REMEDIAL ACTION WORKPLAN
FORMER PRESTO PLASTICS (OU-2)
KINGS PLAZA SHOPPING CENTER
BROOKLYN, NEW YORK

PURSUANT TO NYSDEC VOLUNTARY CLEANUP AGREEMENT
NYSDEC VCA No. A2-0403-9911

TECHNICAL REPORT AND APPENDICES A AND B

PREPARED FOR:

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PARAMUS, NEW JERSEY

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MAY 2005

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1.0 INTRODUCTION

This Remedial Action Workplan (RAW) has been prepared by Excel Environmental Resources, Inc. (Excel) on behalf of Alexander's, Kings Plaza Center, Inc. (hereafter referred to as the Volunteer) in accordance with the reporting requirements outlined in the Voluntary Cleanup Agreement (VCA) executed on February 26, 2001 between the Volunteer and the New York State Department of Environmental Conservation (NYSDEC). On behalf of the Volunteer, Excel prepared a November 2003 Remedial Investigation Report Addendum (RIRA) that outlines the results of supplemental RI activities conducted within the Former Presto Plastics Area, referred to as Operable Unit-2 (OU-2) or the Site. A site location map is provided as Figure 1 and a generalized site plan showing the area defined as OU-2 is provided as Figure 2.

As detailed in the November 2003 RIRA, previous investigations conducted at the Site by IVI Environmental, Inc. (IVI) indicated elevated Base Neutral Organic Compounds (BNs) concentrations in soil and groundwater within the OU-2 area that IVI attributed to a historic discharge from past site operations. However, Excel's review of boring logs historically prepared by IVI for soil borings and monitoring wells installed in OU-2, OU-1 (Underground Storage Tank Area), and areas surrounding the perimeter of the Kings Plaza Shopping Center, indicated the presence of fill material containing concrete, brick, wood, ash, and/or cinders in the majority of boring locations.

Based on the elevated BN concentrations in soil and the composition of the fill, the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; usually due to the presence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill). As the Department is aware, the soil and groundwater conditions in the area defined as OU-2 have since been attributed to the occurrence of contaminated Historic Fill.

The purpose of this RAW is therefore to address the elevated BN concentrations in soil and groundwater that are attributed to contaminated Historic Fill within the area defined as OU-2. This RAW has been prepared in accordance with the NYSDEC Draft Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (hereafter referred to as the Technical Guidance).

The remainder of this RAW is organized as follows:

Chapter 2.0: Site Description and Environmental Setting

Chapter 3.0: Summary of Previous Environmental Investigations

Chapter 4.0: Remedial Action Summary

Chapter 5.0: Post-Remediation Management Plan

Chapter 6.0: Site-Specific Health and Safety Plan

Chapter 7.0: References

2.0 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 Site Location and Description

The portion of the Former Presto Plastics Area that is identified as OU-2 is located at the northern end of the 55th Street access road to the Kings Plaza Shopping Center as shown on Figure 2. The Kings Plaza Shopping Center is a ±31-acre parcel identified on local tax maps as Section 1, Block 847, Lots 50 and 55. Figure 1 shows the location of the Site on the Coney Island, N.Y. United States Geological Survey (USGS) 7.5 Minute Series topographic map. The Site is bounded by Avenue U to the north, the Kings Plaza Shopping Center to the west, a paved parking area that is part of the Kings Plaza property (OU-3) to the east, and the 55th Street access road and OU-1 to the south. As shown on Figure 1, the closest surface water body is the Mill Basin located immediately adjacent to the southern side of the Kings Plaza Shopping Center.

The topography of the area in the vicinity of the Kings Plaza Shopping Center is generally flat. Review of Figure 1 indicates that the ground surface in the vicinity of OU-2 and south along 55th Street slopes gently from approximately eight feet above mean sea level (MSL) along the northern boundary adjacent to Avenue U to approximately five feet above MSL to the south along 55th Street adjacent to the Mill Basin.

2.2 Site Operational History

The area identified as OU-2 is currently owned by Kings Plaza Alexanders, Inc. (Alexanders), a majority-owned subsidiary to Vornado Realty Trust (Vornado). This area is currently identified as the northern end of the 55th Street access road to the Kings Plaza Shopping Center, which has only been used as an access road since Alexanders' acquisition and development of the property in the early 1970s. Review of existing environmental reports indicates that Presto Plastic Products Company, Inc. and its successors operated at the Site from the early 1940s to the mid-1960s.

According to a Phase I Environmental Site Assessment (ESA) prepared by Certified Engineering and Testing Company, Inc., approximately 20 railroad tankers were uncovered and removed from the Kings Plaza property in 1969. These tankers were reportedly used as petroleum and/or chemical storage tanks by the Presto Plastic Products Company, Inc. and were in approximately the same location as the Macy's building located to the west of the 55th Street access road. Review of Sanborn™ Fire Insurance Maps of the Site and a 1951 aerial photograph of the Site does not indicate that any operations were specifically located at the northern end of 55th Street in the immediate vicinity of the area defined as OU-2 during the time period shown on the maps and the aerial photographs reviewed.

2.3 Site-Specific Geology and Hydrogeology

The following summarizes key aspects of the site-specific geology and hydrogeology based on review of the previous environmental reports and review of soil boring logs prepared by IVI and Excel for the Site.

- The overburden soil across the Site consists predominantly of coarse to fine-grained sandy fill material to a depth of approximately three to 10 feet below ground surface (bgs). With depth, the fill is increasingly fine-grained with higher amounts of silt;
- The fill composition is heterogeneous and contains varying amounts of wood, brick, ash and cinders, coal, glass, cobbles, shells, and other miscellaneous materials;
- Underlying the fill and silty sand is a silty, organic clay stratum that appears to be native estuarine sediments deposited prior to the initial development of the property;
- As detailed in a previous RIRA and RAW prepared by Excel in July 2003 for OU-3, the clay is laterally continuous across the Site and, consistent with an estuarine depositional environment, increases in thickness from north to south towards the Mill Basin;
- Shallow groundwater occurs under unconfined water table conditions in the upper sandy fill material and the groundwater flow direction is generally towards the south and southeast across the Site although there are areas of localized mounding. In the vicinity of the OU-2 Area, the primary groundwater flow direction is apparently toward the south and southwest. As detailed in the November 2003 RIRA, data provided by the installation of additional monitoring wells in this area also indicates a component of flow toward the northwest;
- The organic clay is underlain by alternating sand and silt deposits. The data indicate that groundwater occurs within this lower formation under confined conditions; and
- The data indicate that the underlying organic clay strata effectively serve as a confining unit and that the underlying sand and silt formation is hydraulically isolated from the shallow water- bearing zone.

3.0 SUMMARY OF PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The following reports document the findings of several environmental site assessments and investigations conducted by others at the subject property, inclusive of OU-2:

- Phase I ESA of Kings Plaza Shopping Mall, Flatbush Avenue and Avenue U, Brooklyn, New York, prepared by Certified Engineering and Testing Company, Inc. on behalf of Alexander's, dated October 4, 1993;
- Contaminant Assessment (CA)/Site Investigation (SI), prepared by IVI on behalf of Rosenman & Colin, LLP, dated July 1997;
- Groundwater Monitoring Report Nos. 1 through 17, prepared by IVI on behalf of Vornado;
- Remedial Investigation Report (RIR)/Remedial Action Workplan (RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated April 19, 2000;
- Remedial Investigation Report/Remedial Action Workplan (RI/RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated August 15, 2001; and
- Progress Report Nos. 18 through 25, prepared by Excel on behalf of Vornado.
- Remedial Investigation Report Addendum, prepared by Excel on behalf of Vornado, dated November 2003.

A summary of the information contained in the above-referenced documents has been provided in several historic reports, including Chapter 2.0 of the RIR/RAW for the Former Presto Plastics Facility, dated August 15, 2001, prepared by IVI on behalf of Vornado for submission to the NYSDEC and in the November 2003 RIRA prepared by Excel.

The July 1997 CA/SI Report, prepared by IVI, summarizes the results of an initial investigation of areas within the 55th Street access road, the areas surrounding the Shopping Mall, and the adjacent paved parking lot (OU-3). As outlined in the July 1997 CA/SI Report, the investigation conducted by IVI included the evaluation of groundwater quality through the installation of 13 monitoring wells (designated as MW-1 through MW-13) in the 55th Street access road and around the perimeter of the Shopping Mall.

The August 2001 RIR/RAW summarizes the results of an additional investigation of OU-2 soil and groundwater quality conducted by IVI from June 1999 through September 1999. Review of the August 2001 RIR/RAW indicates that five soil borings (designated B-1 through B-3, B-12, and B-19) were advanced in the immediate vicinity of OU-2 as shown on Figure 3. Analytical results of soil samples collected at depths between six to eight feet bgs indicated that there were no Volatile Organic Compounds (VOCs) detected at concentrations above the NYSDEC soil cleanup criteria in any of these five soil borings. The Semi-Volatile Organic Compound (SVOC) results indicated that several BN compounds were reported in soil boring B-19 at concentrations above the

NYSDEC soil cleanup criteria. There were no elevated BN concentrations reported in samples collected from the other four soil borings.

As outlined in the November 2003 RIRA, review of the boring logs prepared by IVI for monitoring wells and soil borings advanced in the 55th Street access road during the RI indicate that fill material consisting of brown to gray, medium to coarse sand with wood, bricks, cinders, glass, cobbles, and shells is laterally extensive within 55th Street from the OU-2 Area at the northern end of the street to the south near the Mill Basin.

As part of the RI, IVI also collected groundwater samples from monitoring wells MW-4, MW-33, and MW-34 within the OU-2 Area. Analytical results indicated that Naphthalene and several BN compounds were reported at concentrations above the New York Groundwater Quality Criteria (NYGWQC). As documented in the November 2003 RIRA, the historic groundwater analytical results for the OU-2 monitoring wells indicate that BNs are predominantly the only parameters historically reported in groundwater at OU-2 wells MW-4 and MW-33.

Based on the elevated BN concentrations in soil and the composition of the fill, the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; usually due to the presence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill). Furthermore, the historic OU-2 groundwater analytical results were likely biased high due to elevated turbidity in the samples and the fact that NYSDEC-recommended low flow sampling techniques were not used.

In order to complete groundwater quality delineation and to confirm the most appropriate remedial action alternative, Excel conducted a focused soil and groundwater RI in OU-2 in late 2002 and 2003 to verify whether elevated BN concentrations historically reported in soil and groundwater in OU-2 are in fact attributed to Historic Fill. As summarized in the November 2003 RIRA, Excel verified the existence of a layer of non-indigenous fill at the soil/water interface in OU-2 that contains concrete, brick, wood, glass, ash, and cinders and that the elevated BN concentrations and the composition of the fill meets the NYSDEC definition of contaminated Historic Fill.

Based on the focused RI findings, the BN concentrations in soil at levels above the NYSDEC soil cleanup criteria are attributable to the Historic Fill and are not reflective of a historic point source discharge from site operations as previously indicated by IVI. Since the Historic Fill is laterally extensive and treatment and/or removal of the Historic Fill is technically and economically unfeasible, remedial action in the form of Engineering Controls with a Deed Restriction to address the contaminated Historic Fill for compliance with the requirements of the Technical Guidance is proposed for OU-2.

As also summarized in the November 2003 RIRA, the groundwater analytical data generated during two rounds of groundwater sampling and analysis using NYSDEC-recommended low flow sampling techniques indicated that only BNs were reported in groundwater at OU-2 at concentrations slightly above the NYGWQC. This data support the conclusion that the trace BN concentrations are associated with the Historic Fill and not a historic point source discharge therefore no further action for groundwater in OU-2 is required.

4.0 REMEDIAL ACTION SUMMARY

This Chapter provides a summary of the proposed remedial action for OU-2 that consists of Engineering Controls with a Deed Restriction to address the contaminated Historic Fill identified within the area defined as OU-2 as necessary for compliance with the Technical Guidance. The use of Engineering Controls and a Deed Restriction as the selected remedy for soil in OU-2 is fully protective of human health and the environment and will minimize the potential for direct contact with the underlying soil.

As outlined below, the proposed Engineering Controls consist of a portion of existing asphalt-paved roadways, including a portion of 55th Street and the adjacent concrete sidewalk as shown on Figure 3.

4.1 Remedial Action Alternatives Evaluation and Remedy Selection

The purpose of this remedy selection is to identify and evaluate the most appropriate remedial action alternatives for the BN concentrations in soil within the area defined as OU-2. Consistent with NYSDEC Technical Guidance, the overall objective of the evaluation was to select remedial action alternatives that are protective of public health and the environment given the intended continued use of the Site as a commercial property and the nature and extent of the BN concentrations in soil.

As detailed in Chapter 3.0 of this report, the elevated BN concentrations and the composition of the fill meet the NYSDEC definition of contaminated Historic Fill. The contaminants reported above NYSDEC soil cleanup criteria in Historic Fill within the area defined as OU-2 are BNs, including the following compounds:

- Fluoranthene;
- Pyrene;
- Benzo(a)anthracene;
- Chrysene;
- Benzo(b)fluoranthene;
- Benzo(k)fluoranthene;
- Benzo(a)pyrene;
- Indeno(1,2,3-cd)pyrene; and
- Dibenz (a,h) anthracene.

In accordance with the Technical Guidance, the specific remedial action objectives (RAOs) for OU-2 include the following:

- Ensure that the contaminant concentrations in soil are protective for the proposed use of OU-2 as an asphalt-paved roadway and sidewalk for the adjacent Kings Plaza Shopping Center; and

- Minimize the potential for ingestion, direct contact, or inhalation of BN concentrations associated with the soil in OU-2.

A thorough evaluation of remedial action alternatives for the contaminated Historic Fill within OU-2 was conducted prior to selection and design of the remedial action outlined in this RAW. Remedial action alternatives were evaluated based on the site-specific conditions at and in the vicinity of OU-2. Since the Historic Fill is laterally extensive and treatment and/or removal of the Historic Fill is technically and economically unfeasible, remedial action in the form of Engineering Controls with a Deed is proposed for the area defined as OU-2.

Given the site-specific conditions and the nature of the soil and shallow groundwater impacts, the following summarizes the remedial action alternatives evaluated along with an overview of each alternative:

1. Excavation and offsite transport and disposal of the impacted soil followed by post-remediation soil sampling and analysis to verify that impacted soil was successfully remediated.

   a. Since the elevated BN concentrations in soil are attributed to Historic Fill that apparently extends throughout the 55th Street access road and across the Site, including beneath the footprint of the adjacent Kings Plaza Shopping Center mall, excavation of the Historic Fill is technically and economically unfeasible.

   b. This alternative is highly disruptive to the Shopping Center operations because the area defined as OU-2 is located within the 55th Street access road near the intersection with Avenue U. The 55th Street access road provides primary access to the mall and the adjacent parking deck.

2. In-situ remediation of the BN concentrations in soil.

   a. Since the elevated BN concentrations in soil are attributed to contaminated Historic Fill that extends throughout the 55th Street access road and across the Site, including beneath the footprint of the adjacent Kings Plaza Shopping Center mall, in-situ remediation of the Historic Fill is technically and economically unfeasible.

   b. Although this alternative is not as disruptive as excavation, in-situ remediation would include the installation of numerous well points and/or excavation of trenches through the area designated as OU-2 which will be disruptive to the Shopping Center operations since the OU-2 area is located within the 55th Street access road near the intersection with Avenue U. The 55th Street access road provides primary access to the mall and the adjacent parking deck.

c. Since concentrations of BN compounds above the NYSDEC soil cleanup criteria occurs above as well as below the saturated zone, the effectiveness of commercially available in-situ treatment techniques is questionable since it is difficult to distribution the chemicals through the unsaturated soil column.

