – Dark brown medium silty sand, medium rock 1.5'–2' – White crushed shell-like material.	
2' – 4'	2	GP	18	.016	--	Reddish tan fine to medium sand.	
4' – 6'	3	GP	18	.018	--	Same as above.	
6' - 8'	4	GP	18	.000	--	Light tan fine clayey sand, moist.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6' and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci
CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island RailRoad
Manhasset Substation
Virginia Drive

Boring No.: MHSB-29
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: Zebra
Driller: Luke Tibbets
Drill Rig: Not Applicable
Date Started: 08/13/04

Geologist: Albert Albano
Drilling Method: Hand Auger
Drive Hammer Weight: NA
Date Completed: 08/13/04

Boring Completion Depth: 6'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	HA	24	.039	--	Brown/black stained medium silty sand, light rock.	
2' – 4'	2	HA	24	.000	--	Tan/light brown medium sand, light rock.	
4' – 6'	3	HA	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', and 4'-6' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSB-30 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/13/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/13/04	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.057	--	Brown medium silty sand, coal fragments.	
2' – 4'	2	GP	12	.000	--	Tan/brown fine to medium silty sand, moist.	
4' – 6'	3	GP	12	.000	--	Light tan silty, clayey sand.	
6' - 8'	4	GP	12	.075	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = *Geoprobe Sampler*
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6' and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Rail Road Manhasset Substation Virginia Drive		**Boring No.:** MHSB-31 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.009	--	Brown medium silty sand mixed with black stained topsoil.	
2' – 4'	2	GP	12	.000	--	Reddish brown fine to medium sand.	
4' – 6'	3	GP	12	.000	--	Reddish tan fine sand.	
6' – 8'	4	GP	12	.000	--	Tan fine sand.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Rail Road Manhasset Substation Virginia Drive	**Boring No.: MHSB-32** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.000	--	Black stained medium sand, heavy rock, asphalt fragments.	
2'–4'	2	GP	12	.000	--	Same as above.	
4'–6'	3	GP	12	.000	--	Light brown/Reddish medium sand.	
6'–8'	4	GP	12	.000	--	Tan medium sand, moist.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Rail Road Manhasset Substation Virginia Drive	**Boring No.: MHSB-33** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.000	--	Tan/brown medium silty sand, some black staining.	
2'–4'	2	GP	12	.000	--	Same as above.	
4'–6'	3	GP	24	.000	--	Brown fine silty sand.	
6'–8'	4	GP	24	.000	--	Light tan silty sand.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Rail Road Manhasset Substation Virginia Drive	Boring No.: MHSB-34 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/13/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/13/04	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.012	--	Tan/brown medium silty sand, some black staining.	
2'-4'	2	GP	12	.000	--	Black medium sand, medium rock.	
4'-6'	3	GP	12	.000	--	Tan fine silty sand.	
6'-8'	4	GP	12	.000	--	Light tan moist silty sand.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Rail Road Manhasset Substation Virginia Drive	**Boring No.: MHSB-35** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/13/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/13/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2'	1	GP	12	.000	--	0'-1' – Brown medium sand. 1'-2' – Light tan fine silty sand.	
2'–4'	2	GP	12	.000	--	Same as above.	
4'–6'	3	GP	24	.000	--	Same as above.	
6'–8'	4	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0'-2', 2'-4', 4'-6', and 6'-8' were analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-01 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/13/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/13/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-Ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Brown/Tan fine to medium sand, sporadic "golf ball-sized" rocks, loose Some red (oxidation) staining	
6' - 8'	2	GP	0	N/A	N/A	No Recovery	
8' - 10'	3	GP	24	.000	0.0	8-8.75' - Brown fine to medium sand with red (oxidation) staining. 8.75-9.25' - Black clay with angular rocks, slight oil odor, moist. 9.25-10' – tan very fine sand, moist	
10' - 12'	4	GP	0	N/A	N/A	No Recovery	
12' - 14'	5	GP	24	.000	0.0	12-12.5 - Tan very fine sand, slight petroleum oil odor, wet 12.5-14 – Reddish brown medium loose sand	
14' - 16'	6	GP	24	.000	0.0	Tan medium loose sand	
16' - 18'	7	GP	24	.000	0.0	Brown medium sand, some brown angular rocks between 16.5 and 17'.	
18' - 20'	8	GP	24	.000	0.0	Tan coarse loose sand with small pea gravel throughout.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All intervals which yielded recovery were sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-02 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.004	0.0	Brown fine silty sand with layers of orange-stained (oxidation) medium grained, loose sand, moist	
6' - 8'	2	GP	24	.008	0.0	Brown fine silty sand, moist	
8' - 10'	3	GP	18	.007	0.0	Same	
10' - 12'	4	GP	18	.006	0.0	Same, with some quartz rock	
12' - 14'	5	GP	18	.005	0.0	12-13' – Gray fine clayey sand 13-14' – Tan medium sand with some quartz pea gravel	
14' - 16'	6	GP	18	.009	0.0	Same	
16' - 18'	7	GP	18	.003	0.0	Same	
18' - 20'	8	GP	18	.006	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-03 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/13/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/13/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.004	0.0	4-5' Black stained medium to coarse sand/pebble 5-6' Tan medium to coarse sand quartz rock interspersed	
6' - 8'	2	GP	24	.000	0.0	Tan fine to medium silty sand, slightly stiff in sections	
8' - 10'	3	GP	18	.000	0.0	Tan/yelllow very fine to medium sand, some quartz rock and pebbles	
10' - 12'	4	GP	18	.000	0.0	Brown medium sand, weathered quartz pea gravel	
12' - 14'	5	GP	18	.000	0.0	Tan very fine to fine sand Dark brown stained sand at 13' bgs	
14' - 16'	6	GP	18	.000	0.0	Tan medium "loose" sand some brown staining (natural rock), some quartz pea gravel	
16' - 18'	7	GP	24	.004	0.0	Brown fine to medium sand mixed with quartz rock (1" diameter)	
18' - 20'	8	GP	24	.000	0.0	Tan and brown fine loose sand	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected continuously for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island RailRoad Manhasset Substation Virginia Drive	**Boring No.: MHSBX-04** **Sheet** 1 **of** 1 . **By:** Albert Albano	
Drilling Contractor: LAWES **Driller:** Brian **Drill Rig:** Geoprobe **Date Started:** 01/13/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/13/03	**Boring Completion Depth:** 16' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	18	.000	0.0	Tan/Brown very fine to medium sand with some quartz pebbles, some orange (oxidation) staining	
6' - 8'	2	GP	18	.000	0.0	Brown fine to medium sand with some quartz pebbles	
8' - 10'	3	GP	24	.000	0.0	Brown/Tan fine to medium silty sand, some light pea gravel	
10' - 12'	4	GP	24	.000	0.0	Brown fine to medium silty sand, a little stiff	
12' - 14'	5	GP	24	.000	0.0	Brown fine to medium sand with quartz pea gravel, a little stiff and silty	
14' - 16'	6	GP	20	.000	0.0	14-15' 8" - Tan medium sand with some larger rocks, mica particulate at bottom of sample.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Although work plan called for advancement to 20' bgs, probe could not physically be advanced beyond 15' 8" due to apparent rock formation. Samples collected continuously for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-05 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/13/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/13/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Brown/tan very fine to fine silty sand, moist	
6' - 8'	2	GP	24	.000	0.0	Tan fine silty sand, some quartz pea gravel, moist	
8' - 10'	3	GP	18	.000	0.0	Brown fine to medium sand, some quartz pea gravel and mica fragments, a little stiff	
10' - 12'	4	GP	24	.000	0.0	Brown very fine to fine silty sand, some quartz rock and mica, clay layer at 11.5-12' bgs	
12' - 14'	5	GP	24	.000	0.0	Brown fine to medium silty sand, some quartz rock and mica fragments	
14' - 16'	6	GP	24	.000	0.0	Same	
16' - 18'	7	GP	24	.000	0.0	16-17' Brown fine silty sand, a little stiff 17-18' Tan fine to medium sand, some loose quartz rock	
18' - 20'	8	GP	18	.000	0.0	Tan fine to medium loose sand	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected continuously for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-06 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/13/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/13/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Reddish brown coarse to very coarse loose sand	
6' - 8'	2	GP	24	.000	0.0	Tan (with minor brown sections) fine silty sand, moist	
8' - 10'	3	GP	24	.000	0.0	Tan fine silty sand with some quartz pea gravel, moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected continuously for analysis of SVOC, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-07 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/13/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/13/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Brown/Tan fine to medium sand, sporadic pebbles, moist	
6' - 8'	2	GP	24	.000	0.0	Yellow/tan fine to medium sand, some quartz pebbles	
8' - 10'	3	GP	18	.000	0.0	Brown fine to medium silty sand, sporadic quartz pebbles, moist	
10' - 12'	4	GP	18	.000	0.0	Brown fine to medium silty sand with sporadic quartz pebbles and some larger "golf ball"-sized quartz rocks	
12' - 14'	5	GP	24	.000	0.0	Brown fine to medium sand with sporadic quartz pebbles and some larger "golf ball"-sized quartz rocks	
14' - 16'	6	GP	24	.000	0.0	Same	
16' - 18'	7	GP	24	.000	0.0	Same	
18' - 20'	8	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected continuously for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-08 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.003	0.0	Tan fine to medium sand, a little silty, moist to wet (at 6' bgs)	
6' - 8'	2	GP	24	.005	0.0	Same, but a bit stiffer	
8' - 10'	3	GP	24	.003	0.0	Tan medium to coarse sand, saturated from 8-9.5' bgs	
10' - 12'	4	GP	24	.006	0.0	Brown/tan fine to medium sand, medium stiffness	
12' - 14'	5	GP	18	.007	0.0	Tan/orange fine to medium sand with small quartz pebble, a little stiff	
14' - 16'	6	GP	18	.003	0.0	14-15.5' – Brown/dark brown clayey sand, very stiff and packed 15.5-16' – Brown coarse sand with some quartz pea gravel, loose	
16' - 18'	7	GP	18	.003	0.0	Brown fine clayey sand, stiff and packed	
18' - 20'	8	GP	18	.006	0.0	Tan medium sand with quartz pea gravel, loose	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHSBX-09 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/17/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
6' - 8'	1	GP	24	.008	0.0	Tan fine to medium sand, moist to wet, stiff and silty (like clay) form 6-6.5' bgs.	
8' - 10'	2	GP	24	.008	0.0	Brown medium sand with quartz pea gravel, moist to wet at 9' bgs	
10' - 12'	3	GP	24	.011	0.0	Brown fine to coarse silty sand, moist, a bit "clayey" at 12' bgs	
12' - 14'	4	GP	24	.007	0.0	Brown fine silty sand, a little stiff	
14' - 16'	5	GP	18	.000	0.0	Brown/gray silty sand, moist, a little stiff	
16' - 18'	6	GP	18	.000	0.0	Brown medium to coarse sand, some quartz pea gravel, some red (oxidation) staining	
18' - 20'	7	GP	12	.005	0.0	Tan/brown medium sand, medium to heavy quartz rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-06A** **Sheet** 1 **of** 1 . **By:** Albert Albano	
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium silty sand, a little stiff, clayey	
2' - 4'	2	GP	24	.000	0.0	2-3' – Same 3-4' – Tan/orange sand, heavy quartz pea gravel and rock, loose	
4' - 6'	3	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-09** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown silty sand fine to medium, stiff like clay, minor black staining	
2' - 4'	2	GP	24	.000	0.0	2-3.5' - Same 3.5-4' – Tan sand, heavy quartz rock, loose	
4' - 6'	3	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-10 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Tan sandy clay with medium quartz rock, stiff	
2' - 4'	2	GP	24	.000	0.0	Same	
4' - 6'	3	GP	24	.000	0.0	Tan sand, heavy quartz pea gravel and rock, loose	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-11 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.4	0-2" – Brown topsoil 2"-2' – Tan sand with medium quartz rock, loose	
2' - 4'	2	GP	24	.000	0.4	Same	
4' - 6'	3	GP	24	.000	0.0	Same, but soil getting more orange with depth	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

There is a 9" layer of crushed stone just below grade. For sampling purposes, grade (or "0") was considered to exist where soil began, 9" below the existing grade surface.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-12 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	0-2" – Brown silty sand 2"-2' – Tan/orange sand, heavy quartz rock	
2' - 4'	2	GP	24	.000	0.0	Tan/orange sand, heavy quartz rock	
4' - 6'	3	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

There is a 9" layer of crushed stone just below grade. For sampling purposes, grade (or "0") was considered to exist where soil began, 9" below the existing grade surface.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-13 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/03/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/03/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	0-4" – Crushed stone, Black/gray topsoil 4"-2' – Tan sand with medium quartz rock	
2' - 4'	2	GP	24	.003	0.0	Tan/brown medium sand with heavy quartz rock and pea gravel, moist	
4' - 6'	3	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-14 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/04/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/04/03	Boring Completion Depth: 6' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	0-1' – Brown silty sand 1-2' – Tan/orange medium to coarse sand, heavy quartz pea gravel and quartz rock	
2' - 4'	2	GP	24	.000	0.0	Tan/orange medium to coarse sand, heavy quartz pea gravel and quartz rock	
4' - 6'	3	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

There is a 9" layer of crushed stone just below grade. For sampling purposes, grade (or "0") was considered to exist where soil began, 9" below the existing grade surface.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-15 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown sand with medium quartz rock	
2' - 4'	2	GP	24	N/A	N/A	No recovery	
4' - 6'	3	GP	24	.000	0.0	Tan/orange sand with medium quartz rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

2'-4' and 4'-6' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

There is a 9" layer of crushed stone just below grade. For sampling purposes, grade (or "0") was considered to exist where soil began, 9" below the existing grade surface.

N/A: Not applicable

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-16 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand with medium quartz rock and pea gravel, 2" asphalt layer at 1' bgs	
2' - 4'	2	GP	24	.000	0.0	Brown medium sand with medium quartz rock and pea gravel	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-17 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/04/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/04/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown/tan medium to coarse sand	
2' - 4'	2	GP	24	.000	0.0	2-3' – Same 3-3.5' – Dark brown clayey, silty sand 3.5-4' – Tan medium sand, heavy quartz rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-18 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand Layer of black-stained sand between 6" and 8" bgs	
2' - 4'	2	GP	24	.000	0.0	2-3' – Tan/brown sand 3-4' – Brown fine silty sand, some dark brown staining and medium quartz rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-19** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand with medium quartz rock 2" asphalt layer from 1'10" to 2' bgs	
2' - 4'	2	GP	24	.000	0.0	2-3' – Tan medium sand 3-4' – Brown silty sand with medium to heavy rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad Massapequa Substation

Boring No.: MSSB-20
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: LAWES
Driller: J.W. Palmer
Drill Rig: Geoprobe
Date Started: 02/04/03

Geologist: Albert Albano
Drilling Method: Direct Push
Drive Hammer Weight: NA
Date Completed: 02/04/03

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Tan/brown medium sand with minor black staining	
2' - 4'	2	GP	24	.000	0.0	Brown/gray silty sand with heavy quartz rock, stiff and clayey	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-21 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 02/03/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/03/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Tan/brown fine to medium sand	
2' - 4'	2	HA	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation		**Boring No.:** MSSB-22 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand, heavy quartz rock	
2' - 4'	2	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-23 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/04/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/04/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Dark brown medium sand, heavy quartz rock	
2' - 4'	2	GP	24	.000	0.0	Reddish brown medium sand, silty zone between 3.5' and 4' bgs	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-24** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Plamer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown medium sand, light to medium quartz rock	
2' - 4'	2	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-25 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: --- Date Started: 02/03/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 02/03/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.006	0.0	Brown fine to medium sand with medium rock, coal fragments, and clinker	
2' - 4'	2	HA	24	.003	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-26 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: --- Date Started: 02/03/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 02/03/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	0-6" – Black/brown medium sand 6"-2' – Tan/brown medium sand, some rock, loose	
2' - 4'	2	HA	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-27 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 02/03/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/03/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Brown/tan sand	
2' - 4'	2	HA	24	.000	0.0	2-3' – Same 3-4' – Black/dark brown rocky sand with coal, glass, rail road spike	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-28 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: --- Date Started: 02/03/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 02/03/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.004	0.0	Dark brown medium sand with quartz rock, some trash (styrofoam cup)	
2' - 4'	2	HA	24	.000	0.0	Dark brown/black soil with coal fragments	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-29 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: --- Date Started: 02/03/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 02/03/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.003	0.0	0-9" – Gravel/crushed stone 9"-1.5' – Black topsoil, with medium rock, loose 1.5-2' – Brown/red fine sand with masses of asphalt and some quartz rock	
2' - 4'	2	HA	24	.003	0.0	Brown/red fine sand with masses of asphalt and some quartz rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-30 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	0-1' - Brown medium silty sand 1-2' – Dark brown medium sand, some quartz pea gravel	
2' - 4'	2	GP	24	.004	0.0	Tan/orange medium sand, some quartz pea gravel	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad Massapequa Substation

Boring No.: MSSB-31
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: LAWES
Driller: J.W. Palmer
Drill Rig: ---
Date Started: 02/03/03

Geologist: Albert Albano
Drilling Method: Hand Auger
Drive Hammer Weight: NA
Date Completed: 02/03/03

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.003	0.0	0-2" – crushed stone 2"-2' - Tan fine sand	
2' - 4'	2	HA	24	.000	0.0	Dark brown/black sand, medium rock	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-32 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push/Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 10' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Brown silty sand with medium quartz rock, moist	
2' - 4'	2	HA	24	.000	0.0	Brown/tan/orange sand, heavy quartz rock	
4' - 6'	3	GP	24	.000	0.0	Tan medium sand with medium quartz pea gravel and rock	
6' - 8'	4	GP	24	.000	0.0	Same	
8' - 10'	5	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-33 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push/Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 10' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Brown medium sand, heavy quartz rock	
2' - 4'	2	HA	24	.003	0.0	Same	
4' - 6'	3	GP	24	.000	0.0	Tan medium sand with heavy quartz pea gravel and rock	
6' - 8'	4	GP	24	.000	0.0	Same, with lighter pea gravel and rock	
8' - 10'	5	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-34 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/04/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/04/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	0.0	Brown clay with some sand in it, medium stiffness, quartz pea gravel and rock	
2' - 4'	2	GP	24	.000	0.0	Same	
4' - 6'	3	GP	24	.000	0.0	Tan medium sand, heavy quartz pea gravel and rock	
6' - 8'	4	GP	24	.000	0.0	Same	
8' - 10'	5	GP	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-36** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 11.5' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
7.5' - 9.5'	1	GP	24	.000	0.0	7.5-9' - Tan sand, heavy quartz pea gravel and rock 9 –9.5' – Tan/brown sand, smooth, no rock, moist	
9.5' - 11.5'	2	GP	24	.000	0.0	9.5-10' – Same 10-11.5 – Tan coarse sand with some quartz pea gravel	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of UIC constituents (VOCs, SVOCs, RCRA metals, and TPH).

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-37 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/07/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/07/03	**Boring Completion Depth:** 22' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
12'-14'	1	GP	24	.003	0.0	Tan medium to coarse sand, light quartz pea gravel, saturated	
14'-16'	2	GP	24	.000	0.0	Same	
16'-18'	3	GP	24	.000	0.0	Same	
18'-20'	4	GP	24	.000	0.0	Same	
20'-22'	5	GP	0	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of UIC constituents (VOCs, SVOCs, RCRA metals, and TPH).

Dry well is 6' deep

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-38** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 02/03/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/03/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Tan fine to medium sand	
2' - 4'	2	HA	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were sampled and analyzed for SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-39 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 02/04/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/04/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Tan/orange sand, heavy quartz rock	
2' - 4'	2	HA	24	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were sampled and analyzed for SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation		**Boring No.: MSSB-40** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig: Geoprobe** **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Tan medium silty sand, light rock.	
2' - 4'	2	GP	24	.000	--	Tan/brown medium silty sand, medium to heavy rock.	
4' –6'	3	GP	24	.000	--	Tan medium to coarse sand, medium quartz rock.	
6' – 8'	4	GP	24	.000	--	Tan medium sand.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-43 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Brown fine silty sand, some clay, asphalt material.	
2' - 4'	2	GP	24	.000	--	2'-3' – Brown clay, stiff, moist. 3'-4' – Tan/brown medium sand, medium rock.	
4' –6'	3	GP	24	.000	--	Tan medium sand.	
6' – 8'	4	GP	24	.000	--	Tan/brown medium sand, light pea gravel.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-41 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	0'-1' - Tan/brown medium silty sand. 1'-2' – Tan fine to medium sand.	
2' - 4'	2	GP	24	.000	--	Tan/brown medium sand, medium to heavy rock.	
4' –6'	3	GP	24	.000	--	Same as above.	
6' – 8'	4	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-42 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 10' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Brown silty fine sand, light rock and coal fragments.	
2' - 4'	2	GP	24	.000	--	Brown silty fine sand with black and gray staining, light rock and coal fragments.	
4' –6'	3	GP	24	.000	--	Brown clay, black staining, wet at 6'.	
6' – 8'	4	GP	24	.000	--	Black silty sand, some wood and organics, wet.	
8' – 10'	5	GP	24	.000	--	White medium sand, heavy quartz rock.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad Massapequa Substation

Boring No.: MSSB-44
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: Zebra
Driller: Luke Tibbets
Drill Rig: Geoprobe
Date Started: 08/10/04

Geologist: Albert Albano
Drilling Method: Direct Push
Drive Hammer Weight: NA
Date Completed: 08/10/04

Boring Completion Depth: 6'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.004	--	Tan medium sand, light rock.	
2' - 4'	2	GP	24	.000	--	Tan medium sand, medium rock.	
4' –6'	3	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad Massapequa Substation

Boring No.: MSSB-45
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: Zebra
Driller: Luke Tibbets
Drill Rig: ---
Date Started: 08/10/04

Geologist: Albert Albano
Drilling Method: HA
Drive Hammer Weight: NA
Date Completed: 08/10/04

Boring Completion Depth: 5'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.120	--	Light brown fine sand, light rock.	
2' - 4'	2	HA	24	.000	--	Same as above.	
4' –5'	3	HA	12	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-5' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad Massapequa Substation

Boring No.: MSSB-46
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: Zebra
Driller: Luke Tibbets
Drill Rig: Geoprobe
Date Started: 08/09/04

Geologist: Albert Albano
Drilling Method: Direct Push
Drive Hammer Weight: NA
Date Completed: 08/09/04

Boring Completion Depth: 8'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Tan/gray fine silty sand.	
2' - 4'	2	GP	24	.000	--	2'-3' - Brown/gray medium sand, medium to heavy quartz rock. 3'-4' – Dark brown/black medium silty sand, some rock, moist.	
4' –6'	3	GP	24	.000	--	Tan/brown silty fine clayey sand.	
6' – 8'	4	GP	24	.000	--	Tan medium sand, medium rock.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-47 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** --- **Date Started:** 08/10/04	**Geologist:** Albert Albano **Drilling Method:** HA **Drive Hammer Weight:** NA **Date Completed:** 08/10/04	**Boring Completion Depth:** 5' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.120	--	Light brown very fine silty sand, light rock.	
2' - 4'	2	HA	24	.000	--	Same as above.	
4' –5'	3	HA	12	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-5' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-48 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Tan/brown fine silty sand.	
2' - 4'	2	GP	24	.000	--	Black stained fine, silty sand, light rock, coal fragments.	
4' –6'	3	GP	24	.000	--	Reddish tan medium sand, light rock.	
6' – 8'	4	GP	24	.000	--	6'-7' – Brown clay, moist, a little stiff. 7'-8' – Tan/brown medium sand, heavy quartz pea gravel, moist.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-49 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/09/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/09/04	Boring Completion Depth: 8' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Brown silty fine sand, loose, light rock.	
2' - 4'	2	GP	24	.000	--	Tan/brown medium sand, medium to heavy rock.	
4' –6'	3	GP	24	.000	--	Same as above.	
6' – 8'	4	GP	24	.000	--	6'-7' – Black stained silty sand, wet. 7'-8' – Gray/tan medium sand, heavy pea gravel, wet.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation		**Boring No.: MSSB-50** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig: Geoprobe** **Date Started:** 08/10/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/10/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	12	.092	--	Light brown very fine silty sand, light rock.	
2' - 4'	2	GP	12	.019	--	2'-3.5' - Same as above. 3.5'-4' – Tan medium sand, heavy rock.	
4' – 6'	3	GP	24	.000	--	Tan medium sand, medium rock.	
6' - 8'	4	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-51** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig: Geoprobe** **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight: NA** **Date Completed:** 08/09/04	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter: 1"** Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	18	.000	--	0'-1' – Tan/brown medium sand. 1'-2' – Black medium silty sand.	
2' - 4'	2	GP	18	.000	--	Reddish brown medium sand.	
4' –6'	3	GP	24	.000	--	Tan/gray medium sand, light rock.	
6' – 8'	4	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
--: Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation		**Boring No.: MSSB-52** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig: Geoprobe** **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 10' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Tan/brown medium silty sand.	
2' - 4'	2	GP	24	.000	--	Reddish brown medium sand.	
4' –6'	3	GP	24	.000	--	Gray/tan medium sand.	
6' – 8'	4	GP	24	.000	--	6'-7' - Black silty fine sand, moist. 7'-8' – Gray/white medium sand, medium rock, moist.	
8' – 10'	5	GP	24	.000	--	Reddish tan medium sand, medium rock.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSB-53** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig: Geoprobe** **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 10' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.031	--	0'-6" - Brown silty fine sand. 6"-2' – Tan medium sand, medium rock.	
2' - 4'	2	GP	24	.012	--	Black silty fine sand, medium to heavy angular rock and concrete material, asphalt and coal fragments.	
4' –6'	3	GP	24	.000	--	Same as above.	
6' – 8'	4	GP	24	.020	--	6'-7' – Black silty fine sand. 7'-8' – White medium sand, medium quartz rock. Wet at 8'.	
8' – 10'	5	GP	24	.000	--	Reddish brown/tan medium sand, very heavy rock, wet.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 6'-8' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-54 **Sheet** 1 **of** 1 . **By:** Albert Albano	
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	0'-1' - Brown silty fine to medium sand, light rock. 1'-2' – Tan/brown medium sand, some asphalt.	
2' - 4'	2	GP	21	.000	--	2'-3.5' – Brown silty fine sand, slightly stiff, medium rock. 3.5'-4' – Brown/tan medium sand, medium to heavy rock.	
4' –6'	3	GP	24	.000	--	Light brown medium sand, very light rock.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-55 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/09/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/09/04	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Tan/brown medium sand.	
2' - 4'	2	GP	24	.050	--	Tan/gray medium sand, some asphalt.	
4' –6'	3	GP	24	.028	--	Brown/black clay, moist, some wood.	
6' – 8'	4	GP	24	.000	--	Tan medium sand, some rock fill material and asphalt.	
8' – 10'	5	GP	24	.000	--	8'-9' – Brown/gray clay, medium stiffness, moist. 9'-10' – Gray medium to coarse sand.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', 4'-6', and 6'-8' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSB-56 **Sheet** 1 **of** 1 . **By:** Albert Albano	
Drilling Contractor: Zebra **Driller:** Luke Tibbets **Drill Rig:** Geoprobe **Date Started:** 08/09/04	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 08/09/04	**Boring Completion Depth:** 6' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Brown silty sand and topsoil, light to medium rock.	
2' - 4'	2	GP	24	.000	--	Tan/brown medium sand, light rock, moist.	
4' –6'	3	GP	24	.000	--	Tan/reddish brown medium sand, very light rock.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSB-58 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: Zebra Driller: Luke Tibbets Drill Rig: Geoprobe Date Started: 08/09/04	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 08/09/04	Boring Completion Depth: 6' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.000	--	Brown silty fine to medium sand, some moderately stiff clay zones, moist.	
2' - 4'	2	GP	24	.000	--	Tan medium sand, medium quartz rock and pea gravel.	
4' –6'	3	GP	24	.000	--	Same as above.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0'-2', 2'-4', and 4'-6' intervals were sampled and analyzed for mercury.
-- : Instrument not used to screen sample. Supplemental sampling focused on delineation of mercury-impacted soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSBX-01 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/06/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/06/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Tan medium to coarse sand with medium quartz pea gravel and rock, loose	
6' - 8'	2	GP	24	.000	0.0	Tan/brown medium sand with light quartz pea gravel and rock	
8'-10'	3	GP	24	.000	0.0	Same	
10'-12'	4	GP	24	.000	0.0	10-10.5' – Same 10.5-11' – Black-stained sand with pebbles and rock (at water table) 11-12' – Reddish brown sand with quartz pea gravel, saturated	
12'-14'	5	GP	24	.000	0.0	Same	
14'-16'	6	GP	0	N/A	N/A	No recovery	
16'-18'	7	GP	0	N/A	N/A	No recovery	
18'-20'	8	GP	0	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSBX-02 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/06/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/06/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Tan medium to coarse sand, heavy quartz pea gravel and rock	
6' - 8'	2	GP	24	.000	0.0	Tan reddish brown medium sand, very light quartz pea gravel	
8'-10'	3	GP	24	.000	0.0	Same	
10'-12'	4	GP	24	.000	0.0	10-10.5' – Same 10.5-11.5' – Black-stained medium to coarse sand, heavy quartz pea gravel 11.5-12' – Reddish brown medium sand	
12'-14'	5	GP	18	.000	0.0	Same	
14'-16'	6	GP	18	.000	0.0	Same	
16'-18'	7	GP	0	N/A	N/A	No recovery	
18'-20'	8	GP	0	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSBX-03 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/06/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/06/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Tan/brown medium to coarse sand, medium to heavy quartz pea gravel and rock	
6' - 8'	2	GP	24	.000	0.0	Same	
8'-10'	3	GP	24	.000	0.0	8-9' – Black medium sand, heavy quartz pea gravel 9-10' – Orange/tan medium sand	
10'-12'	4	GP	24	.000	0.0	Tan medium sand with heavy quartz pea gravel	
12'-14'	5	GP	18	.000	0.0	Same	
14'-16'	6	GP	18	.000	0.0	Same	
16'-18'	7	GP	18	.000	0.0	Tan medium sand with very light quartz pea gravel	
18'-20'	8	GP	18	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSBX-04** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/07/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/07/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Tan/brown medium sand with medium quartz pea gravel and rock	
6' - 8'	2	GP	24	.000	0.0	Same	
8'-10'	3	GP	24	.000	0.0	Same	
10'-12'	4	GP	18	.000	0.0	10-10.5' – Same 10.5-11.5' - Black staining at top of water table 11.5-12' - Tan medium sand with medium quartz pea gravel and rock	
12'-14'	5	GP	24	.000	0.0	Same	
14'-16'	6	GP	18	.000	0.0	Same	
16'-18'	7	GP	18	.000	0.0	Same	
18'-20'	8	GP	12	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSBX-05 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/06/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/06/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.004	0.0	Tan/light brown medium to coarse sand with medium to heavy quartz pea gravel and rock	
6' - 8'	2	GP	24	.003	0.0	6-7' – Same 7-8' – Orange/tan sand with light quartz pea gravel	
8'-10'	3	GP	24	.000	0.0	Orange/tan medium to coarse sand with medium to heavy quartz pea gravel	
10'-12'	4	GP	24	.000	0.0	Orange/tan medium sand with light quartz pea gravel	
12'-14'	5	GP	18	.003	0.0	Tan/light brown medium to coarse sand with light to medium quartz pea gravel and rock	
14'-16'	6	GP	18	.000	0.0	Same	
16'-18'	7	GP	18	.000	0.0	Same	
18'-20'	8	GP	18	.003	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.:** MSSBX-06 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 02/06/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 02/06/03	**Boring Completion Depth:** 8' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	HA	24	.003	0.0	Tan/brown medium sand with medium quartz pea gravel	
6' - 8'	2	HA	24	.003	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Massapequa Substation	Boring No.: MSSBX-07 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 02/06/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 02/06/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	Tan medium sand with medium quartz pea gravel and rock	
6' - 8'	2	GP	24	.000	0.0	Tan medium sand with light quartz pea gravel and rock	
8'-10'	3	GP	24	.000	0.0	Same	
10'-12'	4	GP	18	.000	0.0	Tan medium sand with light quartz pea gravel and rock, black staining at 10.5-11' bgs (top of water table)	
12'-14'	5	GP	24	.000	0.0	Same, but saturated	
14'-16'	6	GP	0	N/A	N/A	No recovery	
16'-18'	7	GP	0	N/A	N/A	No recovery	
18'-20'	8	GP	0	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Massapequa Substation	**Boring No.: MSSBX-09** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/06/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/06/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.004	0.0	Tan medium sand with medium quartz pea gravel, loose	
6' - 8'	2	GP	24	.003	0.0	6-7.5' – Same 7.5-8' – Reddish tan medium sand with very light quartz pea gravel	
8'-10'	3	GP	24	.000	0.0	Tan medium sand with medium quartz pea gravel	
10'-12'	4	GP	24	.000	0.0	Reddish tan sand with light quartz pea gravel, wet at 11' bgs	
12'-14'	5	GP	0	N/A	N/A	No recovery	
14'-16'	6	GP	0	N/A	N/A	No recovery	
16'-18'	7	GP	18	.000	0.0	Tan medium sand, saturated, loose	
18'-20'	8	GP	0	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Massapequa Substation		**Boring No.: MSSBX-10** **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 02/03/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 02/03/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-Ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.003	0.0	Tan medium to coarse sand, dry and loose	
6' - 8'	2	GP	24	.003	0.0	6-7' - Same 7-8 – Tan/reddish medium to coarse sand with medium quartz rock, dry and loose	
8' - 10'	3	GP	24	.000	0.0	Tan/reddish sand, heavy pea gravel and quartz rock	
10' - 12'	4	GP	24	.000	0.0	Brown silty sand, very heavy quartz pea gravel and rock, wet below 10.5' bgs	
12' - 14'	5	GP	18	.000	0.0	Same	
14' - 16'	6	GP	0	N/A	N/A	No recovery	
16' - 18'	7	GP	18	.000	0.0	Brown silty sand, very heavy quartz pea gravel and rock, wet below 10.5' bgs	
18' - 20'	8	GP	18	.000	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All recovered intervals sampled for analysis of SVOCs, PCBs, and RCRA metals.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-04A Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
6' - 8'	1	GP	24	.005	2.0	6-7' – Brown silty sand 7-8' – Sand fill material with heavy angular rock	
8' - 10'	2	GP	24	.014	2.0	8-9' – Tan/white sand, some quartz rock 9-10' – Black-stained peat material with wood ½" thick, light petroleum odors	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-12 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 10' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.008	0.0	Black-stained sand	
2' - 4'	2	GP	24	.008	0.0	Tan sand with some black staining	
4' - 6'	3	GP	12	.005	0.0	4-5' – Black stiff yet pliable clay 5-6' – No recovery	
6' - 8'	4	GP	0	N/A	N/A	No recovery	
8' - 10'	5	GP	24	.000	0.0	Tan/white sand, heavy quartz rock (up to 1 inch diameter)	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-13 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 10' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.025	0.4	0-4" – Asphalt 4"-2' – Tan/brown sand and rock with coal remnants and clinker	
2' - 4'	2	GP	24	.016	0.4	Same	
4' - 6'	3	GP	12	.004	0.4	4-5' – Gray/black silty clay, pliable	
6' - 8'	4	GP	24	.004	0.0	Black-stained very fine silty sand, strong petroleum-like odors, slightly naphthalene-like odors, wooden fragments	
8' - 10'	5	GP	18	.004	37	8-9.5 – Same 9.5-10 – Brown peat material	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-14 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 10' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.010	0.2	0-4" – Asphalt 4"-12" – Black angular rocky soil 1-2' – Tan sand	
2' - 4'	2	GP	24	.007	0.2	Gray/black silty sand	
4' - 6'	3	GP	24	.005	0.0	Same	
6' - 8'	4	GP	24	.006	0.0	Gray very fine silty sand	
8' - 10'	5	GP	24	.006	0.0	Brown peat material, spongy, organics (grass, roots)	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-15 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 10' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.014	0.4	0-4" Asphalt 4"-8" Black rocky soil 8"-1' – Tan clayey stiff sand 1-2' – Black sand with angular rocks	
2' - 4'	2	GP	24	.010	0.4	Black rocky sand and clay	
4' - 6'	3	GP	24	.008	0.4	4-5' – Same 5-6' – Gray clayey/silty sand	
6' - 8'	4	GP	24	N/A	0.4	Gray very fine silty sand	
8' - 10'	5	GP	24	N/A	0.3	Peat material/organics (grass, roots) spongy, hydrogen sulfide odor	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4', 4' - 6', 6' - 8' and 8' - 10' intervals were analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015
Project Name: Long Island Railroad
Island Park Substation

Boring No.: IPSB-16
Sheet 1 **of** 1 .
By: Albert Albano

Drilling Contractor: LAWES
Driller: J.W. Palmer
Drill Rig: ---
Date Started: 01/30/03

Geologist: Albert Albano
Drilling Method: Hand Auger
Drive Hammer Weight: NA
Date Completed: 01/30/03

Boring Completion Depth: 4'
Ground Surface Elevation: ---
Boring Diameter: 1"
Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.005	0.0	Black/brown sand with coal fragments	
2' - 4'	2	HA	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

	Project No.: 2015 **Project Name:** Long Island Railroad Island Park Substation	**Boring No.:** IPSB-17 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** --- **Date Started:** 01/28/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 01/28/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	0-0.5' - Gray gravel fill material 0.5-1.5' – Brown and black medium sand 1.5-2' – Brown and black medium sand, heavy rock	
2' - 4'	2	HA	24	.000	0.0	Brown and black rocky sand	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals sampled for analysis of mercury.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-18 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. palmer Drill Rig: --- Date Started: 01/30/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 01/30/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.008	0.0	Black sand with large amounts of coal and clinker	
2' - 4'	2	HA	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-19 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: — Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.005	0.0	Tan silty sand	
2' - 4'	2	HA	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
2'-4' interval was analyzed for mercury. In addition, a surface sample was collected from 0"-2" and analyzed for mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Island Park Substation	**Boring No.:** IPSB-20 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** Brian **Drill Rig:** — **Date Started:** 01/27/03	**Geologist:** Albert Albano **Drilling Method:** Hand Auger **Drive Hammer Weight:** NA **Date Completed:** 01/27/03	**Boring Completion Depth:** 4' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.005	0.0	Reddish brown sand with angular rocks and concrete	
2' - 4'	2	HA	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals collected for analysis of mercury.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-21 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
10' - 12'	1	GP	24	.022	3.7	10-11' – Brown peat material (grass, roots), hydrogen sulfide odor 11-12' – Black soft clay	
12' - 14'	2	GP	12	.008	1.0	12-13' – Same 13-14' – No recovery	
14' - 16'	3	GP	24	.013	3.7	Brown peat material, spongy, hydrogen sulfide odor	
16' - 18'	4	GP	24	.005	3.9	Gray very fine silty sand	
18' - 20'	5	GP	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Probe advanced through Rectifier Dry Well. Dry well was approximately 10' deep and had 5' of standing water in it.

All intervals collected for analysis of UIC constituents (VOCs, SVOCs, RCRA metals, and TPHs).

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil..

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-22 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.005	0.9	0-4" – Asphalt 4"-2' – Black/brown sand fill material with coal fragments	
2' - 4'	2	GP	24	.005	0.9	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for UIC constituents (VOCs, SVOCs, RCRA metals, and TPHs).

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-23 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.021	0.0	Black-stained fill material, rocky Sections of tan sand, with coal fragments	
2' - 4'	2	GP	24	.021	1.8	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for UIC constituents (VOCs, SVOCs, RCRA metals, and TPHs).

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-24 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.024	1.8	Tan/brown fine to coarse sand fill material	
2' - 4'	2	GP	24	.024	1.8	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for UIC constituents (VOCs, SVOCs, RCRA metals, and TPHs).

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-25 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/29/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/29/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.210	1.4	Black/brown/tan medium sand, heavy rock, agglomerations of tan stiff/hard soil	
2' - 4'	2	GP	24	.210	1.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for UIC constituents (VOCs, SVOCs, RCRA metals, and TPHs).

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-26 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: — Date Started: 01/30/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 01/30/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.008	0.0	Tan/reddish-brown sand fill	
2' - 4'	2	HA	24	.008	0.0	Gray/black-stained sand, moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Samples collected from 0-2", 0-2', and 2-4' for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-27 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: — Date Started: 01/30/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 01/30/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.008	0.0	Brown/tan/red sand	
2' - 4'	2	HA	24	.008	0.0	Gray silty sand, wet	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Both intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-28 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/30/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/30/03	Boring Completion Depth: 4' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	GP	24	.013	0.2	0-1' – Black sand, heavy rock 1-2' – Tan sand with quartz rock	
2' - 4'	2	GP	24	.012	0.2	2-3' – Same 3-4' – Tan/brown very fine silty sand	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSB-29 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: — Date Started: 01/28/03	Geologist: Albert Albano Drilling Method: Hand Auger Drive Hammer Weight: NA Date Completed: 01/28/03	Boring Completion Depth: 4' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0' - 2'	1	HA	24	.000	0.0	Tan fine silty sand	
2' - 4'	2	HA	24	.000	0.0	Tan medium sand, moist	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
0"-2" and 2'-4' intervals were analyzed for SVOCs, PCBs, and RCRA metals.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Island Park Substation	Boring No.: IPSBX-01 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.005	0.0	4-5' – Rock and concrete 5-6' – Gray medium sand with shell remnants	
6' - 8'	2	GP	12	.005	0.0	6-7' – No recovery 7-8' – Gray medium sand with peat material/organics (grass, roots)	
8' - 10'	3	GP	24	.007	0.0	Black, brown and green peat material, spongy, ogranics	
10' - 12'	4	GP	24	.007	0.0	Same, but moist to wet	
12' - 14'	5	GP	18	.006	0.0	Same	
14' - 16'	6	GP	18	.000	0.0	Same	
16' - 18'	7	GP	24	.006	0.0	Same	
18' - 20'	8	GP	24	.003	0.0	18-19' – Same 19-20' – Gray medium to coarse sand, wet.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSBX-02 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/28/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/28/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.000	0.0	4-4.5' - Gray fine to medium sand 4.5-5' – 3" layer of shell remnants 5-6' – Black clay mixed with shell remnants	
6' - 8'	2	GP	24	.009	0.0	Black/brown soft pliable clay, hydrogen sulfide odor	
8' - 10'	3	GP	24	.014	0.0	8-9.5' - Gray very fine silty sand. 9.5-10' – Black/brown peat material/organics (grass, roots)	
10' - 12'	4	GP	24	.005	0.0	Gray very fine silty sand, saturated	
12' - 14'	5	GP	24	.005	0.0	12-13' – Same 13-14' – Black/brown peat material	
14' - 16'	6	GP	24	.005	0.0	14-15' – Same 15-16' – Gray very fine silty sand	
16' - 18'	7	GP	24	.005	0.0	Same	
18' - 20'	8	GP	24	.005	0.0	18-19' – Black/brown peat material 19-20' – Gray very fine sand, wet	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSBX-03 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J.W. Palmer Drill Rig: Geoprobe Date Started: 01/28/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/28/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
6' - 8'	1	GP	24	.006	0.0	6-7.5 – Black silty clay, soft, pliable, wet 7.5-8 – Gray very fine, very silty sand	
8' - 10'	2	GP	24	.005	0.0	8-9' – Same 9-10' – Brown peat material/organics (grass, roots) spongy, hydrogen sulfide odors	
10' - 12'	3	GP	24	.005	0.0	Gray very fine silty sand, supersaturated, hydrogen sulfide odors	
12' - 14'	4	GP	24	.006	0.0	Brown peat material, organics, hydrogen sulfide odors	
14' - 16'	5	GP	24	.006	0.0	14-14.5' – Peat material 14.5-16' – Gray fine to very coarse silty sand	
16' - 18'	6	GP	24	.006	0.0	Same	
18' - 20'	7	GP	24	.006	0.0	18-19' – Peat material with very fine silty sand 19-20' – Tan and brown medium to coarse sand	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Island Park Substation	**Boring No.:** IPSBX-04 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** J.W. Palmer **Drill Rig:** Geoprobe **Date Started:** 01/28/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/28/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.006	0.0	Brown medium silty sand, some clay	
6' - 8'	2	GP	24	.304	0.0	Brown/black silty clay, stiff yet pliable, hydrogen sulfide odors	
8' - 10'	3	GP	24	.005	0.0	8-9' – Gray very fine silty sand, hydrogen sulfide odors 9-10' – Black/brown peat material/organics (grass, roots)	
10' - 12'	4	GP	24	.005	0.0	Gray very fine silty sand	
12' - 14'	5	GP	24	.005	0.0	12-12.5' – Same 12.5-14' – Black/brown peat material	
14' - 16'	6	GP	24	.005	0.0	Gray medium to very coarse slity sand	
16' - 18'	7	GP	24	.005	0.0	Same	
18' - 20'	8	GP	24	.006	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSBX-05 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/23/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/23/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
10' - 12'	1	GP	24	.125	0.0	Black peat material and organics (grass, roots), heavy hydrogen sulfide odors	
12' - 14'	2	GP	24	N/A	0.0	Same	
14' - 16'	3	GP	24	N/A	0.0	Gray medium to coarse sand, wet	
16' - 18'	4	GP	24	N/A	0.0	Same	
18' - 20'	5	GP	18	N/A	0.0	Gray fine sand, wet	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

After collection of 1st sample, Mercury meter needed regeneration. Could not use it for remaining, deeper samples.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Island Park Substation	Boring No.: IPSBX-06 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	18	.005	0.0	4-4.5' – Gray/black very coarse sand, wet 4.5-5' – Gray/black very fine silty sand 5-6' – Black-stained fine to medium sand, sheen inside macro liner	
6' - 8'	2	GP	18	.006	3.7	Black-stained fine to medium sand, sheen inside macro liner	
8' - 10'	3	GP	18	.006	0.0	8-9.5' – Black/gray soft silty clay, a little stiff 9.5-10' – Gray fine sand	
10' - 12'	4	GP	18	.008	0.0	Gray fine very silty sand, saturated	
12' - 14'	5	GP	18	.009	0.0	Gray fine to medium sand, some organics at 14' bgs (peat material, grass, roots), hydrogen sulfide odors	
14' - 16'	6	GP	18	.005	0.0	14-15' – Peat material, stiff like clay, yet spongy 15-16' – Gray fine to medium sand, some peat and organics throughout	
16' - 18'	7	GP	24	.012	0.0	Gray fine to medium sand, some peat and organics throughout	
18' - 20'	8	GP	24	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Island Park Substation	Boring No.: IPSBX-07 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.006	0.0	Gray fine sand, some peat material and shell remnants, sporadic silty clay zones	
6' - 8'	2	GP	24	.005	0.0	Gray/black very fine silty sand, shell remnants, loose, wet	
8' - 10'	3	GP	24	.007	0.0	Gray clay, medium stiffness, moist	
10' - 12'	4	GP	24	.024	0.0	Gray very fine silty sand, supersaturated	
12' - 14'	5	GP	18	.017	0.0	Gray very fine silty sand with organic/peat material, hydrogen sulfide odors	
14' - 16'	6	GP	18	.020	0.0	14-15.5' – Same 15.5-16' – Gray medium sand	
16' - 18'	7	GP	18	.005	0.0	Gray fine to medium sand with sporadic peat layers throughout	
18' - 20'	8	GP	18	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Boring No.: IPSBX-08 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: J. W. Palmer Drill Rig: Geoprobe Date Started: 01/28/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/28/03	Boring Completion Depth: 20' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.007	0.0	4-4.5' – Tan/brown/red fine sand 4.5-6 – Black fine very silty sand, some clay zones, medium stiffness	
6' - 8'	2	GP	24	.006	0.0	Black/gray soft and pliable clay	
8' - 10'	3	GP	24	.006	0.0	8-9.5 – Same 9.5-10 – Gray very fine silty sand, some grass/peat	
10' - 12'	4	GP	24	.007	0.0	Gray very fine silty sand, supersaturated	
12' - 14'	5	GP	24	.005	0.0	Same	
14' - 16'	6	GP	24	.005	0.0	14-14.5' – Peat material (grass, roots) 14.5-16 - Gray fine to coarse silty sand	
16' - 18'	7	GP	24	.003	0.0	Same	
18' - 20'	8	GP	24	.003	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS

Project No.: 2015 **Project Name:** Long Island Railroad Island Park Substation	**Boring No.:** IPSBX-09 **Sheet** 1 **of** 1 . **By:** Albert Albano	
Drilling Contractor: LAWES **Driller:** J. W. Palmer **Drill Rig:** Geoprobe **Date Started:** 01/29/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/29/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** --- **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	12	.007	0.0	4-5' – Tan/red medium silty sand 5-6' – No recovery	
6' - 8'	2	GP	12	.008	0.0	6-7' - Gray silty clay, stiff	
8' - 10'	3	GP	12	.005	0.0	8-9.5' - Gray silty clay, stiff yet pliable 9.5-10' – Gray silty sand	
10' - 12'	4	GP	24	.006	0.0	Gray silty, loose, super-saturated sand	
12' - 14'	5	GP	24	.009	0.0	12-12.5' – Same 12.5-14' – Gray silty clay and peat material/organics	
14' - 16'	6	GP	24	N/A	0.0	14-15' – Gray fine to coarse sand 15-16' – Tan/brown medium to coarse sand	
16' - 18'	7	GP	24	.005	0.0	Brown peat material/organics, hydrogen sulfide odor	
18' - 20'	8	GP	24	.006	0.0	Gray very fine silty sand, loose, supersaturated	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.
N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Island Park Substation	Boring No.: IPSBX-10 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Brian Drill Rig: Geoprobe Date Started: 01/23/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/23/03	Boring Completion Depth: 18' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
8' - 10'	1	GP	24	.300	0.0	Black soft, pliable clay, a little stiff, wood fragments, hydrogen sulfide odor	
10' - 12'	2	GP	24	.375	0.5	Black soft pliable clay with organics (peat material, salt marsh grass), getting more sandy with depth, hydrogen sulfide odor	
12' - 14'	3	GP	18	.020	0.2	Gray coarse sand with organics, moist to wet, hydrogen sulfide odor	
14' - 16'	4	GP	18	.014	0.0	Gray medium to coarse sand, loose, wet	
16' - 18'	5	GP	18	.015	0.0	Fine to medium sand, more wet and packed	
18' - 20'	6	GP	18	N/A	N/A	No recovery	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island RailRoad Island Park Substation	Boring No.: IPSBX-11 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Drill Rig: Geoprobe Date Started: 01/27/03	Geologist: Albert Albano Drilling Method: Direct Push Drive Hammer Weight: NA Date Completed: 01/27/03	Boring Completion Depth: 20' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.006	0.0	Black very coarse sand with angular rocks and shell remnants	
6' - 8'	2	GP	24	.007	0.0	Tan fine to coarse sand with quartz rock to 1 inch diameter, wet	
8' - 10'	3	GP	24	.008	0.0	Brown/black silty clay, stiff	
10' - 12'	4	GP	24	.008	0.0	Tan medium to coarse sand, heavy quartz rock, wet	
12' - 14'	5	GP	18	.008	0.0	Brown medium silty sand, small rounded quartz rocks	
14' - 16'	6	GP	18	.005	0.0	Same	
16' - 18'	7	GP	18	.000	0.0	Brown/tan medium sand with some finer sand mixed in, some quartz rock	
18' - 20'	8	GP	18	.000	0.0	Brown/tan medium sand, homogeneous (no rocks)	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Dvirka and Bartilucci CONSULTING ENGINEERS	**Project No.:** 2015 **Project Name:** Long Island Railroad Island Park Substation	**Boring No.:** IPSBX-12 **Sheet** 1 **of** 1 . **By:** Albert Albano
Drilling Contractor: LAWES **Driller:** Brian **Drill Rig:** Geoprobe **Date Started:** 01/23/03	**Geologist:** Albert Albano **Drilling Method:** Direct Push **Drive Hammer Weight:** NA **Date Completed:** 01/23/03	**Boring Completion Depth:** 20' **Ground Surface Elevation:** — **Boring Diameter:** 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-Ionization Detector (ppm)	Sample Description	USCS
4' - 6'	1	GP	24	.014	.2	Brown/gray stiff,yet pliable, clay	
6' - 8'	2	GP	24	.006	.2	Black very coarse, loose angular fill material, wet, hydrogen sulfide odor	
8' - 10'	3	GP	18	.013	.3	Gray medium to coarse sand with quartz pea gravel, wet	
10' - 12'	4	GP	18	.015	0.0	Brown/black silty pliable clay, heavy organics (roots, grass, peat), spongy	
12' - 14'	5	GP	18	.357	0.0	12-13' – Gray medium to coarse sand, some organics 13-14' – Gray medium to coarse sand with quartz pea gravel, wet	
14' - 16'	6	GP	18	.015	0.0	Same	
16' - 18'	7	GP	24	.009	0.0	Same	
18' - 20'	8	GP	18	.005	0.0	Same	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
All sampled intervals collected for analysis of SVOCs, PCBs, and RCRA metals.

Mercury readings appear to be false positives due to possible hydrogen sulfide interference from the soil.

Appendix C

APPENDIX C

TEST PIT LOGS

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Test Pit No.: IPTP-02 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Excavation Method: Mini-excavator Date Started: 01/22/03	Geologist: Albert Albano Drilling Method: Backhoe Drive Hammer Weight: NA Date Completed: 01/22/03	Test Pit Completion Depth: 2.5' Ground Surface Elevation: — Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (feet)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-2.5'	NA	NA	2.5'	.000	0.0	0'-4" - Asphalt 4"-8" - Asphalt base material 8"-2.5" - Black-stained sandy fill material.. An approximate 10' by 10' area was excavated to a depth of 2.5' at IPTP-02 in an effort to identify a drywell which was suspected to be located in the area. The top of the Rectifier Drywell was identified at a depth of 2.5 feet bgs. Groundwater was identified within the drywell at approximately 4.5 feet bgs. The bottom of the drywell was identified at approximately 7.5 feet bgs. As a result, this drywell was sampled for VOCs, SVOCs, RCRA Metals and TPHs pursuant to the UIC program.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
N/A: Not applicable.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015 Project Name: Long Island Railroad Island Park Substation	Test Pit No.: IPTP-03 Sheet 1 of 1 . By: Albert Albano
Drilling Contractor: LAWES Driller: Carl Pederson Excavation Method: Mini-excavator Date Started: 01/22/03	Geologist: Albert Albano Drilling Method: Backhoe Drive Hammer Weight: NA Date Completed: 01/22/03	Test Pit Completion Depth: 3.5' Ground Surface Elevation: --- Boring Diameter: 1" Samples were collected in 2' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (feet)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
0'-1.5'	NA	NA	1.5'	.000	0.2	0'-4" - Asphalt 4"-8" - Asphalt base material 8"-1.5" - Black-stained sandy fill material.	
1.5'-3.5'	NA	NA	3.5'	.008	0.0	Same as above. An approximate 10' by 10' area was excavated to a depth of 3.5' at IPTP-03 in an effort to identify a drywell which was suspected to be located in the area. No drywell was identified. Groundwater identified within the test pit was noted to have a sheen. As a result, as water sample was collected from the test pit for analysis of VOCs, SVOCs, PCBs, and TAL Metals.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
N/A: Not applicable.

Appendix D

APPENDIX D

WELL CONSTRUCTION LOG

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015-03 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: MHMW-03 Sheet 1 of 2 . By: Kristen Panella
Drilling Contractor: LAWES Driller: Carl Pedersen Drill Rig: Auger Rig Date Started: 01/17/03	Geologist: Kristen Panella Drilling Method: 6" Rotating Auger Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 86' Ground Surface Elevation: — Boring Diameter: 4" Samples were collected in 5' intervals.

Depth (ft.)	Soil Sample No.	Type	Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
5' - 7'	1	SS	20	0.003	0.0	Light brown fine sand, soft, loose, saturated, no odor.	
10' - 12'	2	SS	10	0.003	0.0	Light brown fine sand, soft, loose, saturated, no odor.	
15' - 17'	3	SS	12	0.007	0.0	Dark brown medium sand, trace pebbles, loose, saturated, no odor.	
20' - 22'	4	SS	10	0.005	0.0	Dark brown medium sand, loose, moist, no odor.	
25' - 27'	5	SS	20	0.007	0.0	Light to dark brown medium sand, trace pebbles, loose, moist, no odor.	
30' - 32'	6	SS	12	0.000	0.0	Brown medium sand, trace pebbles, loose, moist, no odor.	
35' - 37'	7	SS	12	0.000	0.0	Dark brown coarse sand, trace pebbles, loose, saturated, no odor.	
40' - 42'	8	SS	12	0.000	0.0	Light brown to white fine sand with orange banning, loose, dry, no odor.	
45' - 47'	9	SS	20	0.000	0.0	Light brown to white fine sand with orange banning, loose, dry, no odor.	
50' - 52'	10	SS	20	0.000	0.0	White fine sand, neatly packed, moist, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Assumed DTW was 73' bgs.

Dvirka and Bartilucci CONSULTING ENGINEERS	Project No.: 2015-03 Project Name: Long Island RailRoad Manhasset Substation Virginia Drive	Boring No.: 1 Sheet 2 of 2 . By: Kristen Panella
Drilling Contractor: LAWES Driller: Carl Pedersen Drill Rig: Auger Rig Date Started: 01/17/03	Geologist: Kristen Panella Drilling Method: 6" Rotating Auger Drive Hammer Weight: NA Date Completed: 01/17/03	Boring Completion Depth: 86' Ground Surface Elevation: --- Boring Diameter: 4" Samples were collected in 5' intervals.

Depth (ft.)	Soil Sample No.	Soil Sample Type	Soil Sample Rec. (inches)	Mercury Vapor (mg/m^3)	Photo-ionization Detector (ppm)	Sample Description	USCS
55' - 57'	11	SS	12	0.004	0.0	6" Light brown fine sand, loose, moist, no odor. 6" Gray clay with trace silt, dense, moist, no odor.	
60' - 62'	12	SS	20	0.003	0.0	Gray silt, densely packed, moist, no odor.	
65' - 67'	13	SS	24	0.006	0.0	12" Gray silt, loose, supersaturated, no odor. 12" Gray silt to clay, densely packed, saturated, no odor.	
70' - 72'	14	SS	20	0.003	0.0	Gray silt, densely packed, moist, no odor.	
75' - 77'	15	SS	12	0.003	0.0	6" Gray silt to clay, dense, saturated, no odor. 6" Gray silt, soupy, supersaturated, no odor.	

Sample Types:
SS = Split Spoon
HA = Hand Auger
GP = Geoprobe Sampler
CC = Concrete Core

NOTES:
Assumed DTW was 73' bgs.

Appendix E

APPENDIX E

ANALYTICAL DATA

TABLE 1

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY

AREA OF CONCERN										
SAMPLE ID	MHSS-14	MHSS-15	MHSS-16	MHSS-17	MHSS-18	MHSS-19	MHSS-20	MHSS-21	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/16/03	1/16/03	1/16/03		
PERCENT SOLIDS	83.0	88.0	80.0	93.0	86.0	74.0	83.0	71.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	87.9	130	354	0.097	0.12	15.5	4	9	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSS-22	MHSS-23	MHSS-24	MHSS-25	MHSS-26	MHSS-27	MHSS-28	MHSS-29	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03		
PERCENT SOLIDS	81.0	87.0	76.0	81.0	77.0	61.0	91.0	74.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	5.9	10.8	7.9	7.3	9.4	5.2	1.6	6.4	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSS-30	MHSS-31	MHSB-17	MHSB-18	MHSB-19	MHSS-44	MHSS-44	MHSS-45	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	8/11/04	8/16/04	8/11/04		
PERCENT SOLIDS	79.0	74.0	82.0	82.0	87.0	91.0	78.0	84.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	1.6	0.73	1.5	0.05	0.27	0.29	0.73	0.37	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSS-45	MHSS-46	MHSS-46	MHSS-47	MHSS-47	MHSS-48	MHSS-48	MHSS-49	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04		
PERCENT SOLIDS	82.0	90.0	84.0	95.0	46.0	90.0	76.0	86.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.42	0.82	0.59	0.33	0.49	0.27	0.15	0.16	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 1 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY

AREA OF CONCERN	DEEP SOIL SUPPLEMENTAL SAMPLING									
SAMPLE ID	MHSS-49	MHSS-50	MHSS-50	MHSS-51	MHSS-51	MHSS-52	MHSS-52	MHSS-53	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04		
PERCENT SOLIDS	77.0	96.0	92.0	97.0	85.0	94.0	86.0	95.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.12	0.25	0.24	0.65	0.64	0.73	0.24	0.11	0.042	0.1

AREA OF CONCERN	DEEP SOIL SUPPLEMENTAL SAMPLING									
SAMPLE ID	MHSS-53	MHSS-54	MHSS-54	MHSS-55	MHSS-55	MHSS-56	MHSS-56	MHSS-57	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04	8/16/04	8/11/04		
PERCENT SOLIDS	90.0	94.0	87.0	96.0	90.0	92.0	80.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	2.2	35.8	10	5.8	1.7	2.7	1.7	1.4	0.042	0.1

AREA OF CONCERN	DEEP SOIL SUPPLEMENTAL SAMPLING									
SAMPLE ID	MHSS-57	MHSS-58	MHSS-58	MHSS-59	MHSS-59	MHSS-60	MHSS-60	MHSS-61	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/16/04	8/11/04	8/16/04	8/19/04	8/16/04	8/19/04	8/16/04	8/16/04		
PERCENT SOLIDS	87.0	94.0	77.0	74.0	77.0	88.0	81.0	83.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	1.6	2.0	4.0	0.71	1.1	0.50	0.63	2.9	0.042	0.1

AREA OF CONCERN	DEEP SOIL SUPPLEMENTAL SAMPLING									
SAMPLE ID	MHSS-61	MHSS-62	MHSS-62	MHSS-63	MHSS-63	MHSS-64	MHSS-64	MHSS-65	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/13/04		
PERCENT SOLIDS	90.0	71.0	75.0	84.0	80.0	79.0	84.0	82.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	1.6	0.61	0.45	0.11	0.44	0.18	0.061	0.28	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 1 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY

AREA OF CONCERN	Drainage Swale Supplemental Sampling									
SAMPLE ID	MHSS-65	MHSS-66	MHSS-66	MHSS-67	MHSS-67	MHSS-68	MHSS-68	MHSS-69	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	88.0	85.0	91.0	76.0	90.0	67.0	87.0	63.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.25	0.95	0.74	0.55	0.19	1.5	0.41	1.6	0.042	0.1

AREA OF CONCERN	Drainage Swale Supplemental Sampling									
SAMPLE ID	MHSS-69	MHSS-70	MHSS-70	MHSS-71	MHSS-71	MHSS-72	MHSS-72	MHSS-73	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)	(2-12)	(0-2)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/16/04		
PERCENT SOLIDS	86.0	67.0	89.0	73.0	93.0	72.0	84.0	55.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	1.0	0.55	0.40	0.21	0.11	0.86	0.075	0.17	0.042	0.1

AREA OF CONCERN	Drainage Swale Supplemental Sampling									
SAMPLE ID	MHSS-73	MHSS-74	MHSS-74	MHSS-75	MHSS-76	MHSS-77	MHSS-78	MHSS-79	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(2-12)	(0-2)	(2-12)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04	8/16/04		
PERCENT SOLIDS	82.0	56.0	88.0	84.0	78.0	74.0	68.0	43.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.051	0.29	0.052	0.12	0.093	0.15	6.2	4.6	0.042	0.1

AREA OF CONCERN	[illegible]	[illegible]				[illegible]				
SAMPLE ID	MHSS-80	MHSB-13	MHSB-14	MHSB-15	MHSB-16	MHSS-32	MHSS-33	MHSS-34	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	8/16/04	1/15/03	1/15/03	1/15/03	1/15/03	8/12/04	8/12/04	8/12/04		
PERCENT SOLIDS	34.0	90.0	94.0	90.0	93.0	82.0	81.0	87.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	5.8	8.1	193	27.9	3.5	33.8	51.0	181	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[box] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 1 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY

AREA OF CONCERN	EXTENT OF CONTAMINATION									
SAMPLE ID	MHSS-35	MHSS-36	MHSS-37	MHSS-38	MHSS-39	MHSS-40	MHSS-41	MHSS-42	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04		
PERCENT SOLIDS	86.0	83.0	86.0	82.0	75.0	92.0	92.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	23.4	135	82.4	332	136	3.4	64.2	49.1	0.042	0.1

AREA OF CONCERN	EXTENT OF CONTAMINATION									
SAMPLE ID	MHSS-43								INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)									
DATE OF COLLECTION	8/12/04									
PERCENT SOLIDS	96.0									
UNITS	(mg/kg)								(ug/l)	mg/kg
Mercury	0.34								0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 2

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY

AREA OF CONCERN										
SAMPLE ID	MHSB-17	MHSB-17	MHSB-17	MHSB-18	MHSB-18	MHSB-18	MHSB-19	MHSB-19	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(2 - 4)	(4 - 6)	(6 - 8)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03	1/16/03		
PERCENT SOLIDS	90.0	89.0	90.0	90.0	90.0	89.0	91.0	90.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.023 B	U	U	U	U	U	0.018 B	U	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-19	MHSB-06A	MHSB-06A	MHSB-13	MHSB-13	MHSB-13	MHSB-13	MHSB-14	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6 - 8)	(6 - 8)	(8 - 10)	(2 - 4)	(4 - 6)	(6 - 8)	(8 - 10)	(2 - 4)		
DATE OF COLLECTION	1/16/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03		
PERCENT SOLIDS	91.0	87.0	91.0	89.0	87.0	90.0	92.0	92.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	U	0.046	0.018 B	U	0.074	U	0.021 B	0.68	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-14	MHSB-14	MHSB-14	MHSB-15	MHSB-15	MHSB-15	MHSB-16	MHSB-16	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4 - 6)	(6 - 8)	(8 - 10)	(2 - 4)	(4 - 6)	(6 - 8)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03	1/15/03		
PERCENT SOLIDS	89.0	91.0	93.0	88.0	87.0	92.0	91.0	91.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.12	0.025 B	0.045	0.32	0.051	U	0.079	0.088	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-16	MHSB-24	MHSB-24	MHSB-24	MHSB-24	MHSB-25	MHSB-25	MHSB-25	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6 - 8)	(0-2)	(2 - 4)	(4 - 6)	(6 - 8)	(0-2)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	1/15/03	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04	8/12/04		
PERCENT SOLIDS	94.0	89.0	90.0	86.0	85.0	88.0	87.0	92.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.022 B	3.6	0.049 B	0.034 B	1.8	0.36	0.38	0.023 B	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective.

TABLE 2 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY

AREA OF CONCERN										
SAMPLE ID	MHSB-25	MHSB-26	MHSB-26	MHSB-26	MHSB-26	MHSB-27	MHSB-27	MHSB-27	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	8/12/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	92	88	86	87	85.0	91.0	85.0	86.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.032 B	4.0	0.23	0.041	0.13	1.7	2.2	0.030 B	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-27	MHSB-28	MHSB-28	MHSB-28	MHSB-28	MHSB-29	MHSB-29	MHSB-29	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	89.0	90.0	92.0	94.0	89.0	88.0	90.0	93.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.037	0.31	0.11	0.066	0.070	53.9	0.90	0.43	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-30	MHSB-30	MHSB-30	MHSB-30	MHSB-31	MHSB-31	MHSB-31	MHSB-31	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	89.0	87.0	86.0	86.0	89.0	84.0	87.0	85.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	523	1,700	2.3	13.0	46.0	1.6	0.16	0.052	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MHSB-32	MHSB-32	MHSB-32	MHSB-32	MHSB-33	MHSB-33	MHSB-33	MHSB-33	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(0 - 2)	(2 - 4)	(4 - 8)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	89.0	90.0	86.0	85.0	89.0	89.0	86.0	88.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	208	926	24.7	0.88	204	1.8	0.57	0.033 B	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective.

TABLE 2 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY

AREA OF CONCERN	EXTON RT Property Supplemental Sampling									
SAMPLE ID	MHSB-34	MHSB-34	MHSB-34	MHSB-34	MHSB-35	MHSB-35	MHSB-35	MHSB-35	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)	(0 - 2)	(2 - 4)	(4 - 6)	(6 - 8)		
DATE OF COLLECTION	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04	8/13/04		
PERCENT SOLIDS	87.0	87.0	88.0	88.0	95.0	94.0	84.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	27.4	3.2	0.33	0.020 B	1.7	0.088	0.015 B	0.11	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective.

TABLE 3

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

OUTFALL TO MANHASSET BAY
SURFACE WATER SEDIMENT - MERCURY AND TOTAL ORGANIC CARBON(TOC)

SAMPLE ID	MHSD-01	MHSD-01A	MHSD-02A	MHSD-03A	INSTRUMENT DETECTION LIMITS	NYSDEC Technical Guidance for Screening Contaminated Sediments (mg/kg)	
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)		Lowest Effect Level	Severe Effect Level
DATE OF COLLECTION	1/16/03	1/17/03	1/17/03	1/17/03			
PERCENT SOLIDS	85.0	85.0	82.0	77.0			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)		
Mercury	0.077	0.094	0.19	0.084	0.1	0.15	1.3

SAMPLE ID	MHSD-01	MHSD-01A	MHSD-02A	MHSD-03A	LABORATORY QUANTITATION LIMITS
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	
DATE OF COLLECTION	1/16/03	1/17/03	1/17/03	1/17/03	
PERCENT SOLID	85.0	85.0	82.0	77.0	
UNITS	%	%	%	%	%
Total Organic Carbon	0.24	0.34	0.67	1.3	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
Notes:
: Result exceeds Comparison Value.

TABLE 4

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

UIC STRUCTURE	RECHARGE BASIN				WATER TOWER PIT				
SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03		
PERCENT SOLIDS	91.0	87.0	92.0	91.0	89.0	100.0	98.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Arsenic	2.9	6.8	2.1	4.9	2.5	1.6	0.6 B	3.0	7.5 or SB
Barium	44.5	477	7 B	44.5	16.8	73.3	9.8	3.0	300 or SB
Cadmium	0.61	6.5	U	0.2 B	0.22 B	1.6	U	2.0	10*
Chromium	6.8	38.9	4.9	9.6	9.5	10.3	3.4	3.0	50*
Lead	96.3	1010	2.5	4.1	4.1	172	1.3	1.0	SB**
Mercury	9.1	473	U	U	0.89	553	0.045	0.1	0.1
Selenium	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.21 B	1.1 B	0.15 B	0.37 B	0.19 B	0.25 B	0.16 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm
: Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 5

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	87.0	92.0	91.0	89.0	100.0	98.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	5	--
Chloromethane	U	U	U	U	U	U	U	5	--
Vinyl Chloride	U	U	U	U	U	U	U	5	200
Bromomethane	U	U	U	U	U	U	U	5	--
Chloroethane	U	U	U	U	U	U	U	5	1900
Trichlorofluoromethane	U	U	U	U	U	U	U	5	--
1,1-Dichloroethene	U	U	U	U	U	U	U	5	400
Acetone	U	U	U	U	U	11	U	5	200
Idomethane	U	U	U	U	U	U	U	5	--
Carbone Disulfide	U	U	U	U	U	U	U	5	2700
Methylene Chloride	U*	U*	U*	U*	U*	U*	U*	5	100
trans-1,2-Dichloroethane	U	U	U	U	U	U	U	5	300
Methyl tert-butyl ether	U	U	U	U	U	U	U	5	--
1,1-Dichloroethane	U	U	U	U	U	U	U	5	200
Vinyl acetate	U	U	U	U	U	U	U	5	--
2-Butanone	U	U	U	U	U	U	U	5	300
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	5	--
2,2-Dichloropropane	U	U	U	U	U	U	U	5	--
Bromochloromethane	U	U	U	U	U	U	U	5	--
Chloroform	U	U	U	U	U	U	U	5	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	5	800
1,1-Dichloropropene	U	U	U	U	U	U	U	5	--
Carbon Tetrachloride	U	U	U	U	U	U	U	5	600
1,2-Dichloroethane	U	U	U	U	U	U	U	5	100
Benzene	U	U	U	U	U	U	U	5	60
Trichloroethene	U	U	U	U	U	2 J	U	5	700
1,2-Dichloropropane	U	U	U	U	U	U	U	5	--
Dibromomethane	U	U	U	U	U	U	U	5	--
Bromodichloromethane	U	U	U	U	U	U	U	5	--
cis-1,3-Dichloropropane	U	U	U	U	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	U	U	U	U	5	1000
Toluene	U	U	U	U	U	U	U	5	1500
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	5	--
1,1,2-Trichloroethane	U	U	U	U	U	U	U	5	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Result qualified as non-detect based on validation criteria.

NOTES:
--: Not applicable.

TABLE 5 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

UIC STRUCTURE	Leaching Pit				Water Cooling Pit				
SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	87.0	92.0	91.0	89.0	100.0	98.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
1,3-Dichloropropane	U	U	U	U	U	U	U	5	300
Tetrachloroethene	U	U	U	U	U	U	U	5	1400
2-Hexanone	U	U	U	U	U	U	U	5	--
Dibromochloromethane	U	U	U	U	U	U	U	5	--
1,2-Dibromoethane	U	U	U	U	U	U	U	5	--
Chlorobenzene	U	U	U	U	U	U	U	5	1700
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	5	--
Ethylbenzene	U	U	U	U	U	U	U	5	5500
m,p-Xylene	U	U	U	U	U	U	U	5	--
o-Xylene	U	U	U	U	U	U	U	5	--
Xylene (total)	U	U	U	U	U	U	U	5	1200
Styrene	U	U	U	U	U	U	U	5	--
Bromoform	U	U	U	U	U	U	U	5	--
Isopropylbenzene	U	U	U	U	U	U	U	5	--
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	5	600
Bromobenzene	U	U	U	U	U	U	U	5	--
1,2,3-Trichloropropane	U	U	U	U	U	U	U	5	400
n-Propylbenzene	U	U	U	U	U	U	U	5	--
2-Chlorotoluene	U	U	U	U	U	U	U	5	--
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	5	--
4-Chlorotoluene	U	U	U	U	U	U	U	5	--
tert-Butylbenzene	U	U	U	U	U	U	U	5	--
1,2,4-Trimethylbenzene	U	U	U	U	U	1 J	U	5	--
sec-Butylbenzene	U	U	U	U	U	U	U	5	--
4-Isopropyltoluene	U	U	U	U	U	U	U	5	--
1,3-Dichlorobenzene	U	U	U	U	U	U	U	5	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	5	8500
n-Butylbenzene	U	U	U	U	U	U	U	5	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	5	7900
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	5	--
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	5	3400
Hexachlorobutadiene	U	U	U	U	U	U	U	5	--
Naphthalene	U	U	U	U	U	2 J	U	5	13000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	5	--
Totals VOCs	0	0	0	0	0	16	0	--	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Result qualified as non-detect based on validation criteria.

NOTES:
--: Not applicable.

TABLE 6

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

UIC STRUCTURE	PERIMETER				WITHIN BUILDING				
SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	87.0	92.0	91.0	89.0	100.0	98.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
Phenol	U	81 J	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	330	--
Naphthalene	U	U	U	U	U	88 J	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	140 J	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	660	100
2-Chloronaphthalene	U	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	U	660	430
Dimethylphthalate	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	160 J	160 J	U	U	U	160 J	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	660	500
Acenaphthene	78 J	81 J	U	U	U	400 J	U	330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Result taken from analysis at a secondary dilution..

NOTES:
-- : Not applicable.

TABLE 6 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

UIC STRUCTURE	Recharge Pit				Wet Well Pit				
SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)		
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	87.0	92.0	91.0	89.0	100.0	98.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	660	200
4-Nitrophenol	U	U	U	U	U	U	U	660	100
Dibenzofuran	U	U	U	U	U	74 J	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	330	--
Fluorene	78 J	68 J	U	U	U	410 J	U	330	50,000
4-Nitroaniline	220 J	600 J	U	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	660	1,000
Phenanthrene	5500	3100	U	U	U	4300 D	U	330	50,000
Anthracene	960	700	U	U	U	1400	U	330	50,000
Carbazole	72 J	58 J	U	U	U	160 J	U	330	--
Di-n-butylphthalate	U	U	U	U	U	U	U	330	8,100
Fluoranthene	5600	4300	U	U	U	4600 D	U	330	50,000
Pyrene	12000 D	9500 D	U	U	U	9500 D	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	330	--
Benzo(a)anthracene	6100	5200	U	U	U	4500 D	U	330	224
Chrysene	7200 D	5600	U	U	U	4600 D	U	330	400
bis(2-Ethylhexyl)phthalate	320 J	230 J	U	U	U	U	U	330	50,000
Di-n-octylphthalate	460	330 J	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	6500 D	5500	U	U	U	3700 D	U	330	1,100
Benzo(k)fluoranthene	2800	2300	U	U	U	2500	U	330	1,100
Benzo(a)pyrene	5000	4000	U	U	U	4400	U	330	61
Indeno(1,2,3-cd)pyrene	1200	1000	U	U	U	1300	U	330	3,200
Dibenz(a,h)anthracene	440	370 J	U	U	U	390	U	330	14
Benzo(g,h,i)perylene	1300	1000	U	U	U	110	U	330	50,000
Total PAHs	54,916	42,879	0	0	0	42,572	0	--	100,000
Total CaPAHs	29,240	23,970	0	0	0	21,390	0	--	10,000
Total SVOCs	55,988	34,678	0	0	0	42,732	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Result taken from analysis at a secondary dilution..

NOTES:
-- : Not applicable.
☐ :Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 7

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - TOTAL PETROLEUM HYDROCARBONS (TPH)

UIC STRUCTURE	Recharge Pit				Water Sump			
SAMPLE ID	MHSB-21	MHSB-21	MHSB-21	MHSB-21	MHSB-22	MHSB-22	MHSB-22	INSTRUMENT DETECTION LIMITS
SAMPLE DEPTH (FT)	(2 - 4)	(4 - 6)	(6 - 8)	(10 - 12)	(8 - 10)	(18 - 20)	(24 - 26)	
DATE OF COLLECTION	1/15/03	1/15/03	1/15/03	1/15/03	1/14/03	1/14/03	1/14/03	
PERCENT SOLID	91.0	87.0	92.0	91.0	89.0	100.0	98.0	
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Total Petroleum Hydrocarbons	450	1500	ND	ND	ND	480	ND	12

Notes:
ND: Not Detected

TABLE 8

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - TARGET ANALYTE LIST (TAL) METALS

SAMPLE ID	MHMW-01 Unfiltered	MHMW-01 Filtered	MHMW-02 Unfiltered	MHMW-02 Filtered	MHMW-03 Unfiltered	MHMW-03 Filtered	INSTRUMENT DETECTION LIMIT (IDL)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	1/21/03	1/21/03	1/23/03	1/23/03	1/22/03	1/22/03		
DILUTION FACTOR	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Aluminum	11600	U	10600	U	6070	U	12	--
Antimony	U	U	U	U	U	U	3	3 ST
Arsenic	25.4	U	7.1 B	U	3.3 B	U	3	25 ST
Barium	104 B	69.5 B	68.4 B	37.9 B	58.7 B	54.3 B	3	1,000 ST
Beryllium	U	U	U	U	U	U	2	3 GV
Cadmium	U	U	U	U	U	U	2	5 ST
Calcium	24600	25200	15500	13700	25000	24700	76	--
Chromium	19.3 B	U	19 B	U	7.6 B	U	3	50 ST
Cobalt	3.1 B	U	U	U	5.2 B	4.3 B	3	--
Copper	31.8	4.3 B	15.8 B	2.8 B	5.3 B	3.7 B	2	200 GA
Iron	18500	U	4470	U	2850	U	35	300 ST*
Lead	24.2	U	7.8 B	U	3.4 B	U	1	25 ST
Magnesium	9440	9630	4510	4350	6680	6660	23	35,000 GV
Manganese	421	313	17.8 B	10.6 B	955	909	2	300 ST*
Mercury	0.59	U	0.17 B	U	U	U	0.1	0.7 ST
Nickel	21.4 B	15.6 B	12.4 B	3.9 B	17.2 B	13.3 B	1	100 ST
Potassium	6150	5570	3460	2850	5660	5500	89	--
Selenium	U	U	U	U	U	U	8	10 ST
Silver	U	U	U	U	U	U	2	50 ST
Sodium	74700	76500	52200	50900	79300	79600	118	20,000 ST
Thallium	U	U	U	U	U	U	4	0.5 GV
Vanadium	109	U	27.7 B	U	15.5 B	U	3	--
Zinc	23.1 B	14.9 B	12.4 B	12.5 B	21.5 B	18 B	8	2,000 GV

QUALIFIERS:
U: Compound analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
ST* : Standard for the sum of iron and manganese is 500 ug/l
[ ] : Result exceeds NYS Class GA Standard/Guideline

TABLE 9

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MHMW-01 1/21/03 1 (ug/L)	MHMW-02 1/23/03 1 (ug/L)	MHMW-03 1/22/03 1 (ug/L)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
Dichlorodifluoromethane	U	U	U	5	5 ST
Chloromethane	U	U	U	5	--
Vinyl Chloride	U	U	U	5	2 ST
Bromomethane	U	U	U	5	5 ST
Chloroethane	U	U	U	5	5 ST
Trichlorofluoromethane	U	U	U	5	5 ST
1,1-Dichloroethene	U	U	U	5	5 ST
Acetone	U	U	U	5	50 GV
Idomethane	U	U	U	5	--
Carbone Disulfide	U	U	U	5	--
Methylene Chloride	U	U	U	5	5 ST
trans-1,2-Dichloroethene	U	U	U	5	5 ST
Methyl tert-butyl ether	4 J	U	2 J	5	10 GV*
1,1-Dichloroethane	U	U	U	5	5 ST
Vinyl acetate	U	U	U	5	--
2-Butanone	U	U	U	5	--
cis-1,2-Dichloroethene	U	U	U	5	5 ST
2,2-Dichloropropane	U	U	U	5	5 ST
Bromochloromethane	U	U	U	5	5 ST
Chloroform	U	U	1 J	5	7 ST
1,1,1-Trichloroethane	U	U	U	5	5 ST
1,1-Dichloropropene	U	U	U	5	5 ST
Carbon Tetrachloride	U	U	U	5	5 ST
1,2-Dichloroethane	U	U	U	5	0.6 ST
Benzene	U	U	U	5	1 ST
Trichloroethene	U	U	U	5	5 ST
1,2-Dichloropropane	U	U	U	5	1 ST
Dibromomethane	U	U	U	5	5 ST
Bromodichloromethane	U	U	U	5	50 GV
cis-1,3-Dichloropropane	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	5	--
Toluene	U	U	U	5	5 ST
trans-1,3-Dichloropropene	U	U	U	5	0.4 ST
1,1,2-Trichloroethane	U	U	U	5	1 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values

TABLE 9 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MHMW-01 1/21/03 1 (ug/L)	MHMW-02 1/23/03 1 (ug/L)	MHMW-03 1/22/03 1 (ug/L)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
1,3-Dichloropropane					5 ST
Tetrachloroethene	U	U	U	5	5 ST
2-Hexanone	U	U	U	5	50 GV
Dibromochloromethane	U	U	U	5	50 GV
1,2-Dibromoethane	U	U	U	5	--
Chlorobenzene	U	U	U	5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	5	5 ST
Ethylbenzene	U	U	U	5	5 ST
m,p-Xylene	U	U	U	5	--
o-Xylene	U	U	U	5	--
Xylene (total)	U	U	U	5	5 ST
Styrene	U	U	U	5	5 ST
Bromoform	U	U	U	5	50 GV
Isopropylbenzene	U	U	U	5	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	5	5 ST
Bromobenzene	U	U	U	5	5 ST
1,2,3-Trichloropropane	U	U	U	5	0.04 ST
n-Propylbenzene	U	U	U	5	5 ST
2-Chlorotoluene	U	U	U	5	5 ST
1,3,5-Trimethylbenzene	U	U	U	5	5 ST
4-Chlorotoluene	U	U	U	5	5 ST
tert-Butylbenzene	U	U	U	5	5 ST
1,2,4-Trimethylbenzene	U	U	U	5	5 ST
sec-Butylbenzene	U	U	U	5	5 ST
4-Isopropyltoluene	U	U	U	5	5 ST
1,3-Dichlorobenzene	U	U	U	5	3 ST
1,4-Dichlorobenzene	U	U	U	5	3 ST
n-Butylbenzene	U	U	U	5	5 ST
1,2-Dichlorobenzene	U	U	U	5	3 ST
1,2-Dibromo-3-chloropropane	U	U	U	5	0.04 ST
1,2,4-Trichlorobenzene	U	U	U	5	5 ST
Hexachlorobutadiene	U	U	U	5	0.5 ST
Naphthalene	U	U	U	5	10 GV
1,2,3-Trichlorobenzene	U	U	U	5	5 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values

TABLE 10

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MHMW-01 1/21/03 1 (ug/L)	MHMW-02 1/23/03 1 (ug/L)	MHMW-03 1/22/03 1 (ug/L)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
Phenol	U	U	U	10	1 ST*
bis(2-Chloroethyl)ether	U	U	U	10	--
2-Chlorophenol	U	U	U	10	--
1,3-Dichlorobenzene	U	U	U	10	3 ST
1,4-Dichlorobenzene	U	U	U	10	3 ST
1,2-Dichlorobenzene	U	U	U	10	3 ST
2-Methylphenol	U	U	U	10	--
2,2'-oxybis (1-chloropropane)	U	U	U	10	--
4-Methylphenol	U	U	U	10	--
N-Nitroso-di-n-propylamine	U	U	U	10	--
Hexachloroethane	U	U	U	10	5 ST
Nitrobenzene	U	U	U	10	0.4 ST
Isophorone	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	10	--
2,4-Dimethylphenol	U	U	U	10	50 GV
2,4-Dichlorophenol	U	U	U	10	5 ST
1,2,4-Trichlorobenzene	U	U	U	10	5 ST
Naphthalene	U	U	U	10	10 GV
4-Chloroaniline	U	U	U	10	5 ST
bis(2-Chloroethoxy)methane	U	U	U	10	--
Hexachlorobutadiene	U	U	U	10	0.5 ST
4-Chloro-3-methylphenol	U	U	U	10	--
2-Methylnaphthalene	U	U	U	10	--
Hexachlorocyclopentadiene	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	10	--
2,4,5-Trichlorophenol	U	U	U	20	--
2-Chloronaphthalene	U	U	U	10	10 GV
2-Nitroaniline	U	U	U	20	5 ST
Dimethylphthalate	U	U	U	10	50 GV
Acenaphthylene	U	U	U	10	--
2,6-Dinitrotoluene	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	20	5 ST
Acenaphthene	U	U	U	10	20 GV

QUALIFIERS:

U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
E: Compound concentration exceeded the calibration range.