3. Establishment of a Deed Restriction and Engineering Controls for the area defined as OU-2 that will restrict direct contact with the underlying soil and will be protective of human health and the environment. The Engineering Controls will consist of a portion of the existing asphalt-paved roadway and adjacent concrete sidewalk that exists as part of the 55th Street access road to the Kings Plaza Shopping Center from Avenue U.

   a. This alternative has been selected and is recommended to address the BN concentrations in soil within the OU-2 area since it is the most technically and economically feasible alternative based on the site-specific conditions, is fully protective of human health and the environment, and will be the least disruptive to Site operations and the neighboring community. The remedial action alternative evaluation in support of the selection of this remedy is provided below.

Establishment of a Deed Restriction and Engineering Controls to restrict direct contact with the underlying soil at OU-2 is the selected remedial action alternative based on the following:

1. **Overall Protection of Public Health and the Environment:**

   a. The selected remedy will enable the Volunteer to achieve the project-specific RAO's through the elimination, reduction, and/or control of actual or potential risks posed by the impacted soil and shallow groundwater through restricting direct contact.

   b. The Engineering Controls established for OU-2 are already in place and in good condition therefore no potential risk of exposure to the impacted soil or shallow groundwater is associated with construction of the Engineering Controls.

   c. The Deed Restriction will ensure that the Engineering Controls remain protective of human health and the environment by controlling disturbances, alterations, improvements, and/or modifications to the Engineering Controls thereby limiting human exposure to the contaminants of concern that remain in the soil.

   d. Health and Safety and engineering measures will be taken during implementation of any construction activities within the Engineering Controls and Deed Restriction boundaries as further discussed in the Post-Remediation Management Plan provided in Chapter 5.0 of this RAW.

2. **Compliance with Standards, Criteria, and Guidance (SCGs):**

   a. The selected remedy is designed to restrict direct contact with contaminated Historic Fill that contains BN concentrations above the NYSDEC soil cleanup criteria.

   b. Establishment of a Deed Restriction and Engineering Controls is an acceptable remedial action alternative in accordance with the NYSDEC Technical Guidance and is fully protective of human health and the environment under the conditions at the Site.

3. **Long-Term Effectiveness and Permanence:**

   a. The selected remedy will be effective over the long-term because the Deed Restriction and Engineering Controls are designed to restrict direct contact of soil. The Deed Restriction will include requirements for maintenance and annual inspection of the Engineering Controls to ensure that it remains protective of human health and the environment.

   b. The Deed Restriction will also include requirements to control disturbances, alterations, improvements, and/or modifications to the Engineering Controls that may be necessary in the future due to maintenance and/or improvements at the Site.

4. **Reduction of Toxicity, Mobility or Volume:**

   a. The selected remedy will restrict direct contact with the contaminants of concern (COCs) and remain protective of human health and the environment.

   b. The Engineering Controls will minimize the infiltration of rainwater through the unsaturated soil thus minimizing the potential for leaching of COCs to the shallow groundwater. The low solubility characteristics of the COCs also minimize the potential for transport of these contaminants.

5. **Short-Term Effectiveness:**

   a. Engineering Controls in OU-2 currently exist in the form of a portion of the asphalt-paved 55th Street access road and adjacent concrete sidewalk therefore no further construction or engineering measures are required.

   b. As discussed in the Post-Remediation Management Plan provided as Chapter 5.0 of this RAW, Health and Safety and engineering measures will be required during any future disturbances, alterations, improvements, and/or modifications to the Engineering Controls.

   c. There is currently no direct contact possible with soil and shallow groundwater in OU-2 due to the existence of the asphalt-paved 55th Street access road and adjacent concrete sidewalk.

d. In addition, the Deed Restriction will include requirements to control future disturbances, alterations, improvements, and/or modifications to the Engineering Controls.

6. Implementability:

a. Implementation of the selected remedy is technically and administratively feasible since the Engineering Controls in the form of a portion of the asphalt-paved 55th Street access road and concrete sidewalk currently exist thus direct contact with the underlying soil and shallow groundwater is already restricted under the existing Site conditions.

b. In addition, NYSDEC has been extremely responsive in the review of submitted environmental documents and plans and there are no permits or approvals that will require extensive application review periods.

4.2 Proposed Institutional Controls and Engineering Controls

In accordance with the NYSDEC Technical Guidance, an Institutional Control in the form of a Deed Restriction is required to document the lateral extent and range of soil concentrations that exceed the NYSDEC soil cleanup criteria as well as the final lateral extent of the Engineering Controls included in the remedial action for soil that exceed the NYSDEC soil cleanup criteria. The lateral extent of the Deed Restriction and Engineering Controls for OU-2 is shown on Figure 3. The soil and groundwater analytical data for OU-2 are summarized in Tables 1 through 5 and on Figures 3 and 4.

The Deed Restriction is intended to limit the future use of the area identified as OU-2 to "Restricted Commercial", to restrict activities that would result in disturbance of the Engineering Controls in this area, and to provide for cover inspection, maintenance, and certification of the Engineering Controls over time as necessary to ensure compliance. As previously discussed, the Engineering Controls for OU-2 will consist of a portion of the existing asphalt-paved 55th Street access road and adjacent concrete sidewalk. The lateral extent of the Engineering Controls is shown on Figure 3.

Following the Department's approval of this RAW, a Deed Restriction document will be submitted for Departmental approval of Covenants and Restrictions that will be applied to the subject property consistent with this RAW. The Deed Restriction documents will be certified by the County Clerk and will contain the following information:

- A scaled drawing showing the area of Institutional and Engineering Controls;
- Type and extent of contamination to be addressed by the Institutional and Engineering Controls;
- A narrative description of the Institutional and Engineering Controls; and

- A detailed description of the operation, maintenance, and monitoring to be conducted for the Engineering Controls.

4.2.1 Operation, Maintenance, and Monitoring

In accordance with the NYSDEC Technical Guidance, the Volunteer will conduct routine inspections for evaluation and documentation of the integrity of the asphalt pavement and concrete as part of a post-remedial action monitoring program. At a minimum, visual inspections will be conducted on a semi-annual basis to identify any breaches in the asphalt pavement or concrete, areas of differential settlement, cracking, pot-holes or other conditions that might compromise the effectiveness of the Engineering Controls. An inspection checklist will be completed during each inspection and copies will be maintained by the Volunteer.

In accordance with the Technical Guidance, any necessary repairs will be made to the asphalt and concrete cap. Maintenance activities and/or repairs will include patching of potholes, filling and patching depressions, and sealing of cracks, if any. All repairs and restorations will be completed within 30 days of the inspection. A record of the Engineering Controls inspection and maintenance activities will be maintained by the Volunteer.

4.2.2 Annual Reporting and Certification

In accordance with NYSDEC Technical Guidance, periodic inspections of the Engineering Controls must be conducted and an Annual Report and Certification must be submitted to the NYSDEC every year to certify that the Deed Restriction and Engineering Controls remain protective of the public health and safety and the environment.

The Volunteer will prepare and provide to the NYSDEC an annual report and certification that will document the following:

- The use of the property remains consistent with any use restrictions identified in the Deed Restriction;

- Engineering Controls are being inspected and maintained on an annual basis and their integrity remains such that the remedial action continues to be protective of the public health and of the environment.

- Any maintenance activities and/or measures taken to correct, mitigate, or abate any problem related to the protectiveness of the Engineering Controls;

- Any changes made to the remedy and/or any disturbance to the Engineering Controls and the corrective action that was conducted;

- Any excavation or disturbance of the Engineering Controls will not, or did not, present an unacceptable risk to the public health and safety or the environment; and

- Certify to the NYSDEC that the remedy continues to be protective of public health and the environment and that the Institutional and Engineering Controls are in place, are performing properly, and remain effective.

5.0 POST-REMEDIATION MANAGEMENT PLAN

Engineering Controls and Institutional Controls in the form of an existing asphalt-paved road and concrete sidewalk and a Deed Restriction, respectively, will be established within the area defined as OU-2 where BN concentrations in soil exceed applicable NYSDEC cleanup criteria. The Engineering Controls and Deed Restriction will ensure that the Remedial Action remains protective of human health and the environment based on the current "Restricted Commercial" use of the Site by controlling disturbances, alterations, improvements, and/or modifications thereby limiting human exposure to the COCs that remain in the soil in OU-2.

In all cases, prior notification to the NYSDEC is required before proceeding with any disturbance or alteration of the existing Engineering Controls. In some cases, advance approval from the NYSDEC is also required, such as for performance of additional remediation to terminate the Deed Restriction or to change the land use from the current "Restricted Commercial" status. Note also that construction activities within Engineering Controls and/or Deed Restriction boundaries must be conducted by personnel with appropriate Occupational Safety and Health Administration (OSHA) 1910.120 HAZWOPER Training certification. A user-friendly site-specific HASP is provided in Appendix A.

The following sections of this Chapter provide the procedures to be utilized before, during, and after any activity that disturbs, alters, improves, or modifies the existing Engineering Controls or changes the use within which Engineering Controls are located and/or is addressed by the Deed Restriction established as part of the Remedial Action.

5.1 General Notice Requirements for Deed Restriction and Engineering Controls

The following general requirements apply to the post-remediation Engineering Controls and/or the Deed Restriction established for the Remedial Action:

- The Volunteer and subsequent owners and lessees shall cause all leases, grants, and other written transfers of an interest in the area defined as OU-2 (affected area) to contain a provision expressly requiring all holders thereof to take the Property subject to the conditions outlined in this document and to comply with all, and not to violate any, of the conditions of the Deed Restriction and/or Engineering Controls;

- The Volunteer and all subsequent owners and lessees shall notify any person intending to conduct invasive work, including excavation, within the affected area, including without limitation, tenants, employees of tenants, and contractors, of the nature and location of contaminated materials, and of the precautions necessary to minimize potential human exposure to the contaminants;

- The Volunteer and all subsequent owners shall provide written notification to the NYSDEC at least 30-calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owners interest in the affected area; and

- The Volunteer and subsequent owners shall provide written notice to the NYSDEC within 30-calendar days following the owner's petition for or filing of any document initiating a re-zoning of the property.

Notifications to the NYSDEC shall be made to:

Ms. Ioana Munteanu
NYSDEC
47-40 21st Street
Long Island City, NY 11101

5.2 Disturbance, Alterations, and Improvements

Disturbances, alterations, and improvements are generally defined as general construction activities within the affected area that do not substantially change the Remedial Action that is the basis of the Engineering Controls and/or Deed Restriction, does not change the use of the affected area, and/or does not compromise the integrity of the Engineering Controls such that the remedy no longer meets the applicable RAOs, or is no longer protective of public health, safety or the environment.

In general, these are activities that breach the existing Engineering Controls but that, once the activities are completed, the Engineering Controls will be restored to the pre-existing conditions documented in the Deed Restriction established for the Remedial Action and the land use will remain "Restricted Commercial".

5.2.1 Notification Requirements

Any disturbances, alterations, and/or improvements of the affected area require a minimum three-day advance notification to the NYSDEC. All work must be completed in accordance with applicable laws and regulations, including applicable OSHA Health and Safety requirements as discussed in Chapter 6.0.

The advance notification must contain the following information:

- A description of the proposed activity;
- A drawing that depicts the area to be disturbed;
- A schedule and duration for the proposed activity;
- The Health and Safety procedures to limit contractor worker exposure;
- The procedures to prevent the public from exposure to contamination above the applicable remediation standard; and

- The procedures that will be used to restore the area to its pre-disturbed condition.

5.2.2 NYSDEC Oversight and Approvals

Since disturbances, alterations, and/or improvements of a parcel with Engineering Controls and/or a Deed Notice will not change the Remedial Action implemented or change the use of the parcel, other than the notification requirements cited above or the reporting requirements cited below, no additional NYSDEC oversight or approvals are required.

5.2.3 Reporting Requirements

Within 60-calendar days after the end of each alteration, improvement, and/or disturbance, the individual responsible for the action must submit a report to the NYSDEC that contains the following information:

- The nature of the alteration, improvement, and/or disturbance;
- The dates and duration of the alteration, improvements, and/or disturbance;
- The name of the key individuals, and their affiliations, conducting the alterations, improvements, and/or disturbance;
- A description of notice the owner gave to those persons prior to the disturbance;
- The amount of soil generated for disposal, if any, and the final disposition of the material;
- The precautions taken to prevent exposure; and
- A description of how the area was restored to pre-disturbance conditions.

5.3 Additional Remediation and/or Change in Land Use

Additional remediation or other activity that compromises the integrity of the existing Engineering Controls and/or Deed Restriction so that it no longer meets the applicable remediation standards or is no longer protective of human health, public safety, or proposes a change in the land use status from "Restricted Commercial", must first obtain approval and oversight from the NYSDEC. The procedures to be utilized are outlined in the following subsections.

5.3.1 Notification Requirements

Any additional remediation or proposed change in land use within the affected area must receive advance written approval and oversight from the NYSDEC. All work must be completed in accordance with applicable laws and regulations, including applicable OSHA Health and Safety requirements as discussed in Chapter 6.0.

Any entity that chooses to conduct additional remediation or other activity that may compromise the integrity of the existing Engineering Controls so that it no longer meets the RAOs and must therefore be re-constructed, or proposes a change in the land use status from "Restricted Commercial", must submit a RAW to the NYSDEC for review and approval prior to conducting

the proposed activities. The RAW must be prepared in accordance with applicable provisions of the NYSDEC Technical Guidance.

If the Remedial Action will result in a reduction in the area covered by Engineering Controls, or a modification to the design of the existing Engineering Controls, and the boundaries and/or design will be modified from those documented in the Deed Restriction established for the Remedial Action, the RAW shall contain scaled drawings that clearly show the proposed limits of the modified Engineering Controls and the proposed boundaries of the modified Deed Restriction.

5.3.2 Reporting Requirements

Upon completion of the additional remediation activities described in Section 5.3.1 above, a Remedial Action Report (RAR) must be prepared and submitted to the NYSDEC for review and approval. The RAR is to be completed in accordance with the NYSDEC Technical Guidance and will include the following:

- A summary of the Remedial Action work scope completed;
- "As-Built" drawings for any permanent structures, including caps or other remediation structures and Engineering Controls, if applicable;
- A description of site restoration activities, if applicable;
- Tables and drawings summarizing all pre- and post-Remedial Action sample analytical results to document completion of the Remedial Action, if applicable;
- A summary of the volume of contaminated soil remediated and its final disposition, if applicable;
- A copy of all manifests fully documenting any off-site transportation and disposal of contaminated soil, if applicable, as outlined in Section 5.5.1;
- Clean fill certification for any material brought onto the site for purposes of backfilling excavations or re-contouring of the land as outlined in Section 5.5.3. Note that any fill material brought onto the Site must have a documented Clean Fill Certification; and
- A copy of the proposed or modified Deed Restriction documents, as applicable.

5.4 Emergencies

In cases where the Engineering Controls are temporarily breached in the event of an emergency, the following steps must be taken:

1. Notify the NYSDEC Project Manager of the emergency activities;

2. Limit the actual disturbance and the actual duration needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

3. Implement all measures necessary to limit the actual or potential, present or future risk of exposure to humans or the environment to the contaminated soil and shallow groundwater;

4. Notify the NYSDEC upon completion of the emergency activities;

5. Restore the Engineering Controls to the pre-emergency conditions as soon as possible; and

6. Submit a report to the NYSDEC within 60-calendar days after completion of restoration of the Engineering Controls to pre-emergency conditions.

The report must contain the following information:

- The nature, characterization, and likely cause of the emergency;
- The potential discharges of, or exposures to, contaminants, if any, that may have occurred;
- The measures taken to mitigate the effects of the emergency on human health and the environment;
- The measures implemented or completed to restore the Engineering Controls; and
- The changes to the Engineering Controls or site Operation and Maintenance Plan to prevent the recurrence of such conditions in the future.

5.5 Soil Management

The following subjections outline the procedures to be followed for the management of soil and/or groundwater during any disturbances, alterations, improvements or other general construction activities within the affected area.

5.5.1 Soil Excavation

As outlined in Section 5.2.1, advance notification to the NYSDEC is required prior to any disturbance, alteration, improvement or other construction activity within the affected area that compromises the integrity of the Engineering Controls. All work will be conducted in accordance with applicable laws and regulations, including applicable OSHA Health and Safety requirements as discussed in Chapter 6.0.

Following excavation, the soil excavated from the affected area may be reused as subgrade fill within the affected area provided that the Engineering Controls will be replaced and maintained in accordance with this RAW and the Deed Restriction. Soil excavated from the affected area that will not be reused as subgrade fill within the affected area shall be transported offsite for proper offsite disposal. Waste characterization sampling and analysis should be implemented following the permit requirements of the selected disposal facility.

The amount of soil generated for disposal and documentation of the final disposition of the material will be provided to the NYSDEC as outlined in Section 5.2 and/or 5.3, as applicable. Soil excavated from the affected area shall not be reused offsite or onsite outside the Deed Restriction and Engineering Controls boundaries without prior approval from the NYSDEC.

5.5.2 Temporary Onsite Soil Staging/Stockpile Management

Soil excavated from the affected area will be temporarily placed on plastic sheeting and will be covered with plastic sheeting to minimize generation of contaminated runoff and/or fugitive dust emissions. Whenever possible, soil will be stockpiled on asphalt pavement. Stockpile covers will be maintained for the duration of the staging period until the time the material in the stockpile is designated for offsite disposal or onsite reuse as subgrade fill within the affected area.

Each stockpile of excavated soil will be labeled with a numerical stockpile designation. Each stockpile will then be documented in a log book along with the date of excavation, the type of material in the stockpile, the Work Area from which the material was excavated, and the anticipated end-use for the material (e.g. onsite reuse as subgrade backfill or offsite disposal/recycling). This information will be used to track soil volumes generated for disposal and/or onsite re-use as subgrade fill as well as to ensure compliance with regulatory limitations for onsite storage of excavated materials.

5.5.3 Backfill Material

Material used to backfill excavations or placed to increase site grades or elevation shall meet the following criteria:

- Offsite borrow soil shall be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic, or radioactive substances, wastes, or petroleum products;

- Offsite soil intended for use as backfill cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a);

- Certification that the soil is "virgin" soil from a native source from areas that have not supported any known prior industrial or commercial development or agricultural use;

- Virgin soil shall be verified through the collection of one composite soil sample per source and analyzed for Target Contaminant List (TCL) VOCs, SVOCs, pesticides, polychlorinated biphenyls (PCBs), arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide. The soil will be acceptable for use as backfill provided that all parameters meet the soil cleanup criteria; and

- Non-virgin soil will be verified through the collection of one composite soil sample per 500 cubic yards of material from each source area and analyzed for TCL VOCs, SVOCs, pesticides, PCBs, arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide. The sampling frequency may be reduced to one sample for every 2,500 cubic yards if the parameters from the first two samples (1,000 cubic yards) meet the soil cleanup criteria.

5.5.4 Fugitive Dust, Soil Erosion Control, and VOC Vapor Mitigation

Fugitive dust, soil erosion, and generation of organic vapors during excavation activities will be suppressed and/or controlled using a number of standard construction practices. The following measures will be utilized, as necessary and appropriate, during intrusive activities that compromise the integrity of any part of the Engineering Controls in order to control the generation of dust, soil erosion, and organic vapors:

- Cover stockpiles of excavated soil with plastic after onsite activity ceases, as necessary and appropriate;
- Control the excavation size or number of excavations as needed to minimize exposed soil faces;
- Wet equipment and excavation faces during active construction; and
- Spray tap water on buckets during loading of soil prior to transport to staging or reuse areas and/or during loading for offsite disposal.
- Spray or mist tap water during placement and compaction of soil for backfilling and surface grading, etc.

As outlined in Section 5.6 of this RAW, a site-specific Community Air Monitoring Plan (CAMP) shall be implemented during any ground intrusive activities, including collection of real-time measurements of organic vapors and particulates and visual observations of dust generation.

5.5.5 Surface Restoration

Following any disturbance, alteration, or improvement that compromises the integrity of the Engineering Control, the Engineering Controls will be restored to the pre-existing conditions documented in the Deed Restriction established for the Remedial Action. Surface restoration will consist of asphalt pavement with a minimum thickness of three inches of asphalt and three inches of clean subbase material and/or concrete as required based on the engineering specifications for the intended use of the area. Any modifications to the design of the Engineering Control would require advance NYSDEC approval as outlined in Section 5.3.

5.5 Construction Water Management

During any excavation activities, pumping of water (i.e., groundwater and/or storm water that has accumulated in an excavation), if necessary, will be conducted in such a manner to prevent the migration of soil/fill particulates and to prevent damage to the existing subgrade. Water pumped from any excavations will be managed in accordance with all applicable regulations so as to prevent endangerment of public health or the environment.

Water pumped from excavations will be containerized and analyzed for BNs (COC in OU-2). If the water analytical results meet the NYSDEC surface water and groundwater quality standards,

the water may be discharged to the storm sewer system at the Site, however, all discharges from the excavation shall be controlled and shall be properly permitted. If the water does not meet the surface water and groundwater quality standards, the water must be transported offsite for proper disposal or treated onsite via a treatment system that has been approved by the NYSDEC.

5.6 Community Air Monitoring Plan

During any activities that compromise the integrity of the Engineering Controls, a CAMP will be implemented to provide for real-time monitoring at the perimeter of the Site. Based on the site-specific contaminants and the scope of the remediation as detailed in this RAW, real-time monitoring will be conducted for organic vapors and particulates (i.e. fugitive dust). Real-time air monitoring for organic vapors and particulates will be conducted at the downwind perimeter of the Site (equivalent to the Exclusion Zone boundaries) during implementation of any construction activities that compromise the integrity of the Engineering Controls.

The objectives of the CAMP are:

- To provide a measure of protection for the downwind community (i.e. potential offsite receptors, including residences and businesses and on-site workers not directly involved with the remediation work activities) from potential airborne contaminant releases as a direct result of maintenance and/or future improvement activities; and
- To confirm that work activities did not spread contamination off-site through the air.

The following subsections outline the proposed scope of the air monitoring for both organic vapors and particulates.

5.6.1 Organic Vapors

Organic vapors will be monitored at the downwind perimeter of the Site on a continuous basis during all ground intrusive activities, including soil excavation, utility work, drilling, and backfill placement. Air monitoring will be conducted with a photoionization detector (PID) that will be calibrated daily prior to the start of work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. All air measurements will be recorded on a Community Air Monitoring Log provided in Appendix B.

The following outlines the action level guidelines for the organic vapor air monitoring data:

- In the unlikely event that the 15-minute running average total organic vapor concentration at the downwind perimeter of the Site (equivalent to the Exclusion Zone boundaries), or individual Work Area, exceeds five parts per million (ppm) above ambient background concentrations, work activities will be temporarily halted and air monitoring will continue. If the total VOC level readily decreases (per instantaneous readings) below five ppm over ambient background, work activities will resume with continued monitoring;

- If total organic vapor levels at the downward perimeter of the Site, or individual Work Area, persist at levels above five ppm over ambient background but less than 25 ppm, work activities will be halted, the source of the vapors identified, corrective actions taken to abate the emissions, and monitoring continued;
- Work activities will then resume if the 15-minute running average total organic vapor concentration is below five ppm in comparison to ambient background concentrations 200 feet downwind of the Site or Work Area, or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less, but in no case less than 20 feet); and
- If the 15-minute total organic vapor concentration at the downward perimeter of the Site, or individual Work Area, exceeds 25 ppm, work activities will be discontinued.

As previously stated, all PID measurements will be recorded on the Daily Community Monitoring Plan Logs and will be available for review by NYSDEC or New York State Department of Health (NYSDOH) personnel upon request. After completion of the construction activities, the Daily Community Air Monitoring Logs will be provided to the NYSDEC in the required report as discussed in Sections 5.2 and 5.3.

5.6.2 Particulates

Measures to minimize, or suppress, the generation of fugitive dust emissions will be implemented during ground intrusive activities that may generate fugitive dust, including placement of clean backfill. Particulate concentrations will be monitored on a continuous basis at the upwind and downwind perimeters of the Site using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and integrating over a 15-minute period for comparison to the airborne particulate action levels outlined below. In addition, fugitive dust migration will also be visually assessed for the duration of the remediation to aid in preventing the off-site migration of contaminated particulates.

The following outlines the action level guidelines for the particulate monitoring data:

- In the unlikely event that the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than the ambient background, or upwind perimeter levels, for the 15-minute period or if airborne dust is observed leaving the Site, or the Work Area, then additional dust suppression techniques will be utilized;
- Work will continue with the additional dust suppression techniques provided that the downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind levels and there is no visible dust migrating from the Site and/or individual Work Area;
- After implementation of the additional dust suppression techniques, if the downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind perimeter levels, work will be stopped and work activities will be re-evaluated; and

- Work will resume if the additional dust suppression measures effectively reduce the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind perimeter levels and prevent visible dust migration.

As previously stated, all particulate measurements will be recorded on the Daily Community Monitoring Plan Logs and will be available for review by NYSDEC or NYSDOH personnel upon request and the Daily Community Air Monitoring Logs will be provided to the NYSDEC in the required reports as outlined in Sections 5.2 and 5.3 of this RAW.

6.0 SITE-SPECIFIC HEALTH AND SAFETY PLAN

As discussed in Chapters 4.0 and 5.0, any construction activities that disturb the asphalt pavement and/or concrete sidewalk areas within the Engineering Controls and Deed Restriction boundaries must be completed in accordance with applicable rules of OSHA and must be performed by a contractor with appropriate OSHA 1910.120 HAZWOPER Training certification. In accordance with NYSDEC Technical Guidance and OSHA 1910.120, a site-specific HASP will be required during any construction activities within the Engineering Controls and Deed Restriction boundaries to ensure that exposure to contamination in excess of the applicable remediation standards does not occur.

A sample site-specific HASP for construction activities within the Engineering Controls and Deed Restriction boundaries is provided in Appendix A. The HASP is user-friendly and establishes the safe work procedures and level of personnel safety during construction activities, including emergency notification information and a local hospital route. In accordance with OSHA requirements, a site-specific HASP must be prepared and distributed to all workers involved in the construction activities and must be present onsite during any construction activities that disturb the Engineering Controls and Deed Restricted area.

7.0 REFERENCES

Certified Engineering and Testing Company, Inc., October 4, 1993. Phase I Environmental Site Assessment of Kings Plaza Shopping Mall, Flatbush Avenue and Avenue U, Brooklyn, New York.

Excel Environmental Resources, Inc., April 2003. Remedial Investigation Report Addendum/Remedial Investigation Workplan, Former Standard Oil Terminal (OU-3), Kings Plaza Shopping Center, Brooklyn, New York

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IVI Environmental, Inc. Groundwater Monitoring Report Nos. 1 through 17, Kings Plaza Shopping Center, Brooklyn, New York.

New York State Department of Environmental Conservation, January 24, 1994. Technical and Administrative Guidance Memorandum #4046.

New York State Department of Environmental Conservation, December 2002. Draft DER-10 Technical Guidance for Site Investigation and Remediation.

United States Geological Survey, 1995. 7.5 Minute Topographical Map of Coney Island, N.Y. Quadrangle. Reston, Virginia.

TABLES

TABLE 1
OU-2 HISTORIC GROUNDWATER ANALYTICAL RESULTS SUMMARY: VOCs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in µg/L)

PARAMETERS		Ben	Tol	Eth	o-Xyl	m+p-Xyl	IsoP	n-Prop	1,3,5-TMB	T-but	1,2,4-TMB	sec-B	IPT	N-but	Nap	MTBE	TBA	PET	DCE	cis-1,2 DCE	TCE	1,3-DCP	1,2-DCB	1,3-DCB	1,4-DCB	MC	1,2,4-TCB	VC	Total VOCs
NYSDEC Groundwater Quality Standard		0.7	5	5	5	5	5	5	5	5	5	5	5	5	10	10	---	---	5	5	5	5	3	3	3	5	5	2	--
Sampling Point	**Sample Date**																												
MW-4	11/9-10/1998	2	**19**	ND	ND	2	ND	ND	2	ND	5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
	2/25/1999	0.49 J	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**15**	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.49
	6/10/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**50**	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50
	9/28-29/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/16-18/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	2/21-23/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	8/29-30/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	5/22-24/2001	**17**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17
	7/31-8/2/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**13**	**24**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
	11/27-29/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
MW-33	9/28-29/1999	ND	ND	**35**	**9.8**	**12**	ND	ND	3.2	ND	**9.3**	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.3
	12/16-18/1999	ND	ND	**16**	**5.7**	**6**	ND	ND	ND	ND	**5.7**	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.4
	2/21-23/2000	ND	ND	**8.1**	ND	2.8	ND	ND	ND	4.3	ND	ND	ND	ND	**900**	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	915.2
	5/23-25/2000	ND	ND	**6.3**	2.8	2.1	ND	ND	ND	ND	1.7	ND	ND	ND	2.3	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.2
	8/29-30/2000	ND	ND	**5.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1,300 D**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,305.2
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	5/22-24/2001	ND	ND	4.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**300 D**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	304.9
	7/31-8/2/2001	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	**28**	**350 D**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	380.3
	11/27-29/2001	ND	1.3	4.1	2.3	ND	ND	ND	1.1	ND	2.1	ND	ND	ND	**350 D**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	360.9
MW-34	9/28-29/1999	**3.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4
	12/16-18/1999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**20**	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
	2/21-23/2000	**3.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**37**	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.6
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
	8/29-30/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**12**	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12
	12/19-21/2000	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	4.4	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	8.5
	3/14-16/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**43**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43
	5/22-24/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9
	7/31-8/2/2001	**3.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6
	11/27-29/2001	**13**	**6.2**	**5.7**	**13**	**18**	ND	ND	ND	ND	2.6	ND	ND	ND	5.1	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.6

KEY:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
Ben - Benzene
Tol - Toluene
Etb - Ethylbenzene
o-Xyl - o-Xylenes
m,p-Xyl - m&p-Xylenes
Iso-p - Isopropylbenzene
n-Prop - n-Propylbenzene
1,3,5-TMB - 1,3,5-Trimethylbenzene
T-but - Tert-Butylbenzene
1,2,4-TMB - 1,2,4-Trimethylbenzene
sec-B - sec-Butylbenzene
IPT - Isopropyltoluene
N-but - n-Butylbenzene
Nap - Naphthalene
MTBE - Methyl Tertiary Butyl Ether

TBA - Tert-butyl alcohol
PET - p-ethyltoluene
DCE- 1,1 Dichloroethene
cis-1,2 DCE - cis 1,2 Dichloroethene
TCE - Trichloroethene
1,3 DCP - 1,3 Dichloropropane
1,2-DCB - 1,2-Dichlorobenzene
1,3-DCB- 1,3-Dichlorobenzene
1,4-DCB- 1,4-Dichlorobenzene
MC - Methylene Chloride
1,2,4-TCB - 1,2,4 Trichlorobenzene
VC - Vinyl Chloride
ND - Not Detected at MDL below NYSDEC Groundwater Quality Standard
NA - Not Analyzed
FP - Not Analyzed due to the presence of Free Product
NP - Data Not Provided

J - Estimated Concentration, Compound Detected but at Concentration Below MDL
D - Diluted Sample
U - Undetected at MDL
MDL - Methed Detection Limit

NOTES:
Values in **Bold** exceed NYSDEC Groundwater Quality Standard.