NOTES:

-- : Not applicable.
* : Applies to the sum of all Phenols
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values

TABLE 10 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MHMW-01 1/21/03 1 (ug/L)	MHMW-02 1/23/03 1 (ug/L)	MHMW-03 1/22/03 1 (ug/L)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
2,4-Dinitrophenol	U	U	U	20	10 GV
4-Nitrophenol	U	U	U	20	--
Dibenzofuran	U	U	U	10	--
2,4-Dinitrotoluene	U	U	U	10	5 ST
Diethylphthalate	7 J	U	U	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	10	--
Fluorene	U	U	U	10	50
4-Nitroaniline	U	U	U	20	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	20	--
N-Nitrosodiphenylamine	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	10	--
Hexachlorobenzene	U	U	U	10	0.04 ST
Pentachlorophenol	U	U	U	20	1 ST
Phenanthrene	U	U	U	10	50 GV
Anthracene	U	U	U	10	50 GV
Carbazole	U	U	U	10	--
Di-n-butylphthalate	U	U	U	10	--
Fluoranthene	U	U	U	10	50 GV
Pyrene	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	10	5 ST
Benzo(a)anthracene	U	U	U	10	--
Chrysene	U	U	U	10	0.002 GV
bis(2-Ethylhexyl)phthalate	2 J	U	U	10	--
Di-n-octylphthalate	U	U	U	10	50 GV
Benzo(b)fluoranthene	U	U	U	10	0.002 GV
Benzo(k)fluoranthene	U	U	U	10	0.002 GV
Benzo(a)pyrene	U	U	U	10	ND ST
Indeno(1,2,3-cd)pyrene	U	U	U	10	0.002 GV
Dibenzo(a,h)anthracene	U	U	U	10	--
Benzo(g,h,i)perylene	U	U	U	10	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
E: Compound concentration exceeded the calibration range.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values

TABLE 11

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESMENT

GROUNDWATER - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MHMW-01 1/21/03 1 (ug/L)	MHMW-02 1/23/03 1 (ug/L)	MHMW-03 1/22/03 1 (ug/L)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
Aroclor- 1016	U	U	U	1	--
Aroclor- 1221	U	U	U	1	--
Aroclor- 1232	U	U	U	1	--
Aroclor- 1242	U	U	U	1	--
Aroclor- 1248	U	U	U	1	--
Aroclor- 1254	U	U	U	1	--
Aroclor- 1260	U	U	U	1	--
TOTAL PCBs	0	0	0	--	0.09 ST

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards

TABLE 12

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-02	MHSBX-02	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(8-10)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03		
PERCENT SOLIDS	91.0	90.0	93.0	96.0	89.0	98.0	89.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	2	1.9	0.45 B	0.64 B	1.5	0.41 B	1.7	2.3	3.0	7.5 or SB
Barium	10.9	12	21.3	16	27.7	9.3	8.3 B	9.9	3.0	300 or SB
Cadmium	0.58	0.39	0.1 B	0.15 B	0.38	U	U	U	2.0	10*
Chromium	5	5	4.6	4.8	7	4.8	4.1	6.4	3.0	50*
Lead	4	13	2.7	1.9	24.7	1.4	2.3	4.4	1.0	SB**
Mercury	U	0.054	U	U	0.035 B	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.31 B	0.17 B	0.099 B	0.2 B	0.17 B	0.11 B	0.09 B	U	2.0	SB

SAMPLE ID	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-03	MHSBX-03	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/13/03	1/13/03		
PERCENT SOLIDS	91.0	91.0	93.0	95.0	90.0	96.0	88.0	87.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.7	1.2	1.8	0.84 B	0.68 B	0.82 B	1.5	1.6	3.0	7.5 or SB
Barium	13.3	6 B	19.2	21.7	15.5	15.7	6.8 B	8 B	3.0	300 or SB
Cadmium	0.13 B	U	0.41	U	U	U	U	U	2.0	10*
Chromium	6.5	3.1	6.7	5.6	4	5	4.7	4.8	3.0	50*
Lead	8.9	1.7	24	1.9	1.3	3.3	3.1	3.4	1.0	SB**
Mercury	1.3	0.039	1.4	U	0.13	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.18 B	U	U	U	U	0.12 B	0.14 B	0.16 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[ ] : Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 12 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-04	MHSBX-04	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
PERCENT SOLIDS	91.0	94.0	91.0	94.0	89.0	96.0	91.0	92.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	2.3	0.5 B	1.4	0.49 B	1.3	0.45 B	1.2	1	3.0	7.5 or SB
Barium	3.6 B	13	17.2	15.4	16.2	14.2	4.1 B	4.5 B	3.0	300 or SB
Cadmium	U	0.11 B	0.45	0.14 B	0.46	U	U	U	2.0	10*
Chromium	5.4	4.5	7.9	4.1	6.5	5	3	3.2	3.0	50*
Lead	2.6	1.6	10.5	1.6	12	1.4	2.6	1.7	1.0	SB**
Mercury	0.16	U	0.14	U	0.13	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.13 B	0.12 B	0.18 B	0.18 B	0.18 B	0.11 B	0.11 B	0.16 B	2.0	SB

SAMPLE ID	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
PERCENT SOLIDS	91.0	91.0	91.0	95.0	90.0	93.0	90.0	85.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	2	2.3	1.8	1.4	1.5	1.9	1.5	1.9	3.0	7.5 or SB
Barium	8.6 B	12.4	20.5	42.7	5.6 B	10 B	30.1	61	3.0	300 or SB
Cadmium	U	0.1 B	0.13 B	0.23 B	U	U	0.18 B	0.33 B	2.0	10*
Chromium	4.4	5.7	8.9	12.7	3.7	4.8	9.5	16.1	3.0	50*
Lead	3	3	3.7	3.5	3	2.7	3.1	5.8	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.13 B	0.24 B	0.21 B	0.31 B	0.12 B	0.17 B	0.25 B	0.41 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 12 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-06	MHSBX-06	MHSBX-06	MHSBX-07	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
PERCENT SOLIDS	90.0	92.0	97.0	96.0	93.0	86.0	90.0	91.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.5	1.1	0.69 B	0.6 B	1.8	2.1	1.8	1.5	3.0	7.5 or SB
Barium	29.5	48.3	16.7	17.7	10.2 B	37.6	14.6	38.4	3.0	300 or SB
Cadmium	0.18 B	0.25 B	0.12 B	0.13 B	0.15 B	0.83	U	0.23 B	2.0	10*
Chromium	12	12.4	5.1	8.9	5.2	144	7.6	11.2	3.0	50*
Lead	3.6	3.6	3	1.4	3	5.9	3.2	3.5	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.23 B	0.4 B	0.18 B	0.14 B	0.15 B	0.48 B	0.17 B	0.31 B	2.0	SB

SAMPLE ID	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03	1/17/03	1/17/03		
PERCENT SOLIDS	93.0	87.0	88.0	91.0	66.0	86.0	87.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.2	1.3	1.1	0.87 B	2.7	2.1	1.2	1.8	3.0	7.5 or SB
Barium	28.2	33.5	25.1	18.5	15.9	14.1	7.3 B	9.1 B	3.0	300 or SB
Cadmium	0.18 B	0.28 B	0.17 B	0.16 B	U	U	U	U	2.0	10*
Chromium	8.4	8.8	9.1	5.9	7.8	7.1	4.6	5.1	3.0	50*
Lead	3.3	3.2	2.5	2.7	5.7	4	2.3	2.2	1.0	SB**
Mercury	U	U	U	U	U	U	0.081	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.27 B	0.36 B	0.28 B	0.3 B	0.16 B	0.12 B	U	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-02	MHSBX-02	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(8-10)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	90.0	93.0	96.0	89.0	98.0	89.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	77 J	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	380	U	U	960	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	240 J	U	U	U	U	U	U	330	50,000
Pyrene	U	140 J	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	97 J	U	U	U	U	U	U	330	224
Chrysene	U	260 J	U	U	94 J	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	44 J	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	230 J	U	U	72 J	U	U	U	330	1,100
Benzo(k)fluoranthene	U	110 J	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	80 J	U	U	47 J	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	130 J	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	110 J	U	U	U	U	U	U	330	50,000
Total PAHs	0	1,887	0	0	1,250	0	0	0	--	100,000
Total CaPAHs	0	907	0	0	213	0	0	0	--	10,000
Total SVOCs	0	1,931	0	0	1,305	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-03	MHSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(16-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	91.0	93.0	95.0	90.0	96.0	88.0	87.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-03	MHSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	91.0	93.0	95.0	90.0	96.0	88.0	87.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	55 J	U	U	U	U	U	330	224
Chrysene	U	U	77 J	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	110 J	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	48 J	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	290	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	290	0	0	0	0	0	--	10,000
Total SVOCs	0	0	290	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-04	MHSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	94.0	91.0	94.0	89.0	96.0	91.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-04	MHSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	94.0	91.0	94.0	89.0	96.0	91.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	92.0	91.0	91.0	95.0	90.0	93.0	90.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	92.0	91.0	91.0	95.0	90.0	93.0	90.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-06	MHSBX-06	MHSBX-06	MHSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	90.0	92.0	97.0	96.0	93.0	86.0	90.0	91.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-06	MHSBX-06	MHSBX-06	MHSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(16-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	90.0	92.0	97.0	96.0	93.0	86.0	90.0	91.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	48 J	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	48	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	93.0	87.0	88.0	91.0	66.0	84.0	87.0	94.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	93.0	87.0	88.0	91.0	66.0	84.0	87.0	94.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-09	MHSBX-09	MHSBX-09	MHSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	92.0	91.0	92.0	95.0	85.0	88.0	88.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-09	MHSBX-09	MHSBX-09	MHSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	92.0	91.0	92.0	95.0	85.0	88.0	88.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-09	MHSBX-09	MHSBX-09						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)							
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03							
DILUTION FACTOR	1	1	1							
PERCENT SOLIDS	93.0	95.0	94.0							
UNITS	(ug/kg)	(ug/kg)	(ug/kg)						(ug/kg)	(ug/kg)
Phenol	U	U	U						330	30
bis(2-Chloroethyl)ether	U	U	U						330	---
2-Chlorophenol	U	U	U						330	800
1,3-Dichlorobenzene	U	U	U						330	---
1,4-Dichlorobenzene	U	U	U						330	---
1,2-Dichlorobenzene	U	U	U						330	---
2-Methylphenol	U	U	U						330	100
2,2'-oxybis (1-chloropropane)	U	U	U						330	---
4-Methylphenol	U	U	U						330	900
N-Nitroso-di-n-propylamine	U	U	U						330	---
Hexachloroethane	U	U	U						330	---
Nitrobenzene	U	U	U						330	200
Isophorone	U	U	U						330	4,400
2-Nitrophenol	U	U	U						330	330
2,4-Dimethylphenol	U	U	U						330	---
2,4-Dichlorophenol	U	U	U						330	400
1,2,4-Trichlorobenzene	U	U	U						330	---
Naphthalene	U	U	U						330	13,000
4-Chloroaniline	U	U	U						330	220
bis(2-Chloroethoxy)methane	U	U	U						330	---
Hexachlorobutadiene	U	U	U						330	---
4-Chloro-3-methylphenol	U	U	U						330	240
2-Methylnaphthalene	U	U	U						330	36,400
Hexachlorocyclopentadiene	U	U	U						330	---
2,4,6-Trichlorophenol	U	U	U						330	---
2,4,5-Trichlorophenol	U	U	U						330	100
2-Chloronaphthalene	U	U	U						330	---
2-Nitroaniline	U	U	U						330	430
Dimethylphthalate	U	U	U						330	2,000
Acenaphthylene	U	U	U						330	41,000
2,6-Dinitrotoluene	U	U	U						330	1,000
3-Nitroaniline	U	U	U						330	500
Acenaphthene	U	U	U						330	50,000

TABLE 13 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MHSBX-09	MHSBX-09	MHSBX-09						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)							
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03							
DILUTION FACTOR	1	1	1							
PERCENT SOLIDS	93.0	95.0	94.0							
UNITS	(ug/kg)	(ug/kg)	(ug/kg)						(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U						330	200
4-Nitrophenol	U	U	U						330	100
Dibenzofuran	U	U	U						330	6,200
2,4-Dinitrotoluene	U	U	U						330	---
Diethylphthalate	U	U	U						330	7,100
4-Chlorophenyl-phenylether	U	U	U						330	---
Fluorene	U	U	U						330	50,000
4-Nitroaniline	U	U	U						330	---
4,6-Dinitro-2-methylphenol	U	U	U						330	---
N-Nitrosodiphenylamine	U	U	U						330	---
4-Bromophenyl-phenylether	U	U	U						330	---
Hexachlorobenzene	U	U	U						330	410
Pentachlorophenol	U	U	U						330	1,000
Phenanthrene	U	U	U						330	50,000
Anthracene	U	U	U						330	50,000
Carbazole	U	U	U						330	---
Di-n-butylphthalate	U	U	U						330	8,100
Fluoranthene	U	U	U						330	50,000
Pyrene	U	U	U						330	50,000
Butylbenzylphthalate	U	U	U						330	50,000
3,3'-Dichlorobenzidine	U	U	U						330	---
Benzo(a)anthracene	U	U	U						330	224
Chrysene	U	U	U						330	400
bis(2-Ethylhexyl)phthalate	U	U	U						330	50,000
Di-n-octylphthalate	U	U	U						330	50,000
Benzo(b)fluoranthene	U	U	U						330	1,100
Benzo(k)fluoranthene	U	U	U						330	1,100
Benzo(a)pyrene	U	U	U						330	61
Indeno(1,2,3-cd)pyrene	U	U	U						330	3,200
Dibenzo(a,h)anthracene	U	U	U						330	14
Benzo(g,h,i)perylene	U	U	U						330	50,000
Total PAHs	0	0	0						--	100,000
Total CaPAHs	0	0	0						--	10,000
Total SVOCs	0	0	0						--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 14

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-01	MHSBX-02	MHSBX-02	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(8-10)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	90.0	93.0	96.0	89.0	98.0	89.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-02	MHSBX-03	MHSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	91.0	93.0	95.0	90.0	96.0	88.0	87.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 14 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-03	MHSBX-04	MHSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	94.0	91.0	94.0	89.0	96.0	91.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	--
Aroclor- 1221	U	U	U	U	U	U	U	U	34	--
Aroclor- 1232	U	U	U	U	U	U	U	U	34	--
Aroclor- 1242	U	U	U	U	U	U	U	U	34	--
Aroclor- 1248	U	U	U	U	U	U	U	U	34	--
Aroclor- 1254	U	U	U	U	U	U	U	U	34	--
Aroclor- 1260	U	U	U	U	U	U	U	U	34	--
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-04	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	91.0	91.0	95.0	90.0	93.0	90.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	--
Aroclor- 1221	U	U	U	U	U	U	U	U	34	--
Aroclor- 1232	U	U	U	U	U	U	U	U	34	--
Aroclor- 1242	U	U	U	U	U	U	U	U	34	--
Aroclor- 1248	U	U	U	U	U	U	U	U	34	--
Aroclor- 1254	U	U	U	U	U	U	U	U	34	--
Aroclor- 1260	U	U	U	U	U	U	U	U	34	--
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 14 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-05	MHSBX-06	MHSBX-06	MHSBX-06	MHSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03	1/13/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	90.0	92.0	97.0	96.0	93.0	86.0	90.0	91.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-07	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)		
DATE OF COLLECTION	1/13/03	1/13/03	1/13/03	1/13/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	93.0	87.0	88.0	91.0	66.0	86.0	87.0	94.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 14 (continued)

MANHASSET SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-08	MHSBX-09	MHSBX-09	MHSBX-09	MHSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03	1/17/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	92.0	91.0	92.0	95.0	85.0	88.0	88.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	---
Aroclor- 1221	U	U	U	U	U	U	U	U	34	---
Aroclor- 1232	U	U	U	U	U	U	U	U	34	---
Aroclor- 1242	U	U	U	U	U	U	U	U	34	---
Aroclor- 1248	U	U	U	U	U	U	U	U	34	---
Aroclor- 1254	U	U	U	U	U	U	U	U	34	---
Aroclor- 1260	U	U	U	U	U	U	U	U	34	---
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MHSBX-09	MHSBX-09	MHSBX-09						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)							
DATE OF COLLECTION	1/17/03	1/17/03	1/17/03							
DILUTION FACTOR	1	1	1							
PERCENT SOLIDS	93.0	95.0	94.0							
UNITS	(ug/kg)	(ug/kg)	(ug/kg)						(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U						34	---
Aroclor- 1221	U	U	U						34	---
Aroclor- 1232	U	U	U						34	---
Aroclor- 1242	U	U	U						34	---
Aroclor- 1248	U	U	U						34	---
Aroclor- 1254	U	U	U						34	---
Aroclor- 1260	U	U	U						34	---
TOTAL PCBs	0	0	0						--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 15

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN										
SAMPLE ID	MSSS-07A	MSSS-08	MSSS-09	MSSS-10	MSSS-11	MSSS-12	MSSS-13	MSSS-14	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04		
PERCENT SOLIDS	99.0	90.0	94.0	96.0	93.0	97.0	95.0	90.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	6.7	0.40	4.7	0.23	4.1	13.6	0.92	0.83	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSS-15	MSSS-16	MSSS-17	MSSS-18	MSSS-19	MSSS-20	MSSB-06A	MSSB-09	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	2/4/03	2/4/03		
PERCENT SOLIDS	49.0	82.0	88.0	88.0	98.0	97.0	84.0	88.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.72	0.99	0.83	6.7	4.0	2.0	0.15	57.6	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSB-10	MSSB-11	MSSB-12	MSSB-13	MSSB-14	MSSB-15	MSSB-16	MSSB-17	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	2/4/03	2/4/03	2/4/03	2/3/03	2/4/03	2/4/03	2/4/03	2/4/03		
PERCENT SOLIDS	86.0	92.0	92.0	88.0	89.0	91.0	93.0	90.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	54.6	0.22	58.8	3.5	3.2	12.9	7.9	0.12	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSB-18	MSSB-19	MSSB-20	MSSB-21	MSSB-22	MSSB-23	MSSB-24	MSSB-25	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	2/4/03	2/4/03	2/4/03	2/3/03	2/4/03	2/4/03	2/4/03	2/3/03		
PERCENT SOLIDS	88.0	93.0	91.0	90.0	91.0	86.0	91.0	88.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	6.6	3.1	4.1	2.1	3.6	1	0.67	0.86	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 15 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY AND RCRA METALS

AREAS OF CONCERN										
SAMPLE ID	MSSB-26	MSSB-27	MSSB-28	MSSB-29	MSSB-30	MSSB-31	MSSB-32	MSSB-33	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	2/3/03	2/3/03	2/3/03	2/3/03	2/4/03	2/3/03	2/4/03	2/4/03		
PERCENT SOLIDS	89.0	85.0	84.0	92.0	93.0	92.0	86.0	87.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.5	1.5	0.4	0.43	30.5	3.7	8.2	16.2	0.042	0.1

AREAS OF CONCERN										
SAMPLE ID	MSSB-34	MSSB-38	MSSB-39						INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)							
DATE OF COLLECTION	2/4/03	2/3/03	2/4/03							
PERCENT SOLIDS	88.0	89.0	85.0							
UNITS	(mg/kg)	(mg/kg)	(mg/kg)						(ug/l)	mg/kg
Arsenic	NA	3.9	4						3.0	7.5 or SB
Barium	NA	34.7	37.8						3.0	300 or SB
Cadmium	NA	0.82	0.73						2.0	10*
Chromium	NA	10	33.8						3.0	50*
Lead	NA	323	16						1.0	SB**
Mercury	7.3	3.3	178						0.1	0.1
Selenium	NA	U	U						8.0	2 or SB
Silver	NA	0.37 B	0.58 B						2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 16

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	Potential Release								
SAMPLE ID	MSSB-38	MSSB-39						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)							
DATE OF COLLECTION	2/3/03	2/4/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	89.0	85.0							
UNITS	(ug/Kg)	(ug/Kg)						(ug/Kg)	(ug/Kg)
Phenol	U	U						330	30
bis(2-Chloroethyl)ether	U	U						330	--
2-Chlorophenol	U	U						330	800
1,3-Dichlorobenzene	U	U						330	--
1,4-Dichlorobenzene	U	U						330	--
1,2-Dichlorobenzene	U	U						330	--
2-Methylphenol	U	U						330	100
2,2'-oxybis (1-chloropropane)	U	U						330	--
4-Methylphenol	U	U						330	900
N-Nitroso-di-n-propylamine	U	U						330	--
Hexachloroethane	U	U						330	--
Nitrobenzene	U	U						330	200
Isophorone	U	U						330	4,400
2-Nitrophenol	U	U						330	330
2,4-Dimethylphenol	U	U						330	--
2,4-Dichlorophenol	U	U						330	400
1,2,4-Trichlorobenzene	U	U						330	--
Naphthalene	U	U						330	13,000
4-Chloroaniline	U	U						330	220
bis(2-Chloroethoxy)methane	U	U						330	--
Hexachlorobutadiene	U	U						330	--
4-Chloro-3-methylphenol	U	U						330	240
2-Methylnaphthalene	44 J	U						330	36,400
Hexachlorocyclopentadiene	U	U						330	--
2,4,6-Trichlorophenol	U	U						330	--
2,4,5-Trichlorophenol	U	U						660	100
2-Chloronaphthalene	U	U						330	--
2-Nitroaniline	U	U						660	430
Dimethylphthalate	U	U						330	2,000
Acenaphthylene	74 J	U						330	41,000
2,6-Dinitrotoluene	U	U						330	1,000
3-Nitroaniline	U	U						660	500
Acenaphthene	U	U						330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
E: Compound concentration exceeded the calibration range.

NOTES:
-- : Not applicable.

TABLE 16 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	NORTH LOBE								
SAMPLE ID	MSSB-38	MSSB-39						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)							
DATE OF COLLECTION	2/3/03	2/4/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	89.0	85.0							
UNITS	(ug/Kg)	(ug/Kg)						(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U						660	200
4-Nitrophenol	U	U						660	100
Dibenzofuran	U	U						330	6,200
2,4-Dinitrotoluene	U	U						330	--
Diethylphthalate	U	U						330	7,100
4-Chlorophenyl-phenylether	U	U						330	--
Fluorene	U	U						330	50,000
4-Nitroaniline	U	U						330	--
4,6-Dinitro-2-methylphenol	U	U						330	--
N-Nitrosodiphenylamine	U	U						330	--
4-Bromophenyl-phenylether	U	U						330	--
Hexachlorobenzene	U	U						330	410
Pentachlorophenol	U	U						660	1,000
Phenanthrene	180 J	U						330	50,000
Anthracene	76 J	U						330	50,000
Carbazole	U	U						330	--
Di-n-butylphthalate	U	U						330	8,100
Fluoranthene	640	U						330	50,000
Pyrene	650	U						330	50,000
Butylbenzylphthalate	47 J	U						330	50,000
3,3'-Dichlorobenzidine	U	U						330	--
Benzo(a)anthracene	360 J	U						330	224
Chrysene	490	U						330	400
bis(2-Ethylhexyl)phthalate	280 J	U						330	50,000
Di-n-octylphthalate	U	U						330	50,000
Benzo(b)fluoranthene	620	U						330	1,100
Benzo(k)fluoranthene	28 J	U						330	1,100
Benzo(a)pyrene	430	U						330	61
Indeno(1,2,3-cd)pyrene	200 J	U						330	3,200
Dibenz(a,h)anthracene	55 J	U						330	14
Benzo(g,h,i)perylene	200 J	U						330	50,000
Total PAHs	4,047	0						--	100,000
Total CaPAHs	2,183	0						--	10,000
Total SVOCs	4,374	0						--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 17

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

AREA OF CONCERN	Potential Release			
SAMPLE ID	MSSB-38	MSSB-39	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)		
DATE OF COLLECTION	2/3/03	2/4/03		
DILUTION FACTOR	1	1		
PERCENT SOLIDS	89.0	85.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	34	----
Aroclor- 1221	U	U	34	----
Aroclor- 1232	U	U	34	----
Aroclor- 1242	U	U	34	----
Aroclor- 1248	U	U	34	----
Aroclor- 1254	U	U	34	----
Aroclor- 1260	U	U	34	----
TOTAL PCBs	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
--: Not applicable.
*: According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 18

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN										
SAMPLE ID	MSSB-06A	MSSB-06A	MSSB-09	MSSB-09	MSSB-10	MSSB-10	MSSB-11	MSSB-11	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(4-6)	(2-4)	(4-6)	(2-4)	(4-6)	(2-4)	(4-6)		
DATE OF COLLECTION	2/4/03	2/4/03	2/4/03	2/4/03	2/4/03	2/4/03	2/4/03	2/4/03		
PERCENT SOLIDS	89.0	96.0	87.0	92.0	87.0	98.0	98.0	98.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.13	U	0.36	0.058	0.26	0.084	0.72	1.2	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSB-12	MSSB-12	MSSB-13	MSSB-13	MSSB-14	MSSB-14	MSSB-15	MSSB-16	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(4-6)	(2-4)	(4-6)	(2-4)	(4-6)	(4-6)	(2-4)		
DATE OF COLLECTION	2/4/03	2/4/03	2/3/03	2/3/03	2/4/03	2/4/03	2/4/03	2/4/03		
PERCENT SOLIDS	98.0	95.0	95.0	97.0	93.0	95.0	96.0	93.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	32.1	0.56	0.31	0.015 B	0.14	U	0.081	0.27	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSB-17	MSSB-18	MSSB-19	MSSB-20	MSSB-21	MSSB-22	MSSB-23	MSSB-24	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)		
DATE OF COLLECTION	2/4/03	2/4/03	2/4/03	2/4/03	2/3/03	2/4/03	2/4/03	2/4/03		
PERCENT SOLIDS	88.0	88.0	94.0	88.0	95.0	86.0	94.0	93.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	8.7	7.9	1.2	5.8	1.3	4.7	0.087	0.17	0.042	0.1

AREA OF CONCERN										
SAMPLE ID	MSSB-25	MSSB-26	MSSB-27	MSSB-28	MSSB-29	MSSB-30	MSSB-31	MSSB-32	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)		
DATE OF COLLECTION	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/4/03	2/3/03	2/4/03		
PERCENT SOLIDS	90.0	92.0	90.0	86.0	95.0	94.0	94.0	92.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.52	1	3.3	1.6	0.51	0.091	0.41	0.27	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[ ] : Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 18 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN	OUTSIDE OF SUBSTATION									
SAMPLE ID	MSSB-32	MSSB-32	MSSB-32	MSSB-33	MSSB-33	MSSB-33	MSSB-33	MSSB-34	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(2-4)	(4-6)	(6-8)	(8-10)	(2-4)		
DATE OF COLLECTION	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/4/03		
PERCENT SOLIDS	92.0	83.0	94.0	90.0	98.0	96.0	90.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	4.3	0.056	U	1.9	0.057	U	0.025 B	1.8	0.042	0.1

AREA OF CONCERN	OUTSIDE OF SUBSTATION									
SAMPLE ID	MSSB-34	MSSB-34	MSSB-34	MSSB-40	MSSB-40	MSSB-40	MSSB-41	MSSB-41	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(0-2)	(2-4)	(4-6)	(0-2)	(2-4)		
DATE OF COLLECTION	2/3/03	2/3/03	2/3/03	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	97.0	98.0	89.0	97.0	91.0	98.0	89.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	U	U	0.09	0.23	1.2	0.029 B	0.11	3.8	0.042	0.1

AREA OF CONCERN	OUTSIDE OF SUBSTATION									
SAMPLE ID	MSSB-41	MSSB-42	MSSB-42	MSSB-42	MSSB-43	MSSB-43	MSSB-43	MSSB-44	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(0-2)	(2-4)	(4-6)	(0-2)	(2-4)	(4-6)	(0-2)		
DATE OF COLLECTION	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/10/04		
PERCENT SOLIDS	95.0	93.0	98.0	89.0	83.0	90.0	98.0	98.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.090	0.53	0.7	0.46	6.7	0.12	0.091	1.7	0.042	0.1

AREA OF CONCERN	OUTSIDE OF SUBSTATION									
SAMPLE ID	MSSB-44	MSSB-44	MSSB-45	MSSB-45	MSSB-45	MSSB-46	MSSB-46	MSSB-46	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(4-6)	(0-2)	(2-4)	(4-5)	(0-2)	(2-4)	(4-6)		
DATE OF COLLECTION	8/10/04	8/10/04	8/10/04	8/10/04	8/10/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	95.0	93.0	97.0	96.0	97.0	94.0	85.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	3.5	154	0.59	0.39	0.31	0.52	4.8	0.079	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
☐ : Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 18 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN: II	East Side of Substation Supplemental Sampling									
SAMPLE ID	MSSB-47	MSSB-47	MSSB-47	MSSB-48	MSSB-48	MSSB-48	MSSB-49	MSSB-49	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(0-2)	(2-4)	(4-5)	(0-2)	(2-4)	(4-6)	(0-2)	(2-4)		
DATE OF COLLECTION	8/10/04	8/10/04	8/10/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	96.0	96.0	96.0	93.0	95.0	82.0	92.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	1.9	1.5	1.4	0.042	0.41	12.7	2.4	0.04 B	0.042	0.1

AREA OF CONCERN: II	East Side of Substation Supplemental Sampling									
SAMPLE ID	MSSB-49	MSSB-50	MSSB-50	MSSB-50	MSSB-51	MSSB-51	MSSB-51	MSSB-52	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(0-2)	(2-4)	(4-6)	(0-2)	(2-4)	(4-6)	(0-2)		
DATE OF COLLECTION	8/9/04	8/10/04	8/10/04	8/10/04	8/9/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	80.0	89.0	92.0	97.0	92.0	94.0	90.0	91.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.031 B	7.2	14.6	0.18 B	0.99	0.042	0.039	0.41	0.042	0.1

AREA OF CONCERN: II	East Side of Substation Supplemental Sampling									
SAMPLE ID	MSSB-52	MSSB-52	MSSB-53	MSSB-53	MSSB-53	MSSB-54	MSSB-54	MSSB-54	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(4-6)	(0-2)	(2-4)	(6-8)	(0-2)	(2-4)	(4-6)		
DATE OF COLLECTION	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	93.0	95.0	94.0	93.0	66.0	95.0	93.0	98.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.053	0.045	5.4	103	2.3	0.91	0.32	0.020 B	0.042	0.1

AREA OF CONCERN: II	East Side of Substation Supplemental Sampling									
SAMPLE ID	MSSB-55	MSSB-55	MSSB-55	MSSB-55	MSSB-56	MSSB-56	MSSB-56	MSSB-57	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(0-2)	(2-4)	(4-6)	(6-8)	(0-2)	(2-4)	(4-6)	(0-2)		
DATE OF COLLECTION	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04		
PERCENT SOLIDS	92.0	95.0	84.0	91.0	96.0	91.0	95.0	87.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Mercury	0.89	0.10	0.92	7.0	32.3	5.8	0.029	0.90	0.042	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[box]: Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 18 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN	East Side of Substation Supplemental Sampling					Potential Receptors				
SAMPLE ID	MSSB-57	MSSB-57	MSSB-58	MSSB-58	MSSB-58	MSSB-38	MSSB-39		INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(4-6)	(0-2)	(2-4)	(4-6)	(2-4)	(2-4)			
DATE OF COLLECTION	8/9/04	8/9/04	8/9/04	8/9/04	8/9/04	2/3/03	2/4/03			
PERCENT SOLIDS	89.0	98.0	91.0	96.0	98.0	91.0	97.0			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		(ug/l)	(mg/kg)
Arsenic	NA	NA	NA	NA	NA	15.9	3		3.0	7.5 or SB
Barium	NA	NA	NA	NA	NA	6.8 B	5.4 B		3.0	300 or SB
Cadmium	NA	NA	NA	NA	NA	0.23 B	0.21 B		2.0	10*
Chromium	NA	NA	NA	NA	NA	8.5	8.8		3.0	50*
Lead	NA	NA	NA	NA	NA	11.4	2.7		1.0	SB**
Mercury	0.11	0.019 B	0.30	0.016 B	0.046	1.1	5.6		0.1	0.1
Selenium	NA	NA	NA	NA	NA	U	U		8.0	2 or SB
Silver	NA	NA	NA	NA	NA	0.32 B	0.39 B		2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
☐ : Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 19

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	FROM ROAD								
SAMPLE ID	MSSB-38	MSSB-39						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)							
DATE OF COLLECTION	2/3/03	2/4/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	91.0	97.0							
UNITS	(ug/kg)	(ug/kg)						(ug/Kg)	(ug/Kg)
Phenol	U	U						330	30
bis(2-Chloroethyl)ether	U	U						330	--
2-Chlorophenol	U	U						330	800
1,3-Dichlorobenzene	U	U						330	--
1,4-Dichlorobenzene	U	U						330	--
1,2-Dichlorobenzene	U	U						330	--
2-Methylphenol	U	U						330	100
2,2'-oxybis (1-chloropropane)	U	U						330	--
4-Methylphenol	U	U						330	900
N-Nitroso-di-n-propylamine	U	U						330	--
Hexachloroethane	U	U						330	--
Nitrobenzene	U	U						330	200
Isophorone	U	U						330	4,400
2-Nitrophenol	U	U						330	330
2,4-Dimethylphenol	U	U						330	--
2,4-Dichlorophenol	U	U						330	400
1,2,4-Trichlorobenzene	U	U						330	--
Naphthalene	U	U						330	13,000
4-Chloroaniline	U	U						330	220
bis(2-Chloroethoxy)methane	U	U						330	--
Hexachlorobutadiene	U	U						330	--
4-Chloro-3-methylphenol	U	U						330	240
2-Methylnaphthalene	U	U						330	36,400
Hexachlorocyclopentadiene	U	U						330	--
2,4,6-Trichlorophenol	U	U						330	--
2,4,5-Trichlorophenol	U	U						660	100
2-Chloronaphthalene	U	U						330	--
2-Nitroaniline	U	U						660	430
Dimethylphthalate	U	U						330	2,000
Acenaphthylene	U	U						330	41,000
2,6-Dinitrotoluene	U	U						330	1,000
3-Nitroaniline	U	U						660	500
Acenaphthene	U	U						330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.

TABLE 19 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	PERMIT LIMIT								
SAMPLE ID	MSSB-38	MSSB-39						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)							
DATE OF COLLECTION	2/3/03	2/4/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	91.0	97.0							
UNITS	(ug/kg)	(ug/kg)						(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U						660	200
4-Nitrophenol	U	U						660	100
Dibenzofuran	U	U						330	6,200
2,4-Dinitrotoluene	U	U						330	--
Diethylphthalate	U	U						330	7,100
4-Chlorophenyl-phenylether	U	U						330	--
Fluorene	U	U						330	50,000
4-Nitroaniline	U	U						330	--
4,6-Dinitro-2-methylphenol	U	U						330	--
N-Nitrosodiphenylamine	U	U						330	--
4-Bromophenyl-phenylether	U	U						330	--
Hexachlorobenzene	U	U						330	410
Pentachlorophenol	U	U						660	1,000
Phenanthrene	U	U						330	50,000
Anthracene	U	U						330	50,000
Carbazole	U	U						330	--
Di-n-butylphthalate	U	U						330	8,100
Fluoranthene	65 J	U						330	50,000
Pyrene	60 J	U						330	50,000
Butylbenzylphthalate	U	U						330	50,000
3,3'-Dichlorobenzidine	U	U						330	--
Benzo(a)anthracene	48 J	U						330	224
Chrysene	54 J	U						330	400
bis(2-Ethylhexyl)phthalate	U	U						330	50,000
Di-n-octylphthalate	U	U						330	50,000
Benzo(b)fluoranthene	59 J	U						330	1,100
Benzo(k)fluoranthene	U	U						330	1,100
Benzo(a)pyrene	44 J	U						330	61
Indeno(1,2,3-cd)pyrene	U	U						330	3,200
Dibenz(a,h)anthracene	U	U						330	14
Benzo(g,h,i)perylene	U	U						330	50,000
Total PAHs	330	0						--	100,000
Total CaPAHs	205	0						--	10,000
Total SVOCs	330	0						--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.

TABLE 20

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

AREA OF CONCERN	Potential Releases			
SAMPLE ID	MSSB-38	MSSB-39	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)		
DATE OF COLLECTION	2/3/03	2/4/03		
DILUTION FACTOR	1	1		
PERCENT SOLIDS	91.0	97.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	34	----
Aroclor- 1221	U	U	34	----
Aroclor- 1232	U	U	34	----
Aroclor- 1242	U	U	34	----
Aroclor- 1248	U	U	34	----
Aroclor- 1254	U	U	34	----
Aroclor- 1260	U	U	34	----
TOTAL PCBs	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
--: Not applicable.
*: According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 21

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03		
PERCENT SOLIDS	96.0	87.0	85.0	85.0	88.0	82.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.1	0.56 B	0.6 B	0.63 B	0.79 B	0.71 B	3.0	7.5 or SB
Barium	6.1 B	3.4 B	3.1 B	3.8 B	3.4 B	5.9 B	3.0	300 or SB
Cadmium	0.19 B	0.061 B	U	U	U	U	2.0	10*
Chromium	3.5	2	1.6	2	1.9	2.1	3.0	50*
Lead	2.5	0.88	0.95	1	1.4	1.9	1.0	SB**
Mercury	0.74	0.074	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	8.0	2 or SB
Silver	0.26 B	U	U	0.11 B	0.092 B	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 22

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

UIC STRUCTURE:	Water Service		Dry Well					
SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	96.0	87.0	85.0	85.0	88.0	82.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
Dichlorodifluoromethane	U	U	U	U	U	U	5	--
Chloromethane	U	U	U	U	U	U	5	--
Vinyl Chloride	U	U	U	U	U	U	5	200
Bromomethane	U	U	U	U	U	U	5	--
Chloroethane	U	U	U	U	U	U	5	1900
Trichlorofluoromethane	U	U	U	U	U	U	5	--
1,1-Dichloroethene	U	U	U	U	U	U	5	400
Acetone	4 J	10	12	2 J	11	13	5	200
Idomethane	U	U	U	U	U	U	5	--
Carbone Disulfide	U	U	U	U	U	U	5	2700
Methylene Chloride	U*	U*	3 J	2 J	5	3 J	5	100
trans-1,2-Dichloroethene	U	U	U	U	U	U	5	300
Methyl tert-butyl ether	U	U	U	U	U	U	5	--
1,1-Dichloroethane	U	U	U	U	U	U	5	200
Vinyl acetate	U	U	U	U	U	U	5	--
2-Butanone	U	U	U	U	U	U	5	300
cis-1,2-Dichloroethene	U	U	U	U	U	U	5	--
2,2-Dichloropropane	U	U	U	U	U	U	5	--
Bromochloromethane	U	U	U	U	U	U	5	--
Chloroform	U	U	U	U	U	U	5	300
1,1,1-Trichloroethane	U	U	U	U	U	U	5	800
1,1-Dichloropropene	U	U	U	U	U	U	5	--
Carbon Tetrachloride	U	U	U	U	U	U	5	600
1,2-Dichloroethane	U	U	U	U	U	U	5	100
Benzene	U	U	U	U	U	U	5	60
Trichloroethene	U	U	U	U	U	U	5	700
1,2-Dichloropropane	U	U	U	U	U	U	5	--
Dibromomethane	U	U	U	U	U	U	5	--
Bromodichloromethane	U	U	U	U	U	U	5	--
cis-1,3-Dichloropropane	U	U	U	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	U	U	U	5	1000
Toluene	U	U	U	U	U	U	5	1500
trans-1,3-Dichloropropene	U	U	U	U	U	U	5	--
1,1,2-Trichloroethane	U	U	U	U	U	U	5	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Compound qualified as non-detect due to validation criteria.