TABLE 2
OU-2 HISTORIC GROUNDWATER ANALYTICAL RESULTS SUMMARY: SVOCs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in μg/L)

PARAMETERS		Nap	2-Mnap	Acn	Flu	Phe	Ant	Flo	Pyr	Di-ETH	Di-Meth	Di-n-OCT	Di-n-b	BbP	BisEP	DBf	Car	Acy	DiMP	B (g,h,i)	B(a)A	B(b)F	B(k)F	B(a)P	Inden	Chry	TOTAL BNAs
NYSDEC Groundwater Quality Standard		10	50	20	50	50	50	50	50	50	50	50	50	50	50	---	---	---	5	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*	
Sampling Point	Sample Date																										
MW-4	11/9-10/1998	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
	2/25/1999	ND	NA	**37**	0.97 J	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.97
	6/10-11/1999	ND	1 J	**32**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	33
	9/28-29/1999	ND	1.4	**31**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	32.4
	12/16-18/1999	ND	1.6	**40**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	41.6
	2/21-23/2000	ND	ND	11	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.2
	5/23-25/2000	ND	ND	**31**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31
	8/29-30/2000	ND	ND	**31**	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	32.2
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	ND	ND	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 J	ND	ND	8.9 J	ND	ND	ND	ND	ND	ND	ND	ND	34.9
	5/22-24/2001	**240 D**	15	**120 D**	**65**	**59**	8.2 J	10	4.8 J	21	1.4 J	ND	19	1.3 J	4.5	57	NA	4.3 J	NA	ND	ND	ND	ND	ND	ND	ND	630.5
	7/31-8/1&2/2001	ND	ND	**31**	ND	ND	ND	ND	ND	9.5 J	ND	ND	ND	ND	3 J	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	43.5
	11/27-29/2001	ND	ND	**35**	1.2 J	4.2 J	1.3 J	3.6 J	2.5 J	ND	ND	ND	1.2 J	ND	5.4 J	ND	NA	12	NA	ND	**1.1 J**	ND	**1.3 J**	ND	ND	**1.3 J**	70.1
MW-33	9/28-29/1999	**640 E**	**87 E**	**180 E**	**93 E**	**110 E**	16	13	7.4	ND	ND	ND	ND	ND	1.5	87 E	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	1240.3
	12/16-18/1999	**840 D**	**65 D**	**200 D**	**89 D**	**76 D**	**73 D**	ND	ND	ND	ND	ND	ND	ND	ND	75 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1418
	2/21-23/2000	**46**	6.4	**35**	22	18	3.2	2.5	1.6	1	ND	ND	ND	ND	ND	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	152.7
	5/23-25/2000	ND	ND	**87**	21	9.9 J	3.1 J	3.2 J	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	126.2
	8/29-30/2000	**380 D**	**52**	**160 D**	**67**	**67**	**86 J**	6.1	2.6 J	ND	ND	ND	1.7 J	ND	ND	57	ND	4.3 J	**17**	ND	ND	ND	ND	ND	ND	ND	900.7
	12/19-21/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14-16/2001	**260 D**	36	**120 D**	**61**	**46**	6 J	6 J	3.4 J	ND	ND	ND	ND	ND	2.6 J	47	45	3.6 J	ND	ND	ND	ND	ND	ND	ND	ND	636.6
	5/22-24/2001	ND	1.6 J	**35**	ND	ND	ND	ND	ND	19	ND	ND	14	ND	1.7	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	71.3
	7/31-8/1&2/2001	**230 D**	11	**160 D**	**67**	**57**	**63 J**	5.3 J	ND	ND	ND	ND	ND	ND	4 J	57	NA	3.5 J	NA	ND	ND	ND	ND	ND	ND	ND	657.8
	11/27-29/2001	**380 D**	41	**210 D**	**74**	**72**	9.9 J	12	5.7 J	ND	ND	ND	2.3 J	ND	1.7 J	67	NA	4.9 J	NA	ND	ND	ND	ND	ND	ND	ND	880.5
MW-34	9/28-29/1999	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
	12/16-18/1999	ND	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5
	2/21-23/2000	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	5/23-25/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
	8/29-30/2000	ND	ND	1.4 J	ND	ND	ND	ND	ND	1.1 J	ND	ND	3.6 J	1.1 J	6.9 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.1
	12/19-21/2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 J	2 J	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6
	3/14-16/2001	5.8 J	ND	6 J	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3 J	2.4 J	2.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.8
	5/22-24/2001	ND	1 J	3.6 J	ND	ND	ND	ND	ND	22	1.2 J	ND	17	ND	4 J	1.1 J	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	49.9
	7/31-8/1&2/2001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6 J	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	3.6
	11/27-29/2001	4 J	ND	1.9 J	ND	2 J	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	9.1

KEY:

μg/L - micrograms per liter
NYSDEC - New York State Department of Environmental Conservation
Nap - Naphthalene
2-Mnap - 2-Methylnaphthalene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene

Flo - Fluoranthene
Pyr - Pyrene
Di-ETH - Di-ethylphthalate
Di-Meth - Di-methylphthalate
Di-n-OCT - Di-n-Octylphthalate
Di-n-b - Di-n-butylphthalate
BbP - Butylbenzyl phthalate
BisEP - Bis(2-ethyl-hexyl)phthalate

DBf - Dibenzofuran
Car - Carbazole
Acy - Acenaphthylene
DiMP - 2,4 Dimethylphenol
B (g,h,I) - Benzo (g,h,I) Pyrene
B(a)A - Benzo (a) Anthracene
B(b)F - Benzo (b) Fluoranthene
B(k)F - Benzo (k) Fluoranthene

B(a)P - Benzo (a) Pyrene
Inden - Indeno (1,2,3-cd) Pyrene
Chry - Chrysene
ND - Not Detected
NA - Not Analyzed
FP - Not Sampled due to the presence of free product
NS - Not Sampled

NOTES:

J - Indicates that concentration was detected at a value below the minimum detection limit.
U - Indicates that the sample was undetected.
D - Indicates that the concentration was based on a diluted sample analysis
E - Indicates that the compound exceeded the laboratories calibration curve for the sample.
Bold - Indicates an exceedance of the NYDEC GWQC.
* 0.002 or Practical Quantitation Limit (PQL), which is the lowest level that can be reliably detected in the laboratory.

TABLE 3
JUNE 2003 SOIL ANALYTICAL RESULTS: PAHs
Kings Plaza Shopping Center
Brooklyn, New York
(Concentrations reported in mg/kg)

PARAMETERS						Nap	Acy	Acn	Flu	Phe	Ant	Flo	Pyr	BaA	Chr	BbF	BkF	BaP	IP	DbA	BP	Total PAHs
NYSDEC TAGM #4046 RECOMMENDED CLEAN-UP OBJECTIVE						13	41	50	50	50	50	50	50	0.224	0.4	1.1	1.1	0.061	3.2	0.014	50	500
Excel Sample No.	Lab Sample No.	Sample Depth	Sample Matrix	Collection Date	Collection Time																	
B3A	439634	5.5 - 6.0	Soil	6/30/2003	1150	0.29 J	0.12 J	1.30 J	0.98 J	9.6	3.9	24	28	**11**	**12**	**8**	**11**	**11**	**7.2**	**2.6**	8.4	139.39
B12A	439636	5.5 - 6.0	Soil	6/30/2003	1105	0.96 J	0.34 J	3.20 J	4.40 J	**52**	15	**76**	**81**	**33**	**34**	**26**	**29**	**32**	**21**	**6.2**	23	437.1
B19A	439638	5.5 - 6.0	Soil	6/30/2003	1020	0.22 J	0.049 J	2.5	0.82	5.8	2.4	12	13	**3**	**3**	**1.6**	**2.4**	**2.3**	1.3	**0.48**	1.4	52.27
FB	439640	---	Aq	6/30/2003	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

KEY:
mg/kg - milligrams per kilogram
Nap - Naphthalene
Acy - Acenaphthylene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene
Flo - Fluoranthene
Pyr - Pyrene
BaA - Benzo(a)anthracene
Chr - Chrysene
BbF - Benzo(b)fluoranthene
BkF - Benzo(k)fluoranthene
BaP - Benzo(a)pyrene
IP - Indeno(1,2,3-cd)pyrene
DbA - Dibenz (a,h) anthracene
BP - Benzo (g,h,i) perylene
PAHs - Polynuclear Aromatic Hydrocarbons
ND - Not Detected Above Method Detection Limits
Aq - Aqueous

NOTES:
Samples denoted in Military Time.
Sample depths are reported in feet (ft.) below ground surface.
NYSDEC Guidance Values from NYSDEC TAGM #4046 Recommended Clean-up Objective.
Bold and Shaded values exceed NYSDEC Recommended Soil Clean-up Objective.

TABLE 4
SUMMARY OF OU-2 QUARTERLY GROUNDWATER ANALYTICAL RESULTS:
VOLATILE ORGANIC COMPOUNDS
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911
(Concentrations reported in ug/l)

PARAMETERS					MTBE	Ben	Tol	Etb	Total Xyl	PCE	TCE	c-DCE	t-DCE	1,1-DCE	VC	Chf	Nap	Iso-p	t-Ben	n-Ben	Sec-B	Total VOCs
NEW YORK STATE AMBIENT WATER QUALITY STANDARDS					10	1	5[1]	5[1]	5[1]	5[1]	5[1]	5[1]	5[1]	5	2	7	10	5	---	5	5	---
Excel Sample No.	Sample Matrix	Lab Sample No.	Collection Date	Collection Time																		
MW-4[3]	Aq	377678	9/19/2002	1625	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-33[3]	Aq	377679	9/19/2002	1645	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-34[3]	Aq	377680	9/19/2002	1355	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-45[3]	Aq	377681	9/19/2002	0955	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-46[3]	Aq	377682	9/19/2002	1225	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	**32**	ND	ND	ND	ND	32
FB[3]	Aq	377683	9/19/2002	1655	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
TB[3]	Aq	377684	9/18/2002	---	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-33[3]	Aq	379626	9/26/2002	1100	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	**150**	ND	ND	ND	ND	150
FB[3]	Aq	379627	9/26/2002	1115	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
TB[3]	Aq	379628	9/26/2002	---	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
MW-4[4]	Aq	444180	7/17/2003	0940	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-33[4]	Aq	444186	7/18/2003	0925	NA	ND	ND	ND	ND	2.3	3.4	**9.1**	ND	ND	1.8 J	ND	NA	NA	NA	NA	NA	16.6
MW-34[4]	Aq	444181	7/17/2003	1110	NA	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND	ND	ND	NA	NA	NA	NA	NA	1.4
MW-45[4]	Aq	444182	7/17/2003	0815	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-46[4]	Aq	444178	7/17/2003	0900	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
MW-33[4]	Aq	452825	8/18/2003	0935	NA	ND	ND	ND	ND	ND	ND	1.8 J	ND	ND	0.8 J	ND	NA	NA	NA	NA	NA	2.6
FB-1[4]	Aq	444189	7/18/2003	1100	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND
FB	Aq	452826	8/18/2003	0945	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-1[4]	Aq	444190	7/16/2003	---	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND

KEY:

ug/l - micrograms per liter
VOCs - Volatile Organic Compounds
MTBE - Methyl Tertiary Butyl Ether
Ben - Benzene
Tol - Toluene
Etb - Ethylbenzene
Total Xyl - Total Xylene
PCE - Tetrachloroethene
TCE - Trichloroethene
c-DCE - cis-1,2 - Dichloroethene
t-DCE - trans - 1,2 - Dichloroethene
1,1-DCE - 1,1-Dichloroethene
VC - Vinyl Chloride
Chf - Chloroform
Nap - Naphthalene
Iso-p - Isopropyl benzene
t-Ben - tert-Butylbenzene
n-Ben - n-Propylbenezene
Sec-B - sec-Butylbenzene
Aq - Aqueous
ND - Not Detected Above Method Detection Levels
NA - Not Analyzed
D - Indicates sample dilution

NOTES:

Sample times denoted in military time.
Guidance values may be used where a standard for a substance or group of substances has not been established for a particular water class and type of value
Bold and Shaded - Indicates an exceedance of the New York Groundwater Quality Criteria.
(1) - The compound is included in a principal organic contaminant (POC) list and therefore the POC general standard for groundwater is used.
(2) - Method Detection Level exceeds New York State Ambient Water Quality Standards due to high sample dilution
(3) - Indicates sample was analyzed by Method 8021B.
(4) - Indicates sample was analyzed by Method 8260B.

TABLE 5
SUMMARY OF OU-2 QUARTERLY GROUNDWATER ANALYTICAL RESULTS:
SEMI-VOLATILE ORGANIC COMPOUNDS
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911
(Concentrations reported in ug/l)

PARAMETERS					Nap	Acn	Flu	Phe	Ant	Flo	Pyr	B(a)A	Chr	BeP	B(b)F	B(k)F	B(a)P	Inden	Dibenz	Ben (g,h,I)	Total SVOCs
NEW YORK STATE AMBIENT WATER QUALITY STANDARDS					10	20	50	50	50	50	50	0.002	0.002	5	0.002	0.002	0.002	0.002	50	5*	---
Excel Sample No.	Sample Matrix	Lab Sample No.	Collection Date	Collection Time																	
MW-4	Aq	377678	9/19/2003	1625	1.0 J	**33**	1.1 J	1.5 J	0.3 J	1.0 J	0.6 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	38.5
MW-33	Aq	377679	9/19/2003	1645	**250**	**220**	**160**	**160**	19 J	20 J	10 J	**1.3 J**	**0.6 J**	NA	ND	ND	ND	ND	ND	ND	840.9
MW-34	Aq	377680	9/19/2003	1355	ND	5.1 J	ND	ND	ND	0.3 J	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	5.4
MW-45	Aq	377681	9/19/2003	0955	ND	0.8 J	ND	0.3 J	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	1.1
MW-46	Aq	377682	9/19/2003	1225	ND	1.5 J	0.2 J	ND	ND	0.3 J	0.4 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	2.4
FB	Aq	377683	9/19/2002	1655	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND
MW-4	Aq	444180	7/17/2003	0940	0.2 J	**29**	0.5 J	2.4 J	0.5 J	8.1 J	6.6 J	**3.6**	**5.3 J**	NA	**4.5**	**5**	**4.9**	**3.3**	ND	3.8 J	77.7
MW-33	Aq	444186	7/18/2003	0925	**21**	**44**	23	25	3.2 J	3.1 J	1.5 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	120.8
MW-34	Aq	444181	7/17/2003	1110	1.0 J	4.7 J	1.1 J	1.0 J	ND	0.4 J	0.3 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	8.5
MW-45	Aq	444182	7/17/2003	0815	ND	0.8 J	ND	ND	ND	0.3 J	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	1.1
MW-46	Aq	444178	7/17/2003	0900	3.4 J	2.4 J	1.2 J	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	7
MW-33	Aq	452825	8/18/2003	0935	**11**	**43**	21	26	3.4 J	2.8 J	1.4 J	ND	ND	NA	ND	ND	ND	ND	ND	ND	108.6
FB	Aq	444189	7/18/2003	1100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB	Aq	452826	8/18/2003	0945	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND

KEY:
ug/l - micrograms per liter
SVOCs - Semi Volatile Organic Compounds
Nap - Naphthalene
Acn - Acenaphthene
Flu - Fluorene
Phe - Phenanthrene
Ant - Anthracene
Flo - Fluoranthene
Pyr - Pyrene
B(a)A - Benzo(a)anthracene
Chr - Chrysene
BeP - bis(2-Ethylhexyl)phthalate
B(b)F - Benzo(b)fluoranthene
B(k)F - Benzo(k)fluoranthene
B(a)P - Benzo(a)pyrene
Inden - Indeno(1,2,3-cd)pyrene
Dibenz - Dibenz(a,h)anthracene
Ben(g,h,I) - Benzo(g,h,I)perylene
Aq - Aqueous
ND - Not Detected
NA - Not Analyzed

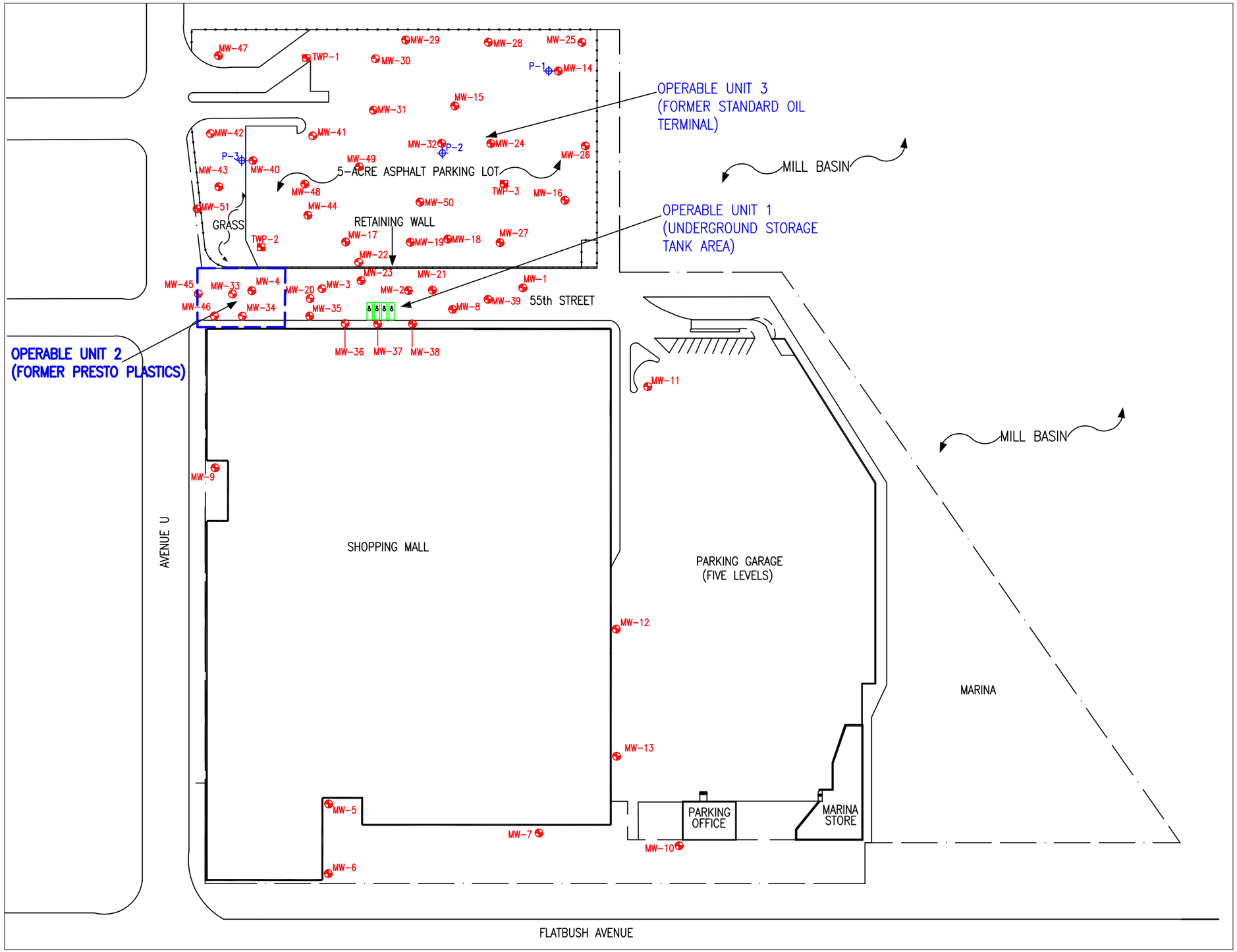
NOTES:
Sample times denoted in military time.
Guidance values may be used where a standard for a substance or group of substances has not been established for a particular water class and type of value.
Bold and Shaded - Indicates an exceedance of the New York Groundwater Quality Criteria.
* - The compound is included in a principal organic contaminant (POC) list and therefore the POC general standard for groundwater is used.
J - The result is less than the specified quantation limit but greater than zero. The concentration given is an approximate value.

FIGURES

SOURCE:
UNITED STATES GEOLOGICAL SURVEY
7.5 MINUTE SERIES (TOPOGRAPHIC)
CONEY ISLAND, NY QUADRANGLE
1995

EXCEL ENVIRONMENTAL RESOURCES, INC.		
KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
FIGURE 1 SITE LOCATION MAP		
DRAWN BY: NA	SCALE: 1:24,000	10/17/2003
CHECKED BY: EM	REVISION: 2.0	PROJECT #: 02432

G:\PROJECTS\02432-OU 2\FIGURES\SITEPLAN-REVISED.DWG



LEGEND:

- PROPERTY BOUNDARY
- MW-12 EXISTING MONITORING WELL
- TWP-1 EXISTING TEMPORARY WELL
- P-1 EXISTING PIEZOMETER
- BOUNDARY OF AREA AT THE END OF 55TH STREET DEFINED AS OPERABLE UNIT 2

0 75 150 300
SCALE IN FEET

EXCEL Environmental Resources, Inc.

PROJECT: KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 2 GENERALIZED SITE PLAN SHOWING LOCATION OF OPERABLE UNIT 2		
DRAWN BY: MLE	SCALE: 1" = 150'	DATE: 12/3/07
CHECKED BY: RAH	REVISION: 1.0	PROJECT # 02432

G:\02432-OU 2\FIGURES\FIGURE 3-A.dwg

GRASS

B-19A (5.5'-6.0')	6/30/2003
BaA	**3**
Chr	**3**
BbF	**1.6**
BkF	**2.4**
BaP	**2.3**
DbA	**0.48**
TOTAL PAHs	52.27

B-12A (5.5'-6.0')	6/30/2003
Phe	**52**
Flo	**76**
Pyr	**81**
BaA	**33**
Chr	**34**
BbF	**26**
BkF	**29**
BaP	**32**
IP	**21**
DbA	**6.2**
TOTAL PAHs	437.1

5-ACRE ASPHALT PARKING LOT

OPERABLE UNIT 3

AVENUE U

STAIRS DOWN TO PARKING LOT

RETAINING WALL

RECOVERY EQUIPMENT STORAGE

DISCHARGE TO CATCH BASIN

CB

MW-23

MW-3

OPERABLE UNIT 1

MW-2

MW-21

MW-39

MW-1

MW-20

HV-3

HV-2

HV-5

HV-4

HV-1

55th STREET

MW-8

HV-6

MW-35

MW-36

MW-37

MW-38

MW-45

MW-33

MW-4

OPERABLE UNIT 2

MW-46

MW-34

SHOPPING MALL

B-3A (5.5'-6.0')	6/30/2003
BaA	**11**
Chr	**12**
BbF	**8**
BkF	**11**
BaP	**11**
IP	**7.2**
DbA	**2.6**
TOTAL PAHs	139.39

SCALE IN FEET

0 50 100 150

LEGEND:

- LATERAL EXTENT OF OPERABLE UNIT 2 INSTITUTIONAL AND ENGINEERING CONTROLS
- MW-1 MONITORING WELL
- MW-45 NEW MONITORING WELL
- HV-6 HVDPE WELL
- B-3A SOIL BORING
- DISCHARGE PIPE
- CB CATCH BASIN
- EXISTING UNDERGROUND STORAGE TANK
- Phe PHENANTHRENE
- Flo FLUORANTHENE
- Pyr PYRENE
- BaA BENZO(a)ANTHRACENE
- Chr CHRYSENE
- BbF BENZO(b)FLUORANTHENE
- BkF BENZO(k)FLUORANTHENE
- BaP BENZO(a)PYRENE
- IP INDENO(1,2,3-cd)PYRENE
- DbA DIBENZ(a,h)ANTHRACENE
- PAHs POLYNUCLEAR AROMATIC HYDROCARBONS
- NYSDEC NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- **BOLD** VALUE EXCEEDS NYSDEC TAGM#4046 RECOMMENDED SOIL CLEAN-UP OBJECTIVES

B-12A	6/30/03
TOTAL PAHs	437.1

SAMPLE LOCATION

SAMPLE DATE

ANALYTICAL RESULT IN MILLIGRAM PER KILOGRAM (MG/KG)

ANALYTICAL PARAMETER

NOTE:

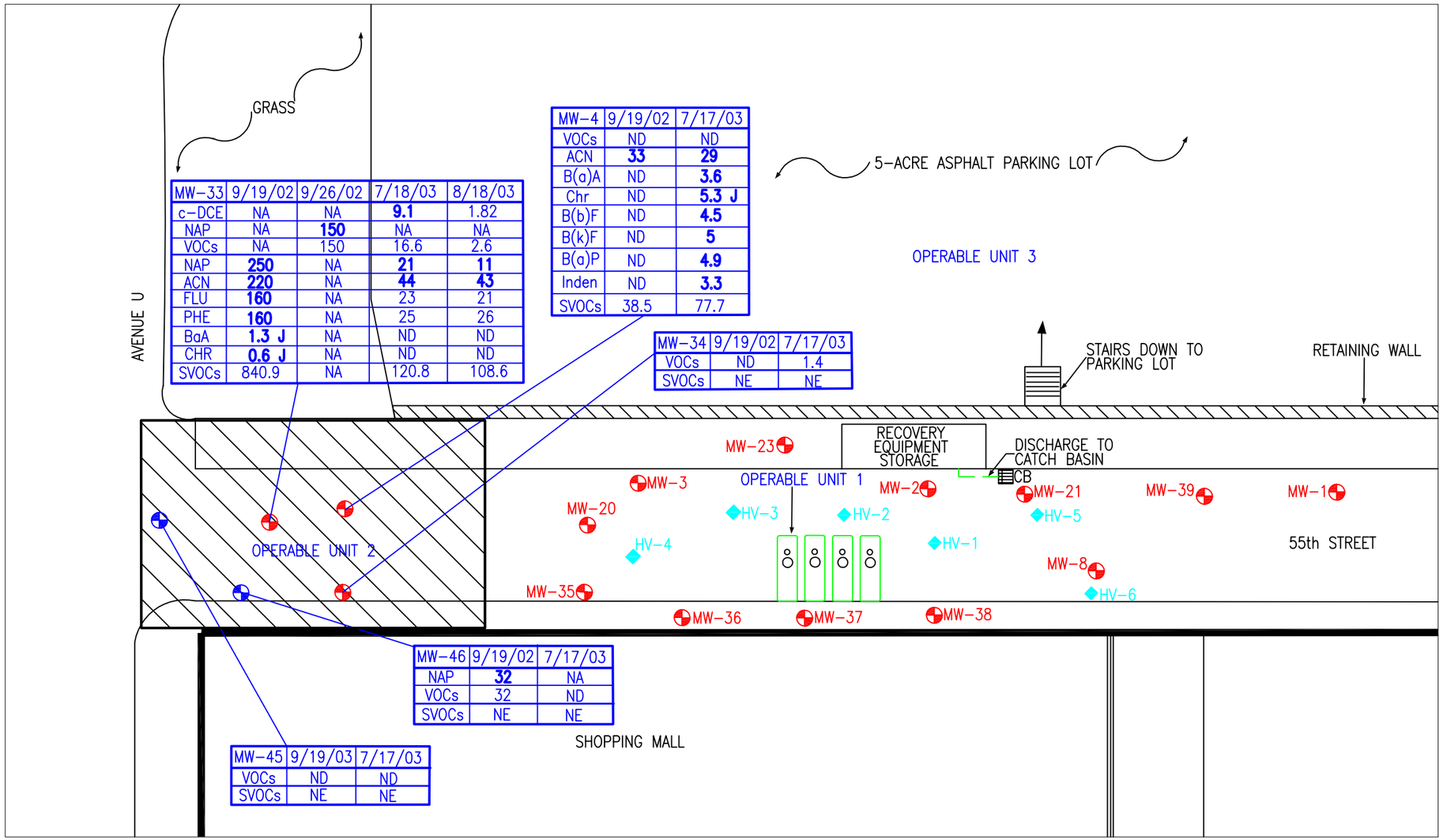
ONLY EXCEEDANCES OF THE NYSDEC TAGM#4046 RECOMMENDED SOIL CLEAN-UP OBJECTIVES ARE REPORTED

EXCEL Environmental Resources, Inc.