NOTES:
--: Not applicable.

TABLE 22 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	96.0	87.0	85.0	85.0	88.0	82.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
1,3-Dichloropropane	U	U	U	U	U	U	5	300
Tetrachloroethene	U	U	U	U	U	U	5	1400
2-Hexanone	U	U	U	U	U	3 J	5	--
Dibromochloromethane	U	U	U	U	U	U	5	--
1,2-Dibromoethane	U	U	U	U	U	U	5	--
Chlorobenzene	U	U	U	U	U	U	5	1700
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	5	--
Ethylbenzene	U	U	U	U	U	U	5	5500
m,p-Xylene	U	U	U	U	U	U	5	--
o-Xylene	U	U	U	U	U	U	5	--
Xylene (total)	U	U	U	U	U	U	5	1200
Styrene	U	U	U	U	U	U	5	--
Bromoform	U	U	U	U	U	U	5	--
Isopropylbenzene	U	U	U	U	U	U	5	--
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	5	600
Bromobenzene	U	U	U	U	U	U	5	--
1,2,3-Trichloropropane	U	U	U	U	U	U	5	400
n-Propylbenzene	U	U	U	U	U	U	5	--
2-Chlorotoluene	U	U	U	U	U	U	5	--
1,3,5-Trimethylbenzene	U	U	U	U	U	U	5	--
4-Chlorotoluene	U	U	U	U	U	U	5	--
tert-Butylbenzene	U	U	U	U	U	U	5	--
1,2,4-Trimethylbenzene	U	U	U	U	U	U	5	--
sec-Butylbenzene	U	U	U	U	U	U	5	--
4-Isopropyltoluene	U	U	U	U	U	U	5	--
1,3-Dichlorobenzene	U	U	U	U	U	U	5	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	5	8500
n-Butylbenzene	U	U	U	U	U	U	5	--
1,2-Dichlorobenzene	U	U	U	U	U	U	5	7900
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	5	--
1,2,4-Trichlorobenzene	U	U	U	U	U	U	5	3400
Hexachlorobutadiene	U	U	U	U	U	U	5	--
Naphthalene	U	4 J	U	U	U	22 B	5	13000
1,2,3-Trichlorobenzene	U	U	U	U	U	U	5	--
Totals VOCs	4	14	15	4	16	41	--	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Compound qualified as non-detect due to validation criteria.

NOTES:
--: Not applicable.

TABLE 23

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (VOCs)

UIC STRUCTURE	[illegible]			DRYWELL				
SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	96.0	87.0	85.0	85.0	88.0	82.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
Phenol	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	330	--
1,3-Dichlorobenzene	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	330	--
Naphthalene	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	660	100
2-Chloronaphthalene	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	660	430
Dimethylphthalate	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	660	500
Acenaphthene	U	U	U	U	U	U	330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.

TABLE 23 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (VOCs)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	96.0	87.0	85.0	85.0	88.0	82.0		
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	U	U	660	200
4-Nitrophenol	U	U	U	U	U	U	660	100
Dibenzofuran	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	330	--
Fluorene	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	660	1,000
Phenanthrene	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	330	--
Di-n-butylphthalate	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	330	--
Benzo(a)anthracene	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	330	3,200
Dibenz(a,h)anthracene	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.

TABLE 24

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE SOIL - TOTAL PETROLEUM HYDROCARBONS (TPH)

DISCRIPTION	WATER SATURATED		DRY				
SAMPLE ID	MSSB-36	MSSB-36	MSSB-37	MSSB-37	MSSB-37	MSSB-37	INSTRUMENT DETECTION LIMITS
SAMPLE DEPTH (FT)	(7.5-9.5)	(9.5-11.5)	(12-14)	(14-16)	(16-18)	(18-20)	
DATE OF COLLECTION	2/4/03	2/4/03	2/7/03	2/7/03	2/7/03	2/7/03	
PERCENT SOLID	96.0	87.0	85.0	85.0	88.0	82.0	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(mg/kg)
Total Petroleum Hydrocarbons	ND	ND	ND	ND	ND	ND	12.0

Notes:
ND: Not Detected

TABLE 25

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - TARGET ANALYTE LIST METALS (TAL Metals)

SAMPLE ID	MSGP-01 Unfiltered	MSGP-01 Filtered	MSGP-02 Unfiltered	MSGP-02 Filtered	MSGP-03 Unfiltered	MSGP-03 Filtered	INSTRUMENT DETECTION LIMIT (IDL)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	2/5/03	2/5/03	2/5/03	2/5/03	2/5/03	2/5/03		
DILUTION FACTOR	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Aluminum	829	U	1820	U	1290	U	17	--
Antimony	3.7 B	U	U	U	U	U	3	3 ST
Arsenic	U	U	U	U	U	U	3	25 ST
Barium	46.4 B	70.9 B	40.3 B	32.6 B	29.6 B	29.7 B	4	1,000 ST
Beryllium	U	U	U	U	U	U	0.5	3 GV
Cadmium	U	U	U	U	U	U	0.7	5 ST
Calcium	35500	35400	24200	23600	26100	26600	240	--
Chromium	26.1	0.86 B	23.5	1.8 B	19.2 B	0.96 B	0.6	50 ST
Cobalt	4.1 B	1.7 B	4.7 B	2.7 B	2.6 B	1.5 B	0.9	--
Copper	7.4 B	U	6.3 B	U	8.4 B	6 B	4	200 GA
Iron	4590	1110	6070	725	5260	892	26	300 ST*
Lead	U	U	U	U	U	U	4	25 ST
Magnesium	7660	7570	4630	4480	5160	5160	8	35,000 GV
Manganese	434	229	501	343	354	228	0.8	300 ST*
Mercury	U	U	U	U	U	U	0.1	0.7 ST
Nickel	15.4 B	5.1 B	9.8 B	4.1 B	11 B	4.4 B	0.8	100 ST
Potassium	9060	9760	3870	3700	4360	4340	78	--
Selenium	U	U	U	U	U	U	9	10 ST
Silver	U	U	U	U	U	U	2	50 ST
Sodium	45200	40500	53700	52700	43200	43900	83	20,000 ST
Thallium	U	U	U	U	U	U	3	0.5 GV
Vanadium	1.8 B	U	2.3 B	U	2.6 B	U	0.7	--
Zinc	27 B	22.3 B	17.7 B	20.5 B	19.7 B	14.3 B	7	2,000 GV

QUALIFIERS:
U: Compound analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
ST* : Standard for the sum of iron and manganese is 500 ug/l
[ ] : Value exceeds Standard/Guideline.

TABLE 26

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	MSGP-01	MSGP-02	MSGP-03	LABORATORY QUANTITATION LIMITS	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	2/5/03	2/5/03	2/5/03		
DILUTION FACTOR	1	1	1		
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/L)	(ug/L)
Dichlorodifluoromethane	U	U	U	5	5 ST
Chloromethane	U	U	U	5	--
Vinyl Chloride	U	U	U	5	2 ST
Bromomethane	U	U	U	5	5 ST
Chloroethane	U	U	U	5	5 ST
Trichlorofluoromethane	U	U	U	5	5 ST
1,1-Dichloroethene	U	U	U	5	5 ST
Acetone	U	U	U	5	50 GV
Idomethane	U	U	U	5	--
Carbone Disulfide	U	U	U	5	--
Methylene Chloride	1 J	2 J	U	5	5 ST
trans-1,2-Dichloroethene	U	U	U	5	5 ST
Methyl tert-butyl ether	U	U	U	5	10 GV*
1,1-Dichloroethane	U	U	U	5	5 ST
Vinyl acetate	U	U	U	5	--
2-Butanone	U	U	U	5	--
cis-1,2-Dichloroethene	U	U	U	5	5 ST
2,2-Dichloropropane	U	U	U	5	5 ST
Bromochloromethane	U	U	U	5	5 ST
Chloroform	U	U	U	5	7 ST
1,1,1-Trichloroethane	U	U	U	5	5 ST
1,1-Dichloropropene	U	U	U	5	5 ST
Carbon Tetrachloride	U	U	U	5	5 ST
1,2-Dichloroethane	U	U	U	5	0.6 ST
Benzene	U	U	U	5	1 ST
Trichloroethene	U	U	U	5	5 ST
1,2-Dichloropropane	U	U	U	5	1 ST
Dibromomethane	U	U	U	5	5 ST
Bromodichloromethane	U	U	U	5	50 GV
cis-1,3-Dichloropropane	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	5	--
Toluene	U	U	U	5	5 ST
trans-1,3-Dichloropropene	U	U	U	5	0.4 ST
1,1,2-Trichloroethane	U	U	U	5	1 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Value exceeds the referenced criteria.

TABLE 26 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	MSGP-01	MSGP-02	MSGP-03	LABORATORY	NY STATE CLASS GA
DATE OF COLLECTION	2/5/03	2/5/03	2/5/03	QUANTITATION	GROUNDWATER STANDARDS/
DILUTION FACTOR	1	1	1	LIMITS	GUIDELINES
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/L)	(ug/L)
1,3-Dichloropropane	U	U	U	5	5 ST
Tetrachloroethene	U	1 J	U	5	5 ST
2-Hexanone	U	U	U	5	50 GV
Dibromochloromethane	U	U	U	5	50 GV
1,2-Dibromoethane	U	U	U	5	--
Chlorobenzene	U	U	U	5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	5	5 ST
Ethylbenzene	U	U	U	5	5 ST
m,p-Xylene	U	U	U	5	--
o-Xylene	U	U	U	5	--
Xylene (total)	U	U	U	5	5 ST
Styrene	U	U	U	5	5 ST
Bromoform	U	U	U	5	50 GV
Isopropylbenzene	U	U	U	5	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	5	5 ST
Bromobenzene	U	U	U	5	5 ST
1,2,3-Trichloropropane	U	U	U	5	0.04 ST
n-Propylbenzene	U	U	U	5	5 ST
2-Chlorotoluene	U	U	U	5	5 ST
1,3,5-Trimethylbenzene	U	U	U	5	5 ST
4-Chlorotoluene	U	U	U	5	5 ST
tert-Butylbenzene	U	U	U	5	5 ST
1,2,4-Trimethylbenzene	U	U	U	5	5 ST
sec-Butylbenzene	U	U	U	5	5 ST
4-Isopropyltoluene	U	U	U	5	5 ST
1,3-Dichlorobenzene	U	U	U	5	3 ST
1,4-Dichlorobenzene	U	U	U	5	3 ST
n-Butylbenzene	U	U	U	5	5 ST
1,2-Dichlorobenzene	U	U	U	5	3 ST
1,2-Dibromo-3-chloropropane	U	U	U	5	0.04 ST
1,2,4-Trichlorobenzene	U	U	U	5	5 ST
Hexachlorobutadiene	U	U	U	5	0.5 ST
Naphthalene	3 J	U	U	5	10 GV
1,2,3-Trichlorobenzene	U	U	U	5	5 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Value exceeds the referenced criteria.

TABLE 27

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MSGP-01 2/5/03 1 (ug/l)	MSGP-02 2/5/03 1 (ug/l)	MSGP-03 2/5/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
Phenol	U	U	U	10	1 ST*
bis(2-Chloroethyl)ether	U	U	U	10	--
2-Chlorophenol	U	U	U	10	--
1,3-Dichlorobenzene	U	U	U	10	3 ST
1,4-Dichlorobenzene	U	U	U	10	3 ST
1,2-Dichlorobenzene	U	U	U	10	3 ST
2-Methylphenol	U	U	U	10	--
2,2'-oxybis (1-chloropropane)	U	U	U	10	--
4-Methylphenol	U	U	U	10	--
N-Nitroso-di-n-propylamine	U	U	U	10	--
Hexachloroethane	U	U	U	10	5 ST
Nitrobenzene	U	U	U	10	0.4 ST
Isophorone	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	10	--
2,4-Dimethylphenol	U	U	U	10	50 GV
2,4-Dichlorophenol	U	U	U	10	5 ST
1,2,4-Trichlorobenzene	U	U	U	10	5 ST
Naphthalene	U	U	U	10	10 GV
4-Chloroaniline	U	U	U	10	5 ST
bis(2-Chloroethoxy)methane	U	U	U	10	--
Hexachlorobutadiene	U	U	U	10	0.5 ST
4-Chloro-3-methylphenol	U	U	U	10	--
2-Methylnaphthalene	U	U	U	10	--
Hexachlorocyclopentadiene	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	10	--
2,4,5-Trichlorophenol	U	U	U	20	--
2-Chloronaphthalene	U	U	U	10	10 GV
2-Nitroaniline	U	U	U	20	5 ST
Dimethylphthalate	U	U	U	10	50 GV
Acenaphthylene	U	U	U	10	--
2,6-Dinitrotoluene	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	20	5 ST
Acenaphthene	U	U	U	10	20 GV

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
E: Compound concentration exceeded the calibration range.

NOTES:
-- : Not applicable.
* : Applies to the sum of all Phenols
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Result exceeds NYS Class GA Standard/Guideline

TABLE 27 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MSGP-01 2/5/03 1 (ug/l)	MSGP-02 2/5/03 1 (ug/l)	MSGP-03 2/5/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
2,4-Dinitrophenol	U	U	U	20	10 GV
4-Nitrophenol	U	U	U	20	--
Dibenzofuran	U	U	U	10	--
2,4-Dinitrotoluene	U	U	U	10	5 ST
Diethylphthalate	U	U	U	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	10	--
Fluorene	U	U	U	10	50
4-Nitroaniline	U	U	U	20	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	20	--
N-Nitrosodiphenylamine	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	10	--
Hexachlorobenzene	U	U	U	10	0.04 ST
Pentachlorophenol	U	U	U	20	1 ST
Phenanthrene	U	U	U	10	50 GV
Anthracene	U	U	U	10	50 GV
Carbazole	U	U	U	10	--
Di-n-butylphthalate	U	U	U	10	--
Fluoranthene	U	U	U	10	50 GV
Pyrene	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	10	5 ST
Benzo(a)anthracene	U	U	U	10	--
Chrysene	U	U	U	10	0.002 GV
bis(2-Ethylhexyl)phthalate	U	U	U	10	--
Di-n-octylphthalate	U	U	U	10	50 GV
Benzo(b)fluoranthene	U	U	U	10	0.002 GV
Benzo(k)fluoranthene	U	U	U	10	0.002 GV
Benzo(a)pyrene	U	U	U	10	ND ST
Indeno(1,2,3-cd)pyrene	U	U	U	10	0.002 GV
Dibenzo(a,h)anthracene	U	U	U	10	--
Benzo(g,h,i)perylene	U	U	U	10	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
E: Compound concentration exceeded the calibration range.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Result exceeds NYS Class GA Standard/Guideline

TABLE 28

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	MSGP-01 2/5/03 1 (ug/l)	MSGP-02 2/5/03 1 (ug/l)	MSGP-03 2/5/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ (ug/L)
Aroclor- 1016	U	U	U	1	--
Aroclor- 1221	U	U	U	1	--
Aroclor- 1232	U	U	U	1	--
Aroclor- 1242	U	U	U	1	--
Aroclor- 1248	U	U	U	1	--
Aroclor- 1254	U	U	U	1	--
Aroclor- 1260	U	U	U	1	--
TOTAL PCBs	0	0	0	--	0.09 ST

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards

TABLE 29

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-02	MSSBX-02	MSSBX-02	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
PERCENT SOLIDS	99.0	83.0	84.0	89.0	85.0	99.0	98.0	93.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.54 B	0.78 B	3.2	2.3	0.72 B	0.33 B	1.1	0.8 B	3.0	7.5 or SB
Barium	2.1 B	3.3 B	3 B	3.7 B	3.1 B	2.5 B	3.4 B	3.5 B	3.0	300 or SB
Cadmium	U	U	U	0.054 B	U	U	U	0.037 B	2.0	10*
Chromium	6.4	2.6	10.1	5.4	3.8	1.1	3	3.8	3.0	50*
Lead	0.74	1.5	1.5	1.9	0.93	1.1	1.6	5.3	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	U	2.0	SB

SAMPLE ID	MSSBX-02	MSSBX-02	MSSBX-02	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/6/03	2/6/03	2/6/03		
PERCENT SOLIDS	89.0	86.0	84.0	97.0	98.0	94.0	93.0	85.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.54 B	0.73 B	1.1	0.61 B	0.8	0.7 B	0.43 B	0.64 B	3.0	7.5 or SB
Barium	11.1	3.6 B	5.1 B	2.3 B	4.4 B	7.9 B	6.8 B	2.9 B	3.0	300 or SB
Cadmium	0.13 B	U	U	U	U	0.037 B	U	U	2.0	10*
Chromium	2	2.8	3	1.5 B	2.7	2.1	1.4	1.4	3.0	50*
Lead	1.2	1.3	1.7	1 B	0.96 B	1.8	1.2	0.99	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 29 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03		
PERCENT SOLIDS	91.0	99.0	91.0	97.0	92.0	88.0	89.0	86.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.6 B	0.93	0.69 B	2.2	1.4	U	0.55 B	0.58 B	3.0	7.5 or SB
Barium	3 B	2.9 B	2.8 B	4.2 B	4.5 B	1.6 B	3.7 B	3.4 B	3.0	300 or SB
Cadmium	U	U	U	0.073 B	0.31	U	U	U	2.0	10*
Chromium	3.7	2.6	2.4	14.3	13.7	2.2	4.2	2.1	3.0	50*
Lead	1.1	1	1.1	2.8	1.8	2.2	1.1	1.1	1.0	SB**
Mercury	U	U	U	0.025 B	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	0.1 B	U	U	U	U	2.0	SB

SAMPLE ID	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
PERCENT SOLIDS	86.0	84.0	82.0	98.0	99.0	97.0	94.0	94.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.67 B	0.77 B	0.74 B	0.56 B	0.51 B	4.4	0.79 B	0.31 B	3.0	7.5 or SB
Barium	3.7 B	3.5 B	5.6 B	2.2 B	2.9 B	5.4 B	4.8 B	2.2 B	3.0	300 or SB
Cadmium	U	U	U	U	U	0.068 B	U	U	2.0	10*
Chromium	2.3	2.8	3.9	1.8	2	11.5	5.7	1.7	3.0	50*
Lead	1	1.4	1.5	1.1	1.1	3.3	1.4	0.93	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 29 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-06	MSSBX-06	MSSBX-07	MSSBX-07	MSSBX-07	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
PERCENT SOLIDS	88.0	90.0	92.0	90.0	96.0	97.0	98.0	97.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.8 B	0.53 B	0.58 B	0.84 B	1.2	1.1	0.69 B	1.1	3.0	7.5 or SB
Barium	2.5 B	2.8 B	2.7 B	3 B	10.3	3.7 B	3 B	5.1 B	3.0	300 or SB
Cadmium	U	U	U	0.077 B	0.29	0.14 B	0.072 B	0.32	2.0	10*
Chromium	1.6	2.6	2	2	6.2	4.3	1.9	10.4	3.0	50*
Lead	1	1	1	24.8	71.6	1.3	1.1	38.5	1.0	SB**
Mercury	U	U	U	U	0.13	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	U	2.0	SB

SAMPLE ID	MSSBX-07	MSSBX-07	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-10	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)	(10-12)	(16-18)	(4-6)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
PERCENT SOLIDS	88.0	87.0	98.0	97.0	98.0	95.0	88.0	98.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.9	1.5	0.57 B	0.72 B	1.3	1.8	0.58 B	0.95	3.0	7.5 or SB
Barium	2.8 B	3.7 B	3.6 B	2.7 B	4 B	3 B	2.7 B	2.3 B	3.0	300 or SB
Cadmium	0.066 B	0.037 B	U	0.059 B	0.065 B	0.18 B	U	0.035 B	2.0	10*
Chromium	4.1	3	1.5	2.3	8.8	5.5	3.8	2	3.0	50*
Lead	1.9	1.6	4	2.3	3	2	2.1	1 B	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	0.45 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 29 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10			INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(16-18)	(18-20)				
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/3/03				
PERCENT SOLIDS	96.0	91.0	80.0	83.0	86.0	88.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(ug/l)	(mg/kg)
Arsenic	0.7	3.5	0.83	1	0.67 B	0.73 B			3.0	7.5 or SB
Barium	3.6 B	19.5	5.7 B	2.8 B	3.3 B	2.1 B			3.0	300 or SB
Cadmium	U	0.17 B	0.073 B	U	U	U			2.0	10*
Chromium	1.8 B	11.8	2.4	2.4	2.4	2.6			3.0	50*
Lead	0.87 B	8.3	1.3 B	0.95 B	0.88 B	0.79 B			1.0	SB**
Mercury	U	0.3	U	U	U	U			0.1	0.1
Selenium	U	U	U	U	U	U			8.0	2 or SB
Silver	0.3 B	0.39 B	0.26 B	0.14 B	U	U			2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 30

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-02	MSSBX-02	MSSBX-02	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	99.0	83.0	84.0	89.0	85.0	99.0	96.0	93.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-02	MSSBX-02	MSSBX-02	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	99.0	83.0	84.0	89.0	85.0	99.0	98.0	93.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-02	MSSBX-02	MSSBX-02	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	89.0	86.0	84.0	97.0	98.0	94.0	93.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	--
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-02	MSSBX-02	MSSBX-02	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	LABORATORY	NYSDEC TAGM
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	QUANTITATION	4046 Recommended
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/6/03	2/6/03	2/6/03	LIMITS	Soil Cleanup
DILUTION FACTOR	1	1	1	1	1	1	1	1		Objective
PERCENT SOLIDS	89.0	86.0	84.0	97.0	98.0	94.0	93.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	6,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	99.0	91.0	97.0	92.0	88.0	89.0	88.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.0	99.0	91.0	97.0	92.0	88.0	89.0	86.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(8-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	86.0	84.0	82.0	98.0	99.0	97.0	94.0	94.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	LABORATORY	NYSDEC TAGM
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	QUANTITATION	4046 Recommended
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	LIMITS	Soil Cleanup
DILUTION FACTOR	1	1	1	1	1	1	1	1		Objective
PERCENT SOLIDS	86.0	84.0		98.0	99.0	97.0	94.0	94.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	55 J	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	55	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-06	MSSBX-06	MSSBX-07	MSSBX-07	MSSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	90.0	92.0	90.0	96.0	97.0	96.0	97.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-06	MSSBX-06	MSSBX-07	MSSBX-07	MSSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	90.0	92.0	90.0	96.0	97.0	98.0	97.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	54 J	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	54	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-07	MSSBX-07	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-10	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)	(10-12)	(16-18)	(4-6)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	87.0	96.0	97.0	98.0	95.0	88.0	98.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	--
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-07	MSSBX-07	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-10	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)	(10-12)	(16-18)	(4-6)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	67.0	98.0	97.0	98.0	95.0	88.0	98.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	0	0	0	0	0	0	0	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10			LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(16-18)	(18-20)				
DATE OF COLLECTION	2/6/03	2/6/03	2/3/03	2/3/03	2/3/03	2/3/03				
DILUTION FACTOR	1	1	1	1	1	1				
PERCENT SOLIDS	96.0	91.0	80.0	83.0	86.0	88.0				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)			(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U			330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U			330	---
2-Chlorophenol	U	U	U	U	U	U			330	800
1,3-Dichlorobenzene	U	U	U	U	U	U			330	---
1,4-Dichlorobenzene	U	U	U	U	U	U			330	---
1,2-Dichlorobenzene	U	U	U	U	U	U			330	---
2-Methylphenol	U	U	U	U	U	U			330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U			330	---
4-Methylphenol	U	U	U	U	U	U			330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U			330	---
Hexachloroethane	U	U	U	U	U	U			330	---
Nitrobenzene	U	U	U	U	U	U			330	200
Isophorone	U	U	U	U	U	U			330	4,400
2-Nitrophenol	U	U	U	U	U	U			330	330
2,4-Dimethylphenol	U	U	U	U	U	U			330	---
2,4-Dichlorophenol	U	U	U	U	U	U			330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U			330	---
Naphthalene	U	U	U	U	U	U			330	13,000
4-Chloroaniline	U	U	U	U	U	U			330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U			330	---
Hexachlorobutadiene	U	U	U	U	U	U			330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U			330	240
2-Methylnaphthalene	U	U	U	U	U	U			330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U			330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U			330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U			330	100
2-Chloronaphthalene	U	U	U	U	U	U			330	---
2-Nitroaniline	U	U	U	U	U	U			330	430
Dimethylphthalate	U	U	U	U	U	U			330	2,000
Acenaphthylene	U	U	U	U	U	U			330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U			330	1,000
3-Nitroaniline	U	U	U	U	U	U			330	500
Acenaphthene	U	U	U	U	U	U			330	50,000

TABLE 30 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10			LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(16-18)	(18-20)				
DATE OF COLLECTION	2/6/03	2/6/03	2/3/03	2/3/03	2/3/03	2/3/03				
DILUTION FACTOR	1	1	1	1	1	1				
PERCENT SOLIDS	96.0	91.0	80.0	83.0	86.0	88.0				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)			(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U			330	200
4-Nitrophenol	U	U	U	U	U	U			330	100
Dibenzofuran	U	U	U	U	U	U			330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U			330	---
Diethylphthalate	U	U	U	U	U	U			330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U			330	---
Fluorene	U	U	U	U	U	U			330	50,000
4-Nitroaniline	U	U	U	U	U	U			330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U			330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U			330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U			330	---
Hexachlorobenzene	U	U	U	U	U	U			330	410
Pentachlorophenol	U	U	U	U	U	U			330	1,000
Phenanthrene	U	U	U	U	U	U			330	50,000
Anthracene	U	U	U	U	U	U			330	50,000
Carbazole	U	U	U	U	U	U			330	---
Di-n-butylphthalate	U	U	U	U	U	U			330	8,100
Fluoranthene	U	U	U	U	U	U			330	50,000
Pyrene	U	U	U	U	U	U			330	50,000
Butylbenzylphthalate	U	U	U	U	U	U			330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U			330	---
Benzo(a)anthracene	U	U	U	U	U	U			330	224
Chrysene	U	U	U	U	U	U			330	400
bis(2-Ethylhexyl)phthalate	38 J	46 J	U	U	U	U			330	50,000
Di-n-octylphthalate	U	U	U	U	U	U			330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U			330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U			330	1,100
Benzo(a)pyrene	U	U	U	U	U	U			330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U			330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U			330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U			330	50,000
Total PAHs	0	0	0	0	0	0			--	100,000
Total CaPAHs	0	0	0	0	0	0			--	10,000
Total SVOCs	38	46	0	0	0	0			--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 31

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-01	MSSBX-02	MSSBX-02	MSSBX-02	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	99.0	83.0	84.0	89.0	84.0	99.0	98.0	93.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MSSBX-02	MSSBX-02	MSSBX-02	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(14-16)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	89.0	86.0	84.0	97.0	98.0	94.0	93.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 31 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MSSBX-03	MSSBX-03	MSSBX-03	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-04	LABORATORY	NYSDEC
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	QUANTITATION	TAGM 4046
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/7/03	2/7/03	2/7/03	2/7/03	2/7/03	LIMITS	Recommended
DILUTION FACTOR	1	1	1	1	1	1	1	1		Soil Cleanup
PERCENT SOLIDS	91.0	99.0	91.0	97.0	92.0	88.0	89.0	86.0		Objective
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MSSBX-04	MSSBX-04	MSSBX-04	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-05	LABORATORY	NYSDEC
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	QUANTITATION	TAGM 4046
DATE OF COLLECTION	2/7/03	2/7/03	2/7/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	LIMITS	Recommended
DILUTION FACTOR	1	1	1	1	1	1	1	1		Soil Cleanup
PERCENT SOLIDS	86.0	84.0	82.0	96.0	99.0	97.0	94.0	94.0		Objective
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 31 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MSSBX-05	MSSBX-05	MSSBX-05	MSSBX-06	MSSBX-06	MSSBX-07	MSSBX-07	MSSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(4-6)	(6-8)	(8-10)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	90.0	92.0	90.0	96.0	97.0	98.0	97.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	MSSBX-07	MSSBX-07	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-09	MSSBX-10	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(4-6)	(6-8)	(8-10)	(10-12)	(16-18)	(4-6)		
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03	2/6/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	88.0	87.0	98.0	97.0	98.0	95.0	88.0	98.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 31 (continued)

MASSAPEQUA SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10	MSSBX-10			LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(16-18)	(18-20)				
DATE OF COLLECTION	2/6/03	2/6/03	2/6/03	2/3/03	2/3/03	2/3/03				
DILUTION FACTOR	1	1	1	1	1	1				
PERCENT SOLIDS	96.0	91.0	80.0	83.0	86.0	88.0				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)			(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U			34	----
Aroclor- 1221	U	U	U	U	U	U			34	----
Aroclor- 1232	U	U	U	U	U	U			34	----
Aroclor- 1242	U	U	U	U	U	U			34	----
Aroclor- 1248	U	U	U	U	U	U			34	----
Aroclor- 1254	U	U	U	U	U	U			34	----
Aroclor- 1260	U	U	U	U	U	U			34	----
TOTAL PCBs	0	0	0	0	0	0			--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 32

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN	[illegible]				Northwest Corner of Lot	[illegible]		INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE ID	IPSB-12	IPSB-13	IPSB-14	IPSB-15	IPSB-18	IPSS-05	IPSS-06		
SAMPLE DEPTH (IN)	(0 - 2)	(0 - 2)	(0 - 2)	(0 - 2)	(0 - 2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/27/03	1/29/03	1/29/03	1/29/03	1/30/03	1/28/03	1/28/03		
PERCENT SOLIDS	95.0	94.0	92.0	90.0	84.0	90.0	93.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	2.2	12.9	0.21	1.1	0.12 B	0.52	0.49	0.1	0.1

AREA OF CONCERN	[illegible]			[illegible]				INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE ID	IPSB-19	IPSB-26	IPSB-27	IPSB-28	IPSB-29				
SAMPLE DEPTH (IN)	(0 - 2)	(0-2)	(0-2)	(0-2)	(0-2)				
DATE OF COLLECTION	1/27/03	1/30/03	1/30/03	1/30/03	1/28/03				
PERCENT SOLIDS	92.0	87.0	83.0	94.0	85.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(ug/l)	(mg/kg)
Arsenic	NA	4	3.6	2.4	7.6			3.0	7.5 or SB
Barium	NA	17	15.6	23.6	79.3			3.0	300 or SB
Cadmium	NA	0.2 B	U	U	0.93			2.0	10*
Chromium	NA	9.2	8.5	4.2	14.8			3.0	50*
Lead	NA	7.9	11	42.9	60.5			1.0	SB**
Mercury	1.3	U	0.031 B	0.087 B	0.16			0.1	0.1
Selenium	NA	U	U	0.47 B	U			8.0	2 or SB
Silver	NA	U	U	U	1 B			2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[ ] : Result exceeds NYSDEC TAGM recommended Soil Cleanup Objective

TABLE 33

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	Transformer	Potential Release			
SAMPLE ID	IPSB-26	IPSB-27	IPSB-28	IPSB-29	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/30/03	1/30/03	1/30/03	1/28/03		
DILUTION FACTOR	1	1	1	1		
PERCENT SOLIDS	87.0	83.0	94.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
Phenol	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	330	200
Isophorone	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	330	--
Naphthalene	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	660	100
2-Chloronaphthalene	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	660	430
Dimethylphthalate	U	U	U	U	330	2,000
Acenaphthylene	U	67 J	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	660	500
Acenaphthene	U	200 J	U	U	330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

TABLE 33 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSB-26	IPSB-27	IPSB-28	IPSB-29	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/30/03	1/30/03	1/30/03	1/28/03		
DILUTION FACTOR	1	1	1	1		
PERCENT SOLIDS	87.0	83.0	94.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	660	200
4-Nitrophenol	U	U	U	U	660	100
Dibenzofuran	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	330	--
Fluorene	U	160 J	U	U	330	50,000
4-Nitroaniline	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	660	1,000
Phenanthrene	U	2900	37 J	150 J	330	50,000
Anthracene	U	840	U	U	330	50,000
Carbazole	U	U	U	U	330	--
Di-n-butylphthalate	U	U	U	U	330	8,100
Fluoranthene	U	5300	52 J	200 J	330	50,000
Pyrene	U	9200 D	50 J	210 J	330	50,000
Butylbenzylphthalate	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	330	--
Benzo(a)anthracene	U	5200	U	97 J	330	224
Chrysene	U	6200	38 J	110 J	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	540	330	50,000
Di-n-octylphthalate	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	5000	U	130 J	330	1,100
Benzo(k)fluoranthene	U	1800	U	66 J	330	1,100
Benzo(a)pyrene	U	3800	U	92 J	330	61
Indeno(1,2,3-cd)pyrene	U	800	U	64 J	330	3,200
Dibenz(a,h)anthracene	U	350 J	U	U	330	14
Benzo(g,h,i)perylene	U	750	U	67 J	330	50,000
Total PAHs	0	42,567	177	1,186	--	100,000
Total CaPAHs	0	23,150	38	559	--	10,000
Total SVOCs	0	42,567	177	1,726	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 34

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

AREA OF CONCERN	Transformer		Potential Release			
SAMPLE ID	IPSB-26	IPSB-27	IPSB-28	IPSB-29	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/30/03	1/30/03	1/30/03	1/28/03		
DILUTION FACTOR	1	1	1	1		
PERCENT SOLIDS	87.0	83.0	94.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives, 1,000 ug/kg is utilized for surface soil [0-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 35

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN	South Side of Substation									
SAMPLE ID	IPSB-04A	IPSB-12	IPSB-12	IPSB-12	IPSB-13	IPSB-13	IPSB-14	IPSB-14	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Appendix A Comparison Criteria
SAMPLE DEPTH (FT)	(6 - 8)	(2 - 4)	(4 - 6)	(8 - 10)	(2 - 4)	(4 - 6)	(2 - 4)	(4 - 6)		
DATE OF COLLECTION	1/29/03	1/27/03	1/27/03	1/27/03	1/29/03	1/29/03	1/29/03	1/29/03		
PERCENT SOLIDS	73.0	85.0	57.0	91.0	89.0	87.0	84.0	83.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	11.3	0.1 B	0.048 B	U	0.28	1.2	0.13	U	0.1	0.1

AREA OF CONCERN	South Side of Substation						Northwest Corner of Substation			
SAMPLE ID	IPSB-14	IPSB-14	IPSB-15	IPSB-15	IPSB-15	IPSB-15	IPSB-16	IPSB-16	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Appendix A Comparison Criteria
SAMPLE DEPTH (FT)	(6 - 8)	(8 - 10)	(2 - 4)	(4 - 6)	(6 - 8)	(8 - 10)	(0 - 2)	(2 - 4)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/30/03	1/30/03		
PERCENT SOLIDS	63.0	60.0	86.0	84.0	76.0	75.0	86.0	86.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg
Mercury	0.028 B	U	0.11	0.41	U	U	0.29	0.038 B	0.1	0.1

AREA OF CONCERN	Northwest Corner of Substation									
SAMPLE ID	IPSB-17	IPSB-17	IPSB-18	IPSB-20					INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Appendix A Comparison Criteria
SAMPLE DEPTH (FT)	(0 - 2)	(2 - 4)	(2 - 4)	(0 - 2)						
DATE OF COLLECTION	1/28/03	1/28/03	1/30/03	1/27/03						
PERCENT SOLIDS	88.0	78.0	85.0	91.0						
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)					(ug/l)	mg/kg
Mercury	0.057 B	0.07 B	0.1 B	0.15					0.1	0.1

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 35 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - MERCURY AND RCRA METALS

AREA OF CONCERN	SOUTH SIDE OF BUILDING			NW CORNER OF BUILDING	EAST SIDE OF BUILDING					
SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	IPSB-20	IPSB-19	IPSB-26	IPSB-26	IPSB-27	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)	(2-4)	(2 - 4)	(0-2)	(2-4)	(0-2)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/27/03	1/27/03	1/30/03	1/30/03	1/30/03		
PERCENT SOLIDS	84.0	82.0	74.0	87.0	82.0	94.0	76.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	4.3	3.8	5.7	4.1	NA	3.1	1.3	3.7	3.0	7.5 or SB
Barium	17.5	21.9	9.4 B	15.7	NA	28.2	6.2 B	26.4	3.0	300 or SB
Cadmium	0.097 B	0.091 B	0.24 B	0.33	NA	1.2	U	0.85	2.0	10*
Chromium	13.4	8.7	8.2	9.2	NA	5.7	5.7	6.7	3.0	50*
Lead	29.3	13.6	19	15.7	NA	16.2	2 B	12.7	1.0	SB**
Mercury	0.11 B	0.57	0.041	0.34	U	0.051 B	U	0.05 B	0.1	0.1
Selenium	U	U	U	U	NA	U	U	U	8.0	2 or SB
Silver	U	U	U	0.64 B	NA	U	U	U	2.0	SB

AREA OF CONCERN	SOUTH SIDE OF BUILDING								
SAMPLE ID	IPSB-27	IPSB-28	IPSB-29					INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)	(2-4)						
DATE OF COLLECTION	1/30/03	1/30/03	1/28/03						
PERCENT SOLIDS	73.0	85.0	87.0						
UNITS	(mg/kg)	(mg/kg)	(mg/kg)					(ug/l)	(mg/kg)
Arsenic	3.9	6.6	11.8					3.0	7.5 or SB
Barium	7.4 B	32.7	70.7					3.0	300 or SB
Cadmium	U	U	0.53					2.0	10*
Chromium	8.4	14.2	7					3.0	50*
Lead	3.9	24.7	47.3					1.0	SB**
Mercury	U	0.14	0.11					0.1	0.1
Selenium	U	U	U					8.0	2 or SB
Silver	U	U	0.93 B					2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 36

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

AREA OF CONCERN:	SOUTHSIDE OF SUBSTATION				
SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	57	250	57		
PERCENT SOLIDS	84.0	82.0	74.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
Dichlorodifluoromethane	U	U	U	5	--
Chloromethane	U	U	U	5	--
Vinyl Chloride	U	U	U	5	200
Bromomethane	U	U	U	5	--
Chloroethane	U	U	U	5	1900
Trichlorofluoromethane	U	U	U	5	--
1,1-Dichloroethene	U	U	U	5	400
Acetone	U	U	210 J	5	200
Idomethane	U	U	U	5	--
Carbone Disulfide	U	U	U	5	2700
Methylene Chloride	260 J	260 J	120 J	5	100
trans-1,2-Dichloroethene	U	U	U	5	300
Methyl tert-butyl ether	U	U	U	5	--
1,1-Dichloroethane	U	U	U	5	200
Vinyl acetate	U	U	U	5	--
2-Butanone	U	U	U	5	300
cis-1,2-Dichloroethene	U	U	U	5	--
2,2-Dichloropropane	U	U	U	5	--
Bromochloromethane	U	U	U	5	--
Chloroform	U	U	U	5	300
1,1,1-Trichloroethane	U	U	U	5	800
1,1-Dichloropropene	U	U	U	5	--
Carbon Tetrachloride	U	U	U	5	600
1,2-Dichloroethane	U	U	U	5	100
Benzene	U	U	U	5	60
Trichloroethene	U	U	U	5	700
1,2-Dichloropropane	U	U	U	5	--
Dibromomethane	U	U	U	5	--
Bromodichloromethane	U	U	U	5	--
cis-1,3-Dichloropropane	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	5	1000
Toluene	U	U	U	5	1500
trans-1,3-Dichloropropene	U	U	U	5	--
1,1,2-Trichloroethane	U	U	U	5	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
--: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 36 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

AREA OF CONCERN	SOUTHEAST AREA				
SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	57	250	57		
PERCENT SOLIDS	84.0	82.0	74.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
1,3-Dichloropropane	U	U	U	5	300
Tetrachloroethene	U	U	U	5	1400
2-Hexanone	U	U	U	5	--
Dibromochloromethane	U	U	U	5	--
1,2-Dibromoethane	U	U	U	5	--
Chlorobenzene	U	U	U	5	1700
1,1,1,2-Tetrachloroethane	U	U	U	5	--
Ethylbenzene	U	U	U	5	5500
m,p-Xylene	U	U	U	5	--
o-Xylene	U	U	U	5	--
Xylene (total)	U	U	U	5	1200
Styrene	U	U	U	5	--
Bromoform	U	U	U	5	--
Isopropylbenzene	U	U	U	5	--
1,1,2,2-Tetrachloroethane	U	U	U	5	600
Bromobenzene	U	U	U	5	--
1,2,3-Trichloropropane	U	U	U	5	400
n-Propylbenzene	U	U	U	5	--
2-Chlorotoluene	U	U	U	5	--
1,3,5-Trimethylbenzene	U	U	U	5	--
4-Chlorotoluene	U	U	U	5	--
tert-Butylbenzene	U	U	U	5	--
1,2,4-Trimethylbenzene	U	U	U	5	--
sec-Butylbenzene	U	U	U	5	--
4-Isopropyltoluene	U	U	U	5	--
1,3-Dichlorobenzene	U	U	U	5	1600
1,4-Dichlorobenzene	U	U	U	5	8500
n-Butylbenzene	U	U	U	5	--
1,2-Dichlorobenzene	U	U	U	5	7900
1,2-Dibromo-3-chloropropane	U	U	U	5	--
1,2,4-Trichlorobenzene	U	U	U	5	3400
Hexachlorobutadiene	U	U	U	5	--
Naphthalene	1600	50000	15000 D	5	13000
1,2,3-Trichlorobenzene	U	U	U	5	--
Totals VOCs	1,860	50,260	15,330	--	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
--: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 37

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	Outfall Depression			Railroad					
SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	IPSB-26	IPSB-26	IPSB-27	IPSB-27	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)	(0-2)	(2-4)	(0-2)	(2-4)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/30/03	1/30/03	1/30/03	1/30/03		
DILUTION FACTOR	1	5	2	1	1	1	1		
PERCENT SOLIDS	84.0	82.0	74.0	94.0	76.0	89.0	73.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
Phenol	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	330	--
Naphthalene	3000	27000	9900	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	190 J	7600	1600	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	660	100
2-Chloronaphthalene	U	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	U	660	430
Dimethylphthalate	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	660	500
Acenaphthene	450	6700	3700	U	U	U	U	330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 37 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	IPSB-26	IPSB-26	IPSB-27	IPSB-27	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)	(0-2)	(2-4)	(0-2)	(2-4)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/30/03	1/30/03	1/30/03	1/30/03		
DILUTION FACTOR	1	5	2	1	1	1	1		
PERCENT SOLIDS	84.0	82.0	74.0	94.0	76.0	100.0	100.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	660	200
4-Nitrophenol	U	U	U	U	U	U	U	660	100
Dibenzofuran	53 J	6000	2500	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	330	--
Fluorene	240 J	6900	4200	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	660	1,000
Phenanthrene	300 J	17000	11000	270 J	200 J	560	U	330	50,000
Anthracene	80 J	4900	3300	84 J	47 J	170 J	U	330	50,000
Carbazole	U	810 J	520 J	U	U	U	U	330	--
Di-n-butylphthalate	U	U	U	U	U	U	U	330	8,100
Fluoranthene	170 J	5400	5900	530	210 J	1200	U	330	50,000
Pyrene	160 J	5100	5400	830	320 J	2100	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	330	--
Benzo(a)anthracene	56 J	1200 J	920	510	180 J	1200	U	330	224
Chrysene	61 J	1300 J	910	560	210 J	1400	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	60 J	840 J	530 J	370	140 J	990	U	330	1,100
Benzo(k)fluoranthene	U	360 J	260 J	160 J	51 J	370	U	330	1,100
Benzo(a)pyrene	44 J	580 J	350 J	350	130 J	920	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	100 J	140 J	51 J	280 J	U	330	3,200
Dibenz(a,h)anthracene	U	U	U	56 J	U	120 J	U	330	14
Benzo(g,h,i)perylene	U	U	95 J	150 J	58 J	280 J	U	330	50,000
Total PAHs	4,864	90,880	50,665	4,010	1,597	9,590	0	--	100,000
Total CaPAHs	221	4,280	3,070	2,146	762	5,280	0	--	10,000
Total SVOCs	4,864	91,690	51,185	4,010	1,597	9,590	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 37 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	SOUTHEAST								
SAMPLE ID	IPSB-28	IPSB-29						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)							
DATE OF COLLECTION	1/30/03	1/28/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	85.0	87.0							
UNITS	(ug/kg)	(ug/kg)						(ug/Kg)	(ug/Kg)
Phenol	U	U						330	30
bis(2-Chloroethyl)ether	U	U						330	--
2-Chlorophenol	U	U						330	800
1,3-Dichlorobenzene	U	U						330	--
1,4-Dichlorobenzene	U	U						330	--
1,2-Dichlorobenzene	U	U						330	--
2-Methylphenol	U	U						330	100
2,2-oxybis (1-chloropropane)	U	U						330	--
4-Methylphenol	U	U						330	900
N-Nitroso-di-n-propylamine	U	U						330	--
Hexachloroethane	U	U						330	--
Nitrobenzene	U	U						330	200
Isophorone	U	U						330	4,400
2-Nitrophenol	U	U						330	330
2,4-Dimethylphenol	U	U						330	--
2,4-Dichlorophenol	U	U						330	400
1,2,4-Trichlorobenzene	U	U						330	--
Naphthalene	U	390						330	13,000
4-Chloroaniline	U	U						330	220
bis(2-Chloroethoxy)methane	U	U						330	--
Hexachlorobutadiene	U	U						330	--
4-Chloro-3-methylphenol	U	U						330	240
2-Methylnaphthalene	U	540						330	36,400
Hexachlorocyclopentadiene	U	U						330	--
2,4,6-Trichlorophenol	U	U						330	--
2,4,5-Trichlorophenol	U	U						660	100
2-Chloronaphthalene	U	U						330	--
2-Nitroaniline	U	U						660	430
Dimethylphthalate	U	U						330	2,000
Acenaphthylene	U	U						330	41,000
2,6-Dinitrotoluene	U	U						330	1,000
3-Nitroaniline	U	U						660	500
Acenaphthene	U	210 J						330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 37 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

AREA OF CONCERN	[illegible]								
SAMPLE ID	IPSB-28	IPSB-29						LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)							
DATE OF COLLECTION	1/30/03	1/28/03							
DILUTION FACTOR	1	1							
PERCENT SOLIDS	100.0	87.0							
UNITS	(ug/kg)	(ug/kg)						(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U						660	200
4-Nitrophenol	U	U						660	100
Dibenzofuran	U	220 J						330	6,200
2,4-Dinitrotoluene	U	U						330	–
Diethylphthalate	U	U						330	7,100
4-Chlorophenyl-phenylether	U	U						330	–
Fluorene	U	150 J						330	50,000
4-Nitroaniline	U	U						330	–
4,6-Dinitro-2-methylphenol	U	U						330	–
N-Nitrosodiphenylamine	U	U						330	–
4-Bromophenyl-phenylether	U	U						330	–
Hexachlorobenzene	U	U						330	410
Pentachlorophenol	U	U						660	1,000
Phenanthrene	320 J	1500						330	50,000
Anthracene	60 J	280 J						330	50,000
Carbazole	39 J	150 J						330	–
Di-n-butylphthalate	U	U						330	8,100
Fluoranthene	530	1500						330	50,000
Pyrene	500	1200						330	50,000
Butylbenzylphthalate	U	U						330	50,000
3,3-Dichlorobenzidine	U	U						330	–
Benzo(a)anthracene	260 J	690						330	224
Chrysene	360 J	740						330	400
bis(2-Ethylhexyl)phthalate	U	U						330	50,000
Di-n-octylphthalate	U	U						330	50,000
Benzo(b)fluoranthene	300 J	930						330	1,100
Benzo(k)fluoranthene	160 J	380						330	1,100
Benzo(a)pyrene	220 J	590						330	61
Indeno(1,2,3-cd)pyrene	120 J	260 J						330	3,200
Dibenz(a,h)anthracene	U	73 J						330	14
Benzo(g,h,i)perylene	110 J	260 J						330	50,000
Total PAHs	2,940	9,913						–	100,000
Total CaPAHs	1,420	3,663						–	10,000
Total SVOCs	2,979	10,063						–	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
– : Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 38

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
DELINEATION PHASE 2 SITE ASSESSMENT

SUBSURFACE SOIL - POLYCHLORINATED BIPHENYLS (PCBs)

AREA OF CONCERN	South Side of Substation			Perimeter				Background		
SAMPLE ID	IPSB-04A	IPSB-13	IPSB-13	IPSB-26	IPSB-26	IPSB-27	IPSB-27	IPSB-28	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(6-8)	(8-10)	(0-2)	(2-4)	(0-2)	(2-4)	(2-4)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/30/03	1/30/03	1/30/03	1/30/03	1/30/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	84.0	82.0	74.0	94.0	76.0	89.0	73.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

AREA OF CONCERN	Background								
SAMPLE ID	IPSB-29							LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)								
DATE OF COLLECTION	1/28/03								
DILUTION FACTOR	1								
PERCENT SOLIDS	87.0								
UNITS	(ug/kg)							(ug/kg)	(ug/kg)
Aroclor- 1016	U							34	----
Aroclor- 1221	U							34	----
Aroclor- 1232	U							34	----
Aroclor- 1242	U							34	----
Aroclor- 1248	U							34	----
Aroclor- 1254	U							34	----
Aroclor- 1260	U							34	----
TOTAL PCBs	0							--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 39

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SUBSURFACE AND SURFACE SOIL - RCRA METALS

SUBSURFACE SOIL

SAMPLE ID	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-22	IPSB-23	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(2-4)	(2-4)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
PERCENT SOLIDS	32.0	33.0	48.0	89.0	85.0	89.0	73.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	8.9	17.6	16.3	2.5	2.4	2.9	3.9	3.0	7.5 or SB
Barium	35.7	81.8	27.2	1.9 B	1.4 B	28.2	27.8	3.0	300 or SB
Cadmium	0.5 B	0.48 B	0.36 B	U	U	0.098 B	0.18 B	2.0	10*
Chromium	34.7	39	37.1	4.6	3.3	7.3	8.4	3.0	50*
Lead	20.6	31.6	12	1.8 B	1.3 B	38.1	42.9	1.0	SB**
Mercury	5.4	2.4	0.058 B	U	U	0.047 B	0.47	0.1	0.1
Selenium	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	U	U	U	2.0	SB

SUBSURFACE SOIL

SAMPLE ID	IPSB-24	IPSB-25	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(2-4)	(2-4)		
DATE OF COLLECTION	1/29/03	1/29/03		
PERCENT SOLIDS	83.0	77.0		
UNITS	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	7.3	27.3	3.0	7.5 or SB
Barium	130	148	3.0	300 or SB
Cadmium	0.48	0.49	2.0	10*
Chromium	11.5	9.4	3.0	50*
Lead	478	174	1.0	SB**
Mercury	0.79	0.28	0.1	0.1
Selenium	U	U	8.0	2 or SB
Silver	U	U	2.0	SB

SURFACE SOIL

SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03		
PERCENT SOLIDS	87.0	90.0	89.0	85.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	5.2	8.5	3.8	5	3.0	7.5 or SB
Barium	231	86	27.2	38.2	3.0	300 or SB
Cadmium	0.16 B	0.39	0.11 B	0.2 B	2.0	10*
Chromium	8.8	9.2	8.4	7.7	3.0	50*
Lead	4.4	116	36.3	48.8	1.0	SB**
Mercury	0.028 B	0.99	0.045 B	0.55	0.1	0.1
Selenium	U	U	U	U	8.0	2 or SB
Silver	U	U	U	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 40

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

	SURFACE SOIL				SUBSURFACE SOIL				
SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	IPSB-22	IPSB-23	IPSB-24	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(0-2 IN)	(0-2 IN)	(0-2 IN)	(0-2 IN)	(2-4 FT)	(2-4 FT)	(2-4 FT)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	87.0	90.0	89.0	85.0	89.0	73.0	83.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
Dichlorodifluoromethane	U	U	U	U	U	U	U	5	–
Chloromethane	U	U	U	U	U	U	U	5	–
Vinyl Chloride	U	U	U	U	U	U	U	5	200
Bromomethane	U	U	U	U	U	U	U	5	–
Chloroethane	U	U	U	U	U	U	U	5	1900
Trichlorofluoromethane	U	U	U	U	U	U	U	5	–
1,1-Dichloroethene	U	U	U	U	U	U	U	5	400
Acetone	6	39	57	7	25	100	35	5	200
Idomethane	U	U	U	U	U	U	U	5	–
Carbone Disulfide	U	2 J	3 J	U	2 J	4 J	5 J	5	2700
Methylene Chloride	27 B	33	15	50 B	23 B	140	21	5	100
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	5	300
Methyl tert-butyl ether	U	U	U	U	U	U	U	5	–
1,1-Dichloroethane	U	U	U	U	U	U	U	5	200
Vinyl acetate	U	U	U	U	U	U	U	5	–
2-Butanone	U	5 J	9	U	U	9	6	5	300
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	5	–
2,2-Dichloropropane	U	U	U	U	U	U	U	5	–
Bromochloromethane	U	U	U	U	U	U	U	5	–
Chloroform	U	U	U	U	U	U	U	5	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	5	800
1,1-Dichloropropene	U	U	U	U	U	U	U	5	–
Carbon Tetrachloride	U	U	U	U	U	U	U	5	600
1,2-Dichloroethane	U	U	U	U	U	U	U	5	100
Benzene	U	5 J	U	U	U	U	U	5	60
Trichloroethene	U	U	U	U	U	U	U	5	700
1,2-Dichloropropane	U	U	U	U	U	U	U	5	–
Dibromomethane	U	U	U	U	U	U	U	5	–
Bromodichloromethane	U	U	U	U	U	U	U	5	–
cis-1,3-Dichloropropane	U	U	U	U	U	U	U	5	–
4-Methyl-2-pentanone	U	U	U	U	U	U	U	5	1000
Toluene	6	9	1 J	3 J	U	2 J	4 J	5	1500
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	5	–
1,1,2-Trichloroethane	U	U	U	U	U	U	U	5	–

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
B: Compound was also detected in the associated Method Blank.

NOTES:
–: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 40 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

	SURFACE SOIL				SUBSURFACE SOIL				
SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	IPSB-22	IPSB-23	IPSB-24	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(0-2 IN)	(0-2 IN)	(0-2 IN)	(0-2 IN)	(2-4 FT)	(2-4 FT)	(2-4 FT)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	67.0	90.0	89.0	85.0	89.0	73.0	83.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
1,3-Dichloropropane	U	U	U	U	U	U	U	5	300
Tetrachloroethene	U	U	U	U	U	U	U	5	1400
2-Hexanone	U	U	U	U	U	U	U	5	--
Dibromochloromethane	U	U	U	U	U	U	U	5	--
1,2-Dibromoethane	U	U	U	U	U	U	U	5	--
Chlorobenzene	U	U	U	U	U	U	U	5	1700
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	5	--
Ethylbenzene	U	1 J	U	U	U	U	2 J	5	5500
m,p-Xylene	3 J	3 J	U	U	U	2 J	2 J	5	--
o-Xylene	2 J	2 J	U	U	U	U	U	5	--
Xylene (total)	5 J	6	U	U	U	2 J	2 J	5	1200
Styrene	U	U	U	U	U	U	10	5	--
Bromoform	U	U	U	U	U	U	U	5	--
Isopropylbenzene	U	U	U	U	U	U	U	5	--
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	5	600
Bromobenzene	U	U	U	U	U	U	U	5	--
1,2,3-Trichloropropane	U	U	U	U	U	U	U	5	400
n-Propylbenzene	U	U	U	U	U	U	U	5	--
2-Chlorotoluene	U	U	U	U	U	U	U	5	--
1,3,5-Trimethylbenzene	1 J	U	U	3 J	U	U	3 J	5	--
4-Chlorotoluene	U	U	U	U	U	U	U	5	--
tert-Butylbenzene	U	U	U	U	U	U	U	5	--
1,2,4-Trimethylbenzene	3 J	2 J	2 J	7	1 J	2 J	5 J	5	--
sec-Butylbenzene	U	U	U	U	U	U	2 J	5	--
4-Isopropyltoluene	U	U	U	U	U	U	U	5	--
1,3-Dichlorobenzene	U	U	U	U	U	U	U	5	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	5	8500
n-Butylbenzene	1 J	U	U	U	U	U	1 J	5	--
1,2-Dichlorobenzene	1 J	U	U	U	U	U	U	5	7900
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	5	--
1,2,4-Trichlorobenzene	2 J	U	U	U	U	U	U	5	3400
Hexachlorobutadiene	U	U	U	U	U	U	U	5	--
Naphthalene	7	11	8	25	160	7	160	5	13000
1,2,3-Trichlorobenzene	3 J	U	U	U	U	U	U	5	--
Totals VOCs	67	118	95	95	211	268	258	--	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
B: Compound was also detected in the associated Method Blank.

NOTES:
--: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 40 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

	SUBSURFACE SOIL								
DISTRIBUTION	[illegible]			[illegible]					
SAMPLE ID	IPSB-25	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(2-4 FT)	(10-12 FT)	(12-14 FT)	(14-16 FT)	(16-18 FT)	(18-20 FT)			
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03			
DILUTION FACTOR	1	1	1	1	1	1			
PERCENT SOLIDS	77.0	32.0	33.0	48.0	89.0	85.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/Kg)	(ug/Kg)
Dichlorodifluoromethane	U	U	U	U	U	U		5	--
Chloromethane	U	U	U	U	U	U		5	--
Vinyl Chloride	U	U	U	U	U	U		5	200
Bromomethane	U	U	U	U	U	U		5	--
Chloroethane	U	U	U	U	U	U		5	1900
Trichlorofluoromethane	U	U	U	U	U	U		5	--
1,1-Dichloroethene	U	U	U	U	U	U		5	400
Acetone	17	130	240	280	31	55		5	200
Idomethane	U	U	U	U	U	U		5	--
Carbone Disulfide	U	18	18	28	7	31		5	2700
Methylene Chloride	15 B	45 B	110	110	3 J	38		5	100
trans-1,2-Dichloroethene	U	U	U	U	U	U		5	300
Methyl tert-butyl ether	U	U	U	U	U	U		5	--
1,1-Dichloroethane	U	3 J	5 J	U	U	U		5	200
Vinyl acetate	U	U	U	U	U	U		5	--
2-Butanone	U	24	31	9 J	U	4 J		5	300
cis-1,2-Dichloroethene	U	U	U	U	U	U		5	--
2,2-Dichloropropane	U	U	U	U	U	U		5	--
Bromochloromethane	U	U	U	U	U	U		5	--
Chloroform	U	U	U	U	U	U		5	300
1,1,1-Trichloroethane	U	U	U	U	U	U		5	800
1,1-Dichloropropene	U	U	U	U	U	U		5	--
Carbon Tetrachloride	U	U	U	U	U	U		5	600
1,2-Dichloroethane	U	U	U	U	U	U		5	100
Benzene	U	U	U	U	U	U		5	60
Trichloroethene	U	U	U	U	3 J	U		5	700
1,2-Dichloropropane	U	U	U	U	U	U		5	--
Dibromomethane	U	U	U	U	U	U		5	--
Bromodichloromethane	U	U	U	U	U	U		5	--
cis-1,3-Dichloropropane	U	U	U	U	U	U		5	--
4-Methyl-2-pentanone	U	U	U	U	U	U		5	1000
Toluene	U	14 J	U	9 J	U	U		5	1500
trans-1,3-Dichloropropene	U	U	U	U	U	U		5	--
1,1,2-Trichloroethane	U	U	U	U	U	U		5	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
B: Compound was also detected in the associated Method Blank.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
--: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 40 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - VOLATILE ORGANIC COMPOUNDS (VOCs)

	SUBSURFACE SOIL								
SAMPLE ID	IPSB-25	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(2-4 FT)	(10-12 FT)	(12-14 FT)	(14-16 FT)	(16-18 FT)	(18-20 FT)			
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03			
DILUTION FACTOR	1	1	1	1	1	1			
PERCENT SOLIDS	77.0	32.0	33.0	48.0	89.0	85.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/Kg)	(ug/Kg)
1,3-Dichloropropane	U	U	U	U	U	U		5	300
Tetrachloroethene	U	U	U	U	U	U		5	1400
2-Hexanone	U	U	U	U	U	U		5	--
Dibromochloromethane	U	U	U	U	U	U		5	--
1,2-Dibromoethane	U	U	U	U	U	U		5	--
Chlorobenzene	U	U	U	U	U	U		5	1700
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U		5	--
Ethylbenzene	U	10 J	6 J	10 J	U	U		5	5500
m,p-Xylene	U	U	U	U	U	U		5	--
o-Xylene	U	U	U	U	U	U		5	--
Xylene (total)	U	U	U	U	U	U		5	1200
Styrene	U	U	U	U	U	U		5	--
Bromoform	U	U	U	U	U	U		5	--
Isopropylbenzene	U	U	U	U	U	U		5	--
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U		5	600
Bromobenzene	U	U	U	U	U	U		5	--
1,2,3-Trichloropropane	U	U	U	U	U	U		5	400
n-Propylbenzene	U	U	U	U	U	U		5	--
2-Chlorotoluene	U	U	U	U	U	U		5	--
1,3,5-Trimethylbenzene	U	U	U	U	U	U		5	--
4-Chlorotoluene	U	U	U	U	U	U		5	--
tert-Butylbenzene	U	U	U	U	U	U		5	--
1,2,4-Trimethylbenzene	U	U	U	U	U	U		5	--
sec-Butylbenzene	U	U	U	U	U	U		5	--
4-Isopropyltoluene	U	U	U	U	U	U		5	--
1,3-Dichlorobenzene	U	U	U	U	U	U		5	1600
1,4-Dichlorobenzene	U	U	U	U	U	U		5	8500
n-Butylbenzene	U	U	U	U	U	U		5	--
1,2-Dichlorobenzene	U	U	U	U	U	U		5	7900
1,2-Dibromo-3-chloropropane	U	4 J	U	U	U	U		5	--
1,2,4-Trichlorobenzene	U	U	U	U	U	U		5	3400
Hexachlorobutadiene	U	U	U	U	U	U		5	--
Naphthalene	3 J	15 J	U	U	U	U		5	13000
1,2,3-Trichlorobenzene	U	8 J	U	U	U	U		5	--
Totals VOCs	35	271	410	446	44	128		--	--

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
B: Compound was also detected in the associated Method Blank.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
--: Not applicable.
[ ]: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 41

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

	SURFACE SOIL				SUBSURFACE SOIL				
SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	IPSB-22	IPSB-23	IPSB-24	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(0-2 IN)	(0-2 IN)	(0-2 IN)	(0-2 IN)	(2-4 FT)	(2-4 FT)	(2-4 FT)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	10		
PERCENT SOLIDS	87.0	90.0	89.0	85.0	89.0	73.0	83.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
Phenol	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	330	--
2-Chlorophenol	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,4-Dichlorobenzene	U	U	U	U	U	U	U	330	--
1,2-Dichlorobenzene	U	U	U	U	U	U	U	330	--
2-Methylphenol	U	U	U	U	U	U	U	330	100
2,2'-oxybis (1-chloropropane)	U	U	U	U	U	U	U	330	--
4-Methylphenol	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	330	--
Hexachloroethane	U	U	U	U	U	U	U	330	--
Nitrobenzene	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	330	--
2,4-Dichlorophenol	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	330	--
Naphthalene	U	60 J	U	U	790	72 J	2300 J	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	330	--
Hexachlorobutadiene	U	U	U	U	U	U	U	330	--
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	48 J	U	U	350 J	74 J	840 J	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	330	--
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	330	--
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	660	100
2-Chloronaphthalene	U	U	U	U	U	U	U	330	--
2-Nitroaniline	U	U	U	U	U	U	U	660	430
Dimethylphthalate	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	660	500
Acenaphthene	U	100 J	U	U	720	190 J	5700	330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 41 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

	SURFACE SOIL				SUBSURFACE SOIL				
SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	IPSB-22	IPSB-23	IPSB-24	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(0-2 IN)	(0-2 IN)	(0-2 IN)	(0-2 IN)	(2-4 FT)	(2-4 FT)	(2-4 FT)		
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	10		
PERCENT SOLIDS	87.0	90.0	89.0	85.0	89.0	73.0	83.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	660	200
4-Nitrophenol	U	U	U	U	U	U	U	660	100
Dibenzofuran	U	57 J	U	U	550	110 J	4000	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	330	--
Fluorene	U	150 J	U	U	840	190 J	6900	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	660	1,000
Phenanthrene	79 J	1400	160 J	160 J	4600	2600	48000	330	50,000
Anthracene	U	490	U	50 J	1200	680	15000	330	50,000
Carbazole	U	53 J	U	U	420	210 J	4500	330	--
Di-n-butylphthalate	U	U	U	U	U	U	U	330	8,100
Fluoranthene	140 J	1800	230 J	210 J	3500	3800	49000	330	50,000
Pyrene	170 J	1700	280 J	230 J	3800	3200	53000	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	330	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	330	--
Benzo(a)anthracene	69 J	880	130 J	120 J	1400	1700	23000	330	224
Chrysene	76 J	800	130 J	140 J	1400	1900	21000	330	400
bis(2-Ethylhexyl)phthalate	38 J	U	U	47 J	59 J	47 J	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	100 J	1100	180 J	180 J	1700	2400	27000	330	1,100
Benzo(k)fluoranthene	40 J	450	75 J	89 J	780	950	14000	330	1,100
Benzo(a)pyrene	63 J	720	120 J	110 J	1200	1600	20000	330	61
Indeno(1,2,3-cd)pyrene	U	250 J	48 J	48 J	450	580	7600	330	3,200
Dibenz(a,h)anthracene	U	69 J	U	U	130 J	170 J	2100 J	330	14
Benzo(g,h,i)perylene	U	210 J	55 J	55 J	390	500	6600	330	50,000
Total PAHs	737	10,284	1,408	1,392	21,940	20,380	297200	--	100,000
Total CaPAHs	348	4,269	683	687	7,060	9,300	114700	--	10,000
Total SVOCs	775	10,337	1,408	1,439	24,279	20,973	310,540	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 41 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

	SUBSURFACE SOIL								
UIC STRUCTURE	UIC FOOT			CONDUCTOR WELL					
SAMPLE ID	IPSB-25	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(2-4 FT)	(10-12 FT)	(12-14 FT)	(14-16 FT)	(16-18 FT)	(18-20 FT)			
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03			
DILUTION FACTOR	1	2	1	1	1	1			
PERCENT SOLIDS	77.0	32.0	33.0	48.0	89.0	85.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/Kg)	(ug/Kg)
Phenol	U	U	U	U	350 J	U		330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U		330	–
2-Chlorophenol	U	U	U	U	U	U		330	800
1,3-Dichlorobenzene	U	U	U	U	U	U		330	–
1,4-Dichlorobenzene	U	U	U	U	U	U		330	–
1,2-Dichlorobenzene	U	U	U	U	U	U		330	–
2-Methylphenol	U	U	U	U	U	U		330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U		330	–
4-Methylphenol	U	U	U	U	48 J	U		330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U		330	–
Hexachloroethane	U	U	U	U	U	U		330	–
Nitrobenzene	U	U	U	U	U	U		330	200
Isophorone	U	U	U	U	U	U		330	4,400
2-Nitrophenol	U	U	U	U	U	U		330	330
2,4-Dimethylphenol	U	U	U	U	U	U		330	–
2,4-Dichlorophenol	U	U	U	U	U	U		330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U		330	–
Naphthalene	U	U	U	U	U	U		330	13,000
4-Chloroaniline	U	U	U	U	U	U		330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U		330	–
Hexachlorobutadiene	U	U	U	U	U	U		330	–
4-Chloro-3-methylphenol	U	U	U	U	U	U		330	240
2-Methylnaphthalene	U	U	U	U	U	U		330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U		330	–
2,4,6-Trichlorophenol	U	U	U	U	U	U		330	–
2,4,5-Trichlorophenol	U	U	U	U	U	U		660	100
2-Chloronaphthalene	U	U	U	U	U	U		330	–
2-Nitroaniline	U	U	U	U	U	U		660	430
Dimethylphthalate	U	U	U	U	U	U		330	2,000
Acenaphthylene	U	U	U	U	U	U		330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U		330	1,000
3-Nitroaniline	U	U	U	U	U	U		660	500
Acenaphthene	83 J	2300	420 J	U	U	U		330	50,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
– : Not applicable.
□ : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 41 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

	SUBSURFACE SOIL								
SAMPLE ID	IPSB-25	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH	(2-4 FT)	(10-12 FT)	(12-14 FT)	(14-16 FT)	(16-18 FT)	(16-20 FT)			
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03			
DILUTION FACTOR	1	2	1	1	1	1			
PERCENT SOLIDS	77.0	32.0	33.0	48.0	89.0	85.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/Kg)	(ug/Kg)
2,4-Dinitrophenol	U	U	U	U	U	U		660	200
4-Nitrophenol	U	U	U	U	U	U		660	100
Dibenzofuran	47 J	550 J	100 J	U	U	U		330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U		330	--
Diethylphthalate	U	U	U	U	U	U		330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U		330	--
Fluorene	87 J	1400 J	270 J	U	U	U		330	50,000
4-Nitroaniline	U	U	U	U	U	U		330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U		330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U		330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U		330	--
Hexachlorobenzene	U	U	U	U	U	U		330	410
Pentachlorophenol	U	U	U	U	U	U		660	1,000
Phenanthrene	870	12000	2400	U	37 J	U		330	50,000
Anthracene	170 J	3700	750 J	U	U	U		330	50,000
Carbazole	84 J	1200 J	260 J	U	U	U		330	--
Di-n-butylphthalate	U	U	U	U	U	U		330	8,100
Fluoranthene	870	18000	3900	U	49 J	U		330	50,000
Pyrene	780	19000	3800	U	40 J	U		330	50,000
Butylbenzylphthalate	U	U	U	U	U	U		330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U		330	--
Benzo(a)anthracene	420 J	8700	1800	U	U	U		330	224
Chrysene	440	8700	1900	U	U	U		330	400
bis(2-Ethylhexyl)phthalate	190 J	U	U	U	U	U		330	50,000
Di-n-octylphthalate	U	U	U	U	U	U		330	50,000
Benzo(b)fluoranthene	520	10000	2400	U	U	U		330	1,100
Benzo(k)fluoranthene	210 J	5200	1200	U	U	U		330	1,100
Benzo(a)pyrene	300 J	7900	1800	U	U	U		330	61
Indeno(1,2,3-cd)pyrene	100 J	2900	610 J	U	U	U		330	3,200
Dibenz(a,h)anthracene	U	800 J	170 J	U	U	U		330	14
Benzo(g,h,i)perylene	89 J	2600	550 J	U	U	U		330	50,000
Total PAHs	4,986	103,750	22,070	0	126	0		--	100,000
Total CaPAHs	1,990	44,200	9,880	0	0	0		--	10,000
Total SVOCs	5,260	104,950	22,330	0	174	0		--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not applicable.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 42

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
UNDERGROUND INJECTION CONTROL INVESTIGATION

SURFACE AND SUBSURFACE SOIL - TOTAL PETROLEUM HYDROCARBONS (TPH)

	SURFACE SOIL				*SUBSURFACE SOIL*			
SAMPLE ID	IPSB-22	IPSB-23	IPSB-24	IPSB-25	IPSB-22	IPSB-23	IPSB-24	INSTRUMENT DETECTION LIMITS
SAMPLE DEPTH	(0-2 IN)	(0-2 IN)	(0-2 IN)	(0-2 IN)	(2-4 FT)	(2-4 FT)	(2-4 FT)	
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	
PERCENT SOLID	87.0	90.0	89.0	85.0	89.0	73.0	83.0	
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Total Petroleum Hydrocarbons	260	150	810	69	40	49	1600	12.0

	SUBSURFACE SOIL						
SAMPLE ID	IPSB-25	IPSB-21	IPSB-21	IPSB-21	IPSB-21	IPSB-21	INSTRUMENT DETECTION LIMITS
SAMPLE DEPTH	(2-4 FT)	(10-12 FT)	(12-14 FT)	(14-16 FT)	(16-18 FT)	(18-20 FT)	
DATE OF COLLECTION	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	
PERCENT SOLID	77.0	32.0	33.0	48.0	89.0	85.0	
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Total Petroleum Hydrocarbons	140	330	250	ND	23	ND	

Notes:
ND: Not Detected

TABLE 43

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - TARGET ANALYTE LIST METALS (TAL Metals)

SAMPLE ID	IPGP-01	IPGP-01	IPGP-02	IPGP-02	IPGP-03	IPGP-03	IPTP-03	IPTP-03	INSTRUMENT DETECTION LIMIT (IDL)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	Unfiltered 1/30/03	Filtered 1/30/03	Unfiltered 1/30/03	Filtered 1/30/03	Unfiltered 1/30/03	Filtered 1/30/03	Unfiltered 1/22/03	Filtered 1/22/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Aluminum	8950	U	3310	U	64600	35.6 B	NA	NA	12	--
Antimony	4.6 B	3.3 B	4.4 B	U	3.2 B	4.1 B	NA	NA	3	3 ST
Arsenic	11.8 B	U	4.7 B	U	66.8	3.2 B	60.4	20.1	3	25 ST
Barium	78.1 B	34.3 B	90.7 B	60.8 B	273	50.1 B	179 B	67.9 B	3	1,000 ST
Beryllium	0.53 B	U	U	U	4 B	U	NA	NA	2	3 GV
Cadmium	0.71 B	U	U	U	7.3	U	U	U	2	5 ST
Calcium	110000	109000	67800	66200	66300	61500	NA	NA	76	--
Chromium	74.8	2.5 B	34.1 B	U	130	U	28.8	U	3	50 ST
Cobalt	5.5 B	U	1.8 B	U	43.6 B	1.9 B	NA	NA	3	--
Copper	96.7 B	U	27.6 B	U	242	U	NA	NA	2	200 GA
Iron	34000	1370	5480	39.6 B	118000	757	NA	NA	35	300 ST*
Lead	96.1	U	59.7	U	181	U	74.2	U	1	25 ST
Magnesium	26300	24100	10500 B	10200 B	23100	14000 B	NA	NA	23	35,000 GV
Manganese	508	339	136	82.5	1010	275	NA	NA	2	300 ST*
Mercury	0.17 B	U	0.16 B	U	0.64 B	U	0.19 B	U	0.1	0.7 ST
Nickel	37.8 B	1.7 B	18 B	1.6 B	117 B	6.5 B	NA	NA	1	100 ST
Potassium	23800	22100	32700	34300	45200	40000	NA	NA	89	--
Selenium	U	U	U	U	U	U	U	U	8	10 ST
Silver	4.1 B	U	11.2 B	U	U	U	U	U	2	50 ST
Sodium	82800	81600	35700	36600	37100	32400	NA	NA	118	20,000 ST
Thallium	6.3 B	5.2 B	U	5.3 B	U	4.2 B	NA	NA	4	0.5 GV
Vanadium	39.2 B	5.6 B	10 B	3.1 B	154 B	3 B	NA	NA	3	--
Zinc	235 B	9 B	57.2 B	9.2 B	4050	50.7 B	NA	NA	8	2,000 GV

QUALIFIERS:
U: Compound analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.
NA: Not Analyzed for

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
ST* : Standard for the sum of iron and manganese is 500 ug/l
[ ] : Value exceeds Standard/Guideline.

TABLE 44

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	IPGP-01	IPGP-02	IPGP-03	IPTP-03	LABORATORY QUANTITATION LIMITS	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	1/30/03	1/30/03	1/30/03	1/22/03		
DILUTION FACTOR	1	1	1	1		
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/L)	(ug/L)
Dichlorodifluoromethane	U	U	U	U	5	5 ST
Chloromethane	U	U	U	U	5	--
Vinyl Chloride	U	U	U	U	5	2 ST
Bromomethane	U	U	U	U	5	5 ST
Chloroethane	U	U	U	U	5	5 ST
Trichlorofluoromethane	U	U	U	U	5	5 ST
1,1-Dichloroethene	U	U	U	U	5	5 ST
Acetone	U	U	U	U	5	50 GV
Idomethane	U	U	U	U	5	--
Carbone Disulfide	1 J	U	U	U	5	--
Methylene Chloride	U	U	U	U	5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	5	5 ST
Methyl tert-butyl ether	5	2 J	6	U	5	10 GV*
1,1-Dichloroethane	U*	U	U	U	5	5 ST
Vinyl acetate	U	U	U	U	5	--
2-Butanone	U	U	U	U	5	--
cis-1,2-Dichloroethene	U	U	U	U	5	5 ST
2,2-Dichloropropane	U	U	U	U	5	5 ST
Bromochloromethane	U	U	U	U	5	5 ST
Chloroform	U	U	U	U	5	7 ST
1,1,1-Trichloroethane	U	U	U	U	5	5 ST
1,1-Dichloropropene	U	U	U	U	5	5 ST
Carbon Tetrachloride	U	U	U	U	5	5 ST
1,2-Dichloroethane	U	U	U	U	5	0.6 ST
Benzene	U	U	U	U	5	1 ST
Trichloroethene	U	U	U	U	5	5 ST
1,2-Dichloropropane	U	U	U	U	5	1 ST
Dibromomethane	U	U	U	U	5	5 ST
Bromodichloromethane	U	U	U	U	5	50 GV
cis-1,3-Dichloropropane	U	U	U	U	5	--
4-Methyl-2-pentanone	U	U	U	U	5	--
Toluene	U	U	U	U	5	5 ST
trans-1,3-Dichloropropene	U	U	U	U	5	0.4 ST
1,1,2-Trichloroethane	U	U	U	U	5	1 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Compound qualified as non-detect due to validation criteria.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Value exceeds the referenced criteria.

TABLE 44 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - VOLATILE ORGANIC COMPOUNDS (VOCs)

SAMPLE ID	IPGP-01	IPGP-02	IPGP-03	IPTP-03	LABORATORY QUANTITATION LIMITS	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	1/30/03	1/30/03	1/30/03	1/22/03		
DILUTION FACTOR	1	1	1	1		
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/L)	(ug/L)
1,3-Dichloropropane	U	U	U	U	5	5 ST
Tetrachloroethene	U	U	U	U	5	5 ST
2-Hexanone	U	U	U	U	5	50 GV
Dibromochloromethane	U	U	U	U	5	50 GV
1,2-Dibromoethane	U	U	U	U	5	--
Chlorobenzene	U	U	U	U	5	5 ST
1,1,1,2-Tetrachloroethene	U	U	U	U	5	5 ST
Ethylbenzene	U	U	U	U	5	5 ST
m,p-Xylene	U	U	U	U	5	--
o-Xylene	U	U	U	U	5	--
Xylene (total)	U	U	U	U	5	5 ST
Styrene	U	U	U	U	5	5 ST
Bromoform	U	U	U	U	5	50 GV
Isopropylbenzene	U	U	U	U	5	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	U	5	5 ST
Bromobenzene	U	U	U	U	5	5 ST
1,2,3-Trichloropropane	U	U	U	U	5	0.04 ST
n-Propylbenzene	U	U	U	U	5	5 ST
2-Chlorotoluene	U	U	U	U	5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	5	5 ST
4-Chlorotoluene	U	U	U	U	5	5 ST
tert-Butylbenzene	U	U	U	U	5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	5	5 ST
sec-Butylbenzene	U	U	U	U	5	5 ST
4-Isopropyltoluene	U	U	1 J	U	5	5 ST
1,3-Dichlorobenzene	U	U	U	U	5	3 ST
1,4-Dichlorobenzene	U	U	U	U	5	3 ST
n-Butylbenzene	U	U	U	U	5	5 ST
1,2-Dichlorobenzene	U	U	U	U	5	3 ST
1,2-Dibromo-3-chloropropane	U	U	U	U	5	0.04 ST
1,2,4-Trichlorobenzene	U	U	U	U	5	5 ST
Hexachlorobutadiene	U	U	U	U	5	0.5 ST
Naphthalene	U	18	U	U	5	10 GV
1,2,3-Trichlorobenzene	U	U	U	U	5	5 ST

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
U*: Compound qualified as non-detect due to validation criteria.

NOTES:
-- : Not applicable.
* : Draft Guidance Value
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Value exceeds the referenced criteria.

TABLE 45

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	IPGP-01 1/30/03 1 (ug/l)	IPGP-02 1/30/03 1 (ug/l)	IPGP-03 1/30/03 1 (ug/l)	IPTP-03 1/22/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
Phenol	U	U	U	U	10	1 ST*
bis(2-Chloroethyl)ether	U	U	U	U	10	--
2-Chlorophenol	U	U	U	U	10	--
1,3-Dichlorobenzene	U	U	U	U	10	3 ST
1,4-Dichlorobenzene	U	U	U	U	10	3 ST
1,2-Dichlorobenzene	U	U	U	U	10	3 ST
2-Methylphenol	U	U	U	U	10	--
2,2'-oxybis (1-chloropropane)	U	U	U	U	10	--
4-Methylphenol	U	U	U	U	10	--
N-Nitroso-di-n-propylamine	U	U	U	U	10	--
Hexachloroethane	U	U	U	U	10	5 ST
Nitrobenzene	U	U	U	U	10	0.4 ST
Isophorone	U	U	U	U	10	50 GV
2-Nitrophenol	U	U	U	U	10	--
2,4-Dimethylphenol	U	U	U	U	10	50 GV
2,4-Dichlorophenol	U	U	U	U	10	5 ST
1,2,4-Trichlorobenzene	U	U	U	U	10	5 ST
Naphthalene	U	52	6 J	U	10	10 GV
4-Chloroaniline	U	U	U	U	10	5 ST
bis(2-Chloroethoxy)methane	U	U	U	U	10	--
Hexachlorobutadiene	U	U	U	U	10	0.5 ST
4-Chloro-3-methylphenol	U	U	U	U	10	--
2-Methylnaphthalene	U	8 J	U	U	10	--
Hexachlorocyclopentadiene	U	U	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	U	U	10	--
2,4,5-Trichlorophenol	U	U	U	U	20	--
2-Chloronaphthalene	U	U	U	U	10	10 GV
2-Nitroaniline	U	U	U	U	20	5 ST
Dimethylphthalate	U	U	U	U	10	50 GV
Acenaphthylene	U	U	U	U	10	--
2,6-Dinitrotoluene	U	U	U	U	10	5 ST
3-Nitroaniline	U	U	U	U	20	5 ST
Acenaphthene	U	28	9 J	U	10	20 GV

QUALIFIERS:

U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection lim

NOTES:

-- : Not applicable.
* : Applies to the sum of all Phenols
ST : New York State Ambient Water Quality Standards
GV : New York State Ambient Water Quality Guidance Values
[ ] : Result exceeds NYS Class GA Standard/Guideline

TABLE 45(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	IPGP-01 1/30/03 1 (ug/l)	IPGP-02 1/30/03 1 (ug/l)	IPGP-03 1/30/03 1 (ug/l)	IPTP-03 1/22/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
2,4-Dinitrophenol	U	U	U	U	20	10 GV
4-Nitrophenol	U	U	U	U	20	--
Dibenzofuran	U	10	4 J	U	10	--
2,4-Dinitrotoluene	U	U	U	U	10	5 ST
Diethylphthalate	U	U	U	U	10	50 GV
4-Chlorophenyl-phenylether	U	U	4 J	U	10	--
Fluorene	U	12	U	U	10	50
4-Nitroaniline	U	U	U	U	20	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	U	20	--
N-Nitrosodiphenylamine	U	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	U	10	--
Hexachlorobenzene	U	U	U	U	10	0.04 ST
Pentachlorophenol	U	U	U	U	20	1 ST
Phenanthrene	U	31	5 J	U	10	50 GV
Anthracene	U	6 J	1 J	U	10	50 GV
Carbazole	U	16	U	U	10	--
Di-n-butylphthalate	U	U	U	U	10	--
Fluoranthene	U	20	2 J	U	10	50 GV
Pyrene	U	14	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	U	10	5 ST
Benzo(a)anthracene	U	7 J	U	U	10	--
Chrysene	U	7 J	U	U	10	0.002 GV
bis(2-Ethylhexyl)phthalate	U	U	U	U	10	--
Di-n-octylphthalate	U	U	U	U	10	50 GV
Benzo(b)fluoranthene	U	8 J	U	U	10	0.002 GV
Benzo(k)fluoranthene	U	4 J	U	U	10	0.002 GV
Benzo(a)pyrene	U	5 J	U	U	10	ND ST
Indeno(1,2,3-cd)pyrene	U	3 J	U	U	10	0.002 GV
Dibenzo(a,h)anthracene	U	U	U	U	10	--
Benzo(g,h,i)perylene	U	3 J	U	U	10	--

QUALIFIERS:

U: Compound analyzed for but not detected.