PROJECT:	KING'S PLAZA SHOPPING CENTER BROOKLYN, NEW YORK
DESCRIPTION:	FIGURE 3 SOIL ANALYTICAL RESULTS ABOVE NYSDEC RECOMMENDED CLEAN-UP OBJECTIVES

DRAWN BY:	SCALE:	DATE:
MLE	1" = 50'	12/3/07
CHECKED BY:	REVISION:	PROJECT #
EM		02432

G:\02432 OU-2\FIGURES\FIGURE 4-A



MW-33	9/19/02	9/26/02	7/18/03	8/18/03
c-DCE	NA	NA	**9.1**	1.82
NAP	NA	**150**	NA	NA
VOCs	NA	150	16.6	2.6
NAP	**250**	NA	**21**	**11**
ACN	**220**	NA	**44**	**43**
FLU	**160**	NA	23	21
PHE	**160**	NA	25	26
BaA	**1.3 J**	NA	ND	ND
CHR	**0.6 J**	NA	ND	ND
SVOCs	840.9	NA	120.8	108.6

MW-4	9/19/02	7/17/03
VOCs	ND	ND
ACN	**33**	**29**
B(a)A	ND	**3.6**
Chr	ND	**5.3 J**
B(b)F	ND	**4.5**
B(k)F	ND	**5**
B(a)P	ND	**4.9**
Inden	ND	**3.3**
SVOCs	38.5	77.7

MW-34	9/19/02	7/17/03
VOCs	ND	1.4
SVOCs	NE	NE

MW-46	9/19/02	7/17/03
NAP	**32**	NA
VOCs	32	ND
SVOCs	NE	NE

MW-45	9/19/03	7/17/03
VOCs	ND	ND
SVOCs	NE	NE

LEGEND:

- LATERAL EXTENT OF OPERABLE UNIT 2 INSTITUTIONAL AND ENGINEERING CONTROLS
- MW-1 MONITORING WELL
- MW-45 NEW MONITORING WELL
- HV-6 HVDPE WELL
- DISCHARGE PIPE
- CB CATCH BASIN
- EXISTING UNDERGROUND STORAGE TANK

c-DCE	cis-1,2-DICHLOROETHENE
VOCs	TOTAL VOLATILE ORGANIC COMPOUNDS
NAP	NAPHTHALENE
ACN	ACENAPHTHENE
B(a)A	BENZO(a)ANTHRACENE
Chr	CHRYSENE
B(b)F	BENZO(b)FLUORANTHENE
B(k)F	BENZO(k)FLUORANTHENE
B(a)P	BENZO(a)PYRENE
Inden	INDENO(1,2,3-cd)PYRENE
SVOCs	TOTAL SEMI VOLATILE ORGANIC COMPOUNDS
ND	NOT DETECTED
NA	NOT ANALYZED
NE	NO EXCEEDANCE OF THE NEW YORK STATE AMBIENT WATER QUALITY STANDARD OR GUIDANCE VALUE
BOLD	VALUE EXCEEDS NEW YORK STATE GROUNDWATER QUALITY CRITERIA
J	RESULT IS LESS THAN QUANTITATION LIMIT AND IS AN APPROXIMATE VALUE

SAMPLE LOCATION

SAMPLE DATE

MW-34	7/17/03
VOCs	1.4

ANALYTICAL RESULT IN MICROGRAMS PER LITER (ug/L)

ANALYTICAL PARAMETER

NOTE:

ONLY EXCEEDANCES OF THE NEW YORK STATE AMBIENT WATER QUALITY STANDARDS AND/OR GUIDANCE VALUES ARE REPORTED.

SCALE IN FEET

0 50 100 150

EXCEL Environmental Resources, Inc.

PROJECT:	KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK
DESCRIPTION:	FIGURE 4 GROUNDWATER ANALYTICAL RESULTS

DRAWN BY:	SCALE:	DATE:
MLE	1" = 50'	12/3/07
CHECKED BY:	REVISION:	PROJECT #
EM		02432

APPENDIX A

SITE-SPECIFIC HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN
OPERABLE UNIT - 2
5100 KINGS PLAZA
BROOKLYN, NEW YORK
NYSDEC SPILL NO. 98-15285

TECHNICAL REPORT AND APPENDICES A THROUGH B

PREPARED FOR:

VORNADO REALTY TRUST
888 7th AVENUE
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PREPARED BY:

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APRIL 2005

HEALTH AND SAFETY PLAN
Operable Unit - 2
Kings Plaza Shopping Center
Brooklyn, New York
NYSDEC VCA No. A2-0403-9911

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HEALTH AND SAFETY PLAN
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HEALTH AND SAFETY PLAN
Operable Unit - 2
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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared by Excel Environmental Resources, Inc. (Excel) on behalf of Alexander's King Plaza Centers, Inc. and Vornado Realty Trust (herein referred to as the Owner) for construction activities to be conducted within the area defined as Operable Unit (OU)-3 located at 5100 Kings Plaza, Brooklyn, Kings County, New York (hereafter referred to as the Site). This HASP is required during any construction activities within the Engineering Controls and Deed Restriction boundaries that compromise the integrity of the Engineering Controls to ensure that exposure to contamination in excess of the applicable remediation standards does not occur.

The Kings Plaza Shopping Center is an approximately 31-acre parcel identified on local tax maps as Section 1, Block 847, Lots 50 and 55. Figure 1 shows the location of the Site on the Coney Island, N.Y. United States Geological Survey (USGS) 7.5 Minute Series topographic map. The portion of the Site that is identified as OU-2 is located at the northern end of the 55th Street access road to the Kings Plaza Shopping Center as shown on Figure 2.

This HASP includes provisions to ensure the safe performance of construction activities that compromise the integrity of the existing asphalt pavement and concrete Engineering Controls and includes guidelines for air quality monitoring, safe work practices, equipment safety, and an outline of the requirements for health and safety training and medical surveillance required for project personnel, including subcontractors, involved in subsurface activities, specifically soil excavation, utility maintenance, groundwater recovery, and maintenance of the Engineering Controls.

The HASP also includes a site-specific emergency and/or contingency response plan to be implemented in the event of an emergency and which is an integral part of the safety program. This HASP was prepared in accordance with the applicable requirements of the Occupational Safety and Health Administration (OSHA), the U. S. Environmental Protection Agency (USEPA), and the New York State Department of Environmental Conservation (NYSDEC).

2.0 SITE CHARACTERIZATION AND HAZARD ASSESSMENT

The Site is bounded by Avenue U to the north, the Kings Plaza Shopping Center to the west, a paved parking area that is part of the Kings Plaza property (OU-3) to the east, and the 55th Street access road and OU-1 to the south. As shown on Figure 2, the closest surface water body is the Mill Basin located immediately adjacent to the southern side of the Kings Plaza Shopping Center. Known existing utilities at the Subject Property include sub-grade electric lines, gas lines, water lines, and storm sewer lines that service the shopping mall.

Previous environmental site assessments and investigations conducted in OU-2 have documented subsurface soil and groundwater contamination including volatile organic compounds and base neutral organic compounds. Specific contaminants of concern and the range of concentrations detected are summarized in Table 1.

This chapter summarizes the results of previous soil and groundwater quality investigations conducted at OU-2 as they relate to the health and safety requirements for future construction activities. A more detailed summary of the soil and groundwater quality conditions at the site is provided in several historic reports, including Chapter 2.0 of the RIR/RAW for the Former Presto Plastics Facility, dated August 15, 2001, prepared by IVI on behalf of Vornado for submission to the NYSDEC and in the November 2003 RIRA prepared by Excel.

2.1 Operational History

The area identified as OU-2 is currently owned by Kings Plaza Alexanders, Inc. (Alexanders), a majority-owned subsidiary to Vornado Realty Trust (Vornado). This area is currently identified as the northern end of the 55th Street access road to the Kings Plaza Shopping Center which has only been used as an access road since Alexanders' acquisition and development of the property in the early 1970s. Review of existing environmental reports indicates that Presto Plastic Products Company, Inc. and its successors operated at the Site from the early 1940s to the mid-1960s.

According to a Phase I Environmental Site Assessment (ESA) prepared by Certified Engineering and Testing Company, Inc., approximately 20 railroad tankers were uncovered and removed from the Kings Plaza property in 1969. These tankers were reportedly used as petroleum and/or chemical storage tanks by the Presto Plastic Products Company, Inc. and were in approximately the same location as the Macy's building located to the west of the 55th Street access road. Review of Sanborn™ Fire Insurance Maps of the Site and a 1951 aerial photograph of the Site does not indicate that any operations were specifically located at the northern end of 55th Street in the immediate vicinity of the area defined as OU-2 during the time period shown on the maps and the aerial photographs reviewed.

2.2 Summary of Previous Site Investigations

The following reports document the findings of several environmental site assessments and investigations conducted by others at the subject property, inclusive of OU-2:

- Phase I ESA of Kings Plaza Shopping Mall, Flatbush Avenue and Avenue U, Brooklyn, New York, prepared by Certified Engineering and Testing Company, Inc. on behalf of Alexander's, dated October 4, 1993;
- Contaminant Assessment (CA)/Site Investigation (SI), prepared by IVI on behalf of Rosenman & Colin, LLP, dated July 1997;
- Groundwater Monitoring Report Nos. 1 through 17, prepared by IVI on behalf of Vornado;
- Remedial Investigation Report (RIR)/Remedial Action Workplan (RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated April 19, 2000;
- Remedial Investigation Report/Remedial Action Workplan (RI/RAW) for the Former Presto Plastics Facility, Operable Unit No. 2, prepared by IVI, dated August 15, 2001; and
- Progress Report Nos. 18 through 25, prepared by Excel on behalf of Vornado.
- Remedial Investigation Report Addendum, prepared by Excel on behalf of Vornado, dated November 2003.

The July 1997 CA/SI Report, prepared by IVI, summarizes the results of an initial investigation of areas within the 55th Street access road, the areas surrounding the Shopping Mall, and the adjacent paved parking lot (OU-3). As outlined in the July 1997 CA/SI Report, the investigation conducted by IVI included the evaluation of groundwater quality through the installation of 13 monitoring wells (designated as MW-1 through MW-13) in the 55th Street access road and around the perimeter of the Shopping Mall.

The August 2001 RIR/RAW summarizes the results of an additional investigation of OU-2 soil and groundwater quality conducted by IVI from June 1999 through September 1999. Review of the August 2001 RIR/RAW indicates that five soil borings (designated B-1 through B-3, B-12, and B-19) were advanced in the immediate vicinity of OU-2. Analytical results of soil samples collected at depths between six to eight feet below ground surface (bgs) indicate that there were no Volatile Organic Compounds (VOCs) detected at concentrations above the NYSDEC soil cleanup criteria in any of these five soil borings. The Semi-Volatile Organic Compound (SVOC) results indicated that several BN compounds were reported in soil boring B-19 at concentrations above the NYSDEC soil cleanup criteria. There were no elevated BN concentrations reported in samples collected from the other four soil borings.

As outlined in the November 2003 RIRA, review of the boring logs prepared by IVI for monitoring wells and soil borings advanced in the 55th Street access road during the RI indicate that fill material consisting of brown to gray, medium to coarse sand with wood, bricks, cinders, glass, cobbles, and shells is laterally extensive within 55th Street from the OU-2 Area at the northern end of the street to the south near the Mill Basin.

As part of the RI, IVI also collected groundwater samples from monitoring wells MW-4, MW-33, and MW-34 within the OU-2 Area. Analytical results indicated that Naphthalene and several BN compounds were reported at concentrations above the New York Groundwater Quality Criteria (NYGWQC). As documented in the November 2003 RIRA, the historic groundwater analytical results

for the OU-2 monitoring wells indicate that BNs are predominantly the only parameters historically reported in groundwater at OU-2 wells MW-4 and MW-33.

Based on the elevated BN concentrations in soil and the composition of the fill, the fill meets the NYSDEC definition of contaminated Historic Fill (defined as non-native fill that was contaminated prior to emplacement; usually due to the presence of ash and cinders which can contribute BNs, metals, and other contaminants to the fill). Furthermore, the historic OU-2 groundwater analytical results were likely biased high due to elevated turbidity in the samples and the fact that NYSDEC-recommended low flow sampling techniques were not used.

In order to complete groundwater quality delineation and to confirm the most appropriate remedial action alternative, Excel conducted a focused soil and groundwater RI in OU-2 in late 2002 and 2003 to verify whether elevated BN concentrations historically reported in soil and groundwater in OU-2 are in fact attributed to Historic Fill. As summarized in the November 2003 RIRA, Excel verified the existence of a layer of non-indigenous fill at the soil/water interface in OU-2 that contains concrete, brick, wood, glass, ash, and cinders and that the elevated BN concentrations and the composition of the fill meets the NYSDEC definition of contaminated Historic Fill.

Based on the focused RI findings, the BN concentrations in soil at levels above the NYSDEC soil cleanup criteria are attributable to the Historic Fill and are not reflective of a historic point source discharge from site operations as previously indicated by IVI. As also summarized in the November 2003 RIRA, the groundwater analytical data generated during two rounds of groundwater sampling and analysis using NYSDEC-recommended low flow sampling techniques indicated that only BNs were reported in groundwater at OU-2 at concentrations slightly above the NYGWQC.

2.3 Health Standards

Permissible Exposure Limits (PELs) and Threshold Limit Values (TLVs) refer to the concentration of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects, based on an 8-hour daily/40-hour workweek. The PELs are standards enforced by OSHA and the TLVs are guidelines recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). The National Institute of Occupational Safety and Health (NIOSH) also has guidelines for exposure limits, they are the Immediately Dangerous to Life and Health (IDLH) and Short Term Exposure Limit (STEL). These guidelines are based upon the best available information from industrial experience, experimental human and experimental animal studies, or a combination of the three. The health standard guidelines for the contaminants of concern are included in Table 2.

Because of the wide variation in individual susceptibility, a small percentage of workers may experience discomfort from some substances at concentrations below the recommended IDLHs, STELs, PELs and TLVs. As a best management safety practice, the strictest guidelines will be used for determining worker protection levels during any future ground intrusive activities.

2.4 Physical Controls

The existing soil and groundwater quality data indicate that the key compounds of potential concern in soil and groundwater include base neutral organic compounds. Most of these compounds are readily monitored in the field with real-time instrumentation and visual field observation can also be used to aid in the identification of Historic Fill. Potential exposure to these materials occurs primarily through inhalation, direct contact, skin absorption, ingestion, and inhalation of soil particulates as dust.

The field activities during construction activities may include:

- Excavation of subsurface soil;
- Excavation of subsurface fill and debris;
- Open excavation recovery of groundwater;
- Handling of impacted soil for purposes of transportation and disposal; and
- Repair/Maintenance of the Engineering Controls.

Any aboveground, non-intrusive activities without risk for exposure to contaminants require workers to adhere to general OSHA construction safety regulations. Workers performing aboveground, non-intrusive activities are required to work in the specified minimum level of personnel protection for construction activities which is **Level D**. Level D personnel protection is defined in Section 5.1 of this HASP.

Only authorized individuals will be permitted in the work area during performance of subsurface activities. These authorized individuals must have completed an OSHA training course per the OSHA Hazard Communication Standard 29 CFR 1910.120 and 29 CFR 1926 Subpart "P" and must have completed an eight-hour Refresher within the last year. Workers onsite during subsurface activities must also follow general OSHA construction safety regulations. Based on the existing information regarding site conditions, workers performing subsurface activities are required to work in a higher level of personnel protection which is **Modified Level D.** Modified Level D personnel protection is defined in Section 5.2 of this HASP.

The primary means for controlling exposure to the contaminants of concern identified in soil and/or groundwater during performance of subsurface activities is through air quality monitoring, minimization of skin contact and ingestion, and employing strict adherence to dust control protocol. Physical controls will therefore be established at the subject property during subsurface activities. Physical controls are summarized as follows:

- To minimize the potential for ingestion, good hygiene practices will be discussed and reinforced on a daily basis and materials will be provided in the decontamination and break zones for all personnel to wash hands and faces prior to taking breaks. In addition, eating, drinking, and smoking will be strictly prohibited in any of the work areas.

- To minimize the potential for exposure through inhalation, routine air quality monitoring will be conducted and dust control measures will be utilized during all excavation and other soil handling activities. Where necessary, water misting will be used to control dust generation during subsurface soil excavation as discussed in Section 4.2.

2.5 Air Monitoring

In addition to physical controls, air monitoring will be conducted as an added precaution during all work activities, including soil excavation and soil handling to minimize the potential for exposure through inhalation. During all field activities, air quality monitoring will be conducted for the following parameters using the specified instrumentation:

- A PID (Rae Systems Model MiniRae or equivalent) will be used to monitor ambient air organic vapor levels.

- Where confined space entry is required, a combination Oxygen/Combustible Gas meter (Model Gastech GT 302 or equivalent) will be used to ensure adequate oxygen levels exist, as well as to monitor for hydrogen sulfide, methane, and a potential flammable/combustible atmosphere.