J: Compound found at a concentration below the detection lim

NOTES:

-- : Not applicable.

ST : New York State Ambient Water Quality Standards

GV : New York State Ambient Water Quality Guidance Values

[ ] : Result exceeds NYS Class GA Standard/Guideline

TABLE 46

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
GROUNDWATER ASSESSMENT

GROUNDWATER - POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID DATE OF COLLECTION DILUTION FACTOR UNITS	IPGP-01 1/30/03 1 (ug/l)	IPGP-02 1/30/03 1 (ug/l)	IPGP-03 1/30/03 1 (ug/l)	IPTP-03 1/22/03 1 (ug/l)	LABORATORY QUANTITATION LIMITS (ug/L)	NY STATE CLASS GA GROUNDWATER STANDARDS/ (ug/L)
Aroclor- 1016	U	U	U	U	1	--
Aroclor- 1221	U	U	U	U	1	--
Aroclor- 1232	U	U	U	U	1	--
Aroclor- 1242	U	U	U	U	1	--
Aroclor- 1248	U	U	U	U	1	--
Aroclor- 1254	U	U	U	U	1	--
Aroclor- 1260	U	U	U	U	1	--
TOTAL PCBs	0	0	0	0	--	0.09 ST

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
ST : New York State Ambient Water Quality Standards

TABLE 47

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
PERCENT SOLIDS	73.0	24.0	31.0	27.0	25.0	44.0	60.0	92.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	2.6	5.8	5.6	7.6	5.5	13.7	5.2	2.6	3.0	7.5 or SB
Barium	19.9	29.6 B	29.2	30.3 B	24.9 B	26.3	8.3 B	1.3 B	3.0	300 or SB
Cadmium	0.21 B	0.55 B	0.43 B	0.68 B	0.6 B	0.69	0.27 B	U	2.0	10*
Chromium	6.4	29.8	35.5	40.3	34	25.3	9.5	3.2	3.0	50*
Lead	14.1	6 B	9.8	9.1	7	15.5	6.5	1.3 B	1.0	SB**
Mercury	0.036 B	U	U	U	U	0.044 B	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	0.93 B	0.9 B	1.3 B	0.99 B	1.1 B	0.6 B	0.2 B	2.0	SB

SAMPLE ID	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-03	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
PERCENT SOLIDS	68.0	39.0	81.0	47.0	42.0	83.0	58.0	81.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	8.2	11.7	1.4	6.6	6.7	2.5	3.3	1.6	3.0	7.5 or SB
Barium	33.9	23.7	4.1 B	15.3 B	25.9	5.6 B	13.1 B	5.2 B	3.0	300 or SB
Cadmium	0.66	0.64	U	0.41 B	0.76	U	0.25 B	U	2.0	10*
Chromium	20.4	28.8	3.8	16.8	33.9	4	12.8	4.1	3.0	50*
Lead	15.3	14.8	1.6 B	6.5	7.4	2 B	4.2	3	1.0	SB**
Mercury	0.043 B	0.12 B	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	1 B	0.25 B	0.83 B	1.4 B	0.31 B	0.58 B	0.35 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 47(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-04	IPSBX-04	INSTRUMENT	NYSDEC TAGM 4046
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	DETECTION	Recommended Soil
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	LIMITS	Cleanup Objective
PERCENT SOLIDS	85.0	81.0	44.0	81.0	53.0	76.0	56.0	61.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	1.2	1.4	5.9	1.7	5.9	2.5	16.2	9.2	3.0	7.5 or SB
Barium	6.2 B	6 B	24.7	5 B	19.7	6 B	29.7	18.4	3.0	300 or SB
Cadmium	U	U	0.8	U	0.52	0.14 B	1.1	0.74	2.0	10*
Chromium	4.5	4.4	27.3	4.9	18.6	8.4	31.5	21.5	3.0	50*
Lead	1.7 B	2 B	8	5.7	36	2.7	15.4	8	1.0	SB**
Mercury	U	U	U	U	0.25	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.3 B	0.3 B	1.4 B	0.31 B	0.93 B	0.38 B	1.3 B	1.2 B	2.0	SB

SAMPLE ID	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-05	IPSBX-05	INSTRUMENT	NYSDEC TAGM 4046
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(10-12)	(12-14)	DETECTION	Recommended Soil
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/23/03	1/23/03	LIMITS	Cleanup Objective
PERCENT SOLIDS	40.0	75.0	65.0	78.0	80.0	52.0	52.0	78.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	6.2	1.4	5.6	3	1.8	3.5	4	2.6	3.0	7.5 or SB
Barium	27.3	5.9 B	15.4	4.6 B	5.9 B	12.4 B	24.9	4.5 B	3.0	300 or SB
Cadmium	1	U	0.42	0.16 B	U	0.25 B	0.48	U	2.0	10*
Chromium	33.6	4.7	15.5	5.9	7.2	12.4	33.2	6.8	3.0	50*
Lead	9.5	8.5	5.6	2.4 B	2.3 B	5	7.7	2.7	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	1.6 B	0.28 B	1.1 B	0.37 B	0.34 B	0.61 B	0.33 B	0.12 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 47(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-05	IPSBX-05	IPSBX-05	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(12-14)	(14-16)		
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
PERCENT SOLIDS	88.0	86.0	88.0	88.0	86.0	53.0	86.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	3.1	3.1	2.5	3.2	6.3	12.5	1.7	2.4	3.0	7.5 or SB
Barium	2.5 B	1.8 B	2 B	12.8	29.6	30.7	7.8 B	2.2 B	3.0	300 or SB
Cadmium	U	U	U	0.27 B	0.54	1.2	0.14 B	U	2.0	10*
Chromium	5.2	3.1	2.8	13.7	16.9	35.6	7.6	3.2	3.0	50*
Lead	2.4	1.2	1.1	18	12.3	12.3	1.9 B	1 B	1.0	SB**
Mercury	U	U	U	0.019 B	0.037 B	0.041 B	U	U	0.1	0.1
Selenium	U	U	U	U	1 B	U	U	U	8.0	2 or SB
Silver	0.13 B	0.11 B	U	U	U	1.7 B	0.45 B	0.25 B	2.0	SB

SAMPLE ID	IPSBX-08	IPSBX-08	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
PERCENT SOLIDS	69.0	53.0	87.0	69.0	54.0	83.0	54.0	47.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	4.7	4.3	2	10.2	17.2	1.4	6.1	5.9	3.0	7.5 or SB
Barium	10.3 B	13.1 B	28.6	18.4	30.4	5.5 B	18.3	24.5	3.0	300 or SB
Cadmium	0.26 B	0.38 B	0.46	0.68	1.5	0.12 B	0.48	0.47 B	2.0	10*
Chromium	13.2	14.2	12	19.5	38.2	5.5	19.3	29.3	3.0	50*
Lead	3.5	4	7.3	6.2	13.3	3.7	6.1	8.7	1.0	SB**
Mercury	U	U	U	U	0.038 B	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.55 B	0.88 B	U	1 B	1.6 B	0.27 B	0.95 B	0.83 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 47(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-07	IPSBX-07	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
PERCENT SOLIDS	64.0	41.0	77.0	72.0	66.0	60.0	78.0	76.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	5.2	8.6	5.9	9.2	13.8	2.3	2.2	2.1	3.0	7.5 or SB
Barium	14.5 B	25.6	6.9 B	16.4	31.1	17.4	11.1 B	9.2 B	3.0	300 or SB
Cadmium	0.4	0.81	0.26 B	0.63	1.1	0.2 B	0.17 B	0.16 B	2.0	10*
Chromium	14.6	32.5	7.1	16.5	30.7	7.2	7.9	7.3	3.0	50*
Lead	5.6	10.3	2.6	6.9	10.8	3.3	2 B	2.4 B	1.0	SB**
Mercury	U	U	U	U	0.025 B	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.75 B	1.3 B	0.48 B	0.99 B	1.4 B	0.5 B	0.48 B	0.4 B	2.0	SB

SAMPLE ID	IPSBX-08	IPSBX-08	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/28/03	1/28/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
PERCENT SOLIDS	48.0	90.0	84.0	65.0	52.0	69.0	46.0	89.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	2.6	1.6	4.3	11.7	23.1	2	5.2	2.3	3.0	7.5 or SB
Barium	15 B	2.7 B	19.4	23.1	29.9	7 B	18.7	1.6 B	3.0	300 or SB
Cadmium	0.25 B	U	U	0.2 B	0.36 B	U	U	U	2.0	10*
Chromium	9.5	3.2	9.8	27	38.9	6.3	24	3.4	3.0	50*
Lead	2.9 B	1.3 B	14.9	11.2	17.7	2.2 B	7.5	1.4 B	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.65 B	0.21 B	U	U	U	U	U	U	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
: Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 47(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-09	IPSBX-09	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-11	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-16)	(18-20)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(4-6)		
DATE OF COLLECTION	1/29/03	1/29/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/27/03		
PERCENT SOLIDS	43.0	77.0	50.0	72.0	66.0	80.0	82.0	76.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	7.6	2	4.2	5.6	1.9	2.6	3	8.5	3.0	7.5 or SB
Barium	21.2 B	5.5 B	21.2	9.6 B	2.4 B	4.2 B	1.5 B	26.5	3.0	300 or SB
Cadmium	0.14 B	U	0.29 B	0.21 B	U	U	U	0.44	2.0	10*
Chromium	27.9	5.8	25.8	11.7	3	6.4	3.2	4.7	3.0	50*
Lead	9.6	2.5	7.3	3.8	1.5	2.9	1.3	23.2	1.0	SB**
Mercury	U	U	U	U	U	U	U	U	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	U	U	0.27 B	0.22 B	U	0.16 B	U	0.73 B	2.0	SB

SAMPLE ID	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-12	INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/23/03		
PERCENT SOLIDS	83.0	43.0	82.0	92.0	87.0	82.0	83.0	65.0		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	(mg/kg)
Arsenic	0.49 B	3.8	2.9	1.6	1.5	3	2.9	25.7	3.0	7.5 or SB
Barium	3.4 B	27.7	2.4 B	1.2 B	1.2 B	1.9 B	1.6 B	125	3.0	300 or SB
Cadmium	U	0.65	0.12 B	U	U	U	U	0.7	2.0	10*
Chromium	1.6 B	31.5	3.7	2.5	2.4	3.5	3.1	9.1	3.0	50*
Lead	0.81 B	10	1.9 B	0.96 B	0.91 B	1.4 B	1.1 B	13.7	1.0	SB**
Mercury	U	0.06 B	U	U	U	U	U	0.14	0.1	0.1
Selenium	U	U	U	U	U	U	U	U	8.0	2 or SB
Silver	0.13 B	0.85 B	0.3 B	0.19 B	0.13 B	0.25 B	0.24 B	0.32 B	2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
SB: Site Background
*: As per proposed 4/95 NSDEC TAGM
**: Average background levels in metropolitan or surburban areas or near highways range from 200-500 ppm.
[ ] : Result exceeds NYSDEC TAGM Recommended Soil Cleanup Objective

TABLE 47(continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - RCRA METALS

SAMPLE ID	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12		INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)			
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03			
PERCENT SOLIDS	82.0	87.0	87.0	90.0	89.0	80.0	86.0			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		(ug/l)	(mg/kg)
Arsenic	0.93 B	0.85 B	4	1.6	1.8	2.3	2.1		3.0	7.5 or SB
Barium	5.8 B	5.9 B	1.1 B	0.9 B	1.5 B	3.2 B	0.86 B		3.0	300 or SB
Cadmium	U	U	0.13 B	U	U	U	U		2.0	10*
Chromium	2.8	2.8	2.5	1.7	3.4	4.7	3.2		3.0	50*
Lead	2.1	1.6	1.8	0.8	1.1	1.8	0.82		1.0	SB**
Mercury	U	U	U	U	U	U	U		0.1	0.1
Selenium	U	U	U	U	U	U	U		8.0	2 or SB
Silver	U	U	0.14 B	U	U	U	U		2.0	SB

QUALIFIERS:
U: Constituent analyzed for but not detected.
B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:
[ ] : Result exceeds Comparison Value.
-- : Not established.

TABLE 48

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	3	2	2	2	1	1		
PERCENT SOLIDS	73.0	24.0	31.0	27.0	25.0	44.0	60.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	3300	240 J	510 J	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	13000	29000	2700	4400	36 J	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	3000	43000 D	42000	36000	24000	12000	8000	130 J	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	1000	1300 J	U	U	U	380 J	700	52 J	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	4100	2900	U	U	U	1200 J	280 J	50 J	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	3	2	2	2	1	1		
PERCENT SOLIDS	73.0	24.0	31.0	27.0	25.0	44.0	60.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	2900	1100 J	U	U	U	820 J	200 J	67 J	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	3000	1000 J	U	U	U	860 J	140 J	52 J	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	6000	670 J	U	U	U	2700	230 J	110 J	330	50,000
Anthracene	1000	U	U	U	U	490 J	U	U	330	50,000
Carbazole	760	280 J	U	U	U	U	U	41 J	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	1700	U	U	U	U	1100 J	140 J	U	330	50,000
Pyrene	1400	U	U	U	U	790 J	110 J	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	500	U	U	U	U	320 J	U	U	330	224
Chrysene	530	U	U	U	U	320 J	U	U	330	400
bis(2-Ethylhexyl)phthalate	50 J	170 J	U	U	U	U	U	64 J	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	610	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	300 J	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	400 J	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	120 J	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	110 J	U	U	U	U	U	U	U	330	50,000
Total PAHs	22,770	47,570	42,000	36,000	24,000	19,780	8,900	342	--	100,000
Total CaPAHs	2,460	0	0	0	0	640	0	0	--	10,000
Total SVOCs	27,480	50,420	42,000	49,000	56,300	23,920	14,710	602	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	68.0	39.0	81.0	47.0	42.0	83.0	58.0	81.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	650 J	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	220 J	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	130 J	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	170 J	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	68.0	39.0	81.0	47.0	42.0	83.0	58.0	81.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	56 J	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	300 J	U	U	U	U	U	U	U	330	50,000
Anthracene	68 J	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	270 J	U	U	U	U	U	U	52 J	330	50,000
Pyrene	250 J	U	U	U	U	U	U	47 J	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	140 J	U	U	U	U	U	U	U	330	224
Chrysene	140 J	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	140 J	U	U	U	U	68 J	500 J	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	200 J	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	81 J	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	130 J	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	1,709	0	0	0	0	0	0	99	--	100,000
Total CaPAHs	691	0	0	0	0	0	0	0	--	10,000
Total SVOCs	2,075	0	0	0	670	68	500	99	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-04	IPSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	85.0	81.0	44.0	81.0	53.0	76.0	56.0	61.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	110 J	U	110 J	240 J	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-04	IPSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	85.0	81.0	44.0	81.0	53.0	76.0	56.0	61.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	73 J	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	190 J	U	U	U	330	50,000
Pyrene	U	U	U	U	160 J	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	63 J	U	U	U	330	224
Chrysene	U	U	U	U	81 J	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	120 J	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	87 J	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	654	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	231	0	0	0	--	10,000
Total SVOCs	0	0	110	0	764	240	120	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-05	IPSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(10-12)	(12-14)		
DATE OF COLLECTION	1/26/03	1/26/03	1/26/03	1/26/03	1/26/03	1/26/03	1/23/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	40.0	75.0	65.0	76.0	80.0	52.0	52.0	78.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	100 J	U	U	180 J	130 J	340 J	2600	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	420 J	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-05	IPSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(10-12)	(12-14)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/23/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	40.0	75.0	65.0	78.0	80.0	52.0	52.0	78.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	160 J	290 J	110 J	61 J	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	100	0	0	180	290	630	3,130	61	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-05	IPSBX-05	IPSBX-05	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(12-14)	(14-16)		
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	86.0	86.0	88.0	88.0	68.0	53.0	66.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	110 J	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	120 J	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	140 J	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	450	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-05	IPSBX-05	IPSBX-05	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(12-14)	(14-16)		
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	86.0	86.0	88.0	88.0	68.0	53.0	66.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	280 J	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	540	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	1400	U	U	U	U	330	50,000
Anthracene	U	U	U	230 J	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	110 J	U	U	U	U	330	50,000
Pyrene	U	U	U	280 J	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	52 J	U	U	U	U	330	224
Chrysene	U	U	U	81 J	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	61 J	56 J	56 J	99 J	89 J	76 J	53 J	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	85 J	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	43 J	86 J	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	3,521	86	0	0	0	--	100,000
Total CaPAHs	0	0	0	261	86	0	0	0	--	10,000
Total SVOCs	61	56	56	4,020	175	76	53	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-06	IPSBX-06	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	10	1	1	1	1	1		
PERCENT SOLIDS	69.0	53.0	87.0	69.0	54.0	83.0	54.0	47.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	640	870	U	U	U	U	U	910	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-06	IPSBX-06	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	10	1	1	1	1	1		
PERCENT SOLIDS	69.0	53.0	87.0	69.0	54.0	83.0	54.0	47.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	—
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	—
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	—
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	—
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	—
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	—
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	—
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	95 J	U	330	50,000
Pyrene	U	U	U	U	U	U	84 J	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	—
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	62 J	65 J	U	U	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	76 J	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	255	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	76	0	--	10,000
Total SVOCs	702	935	0	0	0	0	255	910	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-07	IPSBX-07	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	64.0	41.0	77.0	72.0	66.0	80.0	78.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	2500	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	110 J	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	260 J	U	130 J	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-07	IPSBX-07	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10) -	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	64.0	41.0	77.0	72.0	66.0	80.0	78.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	88 J	U	100 J	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	74 J	U	U	U	U	U	U	U	330	50,000
Pyrene	66 J	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	320 J	1300	U	U	U	U	U	270 J	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	60 J	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	200	0	0	0	348	0	230	0	--	100,000
Total CaPAHs	60	0	0	0	0	0	0	0	--	10,000
Total SVOCs	520	3,910	0	0	348	0	230	270	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-08	IPSBX-08	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/28/03	1/28/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	48.0	90.0	84.0	65.0	52.0	69.0	46.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	78 J	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	U	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	U	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-08	IPSBX-08	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/28/03	1/28/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	48.0	90.0	84.0	65.0	52.0	69.0	46.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	--
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	--
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	--
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	--
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	--
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	--
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	U	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	--
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	73 J	U	U	U	U	U	U	U	330	50,000
Pyrene	U	U	U	U	U	U	U	U	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	--
Benzo(a)anthracene	U	U	U	U	U	U	U	U	330	224
Chrysene	U	U	U	U	U	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	120 J	60 J	82 J	50 J	U	U	U	U	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	73	0	0	0	0	0	0	0	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	0	--	10,000
Total SVOCs	193	60	82	50	0	0	78	0	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-09	IPSBX-09	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-11	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(4-6)		
DATE OF COLLECTION	1/29/03	1/29/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	43.0	77.0	50.0	72.0	66.0	60.0	82.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	190 J	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	73 J	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	140 J	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-09	IPSBX-09	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-11	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(4-6)		
DATE OF COLLECTION	1/29/03	1/29/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	43.0	77.0	50.0	72.0	86.0	80.0	82.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	130 J	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	120 J	330	50,000
Pyrene	U	U	U	U	U	U	U	130 J	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	69 J	330	224
Chrysene	U	U	U	U	U	U	U	92 J	330	400
bis(2-Ethylhexyl)phthalate	U	U	96 J	69 J	U	54 J	46 J	100 J	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	100 J	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	56 J	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	770	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	317	--	10,000
Total SVOCs	190	0	96	69	0	54	46	1,010	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-12	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	83.0	43.0	82.0	92.0	87.0	82.0	83.0	65.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	---
2-Methylphenol	U	U	U	U	U	U	U	U	330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200
Isophorone	U	U	U	U	U	U	U	U	330	4,400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	---
Naphthalene	U	U	U	U	U	U	U	140 J	330	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240
2-Methylnaphthalene	U	U	U	U	U	U	U	150 J	330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	330	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	330	430
Dimethylphthalate	U	U	U	U	U	U	U	U	330	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1,000
3-Nitroaniline	U	U	U	U	U	U	U	U	330	500
Acenaphthene	U	U	U	U	U	U	U	U	330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-12	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	83.0	43.0	62.0	92.0	87.0	82.0	83.0	65.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	330	200
4-Nitrophenol	U	U	U	U	U	U	U	U	330	100
Dibenzofuran	U	U	U	U	U	U	U	U	330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	---
Diethylphthalate	U	U	U	U	U	U	U	U	330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Fluorene	U	U	U	U	U	U	U	U	330	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	330	1,000
Phenanthrene	U	U	U	U	U	U	U	180 J	330	50,000
Anthracene	U	U	U	U	U	U	U	U	330	50,000
Carbazole	U	U	U	U	U	U	U	U	330	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	330	8,100
Fluoranthene	U	U	U	U	U	U	U	76 J	330	50,000
Pyrene	U	U	U	U	U	U	U	66 J	330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U	U	330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	---
Benzo(a)anthracene	U	U	U	U	U	U	U	56 J	330	224
Chrysene	U	U	U	U	U	U	U	220 J	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	44 J	48 J	91 J	330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	100 J	330	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	330	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	83 J	330	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	330	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	330	50,000
Total PAHs	0	0	0	0	0	0	0	921	--	100,000
Total CaPAHs	0	0	0	0	0	0	0	459	--	10,000
Total SVOCs	0	0	0	0	0	44	48	1,162	--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)			
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03			
DILUTION FACTOR	1	1	1	1	1	1	1			
PERCENT SOLIDS	83.0	87.0	87.0	90.0	89.0	80.0	86.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U		330	30
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U		330	---
2-Chlorophenol	U	U	U	U	U	U	U		330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U		330	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U		330	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U		330	---
2-Methylphenol	U	U	U	U	U	U	U		330	100
2,2-oxybis (1-chloropropane)	U	U	U	U	U	U	U		330	---
4-Methylphenol	U	U	U	U	U	U	U		330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U		330	---
Hexachloroethane	U	U	U	U	U	U	U		330	---
Nitrobenzene	U	U	U	U	U	U	U		330	200
Isophorone	U	U	U	U	U	U	U		330	4,400
2-Nitrophenol	U	U	U	U	U	U	U		330	330
2,4-Dimethylphenol	U	U	U	U	U	U	U		330	---
2,4-Dichlorophenol	U	U	U	U	U	U	U		330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U		330	---
Naphthalene	160 J	U	U	U	U	U	U		330	13,000
4-Chloroaniline	U	U	U	U	U	U	U		330	220
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U		330	---
Hexachlorobutadiene	U	U	U	U	U	U	U		330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U		330	240
2-Methylnaphthalene	100 J	U	U	U	U	U	U		330	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U		330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U		330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U		330	100
2-Chloronaphthalene	U	U	U	U	U	U	U		330	---
2-Nitroaniline	U	U	U	U	U	U	U		330	430
Dimethylphthalate	U	U	U	U	U	U	U		330	2,000
Acenaphthylene	U	U	U	U	U	U	U		330	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U		330	1,000
3-Nitroaniline	U	U	U	U	U	U	U		330	500
Acenaphthene	53 J	U	U	U	U	U	U		330	50,000

TABLE 48 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL - SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)

SAMPLE ID	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-6)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)			
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03			
DILUTION FACTOR	1	1	1	1	1	1	1			
PERCENT SOLIDS	83.0	87.0	87.0	90.0	89.0	80.0	86.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)
2,4-Dinitrophenol	U	U	U	U	U	U	U		330	200
4-Nitrophenol	U	U	U	U	U	U	U		330	100
Dibenzofuran	78 J	U	U	U	U	U	U		330	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U		330	---
Diethylphthalate	U	U	U	U	U	U	U		330	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U		330	---
Fluorene	120 J	95 J	U	U	U	U	U		330	50,000
4-Nitroaniline	U	U	U	U	U	U	U		330	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U		330	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U		330	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U		330	---
Hexachlorobenzene	U	U	U	U	U	U	U		330	410
Pentachlorophenol	U	U	U	U	U	U	U		330	1,000
Phenanthrene	180 J	150 J	U	U	U	U	U		330	50,000
Anthracene	58 J	54 J	U	U	U	U	U		330	50,000
Carbazole	110 J	120 J	U	U	U	U	U		330	---
Di-n-butylphthalate	U	U	U	U	U	U	U		330	8,100
Fluoranthene	380 J	110 J	U	U	U	U	U		330	50,000
Pyrene	370 J	85 J	U	U	U	U	U		330	50,000
Butylbenzylphthalate	U	U	U	U	U	U	U		330	50,000
3,3-Dichlorobenzidine	U	U	U	U	U	U	U		330	---
Benzo(a)anthracene	95 J	U	U	U	U	U	U		330	224
Chrysene	170 J	U	U	U	U	U	U		330	400
bis(2-Ethylhexyl)phthalate	71 J	49 J	58 J	60 J	54 J	270 J	470		330	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U		330	50,000
Benzo(b)fluoranthene	130 J	U	U	U	U	U	U		330	1,100
Benzo(k)fluoranthene	57 J	U	U	U	U	U	U		330	1,100
Benzo(a)pyrene	82 J	U	U	U	U	U	U		330	61
Indeno(1,2,3-cd)pyrene	42 J	U	U	U	U	U	U		330	3,200
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U		330	14
Benzo(g,h,i)perylene	46 J	U	U	U	U	U	U		330	50,000
Total PAHs	1,943	494	0	0	0	0	0		--	100,000
Total CaPAHs	576	0	0	0	0	0	0		--	10,000
Total SVOCs	2,302	663	58	60	54	270	470		--	500,000

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.
D: Compound concentration was obtained from a diluted analysis.

NOTES:
-- : Not applicable.
[ ] : Concentration exceeds NYSDEC TAGM 4046 Recommended Soil Cleanup Objective

TABLE 49

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	IPSBX-01	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	73.0	24.0	31.0	27.0	25.0	44.0	60.0	92.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-02	IPSBX-03	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	68.0	39.0	81.0	47.0	42.0	83.0	58.0	81.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 49 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-03	IPSBX-04	IPSBX-04	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	85.0	81.0	44.0	81.0	53.0	76.0	56.0	61.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	---
Aroclor- 1221	U	U	U	U	U	U	U	U	34	---
Aroclor- 1232	U	U	U	U	U	U	U	U	34	---
Aroclor- 1242	U	U	U	U	U	U	U	U	34	---
Aroclor- 1248	U	U	U	U	U	U	U	U	34	---
Aroclor- 1254	U	U	U	U	U	U	U	U	34	---
Aroclor- 1260	U	U	U	U	U	U	U	U	34	---
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-04	IPSBX-05	IPSBX-05	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(10-12)	(12-14)		
DATE OF COLLECTION	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/23/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	40.0	75.0	65.0	78.0	80.0	52.0	52.0	78.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	---
Aroclor- 1221	U	U	U	U	U	U	U	U	34	---
Aroclor- 1232	U	U	U	U	U	U	U	U	34	---
Aroclor- 1242	U	U	U	U	U	U	U	U	34	---
Aroclor- 1248	U	U	U	U	U	U	U	U	34	---
Aroclor- 1254	U	U	U	U	U	U	U	U	34	---
Aroclor- 1260	U	U	U	U	U	U	U	U	34	---
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 49 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-05	IPSBX-05	IPSBX-05	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	IPSBX-06	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(14-16)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(12-14)	(14-16)		
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	86.0	86.0	88.0	88.0	68.0	53.0	66.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	IPSBX-06	IPSBX-06	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	IPSBX-07	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	69.0	53.0	87.0	69.0	54.0	83.0	54.0	47.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 49 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-07	IPSBX-07	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	IPSBX-08	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/27/03	1/27/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03	1/28/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	64.0	41.0	77.0	72.0	66.0	80.0	78.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	---
Aroclor- 1221	U	U	U	U	U	U	U	U	34	---
Aroclor- 1232	U	U	U	U	U	U	U	U	34	---
Aroclor- 1242	U	U	U	U	U	U	U	U	34	---
Aroclor- 1248	U	U	U	U	U	U	U	U	34	---
Aroclor- 1254	U	U	U	U	U	U	U	U	34	---
Aroclor- 1260	U	U	U	U	U	U	U	U	34	---
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	IPSBX-08	IPSBX-08	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	IPSBX-09	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(4-6)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)		
DATE OF COLLECTION	1/28/03	1/28/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03	1/29/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	48.0	90.0	84.0	65.0	52.0	69.0	46.0	89.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	---
Aroclor- 1221	U	U	U	U	U	U	U	U	34	---
Aroclor- 1232	U	U	U	U	U	U	U	U	34	---
Aroclor- 1242	U	U	U	U	U	U	U	U	34	---
Aroclor- 1248	U	U	U	U	U	U	U	U	34	---
Aroclor- 1254	U	U	U	U	U	U	U	U	34	---
Aroclor- 1260	U	U	U	U	U	U	U	U	34	---
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 49 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-09	IPSBX-09	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-10	IPSBX-11	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(16-18)	(18-20)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(4-6)		
DATE OF COLLECTION	1/29/03	1/29/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/27/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	43.0	77.0	50.0	72.0	86.0	80.0	82.0	76.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

SAMPLE ID	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-11	IPSBX-12	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)	(4-6)		
DATE OF COLLECTION	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/27/03	1/23/03		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	83.0	43.0	82.0	92.0	87.0	82.0	83.0	85.0		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U	U	34	----
Aroclor- 1221	U	U	U	U	U	U	U	U	34	----
Aroclor- 1232	U	U	U	U	U	U	U	U	34	----
Aroclor- 1242	U	U	U	U	U	U	U	U	34	----
Aroclor- 1248	U	U	U	U	U	U	U	U	34	----
Aroclor- 1254	U	U	U	U	U	U	U	U	34	----
Aroclor- 1260	U	U	U	U	U	U	U	U	34	----
TOTAL PCBs	0	0	0	0	0	0	0	0	--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

TABLE 49 (continued)

ISLAND PARK SUBSTATION
LONG ISLAND RAIL ROAD
CONSTRUCTION EXCAVATION INVESTIGATION

SUBSURFACE SOIL POLYCHLORINATED BIPHENYLS (PCBs)

SAMPLE ID	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12	IPSBX-12		LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objective
SAMPLE DEPTH (FT)	(6-8)	(8-10)	(10-12)	(12-14)	(14-16)	(16-18)	(18-20)			
DATE OF COLLECTION	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03	1/23/03			
DILUTION FACTOR	1	1	1	1	1	1	1			
PERCENT SOLIDS	82.0	87.0	87.0	90.0	89.0	80.0	86.0			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)
Aroclor- 1016	U	U	U	U	U	U	U		34	----
Aroclor- 1221	U	U	U	U	U	U	U		34	----
Aroclor- 1232	U	U	U	U	U	U	U		34	----
Aroclor- 1242	U	U	U	U	U	U	U		34	----
Aroclor- 1248	U	U	U	U	U	U	U		34	----
Aroclor- 1254	U	U	U	U	U	U	U		34	----
Aroclor- 1260	U	U	U	U	U	U	U		34	----
TOTAL PCBs	0	0	0	0	0	0	0		--	1,000/10,000*

QUALIFIERS:
U: Compound analyzed for but not detected.

NOTES:
-- : Not applicable.
* : According to NYSDEC TAGM 4046 Recommended Soil Cleanup Objective, 1,000 ug/kg is utilized for surface soil [0'-2' below ground surface (bgs)] and 10,000 ug/kg is utilized for subsurface soil (soil deeper than 2' bgs).

Appendix F

APPENDIX F

OCTOBER 4, 2004 LETTER REPORT ENTITLED, "REMOVAL OF STAGED SOIL AT THE LONG ISLAND RAIL ROAD MANHASSET SUBSTATION"

Jamaica Station
Jamaica, NY 11435-4380
718-558-7711

Kenneth J. Bauer
President

Jose R. Fernández
Vice President - System Safety

Long Island Rail Road

October 4, 2004

Ms. Tara L. Diaz
New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Eastern Remedial Action
625 Broadway, 11th Floor
Albany, NY 12233-7015

Re: Removal of Staged Soil at the
Long Island Rail Road Manhasset Substation
D&B No. 2015

Dear Ms. King:

The purpose of this correspondence is to document the soil removal activities which were conducted at the Long Island Rail Road (LIRR) Manhasset Substation in June of 2004, and to present the New York State Department of Environmental Conservation (NYSDEC) with the analytical results associated with the post-removal sampling activities. The following provides a brief review of background information concerning the deposition of soil at this site, a summary of the soil removal activities and post-removal sampling activities, as well as an evaluation of the post-removal analytical data.

Background

While undertaking a drainage improvement program at the LIRR Manhasset Train Station, located approximately 1,800 feet east of the Manhasset Substation site, the LIRR Capital Program Management Department (LIRR CPM) excavated soil from an area of the train station that historically received storm water runoff from both on-site and off-site properties. In order to complete the project, the LIRR CPM temporarily staged the excavated soil along with miscellaneous construction debris at the LIRR Manhasset Substation site.

Immediately upon notification that the LIRR CPM had temporarily staged soil at the Manhasset Substation site, the LIRR's System Safety Department along with representatives of Dvirka and Bartilucci Consulting Engineers (D&B) conducted site inspections of the substation and train station. At that time, it was agreed to collect several grab and composite soil samples to assess the nature and extent of the staged soil and to determine if the soil had been staged in areas of known mercury contamination as identified by the ongoing site investigation program.

Seven piles of soil were identified at the Manhasset Substation site and one pile of soil was identified at the Manhasset Train Station. As mentioned above, several soil samples were collected to characterize the staged soil. D&B collected a total of nine grab samples and nine composite soil

samples. In addition, one grab and one composite background sample was collected from a random, undisturbed area 200 feet east of the eastern border of the Manhasset Substation site. The results of this sampling effort were presented in the December 10, 2003, letter report provided to the NYSDEC.

As presented in the December 10, 2003, letter report, the soil samples collected at that time exhibited polycyclic aromatic hydrocarbons (PAHs) at relatively low concentrations but above respective NYSDEC soil cleanup objectives, including benzo(a)anthracene, chrysene, benzo(b) fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene. In addition, several TAL metals, including arsenic, beryllium, copper, mercury, nickel, selenium and zinc were also detected above respective NYSDEC soil cleanup objectives. In general, however, many of the metal and PAHs detected in the samples collected from the staged soil were at concentrations that were comparable to that of the background samples. Furthermore, as explained in the December 10, 2003, letter report, the staged soil was originally excavated from an area of the Manhasset Train Station that had historically received storm water runoff from off-site commercial and industrial properties. USEPA studies have demonstrated that the PAHs and metals detected in the soil samples are commonly found at similar concentrations in soil that has been subjected to this type of runoff (USEPA Ref. Document 600/SR-94/051).

Based on the findings of the site inspections and sampling program, the following recommendations were made:

- All stockpiled soil north of the Port Washington rail line be removed and transported off-site for disposal.
- Upon removal of the staged soil at the Manhasset Substation site, a post-removal endpoint sampling program be undertaken to ensure all material has been successfully removed.
- Soil stockpiled at the Manhasset Train Station should be removed for off-site disposal.

A post-soil removal sampling plan was prepared by D&B and approved by the NYSDEC via e-mail on January 21, 2004. This plan called for the collection of 54 surface soil samples throughout the area in which soil had been staged. As had been recommended by the NYSDEC, approximately half of the samples were to be analyzed for TAL metals and PAHs. The remainder of the samples were to be analyzed solely for mercury.

Soil Removal and Post-Removal Endpoint Sampling

The staged soil at the Manhasset Substation and Manhasset Train Station sites was removed by the LIRR on June 5 through June 7 of 2004. Two mini "bobcat"-style loaders were utilized to move the soil to the site's western gate where a full-sized front-end loader was employed to load the soil onto

triaxle dump trucks for disposal. As recommended in the December 10, 2003, letter report, all soil staged to the north of the Port Washington rail line, including Piles 1 through 4, "West Pile" and any soil spread at grade, was removed from the Manhasset Substation site for disposal. A figure depicting the former location of each soil pile is presented in Attachment 1. In addition, the soil stockpiled adjacent to the residential area at the Manhasset Train Station was removed for disposal. In total, 335.30 tons of nonhazardous soil was transported off-site for disposal. A copy of the nonhazardous waste manifests are included as Attachment 2 of this correspondence. Photographs which depict the condition of the Manhasset substation site prior to soil removal are included as Attachment 3. Photographs which depict the site after the soil had been removed are provided as Attachment 4.

After completing the soil removal activities, surface soil samples were collected between 0 and 2 inches below ground surface throughout the area in which the soil had been staged in accordance with the NYSDEC-approved sampling plan. A total of 48 post-removal samples were collected. It should be noted that, due to minor variation between the estimated and actual areal extent of the site which contained staged soil, six fewer samples were required to sufficiently cover the staged soil area with a grid-like sample pattern than had been prescribed in the approved sampling plan. Of the 48 samples collected, 25 were analyzed for TAL metals and PAHs and 23 were analyzed solely for mercury. The location of each post-removal sample is depicted on the figure provided as Attachment 1 of this letter. Analytical summary tables are provided in Attachment 5.

Evaluation of Post-Removal Soil Data

The following presents a discussion of the analytical results of the post-removal samples:

- Polycyclic Aromatic Hydrocarbons (PAHs)

  In general, PAHs were found at relatively low concentrations with several individual PAHs detected in excess of their respective NYSDEC soil cleanup objectives. However, none of the samples were found to exceed the NYSDEC TAGM 4046 Recommended Soil Cleanup Objective for total PAHs of 100,000 ug/kg, and only 1 of the 25 samples contained total CaPAHs at a concentration which exceeded the NYSDEC CaPAH cleanup objective of 10,000 ug/kg. Individual PAHs which exceeded the NYSDEC cleanup objectives include the following:

  - Benzo(a)anthracene
  - Chrysene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Dibenzo(a,h)anthracene

It is important to note that the PAHs listed above were also detected in background samples collected and analyzed as part of this project. PAHs are common byproducts of the partial combustion of fossil fuels such as coal and diesel fuel, both of which have been used historically on the Port Washington rail line. Furthermore, as discussed above, the temporarily staged soil that was originally excavated from an area of the Manhasset Train Station historically received storm water runoff from the LIRR right-of-way, as well as off-site commercial and industrial properties. Numerous studies have demonstrated that storm water draining from industrial and commercial properties contains a wide range of contaminants including metals and PAHs (USEPA Ref. Document 600/SR-94/051).

- TAL Metals

Several metals, including arsenic, beryllium, copper, mercury, nickel, selenium, and zinc were detected in excess of the NYSDEC soil cleanup objectives in the majority of the 25 samples for which TAL metals were analyzed.

It is important to note that beryllium, copper, selenium, mercury and zinc were also observed in background samples collected as part of this project and are commonly encountered in surficial soil associated with or adjacent to railroad operations and/or various industrial activities for an extended period of time. For example, arsenic is known to have been historically used in the manufacture of herbicides that may have been applied to LIRR property as part of routine maintenance and is also historically a major constituent of wood preservative formulations. Furthermore, similar to PAHs, the above-listed metals have been shown to be present in storm water runoff (USEPA Ref. Document 600/SR-94/051).

As discussed above, 23 samples were collected solely for analysis of mercury. The samples were collected in a grid like pattern traversing the entire area where soil had been staged. Based on the analytical results, 21 out of the 23 samples exceeded the NYSDEC soil cleanup objective of 0.1 mg/kg for mercury. However, of these samples, 14 did not exceed a concentration of 1 mg/kg.

While mercury was detected in a number of soil samples above the NYSDEC soil cleanup objective, the objective of the post-soil removal sampling program within this area was to confirm that surface soil from the adjacent mercury-impacted drainage swale was not dispersed from this area as the result of the soil staging activities. Based on the above results, and in consideration of the fact that samples within the swale typically have been found to contain mercury up to concentrations of 10 mg/kg, it is apparent that soil from the swale had not been disturbed during the soil staging activities.

Conclusions and Recommendations

Soil recommended for off-site transportation and disposal has been successfully removed from the Manhasset Substation and Train Station sites by the LIRR, and properly disposed. In addition, an aggressive post-removal endpoint sampling program was completed in accordance with the NYSDEC-approved sampling plan. The findings of the post-removal sampling program show that surface soil at the site contains concentrations of PAHs and TAL metals typical of background conditions for railroad rights-of-way. Furthermore, based on the analytical results, there is no indication that mercury-impacted surface soil within the drainage swale at the site has been disturbed and/or dispersed to adjacent areas as a result of the soil staging activities. As a result, it can be concluded that all appropriate actions have been completed and no further action is warranted with regard to this matter.

If you have any questions or comments, please do not hesitate to contact me at (718) 558-3252.

Very truly yours,

Lewis D. Wunderlich
Environmental Engineer

LDW/ASA(t)/abj
Attachments
cc: G. Bobersky (NYSDEC)
R. Mitchell (NYSDOH)
C. Channer (MTA)
W. Keenan (LIRR)
C. Komandis (LIRR)
R. Walka (D&B)
T. Fox (D&B)
♦2015\LDW07084TLK.doc(R07)

ATTACHMENT 1

SOIL PILE AND SAMPLE LOCATION MAP

LEGEND

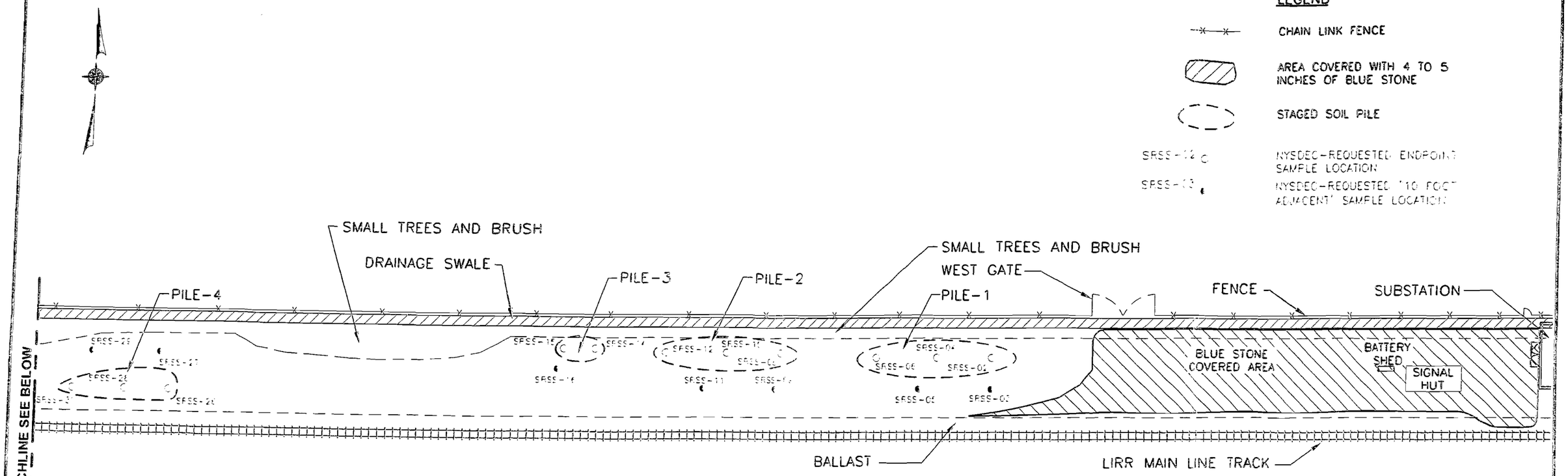
CHAIN LINK FENCE

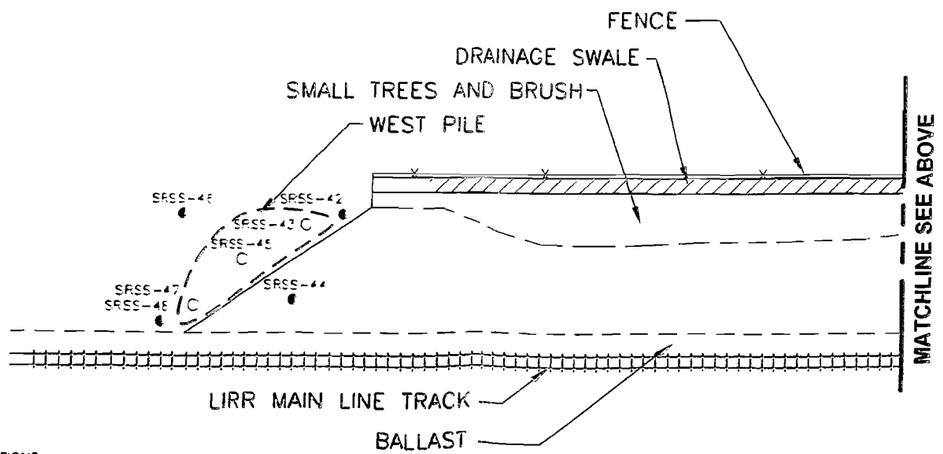
AREA COVERED WITH 4 TO 5 INCHES OF BLUE STONE

STAGED SOIL PILE

SRSS-12 C — NYSDEC-REQUESTED ENDPOINT SAMPLE LOCATION

SRSS-13 — NYSDEC-REQUESTED "10 FOOT ADJACENT" SAMPLE LOCATION





SOURCES: AVAILABLE LONG ISLAND RAIL ROAD CONSTRUCTION DRAWINGS & D&B's FIELD OBSERVATIONS

0 40
SCALE IN FEET

LONG ISLAND RAIL ROAD
MANHASSET SUBSTATION - N10

PROPOSED POST-SOIL REMOVAL SAMPLE LOCATION MAP

FIGURE 1

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

F:\2015\PHASEII\2015-16A.dwg, 06/09/04 03:01:41 PM, DCortes

ATTACHMENT 2

NONHAZARDOUS WASTE MANIFESTS

G. PENZA & SONS, INC.

457 Brook Avenue • Deer Park, NY 11729
Tel. 631-242-5115 • Fax 631-242-4146

DATE: Sept.9, 2004	JOB NO:
ATTENTION: Paul Dietlin	
RE: LIRR Contract# 5840	
Drainage Improvements	

TO: Long Island Rail Road

90-27 Sutphin Blvd.

Jamaica, NY 11435

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via_____the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ Manifests

COPIES	DATE	NO.	DESCRIPTION
2			Material Manifests (Manhasset Substation)

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit_____copies for approval
☐ For your use ☐ Approved as noted ☐ Submit_____copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return_____corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS:

COPY TO:_____

SIGNED: Michael Esopa

Long Island Rail Road **C** *apital* **P** *rogram* **M** *anagement*

Letter of Transmittal

From: Paul Dietlin
Project Manager, Capital Program Management

To: Lew Wunderlich
Environmental Engineer - System Safety
Mailcode 3147

Date:	09/13/2004	Job No.:	
Attn.:	Lew Wunderlich		
Re:	PN-36 ROW Drainage Manhasset Substation Soil		

Transmitted Herewith:

- [X] Attached:
- [ ] Under a Separate Cover Via:
- [ ] Shop Drawings
- [ ] Change Order
- [ ] Conceptual Design
- [ ] 90% Design
- [ ] Copy of Letter
- [ ] Plans
- [ ] 30 % Design
- [ ] 100% Design
- [ ] Prints
- [ ] Samples
- [ ] 60% Design
- [ ] Other Manifest / Certs.

Copies	Date	No.	Description
1 set			Material Manifests - Manhasset Substation
1 set			Manhasset Soil Recycling Certificates

Transmittal Purpose:

- [ ] For Approval
- [ ] Approved
- [ ] Resubmit ___Copies for Approval
- [ ] For Review & Comment
- [ ] Approved As Noted
- [ ] Submit ___Copies for Distribution
- [ ] As Requested
- [ ] Revise & Resubmit
- [ ] Return ___ Corrected Copies
- [X] For Your Use
- [ ] As Information
- [ ] Other_____.
- [ ] For Bids Due_____, 20___.
- [ ] Returning Borrowed Prints

Remarks/ Comments: Should you have any questions please contact me or Ted Dogonniuck 631-261-5395 or 516-807-0755.

Copy To: C. Komandis (Transmittal Only)
W. Keenan
File

Signed: Paul Dietlin

G. PENZA & SONS, INC.

457 Brook Avenue• Deer Park, NY 11729
(631) 242-5115 • Fax (631) 242-4146

FAX TRANSMITTAL

Date: 9-10-04

To: LIRR

Attn: Paul Dietlin

Fax: 261-5396

From: Michael Esopa

Pages including this cover sheet: 3

Comments:

RE: Contract # 5840; Drainage improvements

Manhasset soil recycling certificate

Should there be any problem with this transmission or should you have any questions, please call the above telephone number. Thank you.

Clean Earth of Carteret, Inc.
24 Middlesex Avenue, Carteret, NJ

Phone: 732-541-8909
Fax: 732-541-8103

Clean Earth of Carteret, Inc.

24 Middlesex Avenue
Carteret, NJ 07008
(732) 541-8909

Certificate of Recycling

This is to certify that the soil delivered to Clean Earth of Carteret from the site described in the contaminated soil profile sheet that was issued the Approval Number listed below, has been duly treated and rendered safe for beneficial reuse in accordance with the permit to operate issued to Clean Earth of Carteret, Inc. by the New Jersey Department of Environmental Protection.

Authorized Signature _____

C. David Morse, Technical Operations Manager
10 September 2004

Approval #:	240521
Generator:	Long Island Railroad Manhasset Substation
Site Location:	Manhasset, NY
Total Tons This Certificate:	243.58
Total Tickets This Certificate:	8
Treatment Date or Dates:	6/3/04

Clean Earth of Carteret, Inc.
24 Middlesex Avenue, Carteret, NJ

Phone: 732-541-8909
Fax: 732-541-8105

Clean Earth of Carteret, Inc.
24 Middlesex Avenue
Carteret, NJ 07008
(732) 541-8909

Certificate of Recycling

This is to certify that the soil delivered to Clean Earth of Carteret from the site described in the contaminated soil profile sheet that was issued the Approval Number listed below, has been duly treated and rendered safe for beneficial reuse in accordance with the permit to operate issued to Clean Earth of Carteret, Inc. by the New Jersey Department of Environmental Protection.

Authorized Signature _____

C. David Morse, Technical Operations Manager
10 September 2004

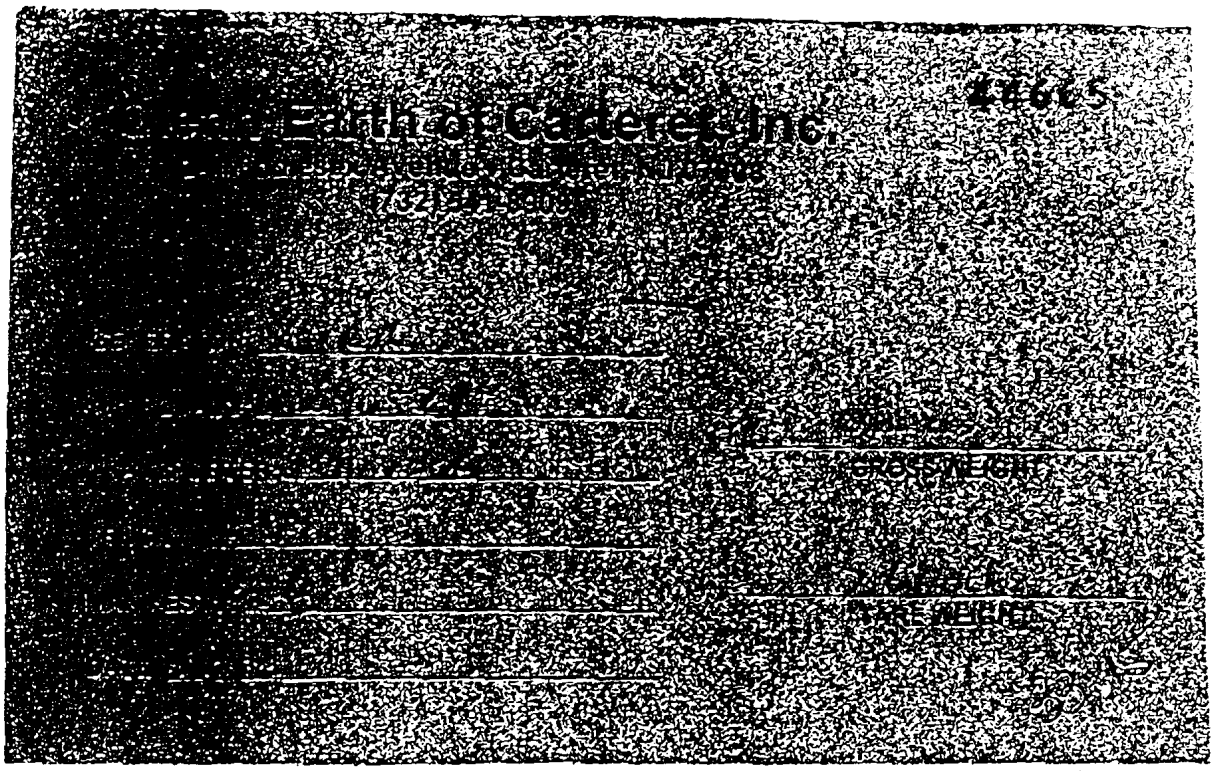
Approval #:	240521
Generator:	Long Island Railroad Manhasset Substation
Site Location:	Manhasset, NY
Total Tons This Certificate:	91.72
Total Tickets This Certificate:	4
Treatment Date or Dates:	6/4/04

Middlesex Avenue
Carteret, NJ 07008
(732) 541-8909

TREATMENT INVOICE LOAD LIST

Invoice# A-11123
Approval# 240521
Generator LIRR

TICKET #	Load#	Rec. Date	B/L	Manifest#	Net Tons	Surcharge
44649	45826	6/3/04		1	28.98	N/A
44665	45842	6/3/04		3	33.15	N/A
44669	45844	6/3/04		3	31.00	N/A
44658	45851	6/3/04		2	31.25	N/A
44671	45857	6/3/04		4	30.82	N/A
44676	45861	6/3/04		5	31.25	N/A
44711	45888	6/3/04		6	27.75	N/A
44747	45926	6/4/04		7	29.38	N/A
44748	45927	6/4/04		8	22.65	N/A
44752	45931	6/4/04		9	22.80	N/A
44754	45933	6/4/04		9	30.22	N/A
44760	45939	6/4/04		10	16.05	N/A


Earth of Caderet, Inc.
4665

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

3

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name L.I.R.R Hanhauel Substation Shipping Location Same

Address _____ Address _____

Hanhauel, NY

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
240521	Non-Hazardous Petrol Contaminate Soil Destined for Recycling					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. Dogonnick T. Dogonnick 3 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow Driver Name (Print) Leonardo Aristizabal

Address Nelong, NJ Vehicle License No./State AH471R

Truck Number 804

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

Leonardo Aristizabal 6-3-04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Leonardo Aristizabal 6-3-04

Driver Signature Delivery Date

DESTINATION

Site Name Clean Earth of Carteret Phone No. _____

Address 24 Middlesex Ave Carteret, NJ State Permit # 1201-96 0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

_____ _____ 6/3/04

Name of Authorized Agent Signature Receipt Date

FACILITY

allied

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

44760

GENERATOR: LIRR

APPROVAL #: 240521

TRANSPORTER: Zanwick

TRUCK #: 80 805

MANIFEST #: 10

DATE: 6/14/04

58650 lb gross

GROSS WEIGHT

26550

TARE WEIGHT

16.06

221025

ALLIED ENVIRONMENTAL GROUP, INC.

2168 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number 10

612

NON-HAZARDOUS MATERIAL MANIFEST

W/T IN: 7:00
OUT: 9:15

GENERATOR

Generator Name LI RR MANHASSET Shipping Location

Address SUB STATION Address SAME

Phone No. Phone No. 1 HOUR

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
240521	NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. DOGONNIUCK T Hogonniuck 4 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name RAINBOW Driver Name (Print) JULIO GONZALEZ

Address NETCONG NJ Vehicle License No./State AE 155 U

Truck Number 805

State Permit #

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature 6-4-04 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature 6-4-04 Delivery Date

DESTINATION

Site Name CBC Phone No.

Address CARTERET NJ State Permit # 1201-96-0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Signature 6-14-04 Receipt Date

TRUCKING COMPANY

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

44754

GENERATOR: LIKR

APPROVAL #: 240521

TRANSPORTER: Lawson

TRUCK #: RB 810

MANIFEST #: 9

DATE: 6/4/04

GROSS WEIGHT
41191

TARE WEIGHT
29660

30.22 Tons

Log Number 9

8

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR SUBSTATION Shipping Location _____

Address MANHASSET NY Address SAME

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
240521	NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. DOGONNIVEK T. Dogonnivek 4 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow trans Driver Name (Print) Rafael Gutierrez

Address Hackensack NJ Vehicle License No./State AF-870D NJ

Truck Number 810

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

6-4-04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

6-4-04

Driver Signature Delivery Date

DESTINATION

Site Name clean Earth of carteret Phone No. _____

Address carteret NJ State Permit # 1201-96-0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

6/4/04

Name of Authorized Agent Signature Receipt Date

TRUCKING COMPANY

Allied

Clean Earth of Carteret, Inc.

44752

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

GENERATOR: Linde

APPROVAL #: 240521

TRANSPORTER: Rinker

TRUCK #: KJ 811

MANIFEST #: 9

DATE: 2/14/24

[illegible] GROSS

GROSS WEIGHT

2915

TARE WEIGHT

20880

Log Number 9

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR SUBSTATION Shipping Location _____

Address MANHASSET Address SAME

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
24052	NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. DOGONNIUCK T [signature] 4 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow C.T. Driver Name (Print) Luis Palacios

Address 167 STARKS ST PK RD Vehicle License No./State A68246 NJ

HACKENSACK NJ. Truck Number 811

State Permit # 586

I hereby certify that the above named material was picked up at the generator site listed above.

L PALA 06-04-04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

L PALA 06-04-04

Driver Signature Delivery Date

DESTINATION

Site Name CLEAN EARTH OF CARTERET Phone No. _____

Address 64 MIDDLESEX AVE CARTERET NJ State Permit # 1201-96-0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[signature] 6/4/04

Name of Authorized Agent Signature Receipt Date

TRUCKING COMPANY

Clean Earth of Carteret, Inc.

44747

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

GENERATOR: LIRR

APPROVAL #: 240521

TRANSPORTER: Rambeau

TRUCK #: RB 812

MANIFEST #: ?

DATE: 6/4/04

TN 29.37

GROSS WEIGHT

22300

TARE WEIGHT

Log Number 7

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR MANHASSET Shipping Location _____

Address SUBSTATION Address SAME

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
	NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING.					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T DOGONNIUCK T [signature] 9 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow Driver Name (Print) Alvaro Gonzalez

Address Vetroni NJ Vehicle License No./State AG 257 S NJ

Truck Number 812

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

[signature] 6-4-04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

[signature] 6-4-04

Driver Signature Delivery Date

DESTINATION

Site Name CLEAN EARTH OF CARTERET Phone No. _____

Address 24 MIDDLESEX AVE CARTERET NJ State Permit # 1201-96-0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

_____ [signature] 6/9/04

Name of Authorized Agent Signature Receipt Date

TRUCKING COMPANY

Allied

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

44758

TW: 22.65

GENERATOR: Linx

APPROVAL #: 240521

TRANSPORTER: Rainbow

TRUCK #: RS #16

MANIFEST #: 5-of-6

DATE: 6/4/04

[illegible] gross

GROSS WEIGHT

25952

TARE WEIGHT

11

Log Number 8

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-5480

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR SUBSTATION Shipping Location

Address MANHASSET Address SAME

Phone No. Phone No.

Codes

Approval Number	Description of Material	Gross Weight / Tare Weight / Net Weight	Net Weight (Tons)
240521	NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING		

9

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T DOGONNIUCK [signature] 4 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow Haul Driver Name (Print) Hector [illegible]

Address 167 [illegible] Vehicle License No./State AH 1147 [illegible]

Hackettstown NJ Truck Number 816

State Permit # 586

I hereby certify that the above named material was picked up at the generator site listed above.

[signature] 06/04/04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

[signature] 06/04/04

Driver Signature Delivery Date

DESTINATION

Site Name CLEAN EARTH OF CARTERET Phone No.

Address Carteret NJ State Permit # 1201-[illegible]-96-0001-C

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[signature] 6/4/04

Name of Authorized Agent Signature Receipt Date

TRUCKING COMPANY

44638

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

GENERATOR: CIRR

APPROVAL #: 240521

TRANSPORTER: Barrow

TRUCK #: 840

MANIFEST #: 2

DATE: 6/3/04

GROSS WEIGHT

28650

TARE WEIGHT

3125

15

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-3909

44607

GENERATOR: Linde

APPROVAL #: 240521

TRANSPORTER: Rainbow

TRUCK #: 809

MANIFEST #: 3

DATE: 6/3/04

GROSS WEIGHT

29050
TARE WEIGHT

31.00

ALLIED ENVIRONMENTAL GROUP, INC.

2153 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

3

14

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR Manhasset Substation Shipping Location _____

Address Thompson Shore Road Address Same

Manhasset NY

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
24052	Non Hazardous Petrol Contaminated Soil Destined For Recycling					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. Dogonniuck T. Dogonniuck 3 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Rainbow Driver Name (Print) Anthony Licia

Address Deer Park NY Vehicle License No./State AH1179

Truck Number 709

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature 6/3/04 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature 6/3/04 Delivery Date

DESTINATION

Site Name Clean Earth of Carteret Phone No. _____

Address 24 Middlesex Ave Carteret NJ State Permit # 1201-96 0001-SC

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Signature 6/3/04 Receipt Date

FACILITY

44676

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

GENERATOR: LIRR

APPROVAL #: 240521

TRANSPORTER: Rainbow

TRUCK #: 837

MANIFEST #: 5

DATE: 6/3/04

[illegible] GROSS WEIGHT

27500
TARE WEIGHT

31.25

Allied

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

44649

GENERATOR: Link

APPROVAL #: 24052

TRANSPORTER: Landow

TRUCK #: BT 502

MANIFEST #: 1

DATE: 6/3/04

[illegible] GROSS

GROSS WEIGHT

27650 98

TARE WEIGHT

Log Number 1

3t

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR Manhasset Substation Shipping Location _____

Address Thompson Shore Rd Address SAME

Manhasset, New York

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
24052	Non Hazardous Petrol Contaminated Soil Destined for Recycling					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Theodore Dogonavick LIRR T Dogonavick 3 JUNE 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name Bulk Transport Express Driver Name (Print) Sean P. Borchers

Address 240 Allen Street Vehicle License No./State AH126L New Jersey

Nutley, New Jersey Truck Number 802 / 4151

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

Sean P. Borchers 6/3/04

Driver Signature Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Sean P. Borchers 6/3/04

Driver Signature Delivery Date

DESTINATION

Site Name Clean Earth of Carteret Phone No. 1201-96

Address 34 Middlesex Avenue Carteret, New Jersey State Permit # 0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

_____ _____ 6/3/04

Name of Authorized Agent Signature Receipt Date

FACILITY

44671

Clean Earth of Carteret, Inc.

24 Middlesex Avenue • Carteret, NJ 07008
(732) 541-8909

GENERATOR: Linde

APPROVAL #: 246521

TRANSPORTER: Rainbow

TRUCK #: BT 833

MANIFEST #: 4

DATE: 6/3/04

99950 lb GROSS

GROSS WEIGHT

2920

TARE WEIGHT

90.82

ALLIED ENVIRONMENTAL GROUP, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

4

NON-HAZARDOUS MATERIAL MANIFEST

GENERATOR

Generator Name LIRR Manhasset Substation Shipping Location SAME

Address _____ Address _____

Manhasset NY

Phone No. _____ Phone No. _____

Approval Number	Description of Material	Codes	Gross Weight	Tare Weight	Net Weight	Net Weight (Tons)
	Non-hazardous Petrol. Contaminated Soil destined for recycling					

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

T. DeConnuck T. DeConnuck 3 June 2004

Generator Authorized Agent Name Signature Shipment Date

TRANSPORTER

Transporter Name BT Express Driver Name (Print) Brian Tofaro

Address Netcong NJ Vehicle License No./State AH-4708R

Truck Number 833

State Permit # _____

I hereby certify that the above named material was picked up at the generator site listed above.

Driver Signature 6/3/04 Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature 6/3/04 Delivery Date

DESTINATION

Site Name Clean Earth of Carteret Phone No. _____

24 Middlesex Avenue

Address Carteret, NJ State Permit # @ 1201-96 0001-2

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Signature Receipt Date

TRUCKING COMPANY

ATTACHMENT 3

PRE-SOIL REMOVAL PHOTOGRAPHS

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

1

Pile 1 (looking northwest) .

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

2

Eastern side of Pile 2 (looking north).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

3

Western side of Pile 2 (looking northwest).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

4

Pile 3 (looking northwest).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

5

Eastern side of Pile 4 (looking southwest).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

6 Western side of Pile 4 (looking west southwest).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

7

Soil and miscellaneous debris spread over grade (looking east northeast).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

8

Miscellaneously strewn soil in the foreground and Pile 4 in the background (looking west).

LIRR - Manhasset Substation
Pre-Soil Removal Photographic Log

9 Soil which was spread on top of grade at the extreme western side of the site (looking northwest).

ATTACHMENT 4

POST-SOIL REMOVAL PHOTOGRAPHS

LIRR - Manhasset Substation
Post-Soil Removal Photographic Log

1

Former location of Piles 1 and 2 (looking west).

LIRR - Manhasset Substation
Post-Soil Removal Photographic Log

2

Former location of Piles 3 and 4 (looking west).

LIRR - Manhasset Substation
Post-Soil Removal Photographic Log

3

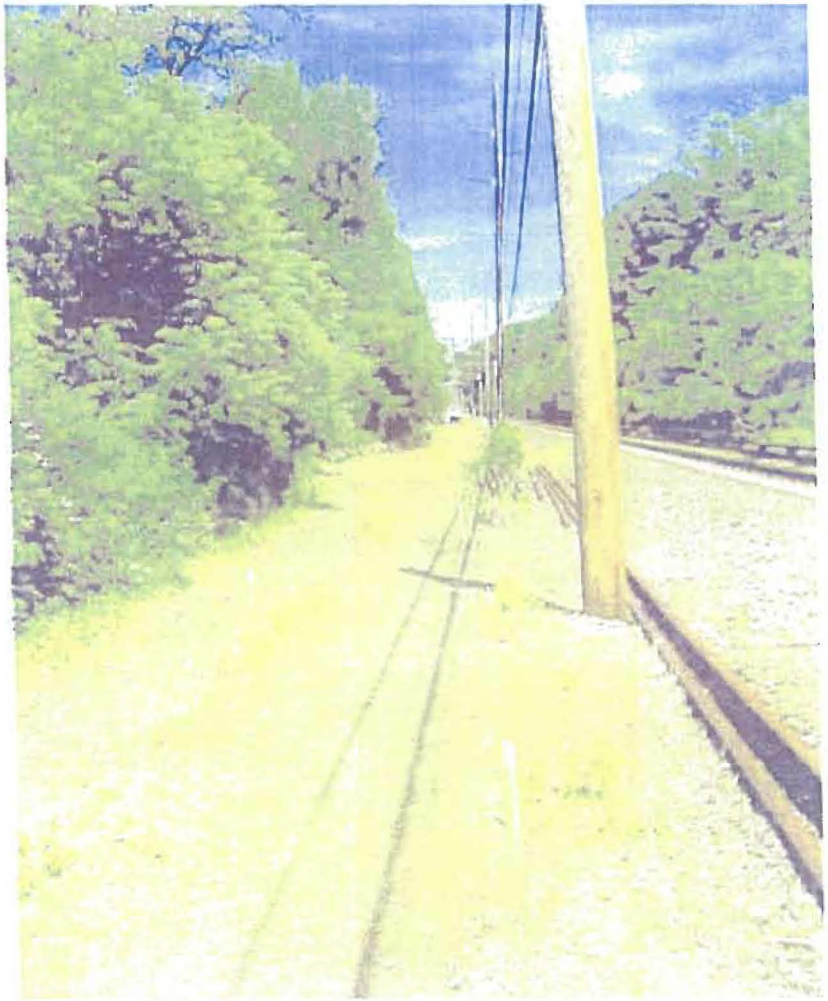
Former location of Piles 1, 2, and 3 (looking east).

LIRR - Manhasset Substation
Post-Soil Removal Photographic Log

4

Former location of Pile 4 and miscellaneous soil spread at grade (looking west).

LIRR - Manhasset Substation
Post-Soil Removal Photographic Log



5

Former location of Pile 4 (in foreground) and Piles 1, 2 and 3 (in background) (looking east).

ATTACHMENT 5

ANALYTICAL SUMMARY TABLES

TABLE 1

LONG ISLAND RAIL ROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

MERCURY SAMPLING

SAMPLE ID	SRSS-01	SRSS-07	SRSSS-13	SRSS-17	SRSS-18	SRSS-19	SRSS-20	SRSS-21	Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Comparison Criteria	Background Concentration Range	Background Average Concentration
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)				
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
PERCENT SOLIDS	87.0	96.0	88.0	86.0	89.0	84.0	85.0	85.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg	(mg/kg)	(mg/kg)
Mercury	1.2	0.073	1.1	0.44	0.89	1.4	0.077	0.85	0.1	0.1	0.026 - 0.031	0.0285

SAMPLE ID	SRSS-22	SRSS-23	SRSS-24	SRSS-25	SRSS-31	SRSS-32	SRSS-33	SRSS-34	Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Comparison Criteria	Background Concentration Range	Background Average Concentration
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)				
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
PERCENT SOLIDS	83.0	87.0	83.0	88.0	81.0	63.0	83.0	84.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/l)	mg/kg	(mg/kg)	(mg/kg)
Mercury	1.3	1.1	0.24	0.97	7.5	3.3	0.50	0.42	0.1	0.1	0.026 - 0.031	0.0285

SAMPLE ID	SRSS-35	SRSS-36	SRSS-37	SRSS-38	SRSS-39	SRSS-40	SRSS-41		Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Comparison Criteria	Background Concentration Range	Background Average Concentration
SAMPLE DEPTH (IN)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)	(0-2)					
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04					
PERCENT SOLIDS	74.0	83.0	82.0	75.0	79.0	89.0	85.0					
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		(ug/l)	mg/kg	(mg/kg)	(mg/kg)
Mercury	0.29	0.22	0.17	0.45	0.36	0.43	0.13		0.1	0.1	0.026 - 0.031	0.0285

Notes:
: Result exceeds Comparison Value.

TABLE 2

LONG ISLAND RAILROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

TARGET ANALYTE LIST (TAL) METALS

SAMPLE ID	SRSS-02	SRSS-03	SRSS-04	SRSS-05	SRSS-06	SRSS-08	SRSS-09	SRSS-10	SRSS-11	SRSS-12	Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Criteria	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
PERCENT SOLIDS	87.0	90.0	86.0	93.0	89.0	84.0	87.0	89.0	84.0	88.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	ug/l	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	6560	3320	6600	1820	6220	5990	7810	6860	8390	8490	13	SB	1,790 - 2,620	1,705.0
Antimony	U	U	U	U	U	U	U	U	U	U	8	SB	0.52 - 0.57	0.540
Arsenic	41.0	11.4	29.2	4.7	35.0	17.2	20.0	20.4	35.4	24.4	3	7.5 or SB	3.4 - 3.6	3.5
Barium	43.3	20.5	42.8	10.3	40.6	50.4	48.8	53.4	67.5	54.3	1	300 or SB	10.9 - 20.5	15.7
Beryllium	0.54	0.27 B	0.52	0.13 B	0.48	0.46	0.56	0.52	0.66	0.62	1	0.16 or SB	0.072 - 0.15	0.111
Cadmium	U	U	U	U	U	U	U	U	0.046 U	0.042 U	1	10*	U	U
Calcium	1810	1110	1520	345	1300	3880	2660	2020	3270	2850	8	SB	184 - 225	204.5
Chromium	13.4	5.7	12.4	2.9	12.3	12.2	14.8	19.0	13.2	14.8	1	50*	7.2 - 11	9.1
Cobalt	5.5	2.6	5.4	1.4 B	5.2	5.0	5.7	5.4	8.4	8.3	2	30 or SB	1.7 - 2.8	30.0
Copper	84.8	25.9	63.2	12.9	63.6	72.7	63.5	63.5	93.4	78.3	1	25 or SB	81.7 - 155	118.4
Iron	24000	8400	16400	3870	18700	15100	19800	16800	23300	20300	20	2,000 or SB	10,900 - 14,200	12,550.0
Lead	72.4	25.2	67.6	17.1	62.5	87.7	87.1	86.8	82.4	96.3	2	400	39.7 - 47.5	43.6
Magnesium	1710	1140	1740	552	1700	1950	2330	1800	2570	2250	8	SB	536 - 616	576.0
Manganese	284	112	250	63.3	227	256	285	322	432	310	4	SB	95.4 - 114	104.7
Mercury	0.60	0.14	0.40	0.069	0.37	3.9	0.61	0.35	0.63	0.83	0.2	0.1	0.028 - 0.031	0.0285
Nickel	14.8	6.4	13.4	2.9	12.3	12.6	14.4	12.4	14.6	14.8	2	13 or SB	7.5 - 8.3	7.9
Potassium	670	343	702	178	697	761	716	633	814	784	20	SB	231 - 325	278.0
Selenium	1.6 B	1.1 B	1.1 B	U	1.3 B	1.4 B	1.5 B	1.6	1.5 B	1.4 B	4	2 or SB	1.9 - 2.1	2.0
Silver	2.5	1.1 B	1.8	0.52 B	1.7	1.5 B	1.7	1.6	2.0	1.8	1	SB	1.4 - 1.7	1.6
Sodium	62.8	64.4	62.3	23.5 B	55.9	146	99.0	73.2	162	94.1	9	SB	11.8 - 15.9	13.9
Thallium	1.4	1.2	1.9	0.50 B	1.9	1.8	1.2	1.6	1.5	1.8	5	SB	U	U
Vanadium	21.0	11.4	19.4	5.4	18.8	21.8	23.0	22.0	26.2	24.7	1	150 or SB	11.7 - 15.2	150.0
Zinc	86.2	32.7	85.2	24.1	72.3	125	117	111	108	124	1	20 or SB	23.5 - 25.9	24.7

QUALIFIERS:
U: Compound analyzed for but not detected
B: Compound concentration is less than the CRDL but greater than the IDL.

NOTES:
SB: Site background
----: not established
*: as per proposed 4/95 NYSDEC TAGM
: Indicates value exceeds the NYSDEC TAGM 4046 Comparison Criteria

TABLE 2 (continued)

LONG ISLAND RAILROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

TARGET ANALYTE LIST (TAL) METALS

SAMPLE ID	SRSS-14	SRSS-15	SRSS-16	SRSS-26	SRSS-27	SRSS-28	SRSS-29	SRSS-30	SRSS-42	SRSS-43	Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Criteria	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
PERCENT SOLIDS	89.0	87.0	89.0	81.0	87.0	88.0	86.0	85.0	86.0	86.0				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	ug/l	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	8600	10400	7590	6130	6160	4930	7420	5110	6440	5060	13	SB	1,790 - 2,620	1,705.0
Antimony	0.33 B	U	U	0.59 B	0.16 B	0.52 B	0.56 B	0.44 B	0.33 B	0.34 B	8	SB	0.52 - 0.57	0.540
Arsenic	24.4	20.6	20.7	72.0	58.9	36.0	50.2	36.4	26.3	30.8	3	7.5 or SB	3.4 - 3.6	3.5
Barium	50.1	69.6	48.1	49.8	48.5	44.1	51.8	48.0	54.9	39.2	1	300 or SB	10.9 - 20.5	15.7
Beryllium	0.60	0.74	0.54	0.66	0.66	0.58	0.72	0.58	0.61	0.50	1	0.16 or SB	0.072 - 0.15	0.111
Cadmium	U	U	U	U	U	U		U	0.041 U	0.043 U	1	10*	U	U
Calcium	2450	2040	2110	2220	1670	1340	2570	1440	2740	2420	8	SB	184 - 225	204.5
Chromium	14.0	16.4	13.8	19.9	14.9	16.0	16.9	16.3	15.4	13.3	1	50*	7.2 - 11	9.1
Cobalt	6.2	7.4	5.6	6.9	6.1	5.0	7.2	5.5	6.5	5.0	2	30 or SB	1.7 - 2.8	30.0
Copper	67.4	66.1	62.4	159	105	101	104	133	83.2	79.9	1	25 or SB	81.7 - 155	118.4
Iron	19700	21600	17900	27600	27900	20900	27600	24900	22000	18400	20	2,000 or SB	10,900 - 14,200	12,550.0
Lead	84.1	80.7	68.8	120	73.8	88.3	84.7	105	92.8	102	2	400	39.7 - 47.5	43.6
Magnesium	2300	2520	2150	1900	1660	1240	2250	1080	2390	1550	8	SB	536 - 616	576.0
Manganese	298	340	264	346	268	200	297	222	249	205	4	SB	95.4 - 114	104.7
Mercury	0.89	0.75	0.44	1.3	0.36	0.36	0.84	0.68	1.4	0.97	0.2	0.1	0.026 - 0.031	0.0285
Nickel	14.5	16.7	12.8	17.4	14.3	12.7	15.6	14.8	15.4	11.7	2	13 or SB	7.5 - 8.3	7.9
Potassium	791	1020	772	957	956	811	1010	570	1430	738	20	SB	231 - 325	278.0
Selenium	1.6 B	0.72 B	1.1 B	2.3	2.7	2.3	1.8	2.4	2.3	1.8	4	2 or SB	1.9 - 2.1	2.0
Silver	1.9	1.7	1.5 B	U	U	U	U	U	0.10 U	0.11 U	1	SB	1.4 - 1.7	1.6
Sodium	71.6	97.4	70.3	115	60.4	60.1	77.9	87.5	92.2	76.1	9	SB	11.8 - 15.9	13.9
Thallium	2	2.5	2.0	1.2	1.3	1.1	1.1 B	1.1	1.1	0.82 B	5	SB	U	U
Vanadium	24.4	27.7	21.6	26.9	23.1	22.5	27.6	24.6	24.1	19.8	1	150 or SB	11.7 - 15.2	150.0
Zinc	127	133	106	124	81.0	68.8	85.2	80.4	124	112	1	20 or SB	23.5 - 25.9	24.7

QUALIFIERS:
U: Compound analyzed for but not detected
B: Compound concentration is less than the CRDL but greater than the IDL.

NOTES:
SB: Site background
----: not established
*: as per proposed 4/95 NYSDEC TAGM
: Indicates value exceeds the NYSDEC TAGM 4046 Comparison Criteria

TABLE 2 (continued)

LONG ISLAND RAILROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

TARGET ANALYTE LIST (TAL) METALS

SAMPLE ID	SRSS-44	SRSS-45	SRSS-46	SRSS-47	SRSS-48						Instrument Detection Limits	NYSDEC TAGM 4046 Appendix A Criteria	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04									
PERCENT SOLIDS	88.0	86.0	83.0	85.0	82.0									
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)						ug/l	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	7690	5750	7230	8710	8520						13	SB	1,790 - 2,620	1,705.0
Antimony	0.57 B	0.53 B	0.32 B	0.73 B	0.23 B						6	SB	0.52 - 0.57	0.540
Arsenic	38.5	36.2	27.1	48.6	7.9						3	7.5 or SB	3.4 - 3.6	3.5
Barium	50.6	39.5	54.4	55.2	59.9						1	300 or SB	10.9 - 20.5	15.7
Beryllium	0.75	0.60	0.69	0.85	0.88						1	0.16 or SB	0.072 - 0.15	0.111
Cadmium	U	U	U	U	U						1	10*	U	U
Calcium	5640	1940	2190	2110	2900						8	SB	184 - 225	204.5
Chromium	20.4	14.1	17.0	20.9	23.3						1	50*	7.2 - 11	9.1
Cobalt	8.5	5.5	5.6	8.3	5.1						2	30 or SB	1.7 - 2.8	30.0
Copper	107	69.3	65.4	99.7	57.5						1	25 or SB	81.7 - 155	118.4
Iron	32200	21500	17100	30300	14700						20	2,000 or SB	10,900 - 14,200	12,550.0
Lead	95.9	59.2	66.7	85.2	81.5						2	400	39.7 - 47.5	43.6
Magnesium	3740	1840	1910	2440	1940						6	SB	536 - 616	576.0
Manganese	298	229	218	328	162						4	SB	95.4 - 114	104.7
Mercury	0.48	0.44	0.45	1.0	0.11						0.2	0.1	0.026 - 0.031	0.0285
Nickel	18.2	12.1	12.9	17.1	16.2						2	13 or SB	7.5 - 8.3	7.9
Potassium	1060	885	912	1430	676						20	SB	231 - 325	278.0
Selenium	2.4	2.0	1.9	2.5	1.7 B						4	2 or SB	1.9 - 2.1	2.0
Silver	U	U	U	U	U						1	SB	1.4 - 1.7	1.6
Sodium	172	53.2 B	59.4	87.6	53.0 B						9	SB	11.8 - 15.9	13.9
Thallium	1.4	1.0 B	0.81 B	1.3	0.62 B						5	SB	U	U
Vanadium	30.8	20.5	23.2	27.9	24.5						1	150 or SB	11.7 - 15.2	150.0
Zinc	110	67.7	78.8	101	125						1	20 or SB	23.5 - 25.9	24.7

QUALIFIERS:
U: Compound analyzed for but not detected
B: Compound concentration is less than the CRDL but greater than the IDL.