Each field monitoring instrument will be calibrated in the field at the beginning of each day and, as applicable, background readings will be taken upwind of the work area. Air monitoring will be conducted at the beginning of every shift, at every change in work procedure, and periodically during daily field work. If confined space entry is required, combustible gas monitoring will always be the first step in the sequence of monitoring steps.

Action levels based on air monitoring results are as follows:

- Organic Vapors - greater than five parts per million (ppm) of organic vapors maintained for more than one minute in the ambient air (based on instrument calibration with isobutylene) will require discontinuation of activities and re-evaluation of field activities to determine if the level of personnel protection must be upgraded, engineering controls initiated, or activities postponed;

- For confined space work, the oxygen level must be 19.5 percent or higher in order for work to proceed;

- For confined space work, flammable atmospheres registering greater than 10 percent of the lower explosive limit will require discontinuation of activities and re-evaluation to determine if the level of personnel protection must be upgraded, engineering controls initiated, or activities postponed.

If the aforementioned action levels are equaled or exceeded, work will stop immediately and personnel will move upwind of the work area. The area will be allowed to vent for a minimum of five minutes. At the end of the five-minute waiting period, air quality measurements will be recorded again. If the measured concentrations continue to exceed the action levels, the fieldwork may be postponed until the situation has been re-evaluated, the source of the material is determined, and new health and safety guidelines are established.

2.5.1 Community Air Monitoring Program

During any activities that compromise the integrity of the Engineering Controls, a Community Air Monitoring Plan (CAMP) will be implemented to provide for real-time monitoring at the perimeter of the Site. Based on the site-specific contaminants and the scope of the remediation as detailed in this RAW, real-time monitoring will be conducted for organic vapors and particulates (i.e. fugitive dust). Real-time air monitoring for organic vapors and particulates will be conducted at the downwind perimeter of the Site (equivalent to the Exclusion Zone boundaries) during implementation of any construction activities that compromise the integrity of the Engineering Controls.

The objectives of the CAMP are:

- To provide a measure of protection for the downwind community (i.e. potential offsite receptors, including residences and businesses and on-site workers not directly involved with the remediation work activities) from potential airborne contaminant releases as a direct result of maintenance and/or future improvement activities; and
- To confirm that work activities did not spread contamination off-site through the air.

The following subsections outline the proposed scope of the air monitoring for both organic vapors and particulates.

2.5.1.1 Organic Vapors

Organic vapors will be monitored at the downwind perimeter of the Site on a continuous basis during all ground intrusive activities, including soil excavation, utility work, drilling, and backfill placement. Air monitoring will be conducted with a photoionization detector (PID) that will be calibrated daily prior to the start of work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. All air measurements will be recorded on a Community Air Monitoring Log provided in Appendix A.

The following outlines the action level guidelines for the organic vapor air monitoring data:

- In the unlikely event that the 15-minute running average total organic vapor concentration at the downwind perimeter of the Site (equivalent to the Exclusion Zone boundaries), or individual Work Area, exceeds five parts per million (ppm) above ambient background concentrations, work activities will be temporarily halted and air monitoring will continue. If the total VOC level readily decreases (per instantaneous readings) below five ppm over ambient background, work activities will resume with continued monitoring;
- If total organic vapor levels at the downward perimeter of the Site, or individual Work Area, persist at levels above five ppm over ambient background but less than 25 ppm, work activities will be halted, the source of the vapors identified, corrective actions taken to abate the emissions, and monitoring continued;
- Work activities will then resume if the 15-minute running average total organic vapor concentration is below five ppm in comparison to ambient background concentrations 200 feet downwind of the Site or Work Area, or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less, but in no case less than 20 feet); and
- If the 15-minute total organic vapor concentration at the downward perimeter of the Site, or individual Work Area, exceeds 25 ppm, work activities will be discontinued.

As previously stated, all PID measurements will be recorded on the Daily Community Monitoring Plan Logs and will be available for review by NYSDEC or New York State Department of Health (NYSDOH) personnel upon request.

2.5.2 Particulates

Measures to minimize, or suppress, the generation of fugitive dust emissions will be implemented during ground intrusive activities that may generate fugitive dust, including placement of clean backfill. Particulate concentrations will be monitored on a continuous basis at the upwind and downwind perimeters of the Site using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and integrating over a 15-minute period for comparison to the airborne particulate action levels outlined below. In addition, fugitive dust migration will also be visually assessed for the duration of the remediation to aid in preventing the off-site migration of contaminated particulates.

The following outlines the action level guidelines for the particulate monitoring data:

- In the unlikely event that the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than the ambient background, or upwind perimeter levels, for the 15-minute period or if airborne dust is observed leaving the Site, or the Work Area, then additional dust suppression techniques will be utilized;
- Work will continue with the additional dust suppression techniques provided that the downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind levels and there is no visible dust migrating from the Site and/or individual Work Area;

- After implementation of the additional dust suppression techniques, if the downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind perimeter levels, work will be stopped and work activities will be re-evaluated; and
- Work will resume if the additional dust suppression measures effectively reduce the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind perimeter levels and prevent visible dust migration.

As previously stated, all particulate measurements will be recorded on the Daily Community Monitoring Plan Logs and will be available for review by NYSDEC or NYSDOH personnel upon request.

3.0 WORK AREAS

During all subsurface activities (e.g., soil excavation, debris removal, and soil handling) each primary work area will include three zones: the work zone, the decontamination zone, and the support/break zone. Each of these zone designations is further discussed below.

3.1 Work Zone

The work zone includes the immediate area of activity plus a minimum of 10 feet (i.e. during soil excavation the work zone includes a minimum of a 10-foot radius around the heavy equipment and the excavation). All on-site personnel will use the proper personnel protective equipment designated for the specific task while working in any one of the work zones. As specified in Section 2.3, the specified level of personnel protection for the site is **Level D** for abovegrade, non-intrusive work and **Modified Level D** for all subsurface activities.

The limits of each work zone will be clearly marked by hazard tape and/or hazard cones, as appropriate. If feasible to do so, the personnel within the work zone are responsible for restricting access to unauthorized personnel (e.g. client representatives, site visitors, unauthorized contractor or vendor personnel, or pedestrian traffic) during the performance of the work. Field personnel must use judgment to determine if work should be stopped until unauthorized personnel leave the work area.

3.2 Decontamination Zone

The decontamination zone will be located in an upwind area adjacent to the perimeter of the work zone during performance of all subsurface activities. Upon exiting the work zone, all personnel, small hand tools, sampling equipment, and air monitoring instrumentation will be decontaminated in this area prior to entering the support/break zone. Air monitoring, first aid and emergency response equipment, including a fire extinguisher, will be staged in the decontamination zone. **Decontamination procedures will be in accordance with NYSDEC requirements.**

Large tools, equipment and heavy machinery will be decontaminated using a high pressure steam cleaner and tap water, as appropriate. Decontamination will be conducted at a temporary decon location designed to contain the washwaters. The decon location will be designated in the field. The location will vary depending upon the size of the equipment and the location of the field activity.

Since cleaning solvents and surfactants may be used for decontamination of sampling equipment in accordance with NYSDEC requirements, washwaters generated from the decontamination of sampling equipment will be collected in 5-gallon buckets and/or 55-gallon drums, as appropriate, and transferred to the on-site storage area for subsequent sampling prior to determining final disposition options.

3.3 Support/Break Zone

The support/break zone is the area adjacent to the decontamination zone, also located upwind of the work zone for all subsurface activities. This area can be used for personnel who are not directly involved in the field work for purposes of observation and additional technical support or as a sampling equipment preparation area, field support vehicles parking area, etc. Support/break zone personnel are responsible for alerting proper agencies in the event of an emergency. The emergency telephone numbers are summarized in Table 3 and the map showing the evacuation route to the nearest hospital is provided as Figure 3. These documents will be made available in the support/break zone.

4.0 SAFE WORK PRACTICES

4.1 General

- Protective clothing and equipment will be used as needed during the various field activities. The levels of protection are specified depending upon the degree of potential hazard for both abovegrade and subsurface activities as detailed in Section 5.0 of this HASP.

- All information regarding work to be performed, emergency procedures, and health and safety hazards will be reviewed by the Site Manager before the work begins during a daily Tailgate Safety Meeting. The Tailgate Safety Meeting Form provided in Appendix B will be completed by the Site Manager each day. No work will be performed prior to completion of the Tailgate Safety Meeting. The Tailgate Safety Meeting will be used to discuss:

    - The work scheduled for the day,
    - The health and safety considerations for that particular day's activities,
    - The protective equipment and other materials necessary to perform the work,
    - The potential physical and chemical hazards associated with the work, **including heat and cold stress,**
    - The procedures to be used to signal an emergency or an injury, as well as any questions on the work scope and/or safety issues.

- Operators of trucks and heavy equipment used onsite will be properly trained in the inspection and operation of their equipment. The contractor's Site Supervisor will be responsible to check the proficiency of each of their operators.

- One team member will provide guidance to the equipment operator using pre-established hand signals. Audio backup alarms will be utilized on all heavy equipment onsite. Perimeter barricades will be placed around equipment used in a fixed location.

- A fire extinguisher will be kept onsite during all field activities.

- Smoking will not be permitted on the premises except in the support areas or other specified locations. Any employee not willing to comply with this procedure will be dismissed from the project.

- No unapproved electrical equipment for hazardous atmospheres will be permitted in areas where a flammable atmosphere exists. Static ignition sources will be identified and eliminated by the use of bonding and grounding techniques.

- A complete first-aid kit will be readily available onsite. If a serious injury occurs, the local hospital and ambulance will be summoned to evacuate the injured person.

Note that during all subsurface activities, only authorized personnel will be permitted in the work area. These authorized individuals must have successfully completed an OSHA training course per the OSHA Hazard Communication Standard 29 CFR 1910.120 and 29 CFR 1926 Subpart "P" and must have completed an 8-hour OSHA Refresher within the last year.

4.2 Soil Excavation

Soil excavation will be conducted in accordance with the following procedures:

- Before any subsurface excavation, the existence and location of underground piping, electrical equipment and gas lines will be determined. A utility mark-out will be conducted and existing drawings and site plans will be reviewed.

- As specified in Sections 3.1 and 5.2 of this HASP, **Modified Level D protective gear** will be worn for all subsurface activities and sampling activities. Depending upon site conditions, other protective gear determined appropriate for a specific work task or work area will also be worn as directed by the Site Manager.

- A clearly marked work area will be established around excavation areas using hazard cones and/or tape prior to the commencement of subsurface activities. Workers should be aware of vehicular traffic in areas located proximate to roadways or driveways. Workers will wear brightly colored clothing or a traffic vest under such conditions.

- In areas where unknown subsurface materials and/or objects are encountered (specifically during soil excavation activities), the inspecting geologist, engineer, and/or support personnel will stand outside the immediate excavation area in an upwind location and air quality monitoring will be conducted by the Site Manager while the soils are removed. Soil removal will proceed with care and no one will enter the immediate area until the area has been cleared for **Modified Level D** entry by the Site Field Supervisor or her/his designee.

- Field operations will be suspended if the airborne PID concentration exceeds 5 ppm of total organic vapors on the PID in the immediate area (a 1-foot radius) of the point of soil excavation. The Site Field Supervisor will take the necessary actions as outlined in Section 2.4 of this HASP.

- Dust generation will be minimized during all soil excavation or other soil handling activities. Sufficient sources of water will be made available for application of water mist to control dust generation. If soil stockpiling is required, all stockpiled soils will be kept moist to minimize dust. Stockpiles will be covered with plastic sheeting if they remain onsite for more than four hours prior to transport and disposal.

- Any areas where soils are excavated beyond five feet in depth must be either shored or the sidewalls must be sloped or stepped. Refer to Subsection 4.2.1 for excavation safety procedures and see 29 CFR 1926 Subpart "P" for more information.

- No one will enter any excavation area or confined space without first properly monitoring the ambient atmosphere. Air monitoring will include measurement of combustible gas and oxygen. Appropriate safety equipment must also be used, including chest harness and backup support personnel.

4.2.1 Excavation Safety

- Work involving excavation or trenching shall be subject to Federal and New York State requirements.

- Personnel entry into any excavation or trench that is more than five feet deep shall only be permitted if the excavation or trench is properly shored or sloped and is determined to be safe for entry by the Site Field Supervisor.

- Daily inspections of any excavations will be made by the Site Manager. If there is evidence of a possible cave-in or slide, work in the excavation shall cease until the necessary safeguards have been employed.

- Trenches or excavations extending more than four feet deep will have ladders or steps strategically located so as to require no more than 25 feet of lateral travel between a means of egress. Ladders shall be placed at an angle not more than 30 degrees from vertical and secured as necessary. Ladder side rails shall extend at least three feet above the original ground surface.

- All excavated soils shall be located at least two feet from the edge of the excavation to prevent backfall into the excavation. No method that disturbs the in-situ soil (such as driving stakes) shall be used to contain excavated materials.

- A safety fence or other barricade, and appropriate warning signs will be used to isolate the excavation area.

For excavation of soil to depths greater than five feet, additional safety precautions must be adhered to as specified in the OSHA regulations 29 CFR 1926.

4.3 Open Excavation Groundwater Recovery

Open excavation groundwater recovery will be conducted in accordance with the following procedures:

- Before any subsurface excavation, the existence and location of underground piping, electrical equipment and gas lines will be determined. A utility mark-out will be conducted and existing drawings and site plans will be reviewed.

- As specified in Sections 3.1 and 5.2 of this HASP, Modified Level D protective gear will be worn for all subsurface activities, manual free-phase product recovery, and sampling activities. Depending upon site conditions, other protective gear determined appropriate for a specific work task or work area will also be worn as directed by the Site Field Supervisor.

- A clearly marked work area will be established around excavation areas using hazard cones and/or tape prior to the commencement of subsurface activities. Workers should be aware of vehicular traffic in areas located proximate to roadways or driveways. Workers will wear brightly colored clothing or a traffic vest under such conditions.

- In areas where an unknown subsurface materials and/or objects are encountered (specifically during soil excavation activities), the inspecting geologist, engineer, and/or support personnel will stand outside the immediate excavation area in an upwind location and air quality monitoring will be conducted by the Site Field Supervisor while the soils are removed. Soil removal will proceed with care and no one will enter the immediate area until the area has been cleared for Modified Level D entry by the Site Field Supervisor or her/his designee.

- Field operations will be suspended if the airborne PID concentration exceeds 5 ppm of total VOCs on the PID in the immediate area (a one-foot radius) of the point of soil excavation. The Site Field Supervisor will take the necessary actions as outlined in Section 2.4 of this HASP.

- No one will enter any excavation area or confined space without first properly monitoring the ambient atmosphere. Air monitoring will include measurement of combustible gas and oxygen. Appropriate safety equipment must also be used, including chest harness and backup support personnel.

4.4 Soil and Debris Handling

Stockpiled soil and waste debris handling will be conducted in accordance with the following procedures:

- As specified in Sections 3.1 and 5.2 of this HASP, **Modified Level D protective gear** will be worn for all activities with potential for contact with contaminants. Depending upon site conditions, other protective gear determined appropriate for a specific work task or work area will also be worn as directed by the Site Field Supervisor.