NOTES:
SB: Site background
----: not established
*: as per proposed 4/95 NYSDEC TAGM
[ ]:Indicates value exceeds the NYSDEC TAGM 4046 Comparison Criteria

TABLE 3

LONG ISLAND RAIL ROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

POLYCYCLIC AEROMATIC HYDROCARBONS (PAHs)

SAMPLE ID	SRSS-02	SRSS-03	SRSS-04	SRSS-05	SRSS-06	SRSS-08	SRSS-09	SRSS-10	SRSS-11	LABORATORY LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
DILUTION FACTOR	1	1	1	1	1	1	1	1	1				
PERCENT SOLIDS	87.0	90.0	86.0	93.0	89.0	84.0	87.0	89.0	84.0				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	U	330	30	U	U
Naphthalene	U	U	U	U	U	U	U	U	U	330	13,000	U	U
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	330	36,400	U	U
Acenaphthylene	140 J	U	100 J	U	110 J	230 J	170 J	120 J	120 J	330	41,000	210 - 290	250
Acenaphthene	U	U	U	U	U	U	U	U	U	330	50,000	U	U
Dibenzofuran	U	U	U	U	U	U	U	U	U	330	6,200	U	U
Fluorene	U	U	U	U	U	50 J	50 J	38 J	U	330	50,000	U	U
Pentachlorophenol	U	U	U	U	U	U	U	U	U	330	1,000	U	U
Phenanthrene	300 J	120 J	300 J	120 J	290 J	490	900	440	380 J	330	50,000	1,400 - 2,600	2,000
Anthracene	210 J	63 J	150 J	37 J	200 J	370 J	350 J	230 J	200 J	330	50,000	220 - 310	265
Fluoranthene	800	290 J	720	U	740	1,400	2,200	1,100	970	330	50,000	4,100 - 5,600	4,850
Pyrene	820	280 J	680	U	710	1300	2000	950	980	330	50,000	2,800 - 4,200	4,000
Benzo(a)anthracene	430	140 J	410	U	440	750	760	610	530	330	224	330 - 650	490
Chrysene	890	310 J	820	U	760	1400	1700	1100	970	330	400	1,400 - 2,200	1,800
Benzo(b)fluoranthene	1,000	310 J	760	150 J	730	1,400	1,400	1,200	1,100	330	1,100	1,500 - 2,500	2,000
Benzo(k)fluoranthene	350 J	110 J	370 J	71 J	350 J	590	680	470	360 J	330	1,100	590 - 920	755
Benzo(e)pyrene	550	180 J	480	U	460	870	880	750	640	330	61	350 - 550	450
Indeno(1,2,3-cd)pyrene	420	130 J	350 J	61 J	330 J	620	680	490	440	330	3,200	250 - 390	320
Dibenzo(a,h)anthracene	140 J	39 J	110 J	U	100 J	200 J	200 J	170 J	150 J	330	14	U	U
Benzo(g,h,i)perylene	460	140 J	380 J	68 J	370 J	680	700	530	490	330	50,000	210 - 330	270
Total PAHs	6510	2112	5630	507	5590	10350	12670	8198	7330		100,000	14,560 - 19,340	17,450
Total CaPAHs	3780	1219	3300	282	3170	5830	6300	4790	4190		10,000	4,420 - 7,210	5,815

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not Available
[ ] : Concentration exceeds NYSDEC TAGM 4046 Appendix A Criteria.

TABLE 3 (Continued)

LONG ISLAND RAIL ROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

POLYCYCLIC AEROMATIC HYDROCARBONS (PAHs)

SAMPLE ID	SRSS-12	SRSS-14	SRSS-15	SRSS-16	SRSS-26	SRSS-27	SRSS-28	SRSS-29	SRSS-30	LABORATORY LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04				
DILUTION FACTOR	1	1	1	1	1	1	1	1	1				
PERCENT SOLIDS	88.0	89.0	87.0	89.0	81.0	87.0	88.0	86.0	85.0				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	U	330	30	U	U
Naphthalene	U	U	U	U	U	U	U	U	U	330	13,000	U	U
2-Methylnaphthalene	U	U	U	U	U	U	39 J	U	U	330	36,400	U	U
Acenaphthylene	140 J	U	J	110 J	170 J	J	150 J	U	130 J	330	41,000	210 - 290	250
Acenaphthene	U	U	U	68 J	U	U	U	U	U	330	50,000	U	U
Dibenzofuran	U	U	U	81 J	U	U	U	U	U	330	6,200	U	U
Fluorene	52 J	38 J	U	85 J	U	U	42 J	U	U	330	50,000	U	U
Pentachlorophenol	U	U	U	U	U	U	U	U	790 U	330	1,000	U	U
Phenanthrene	670	480	410	1500	370 J	280 J	820	210 J	250 J	330	50,000	1,400 - 2,600	2,000
Anthracene	330 J	200 J	200 J	220 J	320 J	200 J	400	150 J	240 J	330	50,000	220 - 310	265
Fluoranthene	1,500	1000	1000	1800	1000	610	1400	580	800	330	50,000	4,100 - 5,600	4,850
Pyrene	1500	1100	980	1500	1000	610	1500	580	800	330	50,000	2,800 - 4,200	4,000
Benzo(a)anthracene	780	570	500	570	540	330 J	790	310 J	350 J	330	224	330 - 650	490
Chrysene	1400	1000	1100	1200	1200	710	1500	620	1100	330	400	1,400 - 2,200	1,800
Benzo(b)fluoranthene	1500	1000	1100	1200	1300	710	1500	690	1200	330	1,100	1,500 - 2,500	2,000
Benzo(k)fluoranthene	540	470	420	400	810	290 J	500	230 J	410	330	1,100	590 - 920	755
Benzo(a)pyrene	900	660	680	690	610	400	770	400	400	330	61	350 - 550	450
Indeno(1,2,3-cd)pyrene	630	450	460	490	480	360 J	530	280 J	350 J	330	3,200	250 - 390	320
Dibenzo(a,h)anthracene	210 J	150 J	160 J	150 J	160 J	130 J	190 J	90 J	120 J	330	14	U	U
Benzo(g,h,i)perylene	690	510	520	530	490	350 J	560	300 J	350 J	330	50,000	210 - 330	270
Total PAHs	10842	7628	7530	10594	8250	4960	10691	4440	6500		100,000	14,560 - 19,340	17,450
Total CaPAHs	5960	4300	4420	4700	4900	2930	5780	2620	3930		10,000	4,420 - 7,210	5,815

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not Available
[ ] : Concentration exceeds NYSDEC TAGM 4046 Appendix A Criteria.

TABLE 3 (Continued)

LONG ISLAND RAIL ROAD
MANHASSET SUBSTATION SOIL REMOVAL ACTIVITIES
SURFACE SOIL SAMPLING RESULTS

POLYCYCLIC AEROMATIC HYDROCARBONS (PAHs)

SAMPLE ID	SRSS-42	SRSS-43	SRSS-44	SRSS-45	SRSS-46	SRSS-47	SRSS-48			LABORATORY LIMITS	NYSDEC TAGM 4046 Recommended Soil Cleanup Objectives	Background Concentration Range	Background Average Concentration
DATE OF COLLECTION	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04	6/7/04						
DILUTION FACTOR	1	1	1	1	1	1	1						
PERCENT SOLIDS	86.0	86.0	88.0	86.0	83.0	85.0	82.0						
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)			(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U			330	30	U	U
Naphthelene	U	U	U	U	U	U	U			330	13,000	U	U
2-Methylnaphthelene	U	U	U	U	U	U	U			330	36,400	U	U
Acenaphthylene	93 J	110 J	140 J	68 J	87 J	160 J	140 J			330	41,000	210 - 290	250
Acenaphthene	U	U	U	U	U	U	U			330	50,000	U	U
Dibenzofuran	U	U	U	U	U	U	U			330	6,200	U	U
Fluorene	U	71 J	U	U	U	U	56 J			330	50,000	U	U
Pentachlorophenol	U	U	U	U	U	U	U			330	1,000	U	U
Phenanthrene	420	800	450	260 J	270 J	350 J	690			330	50,000	1,400 - 2,600	2,000
Anthracene	160 J	3200	210 J	99 J	120 J	250 J	260 J			330	50,000	220 - 310	265
Fluoranthene	1400	5300	1500	880	780	990	1300			330	50,000	4,100 - 5,600	4,850
Pyrene	1600	5300	1800	820	1000	1000	1300			330	50,000	2,800 - 4,200	4,000
Benzo(a)anthracene	700	2000	870	390	520	580	750			330	224	330 - 650	490
Chrysene	1600	3200	1800	730	910	970	1100			330	400	1,400 - 2,200	1,800
Benzo(b)fluoranthene	1500	2300	2000	870	1000	1100	1200			330	1,100	1,500 - 2,500	2,000
Benzo(k)fluoranthene	800	1100	960	320 J	840	430	450			330	1,100	590 - 920	755
Benzo(a)pyrene	880	1200	1100	440	590	660	790			330	61	350 - 550	450
Indeno(1,2,3-cd)pyrene	460	560	600	260 J	360 J	480	490			330	3,200	250 - 390	320
Dibenzo(a,h)anthracene	160 J	190 J	190 J	88 J	120 J	160 J	150 J			330	14	U	U
Benzo(g,h,i)perylene	540	600	650	290 J	410	510	510			330	50,000	210 - 330	270
Total PAHs	10313	25931	12270	5315	7007	7640	9186				100,000	14,560 - 19,340	17,450
Total CaPAHs	6100	10550	7520	3098	4340	4380	4930				10,000	4,420 - 7,210	5,815

QUALIFIERS:
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit.

NOTES:
-- : Not Available
[ ] : Concentration exceeds NYSDEC TAGM 4046 Appendix A Criteria.

Appendix G

APPENDIX G

LONG ISLAND RAIL ROAD PROCEDURE/INSTRUCTION EE03-001, EXCAVATING SOILS AT RAILROAD LOCATIONS

Procedure/Instruction: EE03-001
EXCAVATING SOILS AT RAILROAD LOCATIONS **Effective DATE: August 11, 2003**

A. Introduction:

At existing railroad shops, yards, substations, right-of-ways and other locations, past operations may have resulted in the chance of soils containing very low levels of chemical substances. Examples may include; trace levels of metals around old painted structures, oils and greases around train yards and repair locations, greasy or sooty compounds left from coal ash ("clinker").

This Procedure/Instruction has been prepared to eliminate any risk that may be posed to LIRR workers who must dig in these locations. It is to be applied on a case by case basis, with any questions referred to Department Management and System Safety.

B. Required Steps/Actions:

1. The first step of any LIRR excavation, regarding the soil composition and possible presence of contaminates, is to review the current System Safety Environmental Audit Map. This map includes all LIRR sites with documented soil contaminates. If your site appears on the map in red it may have soil concerns that could affect your project, contact System Safety before proceeding. If your site is not shown or is shown in black (does not have soil concerns) proceed to Step 2 as follows;

2. When digging at an existing railroad facility, the recommended procedures include:
   a. Wherever possible excavate with mechanical means, such as backhoes, ditch-witches or excavators.

   b. Wash facilities must be available for use by workers at the end of the task, before breaks, before meals, or at the end-of-shift. For field operations, wet-wipes are acceptable for fulfilling this requirement.

   c. Where hand digging must be used, workers must be instructed to brush soil from clothing and shoes. Disposable coveralls, shoe coverings and gloves should be made available upon workers request. Work clothing should be laundered.

   d. All equipment should be cleaned before leaving the worksite. The preferred method is hosing down with water, removing any clumps of dirt and soil. If water is not available, equipment should be brushed clean of any dirt and soil using a broom or stiff brush. Disposable items can be placed in the trash, no special disposal is necessary.

3. Where evidence of soil contamination is found, such as an odor, a stain or visible contaminant, the soil feels greasy, or results from laboratory analysis indicate a contaminant;

   a. Stop any excavation work or only excavate by mechanical means and

   b. Immediately Contact System Safety (information below) to assess the situation.

C. Regulations or Policy References: LIRR Corporate Environmental Policy; Section IV, B, 5

D. System Safety Contacts:

Environmental Engineer;	718-558-3252
Environmental Field Engineer;	718-558-3081

E. Forms & Attachments: None.

Appendix H

APPENDIX H

MERCURY VAPOR RESULTS FOR SURFACE SOIL SAMPLES

Table H-1
Long Island Rail Road
Delineation Phase 2 Site Assessment
Mercury Vapor Measurement Results at Surface Soil Sample Locations
Manhasset Substation - N10

Sample Date	Surface Soil Sample ID	Sample Depth (inches)	Mercury Vapor Analyzer Reading (mg/m^3 Hg)
1/15/2003	MHSS-14	0 to 2	NA
1/15/2003	MHSS-15	0 to 2	NA
1/15/2003	MHSS-16	0 to 2	NA
1/15/2003	MHSS-17	0 to 2	0.014
1/15/2003	MHSS-18	0 to 2	0.007
1/16/2003	MHSS-19	0 to 2	0.005
1/16/2003	MHSS-20	0 to 2	0.005
1/16/2003	MHSS-21	0 to 2	0.003
1/16/2003	MHSS-22	0 to 2	0.000
1/16/2003	MHSS-23	0 to 2	0.003
1/16/2003	MHSS-24	0 to 2	0.000
1/16/2003	MHSS-25	0 to 2	0.000
1/16/2003	MHSS-26	0 to 2	0.000
1/16/2003	MHSS-27	0 to 2	0.094
1/16/2003	MHSS-28	0 to 2	0.000
1/16/2003	MHSS-29	0 to 2	0.006
1/16/2003	MHSS-30	0 to 2	0.008
1/16/2003	MHSS-31	0 to 2	0.006
8/12/2004	MHSS-32	0 to 2	0.000
8/12/2004	MHSS-33	0 to 2	0.000
8/12/2004	MHSS-34	0 to 2	0.000
8/12/2004	MHSS-35	0 to 2	0.000
8/12/2004	MHSS-36	0 to 2	0.074
8/12/2004	MHSS-37	0 to 2	0.039
8/12/2004	MHSS-38	0 to 2	0.057
8/12/2004	MHSS-39	0 to 2	0.009
8/12/2004	MHSS-40	0 to 2	0.000
8/12/2004	MHSS-41	0 to 2	0.000
8/12/2004	MHSS-42	0 to 2	0.012
8/12/2004	MHSS-43	0 to 2	0.000
8/11/2004	MHSS-44	0 to 2	0.000
8/16/2004	MHSS-44	2 to 12	0.000
8/11/2004	MHSS-45	0 to 2	0.000
8/16/2004	MHSS-45	2 to 12	0.000
8/11/2004	MHSS-46	0 to 2	0.000
8/16/2004	MHSS-46	2 to 12	0.000
8/11/2004	MHSS-47	0 to 2	0.000
8/16/2004	MHSS-47	2 to 12	0.000
8/11/2004	MHSS-48	0 to 2	0.000
8/16/2004	MHSS-48	2 to 12	0.000
8/11/2004	MHSS-49	0 to 2	0.000
8/16/2004	MHSS-49	2 to 12	0.000
8/11/2004	MHSS-50	0 to 2	0.000
8/16/2004	MHSS-50	2 to 12	0.000
8/11/2004	MHSS-51	0 to 2	0.000
8/16/2004	MHSS-51	2 to 12	0.000
8/11/2004	MHSS-52	0 to 2	0.000
8/16/2004	MHSS-52	2 to 12	0.000

Table H-1 (continued)
Long Island Rail Road
Delineation Phase 2 Site Assessment
Mercury Vapor Measurement Results at Surface Soil Sample Locations
Manhasset Substation - N10

Sample Date	Surface Soil Sample ID	Sample Depth (inches)	Mercury Vapor Analyzer Reading (mg/m^3 Hg)
8/11/2004	MHSS-53	0 to 2	0.000
8/16/2004	MHSS-53	2 to 12	0.000
8/11/2004	MHSS-54	0 to 2	0.000
8/16/2004	MHSS-54	2 to 12	0.000
8/11/2004	MHSS-55	0 to 2	0.000
8/16/2004	MHSS-55	2 to 12	0.000
8/11/2004	MHSS-56	0 to 2	0.000
8/16/2004	MHSS-56	2 to 12	0.000
8/11/2004	MHSS-57	0 to 2	0.000
8/16/2004	MHSS-57	2 to 12	0.000
8/11/2004	MHSS-58	0 to 2	0.000
8/16/2004	MHSS-58	2 to 12	0.000
8/19/2004	MHSS-59	0 to 2	0.000
8/16/2004	MHSS-59	2 to 12	0.000
8/19/2004	MHSS-60	0 to 2	0.000
8/16/2004	MHSS-60	2 to 12	0.000
8/16/2004	MHSS-61	0 to 2	0.000
8/16/2004	MHSS-61	2 to 12	0.000
8/16/2004	MHSS-62	0 to 2	0.000
8/16/2004	MHSS-62	2 to 12	0.000
8/16/2004	MHSS-63	0 to 2	0.000
8/16/2004	MHSS-63	2 to 12	0.000
8/16/2004	MHSS-64	0 to 2	0.000
8/16/2004	MHSS-64	2 to 12	0.000
8/13/2004	MHSS-65	0 to 2	0.000
8/13/2004	MHSS-65	2 to 12	0.000
8/13/2004	MHSS-66	0 to 2	0.000
8/13/2004	MHSS-66	2 to 12	0.000
8/13/2004	MHSS-67	0 to 2	0.000
8/13/2004	MHSS-67	2 to 12	0.000
8/13/2004	MHSS-68	0 to 2	0.000
8/13/2004	MHSS-68	2 to 12	0.000
8/13/2004	MHSS-69	0 to 2	0.000
8/13/2004	MHSS-69	2 to 12	0.000
8/13/2004	MHSS-70	0 to 2	0.000
8/13/2004	MHSS-70	2 to 12	0.000
8/13/2004	MHSS-71	0 to 2	0.000
8/13/2004	MHSS-71	2 to 12	0.000
8/13/2004	MHSS-72	0 to 2	0.000
8/13/2004	MHSS-72	2 to 12	0.000
8/16/2004	MHSS-73	0 to 2	0.005
8/16/2004	MHSS-73	2 to 12	0.000
8/16/2004	MHSS-74	0 to 2	0.000
8/16/2004	MHSS-74	2 to 12	0.005
8/16/2004	MHSS-75	0 to 2	0.004
8/16/2004	MHSS-76	0 to 2	0.000
8/16/2004	MHSS-77	0 to 2	0.003
8/16/2004	MHSS-78	0 to 2	0.000

Table H-1 (continued)
Long Island Rail Road
Delineation Phase 2 Site Assessment
Mercury Vapor Measurement Results at Surface Soil Sample Locations
Manhasset Substation - N10

Sample Date	Surface Soil Sample ID	Sample Depth (inches)	Mercury Vapor Analyzer Reading (mg/m^3 Hg)
8/16/2004	MHSS-79	0 to 2	0.004
8/16/2004	MHSS-80	0 to 2	0.000
1/15/2003	MHSB-13	0 to 2	0.010
1/15/2003	MHSB-14	0 to 2	0.000
1/15/2003	MHSB-15	0 to 2	0.000
1/15/2003	MHSB-16	0 to 2	0.000
1/16/2003	MHSB-17	0 to 2	0.006
1/16/2003	MHSB-18	0 to 2	0.004
1/16/2003	MHSB-19	0 to 2	0.009

Notes:
NA : Not available due to equipment malfunction.

Table H-2
Long Island Rail Road
Delineation Phase 2 Site Assessment
Mercury Vapor Measurement Results at Surface Soil Sample Locations
Massapequa Substation - S15

Sample Date	Surface Soil Sample ID	Sample Depth (inches)	Mercury Vapor Analyzer Reading (mg/m^3 Hg)
8/10/2004	MSSS-07A	0 to 2	0.000
8/10/2004	MSSS-08	0 to 2	0.009
8/10/2004	MSSS-09	0 to 2	0.000
8/10/2004	MSSS-10	0 to 2	0.000
8/10/2004	MSSS-11	0 to 2	0.000
8/10/2004	MSSS-12	0 to 2	0.000
8/10/2004	MSSS-13	0 to 2	0.000
8/10/2004	MSSS-14	0 to 2	0.000
8/10/2004	MSSS-15	0 to 2	0.000
8/10/2004	MSSS-16	0 to 2	0.000
8/10/2004	MSSS-17	0 to 2	0.003
8/10/2004	MSSS-18	0 to 2	0.000
8/10/2004	MSSS-19	0 to 2	0.000
8/10/2004	MSSS-20	0 to 2	0.000
2/4/2003	MSSB-06A	0 to 2	0.000
2/4/2003	MSSB-09	0 to 2	0.000
2/4/2003	MSSB-10	0 to 2	0.000
2/4/2003	MSSB-11	0 to 2	0.000
2/4/2003	MSSB-12	0 to 2	0.000
2/3/2003	MSSB-13	0 to 2	0.000
2/4/2003	MSSB-14	0 to 2	0.000
2/4/2003	MSSB-15	0 to 2	0.000
2/4/2003	MSSB-16	0 to 2	0.000
2/4/2003	MSSB-17	0 to 2	0.000
2/4/2003	MSSB-18	0 to 2	0.000
2/4/2003	MSSB-19	0 to 2	0.000
2/4/2003	MSSB-20	0 to 2	0.000
2/3/2003	MSSB-21	0 to 2	0.000
2/4/2003	MSSB-22	0 to 2	0.000
2/4/2003	MSSB-23	0 to 2	0.000
2/4/2003	MSSB-24	0 to 2	0.000
2/3/2003	MSSB-25	0 to 2	0.006
2/3/2003	MSSB-26	0 to 2	0.000
2/3/2003	MSSB-27	0 to 2	0.000
2/3/2003	MSSB-28	0 to 2	0.004
2/3/2003	MSSB-29	0 to 2	0.003
2/4/2003	MSSB-30	0 to 2	0.000
2/3/2003	MSSB-31	0 to 2	0.003
2/4/2003	MSSB-32	0 to 2	0.000
2/4/2003	MSSB-33	0 to 2	0.000
2/4/2003	MSSB-34	0 to 2	0.000
2/3/2003	MSSB-38	0 to 2	0.000
2/4/2003	MSSB-39	0 to 2	0.000

Table H-3
Long Island Rail Road
Delineation Phase 2 Site Assessment
Mercury Vapor Measurement Results at Surface Soil Sample Locations
Island Park Substation - L03

Sample Date	Surface Soil Sample ID	Sample Depth (inches)	Mercury Vapor Analyzer Reading (mg/m^3 Hg)
1/28/2003	IPSS-05	0 to 2	0.000
1/28/2003	IPSS-06	0 to 2	0.003
1/27/2003	IPSB-12	0 to 2	0.008
1/29/2003	IPSB-13	0 to 2	0.025
1/29/2003	IPSB-14	0 to 2	0.010
1/29/2003	IPSB-15	0 to 2	0.014
1/30/2003	IPSB-18	0 to 2	0.008
1/27/2003	IPSB-19	0 to 2	0.005
1/29/2003	IPSB-22	0 to 2	0.005
1/29/2003	IPSB-23	0 to 2	0.021
1/29/2003	IPSB-24	0 to 2	0.024
1/29/2003	IPSB-25	0 to 2	0.210
1/30/2003	IPSB-26	0 to 2	0.008
1/30/2003	IPSB-27	0 to 2	0.008
1/30/2003	IPSB-28	0 to 2	0.013
1/28/2003	IPSB-29	0 to 2	0.000

APPENDIX I

DATA VALIDATOR RESUME

ROBBIN A. PETRELLA

QUALITY ASSURANCE OFFICER

EDUCATION

SUNY at Buffalo, B.S. (Chemical Engineering) - 1986

PROFESSIONAL EXPERIENCE

Ms. Petrella's professional quality assurance/quality control (QA/QC) experience spans 18 years. During this time, she served as a Sample and Data Analyst for two large environmental laboratories. Ms. Petrella was responsible, as Data Review Group Leader, for supervision of data validation and QA/QC coordination between the laboratory and its clients. Her technical experience includes both the analysis and review of environmental samples using numerous protocols, including those developed by the United States Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), and New Jersey Department of Environmental Protection (NJDEP).

Since joining the firm, Ms. Petrella has been responsible for preparing Quality Assurance/Quality Control Plans and Waste Analysis Plans for a number of large private sector clients. These include Chemical Waste Disposal Corporation, the International Business Machines Corporation and Northrop Grumman Corporation. She also has prepared overall QA/QC programs for Northrop Grumman's on-site laboratories.

Ms. Petrella has prepared QA/QC Plans and data validation/usability reports for remedial investigation and feasibility studies conducted at numerous New York State Registry Sites, including those in the Towns of Cheektowaga, Schodack, and North Tonawanda, as well as the Villages of Croton-on-Hudson and Brentwood, New York. These tasks involved evaluation of the laboratory data to determine compliance with NYSDEC Analytical Services Protocols (ASP), as well as to determine the usability of the data particularly if it was not consistent with ASP requirements.

Ms. Petrella has assisted in the preparation and performance of air sampling programs for remedial investigation/feasibility studies (RI/FS) conducted at landfill/Superfund sites in Wallkill, New York and East Northport, New York. She has also performed water supply sampling for an RI/FS in Rensselaer County, New York, and a surface and subsurface water and soil sampling program as part of an RI/FS in Elmira, New York.

Ms. Petrella has acted as the QA/QC officer, and prepared and performed field audits for Superfund site investigations in Tonawanda, New York; Owego, New York; Brookhaven, New York; and Hornell, New York, and for a major railroad facility in New York City. She also has assisted in the preparation of laboratory contracts for analytical services for hazardous waste studies in Schodack, New York; Jamaica, New York; and the New York State Superfund Standby contract.

Ms. Petrella is responsible for performing laboratory audits on all laboratories having contracts with the firm as part of the New York State Superfund Program. She has been certified by the USEPA in both organic and inorganic data validation by successfully completing courses authorized by the USEPA. These certifications have also been accepted by the NYSDEC.

Ms. Petrella is responsible for the data validation of all data packages from ongoing hydrogeologic investigation and landfill closure investigations in Brookhaven and Hauppauge, New York. She also is responsible

for validation of all data collected during field investigations for a large aerospace corporation, a major utility on Long Island, and manufactured gas plants across Long Island.

Ms. Petrella has acted as Project Manager for a standby project with the NYSDEC and a groundwater treatment project located in New Jersey.

Ms. Petrella has been instrumental in the design and implementation of the firm's GIS\Key Database system. In that role, she is responsible for the maintenance of the system and training of personnel in its use. She also is responsible for all updates to the GIS\Key program and communicates on a regular basis with the GIS\Key venders with regard to system improvements and network administration. Currently, there are seven ongoing projects that use GIS\Key, five of which are MGP sites. Ms. Petrella is responsible for entering and reporting of all chemistry data from GIS\Key.

Ms. Petrella also has conducted indoor and outdoor air sampling programs as part of MGP site field investigations. She has conducted interviews with homeowners as part of the air sampling program. She also is responsible for data validation of all the data from the air sampling programs.

Ms. Petrella has performed multimedia compliance audits for several hospitals in both New York and New Jersey. She also has prepared audit reports and EPA disclosure reports based on the compliance audits

Ms. Petrella presently is the Quality Assurance/Quality Control officer for the firm and responsible for reviewing all work relating to Quality Assurance/Quality Control for hazardous waste, hazardous substance, manufactured gas plant and solid waste projects undertaken by the firm. She also is responsible for preparation and maintenance of the Corporate Quality Assurance Manual, and for inventory and maintenance of the firm's field/sampling and monitoring equipment. As the QA/QC Officer, she reports directly to the Principal-in-Charge of the Environmental Remediation Division.

APPENDIX J

REVISED/QUALIFIED DATA SUMMARY SHEETS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB221820

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2047

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 0 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	11	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	~~B~~ U RP
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB221820

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2047

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 0 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	1	J
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	2	J
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB221820

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2047

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 0 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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23.					
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30.					

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB222426

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-03B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2048

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 2 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	~~4~~ 5	~~JB~~ U RP
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB222426

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-03B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2048

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 2 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB222426

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-03B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2048

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 2 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB22810

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-01B

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V1F2046

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 11 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	~~UB~~ U pf
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB22810

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-01B

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V1F2046

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 11 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB22810

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-01B

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V1F2046

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: not dec. 11 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2052

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	7	B U RP
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2052

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2052

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2049

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	~~4~~	~~UB~~ U RP
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2049

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01B

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V1F2049

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 9 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume:_____(uL)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2050

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 13 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6	U
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
75-35-4	1,1-Dichloroethene	6	U
67-64-1	Acetone	6	U
74-88-4	Iodomethane	6	U
75-15-0	Carbon Disulfide	6	U
75-09-2	Methylene Chloride	~~7~~ 6	~~B~~ U ep
156-60-5	trans-1,2-Dichloroethene	6	U
1634-04-4	Methyl tert-butyl ether	6	U
75-34-3	1,1-Dichloroethane	6	U
108-05-4	Vinyl acetate	6	U
78-93-3	2-Butanone	6	U
156-59-2	cis-1,2-Dichloroethene	6	U
590-20-7	2,2-Dichloropropane	6	U
74-97-5	Bromochloromethane	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	6	U
563-58-6	1,1-Dichloropropene	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U
79-01-6	Trichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
74-95-3	Dibromomethane	6	U
75-27-4	Bromodichloromethane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
108-10-1	4-Methyl-2-pentanone	6	U
108-88-3	Toluene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
79-00-5	1,1,2-Trichloroethane	6	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2050

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 13 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	6	U
127-18-4	Tetrachloroethene	6	U
591-78-6	2-Hexanone	6	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U
108-90-7	Chlorobenzene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
100-41-4	Ethylbenzene	6	U
----------	m,p-Xylene	6	U
95-47-6	o-Xylene	6	U
1330-20-7	Xylene (Total)	6	U
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropylbenzene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-86-1	Bromobenzene	6	U
96-18-4	1,2,3-Trichloropropane	6	U
103-65-1	n-Propylbenzene	6	U
95-49-8	2-Chlorotoluene	6	U
108-67-8	1,3,5-Trimethylbenzene	6	U
106-43-4	4-Chlorotoluene	6	U
98-06-6	tert-Butylbenzene	6	U
95-63-6	1,2,4-Trimethylbenzene	6	U
135-98-8	sec-Butylbenzene	6	U
99-87-6	4-Isopropyltoluene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
104-51-8	n-Butylbenzene	6	U
95-50-1	1,2-Dichlorobenzene	6	U
96-12-8	1,2-Dibromo-3-chloropropane	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
87-68-3	Hexachlorobutadiene	6	U
91-20-3	Naphthalene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2050

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 13 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2168

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-03B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2051

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 8 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	~~4~~	~~JB~~ U RP
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2168

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-03B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2051

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 8 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SB2168

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-03B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1F2051

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: not dec. 8 Date Analyzed: 01/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D1424

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 9 decanted: (Y/N) N Date Extracted:01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	730	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	730	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	730	U
83-32-9	Acenaphthene	360	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D1424

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 9 decanted: (Y/N) N Date Extracted: 01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	730	U
100-02-7	4-Nitrophenol	730	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	730	U
534-52-1	4,6-Dinitro-2-methylphenol	730	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	730	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	360	U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB211012

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-04A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D1424

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 9 decanted: (Y/N) N Date Extracted:01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.60	940	JB
2.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D1425

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted:01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	760	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	760	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	160	J
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	760	U
83-32-9	Acenaphthene	78	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D1425

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted: 01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	760	U
100-02-7	4-Nitrophenol	760	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	78	J
100-01-6	4-Nitroaniline	220	J
534-52-1	4,6-Dinitro-2-methylphenol	760	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	760	U
85-01-8	Phenanthrene	5500	
120-12-7	Anthracene	960	
86-74-8	Carbazole	72	J
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	5600	
129-00-0	Pyrene	~~9400~~ E 12000 D	
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	6100	
218-01-9	Chrysene	~~7000~~ E 7200 D	
117-81-7	bis(2-Ethylhexyl)phthalate	320	J
117-84-0	Di-n-octylphthalate	460	
205-99-2	Benzo(b)fluoranthene	~~6300~~ E 6500 D	
207-08-9	Benzo(k)fluoranthene	2800	
50-32-8	Benzo(a)pyrene	5000	
193-39-5	Indeno(1,2,3-cd)pyrene	1200	
53-70-3	Dibenzo(a,h)anthracene	440	
191-24-2	Benzo(g,h,i)perylene	1300	

RP

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB2124

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D1425

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted:01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	13.54	2700	J
2.	610-48-0	ANTHRACENE, 1-METHYL-	19.29	2000	NJ
3.	613-12-7	ANTHRACENE, 2-METHYL-	19.35	4400	NJ
4.		UNKNOWN	19.52	2300	J
5.	610-48-0	ANTHRACENE, 1-METHYL-	19.57	2000	NJ
6.	84-65-1	9,10-ANTHRACENEDIONE	19.95	2600	NJ
7.	3674-65-5	PHENANTHRENE, 2,3-DIMETHYL-	20.43	2100	NJ
8.	5737-13-3	CYCLOPENTA(DEF)PHENANTHRENON	20.60	1800	NJ
9.	2381-21-7	PYRENE, 1-METHYL-	21.69	480	NJ
10.	2381-21-7	PYRENE, 1-METHYL-	21.86	740	NJ
11.	2381-21-7	PYRENE, 1-METHYL-	22.13	580	NJ
12.	3353-12-6	PYRENE, 4-METHYL-	22.32	470	NJ
13.	2381-21-7	PYRENE, 1-METHYL-	22.38	460	NJ
14.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	22.96	620	NJ
15.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	23.18	570	NJ
16.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	23.40	500	NJ
17.	3351-28-8	CHRYSENE, 1-METHYL-	24.54	510	NJ
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2D1426

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted:01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	81	J
111-44-4	bis(2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-Methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	760	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	760	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	160	J
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	760	U
83-32-9	Acenaphthene	81	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2D1426

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted: 01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	760	U
100-02-7	4-Nitrophenol	760	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	68	J
100-01-6	4-Nitroaniline	600	J
534-52-1	4,6-Dinitro-2-methylphenol	760	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	760	U
85-01-8	Phenanthrene	3100	
120-12-7	Anthracene	700	
86-74-8	Carbazole	58	J
84-74-2	Di-n-butylphthalate	370	U
206-44-0	Fluoranthene	4300	
129-00-0	Pyrene	~~7600~~ 9500 D	~~E~~
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	5200	
218-01-9	Chrysene	5600	
117-81-7	bis(2-Ethylhexyl)phthalate	230	J
117-84-0	Di-n-octylphthalate	330	J
205-99-2	Benzo(b)fluoranthene	5500	
207-08-9	Benzo(k)fluoranthene	2300	
50-32-8	Benzo(a)pyrene	4000	
193-39-5	Indeno(1,2,3-cd)pyrene	1000	
53-70-3	Dibenzo(a,h)anthracene	370	J
191-24-2	Benzo(g,h,i)perylene	1000	

RP

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB2146

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0082

Matrix: (soil/water) SOIL Lab Sample ID: B0082-02A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2D1426

Level: (low/med) LOW Date Received: 01/16/03

% Moisture: 13 decanted: (Y/N) N Date Extracted: 01/17/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/29/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	13.77	2600	J
2.	610-48-0	ANTHRACENE, 1-METHYL-	19.29	1400	NJ
3.	613-12-7	ANTHRACENE, 2-METHYL-	19.35	2100	NJ
4.		UNKNOWN	19.51	2000	J
5.	613-12-7	ANTHRACENE, 2-METHYL-	19.56	1300	NJ
6.	84-65-1	9,10-ANTHRACENEDIONE	19.94	1600	NJ
7.	3674-66-6	PHENANTHRENE, 2,5-DIMETHYL-	20.43	1400	NJ
8.	57-11-4	OCTADECANOIC ACID	21.00	1800	NJ
9.	238-84-6	11H-BENZO[A]FLUORENE	21.68	1600	NJ
10.	2381-21-7	PYRENE, 1-METHYL-	21.86	2500	NJ
11.	2381-21-7	PYRENE, 1-METHYL-	22.12	2000	NJ
12.	3353-12-6	PYRENE, 4-METHYL-	22.32	1400	NJ
13.	2381-21-7	PYRENE, 1-METHYL-	22.38	1600	NJ
14.	3351-28-8	CHRYSENE, 1-METHYL-	22.96	2100	NJ
15.		UNKNOWN	23.18	2100	J
16.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	23.39	1600	NJ
17.		UNKNOWN	24.85	5200	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB221820RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02ARE

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2D1565

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: 0 decanted: (Y/N) N Date Extracted:02/01/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/05/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	88	J
106-47-8	4-Chloroaniline	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	140	J
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	670	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	670	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	160	J
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	670	U
83-32-9	Acenaphthene	400	

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB221820RE RP

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02ARE

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2D1565

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: 0 decanted: (Y/N) N Date Extracted: 02/01/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/05/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
51-28-5	2,4-Dinitrophenol	670	U	
100-02-7	4-Nitrophenol	670	U	
132-64-9	Dibenzofuran	74	J	
121-14-2	2,4-Dinitrotoluene	330	U	
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	410		
100-01-6	4-Nitroaniline	670	U	
534-52-1	4,6-Dinitro-2-methylphenol	670	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	U	RP
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	670	U	
85-01-8	Phenanthrene	~~5400~~	E	4300 D
120-12-7	Anthracene	1400		
86-74-8	Carbazole	160	J	
84-74-2	Di-n-butylphthalate	330	U	
206-44-0	Fluoranthene	~~5800~~	E	4600 D
129-00-0	Pyrene	~~10000~~	E	9500 D
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	330	U	
56-55-3	Benzo(a)anthracene	~~6000~~	E	4500 D
218-01-9	Chrysene	~~5600~~	E	4600 D
117-81-7	bis(2-Ethylhexyl)phthalate	330	U	
117-84-0	Di-n-octylphthalate	330	U	
205-99-2	Benzo(b)fluoranthene	~~5400~~	E	3700 D
207-08-9	Benzo(k)fluoranthene	2500		
50-32-8	Benzo(a)pyrene	4400		
193-39-5	Indeno(1,2,3-cd)pyrene	1300		
53-70-3	Dibenzo(a,h)anthracene	390		
191-24-2	Benzo(g,h,i)perylene	1100		

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SB221820RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0076

Matrix: (soil/water) SOIL Lab Sample ID: B0076-02ARE

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S2D1565

Level: (low/med) LOW Date Received: 01/15/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:02/01/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/05/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	779-02-2	ANTHRACENE, 9-METHYL-	19.03	1000	NJ
2.	613-12-7	ANTHRACENE, 2-METHYL-	19.10	1000	NJ
3.		UNKNOWN	19.27	1700	J
4.	613-12-7	ANTHRACENE, 2-METHYL-	19.31	700	NJ
5.	35465-71-5	2-PHENYLNAPHTHALENE	19.65	910	NJ
6.	84-65-1	9,10-ANTHRACENEDIONE	19.70	1100	NJ
7.	5737-13-3	CYCLOPENTA(DEF)PHENANTHRENON	20.35	600	NJ
8.	781-73-7	2-ACETYLFLUORENE	20.79	190	NJ
9.	243-17-4	11H-BENZO[B]FLUORENE	21.43	270	NJ
10.	243-17-4	11H-BENZO[B]FLUORENE	21.61	190	NJ
11.	243-17-4	11H-BENZO[B]FLUORENE	21.66	440	NJ
12.	243-17-4	11H-BENZO[B]FLUORENE	21.80	180	NJ
13.	2381-21-7	PYRENE, 1-METHYL-	21.87	460	NJ
14.	2381-21-7	PYRENE, 1-METHYL-	22.07	220	NJ
15.	243-17-4	11H-BENZO[B]FLUORENE	22.12	340	NJ
16.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	22.70	230	NJ
17.	239-35-0	BENZO[B]NAPHTHO[2,1-D]THIOPH	22.93	280	NJ
18.	195-19-7	BENZO[C]PHENANTHRENE	23.00	190	NJ
19.	82-05-3	7H-BENZ[DE]ANTHRACEN-7-ONE	23.14	260	NJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX011214RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-37ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2114

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 15 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	780	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	780	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	780	U
83-32-9	Acenaphthene	380	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX011214RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-37ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2114

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 15 decanted: (Y/N) N Date Extracted:02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	780	U
100-02-7	4-Nitrophenol	780	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	780	U
534-52-1	4,6-Dinitro-2-methylphenol	780	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	780	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenzo(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

BX011214RE

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-37ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2114

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 15 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	23.68	310	J
2.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX0268RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-23ARE

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D2113

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 2 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	680	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	680	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	680	U
83-32-9	Acenaphthene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX0268RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-23ARE

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D2113

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 2 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	680	U
100-02-7	4-Nitrophenol	680	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	680	U
534-52-1	4,6-Dinitro-2-methylphenol	680	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	680	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BX0268RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-23ARE

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2D2113

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 2 decanted: (Y/N) N Date Extracted:02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	23.68	300	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX0668RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-21ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2112

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 4 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-di-n-propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
111-91-1	bis(2-Chloroethoxy)methane	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	690	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	690	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	690	U
83-32-9	Acenaphthene	340	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BX0668RE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-21ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2112

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 4 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	690	U
100-02-7	4-Nitrophenol	690	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	690	U
534-52-1	4,6-Dinitro-2-methylphenol	690	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	690	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-butylphthalate	54	J
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)phthalate	340	U
117-84-0	Di-n-octylphthalate	340	U
205-99-2	Benzo(b)fluoranthene	340	U
207-08-9	Benzo(k)fluoranthene	340	U
50-32-8	Benzo(a)pyrene	340	U
193-39-5	Indeno(1,2,3-cd)pyrene	340	U
53-70-3	Dibenzo(a,h)anthracene	340	U
191-24-2	Benzo(g,h,i)perylene	340	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

BX0668RE RP

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B0220

Matrix: (soil/water) SOIL Lab Sample ID: B0220-21ARE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2D2112

Level: (low/med) LOW Date Received: 02/07/03

% Moisture: 4 decanted: (Y/N) N Date Extracted: 02/25/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/27/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	23.68	260	J
2.					
3.					
4.					
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