- A clearly marked work area will be established around the work area using hazard cones

and/or tape prior to the commencement of subsurface activities. Workers should be aware of vehicular traffic in areas located proximate to roadways or driveways. Workers will wear brightly colored clothing or a traffic vest under such conditions.

- All heavy equipment must have backup audio alarms.
- Only qualified individuals are to operate heavy equipment.
- To safely aid in moving heavy materials, alloy steel chain, wire rope, or synthetic web slings manufactured with a durable tag attached that indicates the working load limit of the sling shall be used. Slings that are damaged, defective, shortened, kinked, or under-rated for the load shall not be used.
- Get help whenever you are in doubt about a material's weight and always use the buddy system.
- Never walk directly in back of or to the side of heavy equipment without the operator's knowledge.
- Continuous air monitoring will be conducted during soil handling activities. Field operations will be suspended if the airborne PID concentration exceeds five ppm of total VOCs on the PID in the immediate area (a one-foot radius) of the point of soil sampling. The Site Manager will take the necessary actions as outlined in Section 2.4 of this HASP.
- All stockpiled soils will be kept moist to minimize dust. Stockpiles will be covered with plastic sheeting if they remain onsite for more than four hours prior to transport and disposal.

4.5 Confined Space Entry

If necessary during performance of site field work, entry into a confined space shall be subject to all applicable Federal and New York State regulations. The required procedures that will be followed prior to employee entry in a confined space include:

- Initial hazard assessment including atmospheric testing of the confined space for, at a minimum, oxygen content, flammability and toxic contaminants.
- Mechanical ventilation of the confined space, if needed.
- Employee training and indoctrination of confined space entry per 29 CFR 1910.146.
- Entrant shall wear an Oxygen monitoring device.
- Personnel protective equipment to be used will be a minimum of Level C protection.

- Level B personnel protection, including a self-contained breathing apparatus (SCBA), will be required for confined space entry if pre-entry atmospheric testing indicates contaminant concentrations greater than two times the TLV or the oxygen content is not between 19.5 percent and 23.5 percent.

- Air monitoring test results shall be recorded by the Site Manger and/or his/her designee.

4.6 Heat Stress

For each day of work, one or more of the following measures will be used to help control heat stress as needed:

- An adequate on-site supply of liquids will be provided to replace lost body fluids. Replacement fluids can be a 0.1 percent salt-water solution, commercial mixes such as Gatorade or Quick Kick, or a combination of these with fresh water.

- Establishment of a work regimen that will provide adequate rest periods for cooling down.

- Provide cooling devices such as vortex tubes or cooling vests which be worn beneath protective garments, as appropriate.

- Take breaks in a cool area.

- Inform employees of the importance of adequate rest, acclimation and proper diet in the prevention of heat stress.

Since the field work will be conducted during the summer and fall months, the Site Field Supervisor will monitor the workers for symptoms of heat stress, especially in areas where protective clothing is being worn. Symptoms may include **fatigue; irritability; headache; faintness; weak, rapid pulse; shallow breathing; cold, clammy skin; profuse perspiration.** Heat related problems are further discussed below:

- **Heat Rash** - caused by continual exposure to heat and humid air, and aggravated by chaffing clothes. Heat rash decreases a person's ability to tolerate heat as well as becoming a nuisance.

- **Heat Cramps** - caused by profuse perspiration with inadequate water intake and chemical electrolyte imbalance. This results in muscle spasms and pain in the extremities and abdomen.

- **Heat Exhaustion** - increased stress on various organs to meet increasing demands to cool the body which will result in the following signs and symptoms: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and lassitude.

- **Heat Stroke** - the most severe form of heat stress which requires immediate treatment by cooling the body or death may result. Signs and symptoms include red, hot, dry skin; no perspiration; nausea, dizziness and confusion; strong, rapid pulse; and coma.

If symptoms of heat stress are observed, the following procedures will be implemented:

- Instruct victim to lie down in a cool, shaded area, or air-conditioned room and elevate feet.

- Massage legs toward heart.

- Give cold salt water (1/2 teaspoon salt to 1/2 glass of water) or cool, sweetened drink, especially iced tea or coffee, every 15 minutes until victim recovers.

- **DO NOT** let victim sit up, even after feeling recovered. Victim should rest for a while longer.

4.7 Cold Stress

This section applies to work which may be conducted for this project in the late fall and/or winter months. Workers should be protected from exposure to extreme cold temperatures so that the body temperature does not fall below 36 degrees Celsius (98.6 degrees Fahrenheit). Lower body temperature may result in reduced mental alertness, irrational decision making or loss of consciousness.

When the ambient air temperature is below 40 to 45 degrees Fahrenheit, workers must wear warm clothing, such as whole-body thermal underwear, wool socks, insulated gloves and knit caps. If the clothing of the worker may become wet on the job site, an outer impermeable layer should be worn. When the worker's underclothing becomes wet, the worker will change into dry clothing.

If symptoms of cold stress are observed, the following procedures will be implemented:

- Victim will be moved into a warm room as soon as possible.

- Be alert for breathing difficulties; start rescue breathing techniques, if necessary.

- Wet or frozen clothing will be removed; immediately rewarm victim by wrapping in blankets.

- If conscious, give victim hot liquids to drink.
- Treat for frostbite, if necessary.
- Consult professional medical help, if required.

5.0 PERSONNEL PROTECTION PROGRAM

Equipment for personnel protection will be selected based on the known and potential site-specific contaminants of concern and the ambient air quality conditions, as determined through air monitoring by the Site Manger. It is the responsibility of the Site Manager to specify the appropriate level of protection required for all site work.

The levels of protection which may be required for this project include, in decreasing order of likelihood, **Level D,** and **Modified Level D**. If determined necessary by the Site Health and Safety Officer, **Level C** protection may be required for specific tasks. If conditions exist which would require upgrading to **Level B**, which necessitates the use of a self-contained breathing apparatus (SCBA) in addition to the Level C protective clothing, then the work will be discontinued and the situation will be further evaluated.

It is anticipated that abovegrade, non-intrusive work will be conducted primarily in **Level D**, and that all activities which involve subsurface excavation or the potential for contact with contaminants will be conducted primarily in **Modified Level D,** however, certain tasks may require an upgrade in the level of worker protection may be encountered during soil excavation activities. Therefore, provisions will be made to have the necessary equipment at the site during subsurface activities to upgrade from Modified Level D to Level C, which includes respiratory protection. Provisions can also be made for emergency upgrade to Level B, including an onsite SCBA, if conditions warrant (e.g., to assist in an emergency or to further assess a situation). This action will require temporary postponement of field activities.

The final determination regarding the appropriate level of protection for each work area will be made by the Site Manager based upon the known or suspected hazards and conditions of each work area. The required elements of Modified Level D and Level C personnel protection are described below.

5.1 Level D Protection

The minimum level of personnel protection which will be required for abovegrade, non-intrusive work activities is **Level D**. This level of protection shall be used for abovegrade, non-intrusive work only and shall not be permitted for any other work tasks conducted onsite. The following personnel protection equipment is required for Level D protection:

- Protective work coveralls;
- Steel-toed boots;
- Safety glasses;
- Hard hat; and
- Hearing protection, as necessary.

5.2 Modified Level D Protection

The minimum level of protection which will be required for all on-site personnel during all subsurface activities is **Modified Level D**. This level of protection shall be used for soil excavation, groundwater recovery and sampling, and any other waste handling activities. The following equipment will comprise the required **Modified Level D** personnel protection:

- Tyveks will be used during soil excavation, drilling activities, soil and groundwater sampling, and other soil handling activities due to the increased potential for skin contact with soils and groundwater;
- Steel-toed boots with chemical protection (latex boot protectors) are required for all on-site activities;
- Safety glasses during all on-site activities;
- Hard hat during all excavation and drilling activities;
- Outer chemical-resistant Nitrile or Poly Vinyl Chloride (PVC) gloves with inner latex or vinyl gloves during all on-site activities; and
- Hearing protection, as necessary.

5.3 Level C Protection

Level C personnel protection will be required when the nature of the material and airborne concentration of known or suspected contaminants are at or above the OSHA PEL or ACGIH TLV, or when the PID readings are greater than five ppm in the ambient air within the breathing zone. The following equipment will be used for Level C personnel protection:

- Full-face, air purifying respirators with NIOSH/Mine Safety Association approved organic vapor and acid gas cartridge (GMC) in combination with high efficiency particulate filter (HEPA); if specified by the Site Manager, half-face respirators may be utilized if accompanied by chemical splash goggles;
- Hooded, chemical-resistant Saranex-coated Tyvek (outer);
- Gloves (inner) - latex or vinyl;
- Gloves (outer) - chemical-resistant Nitrile or PVC;
- Boots (outer) - chemical-resistant Neoprene boots with steel toes;
- Hard hat;

- Emergency egress respirator protection; and
- Hearing protection, as necessary.

6.0 WORKER TRAINING

The following health and safety training programs are required for on-site personnel involved in subsurface activities at the site, specifically soil excavation, sampling, groundwater recovery, and any other soil or waste handling activities:

- **Health and Safety Training** - Satisfactory completion of a 40-hour course that covers all topics required in accordance with OSHA standard 1910.120, as well as satisfactory completion of the required 8-hour annual refresher training course.

- **First Aid and CPR** - At least one on-site project team member will have completed both the first aid and the cardiopulmonary resuscitation (CPR) training. For the subject property, the Site Manager shall be trained in First Aid and CPR.

- **Site-Specific Safety Training** - Instructions will be given during a Tailgate Safety Meeting at the beginning of the project to acquaint field personnel with project-specific health and safety requirements. This meeting will address the key aspects of this HASP.

Workers involved in subsurface activities must complete all of the training described above, with the exception of the site-specific training, prior to entering the site. Visitors and/or client representatives who do not have the appropriate training must remain outside the Work Zone during site visits while subsurface activities are in progress. In addition, a Tailgate Safety Meeting will be conducted at the beginning of each day, or whenever new site field workers arrive at the job site. A copy of the Tailgate Meeting Form is provided as Appendix B.

7.0 MEDICAL SURVEILLANCE PROGRAM

In accordance with OSHA Standard 1910.120 and 1910.134, all on-site field personnel involved in subsurface activities, specifically soil excavation and sampling, groundwater recovery and sampling, and any other soil or waste handling activities, must complete a baseline physical examination prior to start of work in the Work Zone. Tests that are performed for field worker employment physicals should include the following:

- Medical and occupational history and past gastrointestinal, hematologic, renal cardiovascular, reproductive, immunological and neurological problems, along with a history of respiratory disease and personal smoking habits;
- A medical evaluation to determine if the employee is qualified to use a respirator;
- Blood pressure measurements;
- Complete blood count and differential to include hemoglobin and hematocrit determinations, red cell indices and smear of peripheral morphology;
- Blood urea nitrogen and serum creatinine;
- Blood Polychlorinated Biphenyls testing (Gas Chromatography);
- Urinalysis (dipstick and microscopic examination);
- Urine testing for heavy metals including arsenic, lead, mercury, chromium, and cadmium (Atomic Adsorption Spectrophotometry);
- Audiometric examination;
- Pulmonary function test (FEV1.0 and FVC);
- SMA-25 or equivalent liver function test; and
- EKG for employees over 45 years old or when other complications indicate the necessity.

The medical surveillance provided to employees includes a judgment by the medical examiner of the ability of the employee to use either positive or negative pressure respiratory equipment. Any employee found to have a medical condition which could directly or indirectly be aggravated by exposure to chemical substances or by the use of respiratory equipment will not be employed for the project.

Visitors and/or client representatives who have not had the appropriate medical surveillance must remain outside the Work Zone during site visits while subsurface activities are in progress.

8.0 SITE SECURITY

The following site security procedures will be implemented at the subject property to monitor individuals entering the property:

- Upon arriving at the site, all persons will sign in with the Site Manager on the Tailgate Health and Safety form;
- All persons will be equipped with the appropriate personnel protective equipment as necessary to perform the work task(s) in accordance with the requirements of this HASP;
- All persons entering the regulated area must be familiar with and abide by this HASP;
- All persons involved in intrusive subsurface work must have completed the necessary 40 hours of training for uncontrolled hazardous waste site operations and emergency response per 29 CFR 1910.120; and
- Upon completion of each day of work onsite, all persons will sign out with the Site Manager.
- As the site is located on a public shopping mall with heavy pedestrian traffic, additional measures including but not limited to traffic cones and caution tape may be required to prevent unauthorized personnel from entering the work zone. In the event that unauthorized personnel enter and refuse to leave the work zone, work will be stopped and mall security will be contacted. Contact information is provided in Table 3.

9.0 EMERGENCY RESPONSE PLAN

Emergencies must be dealt with in a manner designed to minimize the health and safety risk to site personnel. Work activities will therefore be conducted in groups of at least two workers (e.g. the "buddy system") to provide continuous monitoring of team members during performance of the work and in the event of an emergency. Emergency hand signals and/or the use of blow horns will be discussed and reviewed daily during the Tailgate Safety Meeting so that all on-site personnel are familiar with the emergency signals applicable to this project.

The Emergency Route to the nearest hospital, specifically Kings Highway Hospital, is provided as Figure 3 and the Tailgate Safety Meeting Form is provided as Appendix B.

9.1 Emergency Chain of Command

In the event of an emergency, the chain of command will be the Site Manager, the contractor's Site Supervisor, and team members. Of those present on-site at the time of an emergency, the person highest in the chain of command shall have the responsibility for directing the response activity in the event of an emergency. The actions to be taken by that individual are described as follows:

- Assess the emergency situation and notify site security personnel, as applicable;
- Determine the required response measures and coordinate with the Site Supervisor(s);
- As necessary, contact the appropriate client and public response agency (See Emergency Notification Information provided as Table 3);
- Notify the on-site personnel of the specific actions that will be taken;
- Coordinate the on-site personnel actions;
- Contact contractor representatives, as necessary and appropriate; and
- Complete the Supervisor Injury Report, as applicable, and list on the OSHA Occupational Injury/Illness Form 200, provided as Appendix C.

9.2 Emergency Notification

Emergency notification information is summarized in Table 3. The Emergency Notification Information summary shall be posted in clear view at the site at all times and a copy of the list will be provided to each member of the on-site project team. The list shall be clearly posted at several locations at the site. Local authorities shall be notified by the Site Manager prior to the start of each of the work tasks.

10.0 ACCIDENT, INJURY AND RECORD KEEPING PROCEDURES

If any person working onsite is physically injured or becomes ill, first-aid will be administered by a qualified individual. Depending upon the severity of the injury or illness, the individual may be given emergency first-aid treatment onsite and/or the local emergency medical facility will be contacted along with an ambulance, as necessary. Directions to the nearest hospital, Kings Highway Hospital, are provided in Figure 3.

The Site Manager will prepare a written report detailing the accident, its causes, and consequences within three days from the time of the accident. If the injury to the worker is of a chemical nature, the following first-aid procedures will be instituted as soon as possible:

- **Eye Exposure** - If contaminated material gets into the eyes, the eyes will be flushed immediately using copious amounts of water while lifting up the lower and upper eyelids.

- **Skin Exposure** - If contaminated material gets on the skin, the affected area will be washed with soap or mild detergent.

- **Inhalation** - If an individual inhales a volume of toxic or corrosive vapors, the employee will be removed to a fresh air breathing space at once. If breathing has stopped, artificial respiration will be performed on the affected individual until medical attention arrives and transports the patient to the nearest medical facility.

- **Ingestion** - In the event a person ingests a toxic liquid or solid material, medical attention shall be obtained at once.

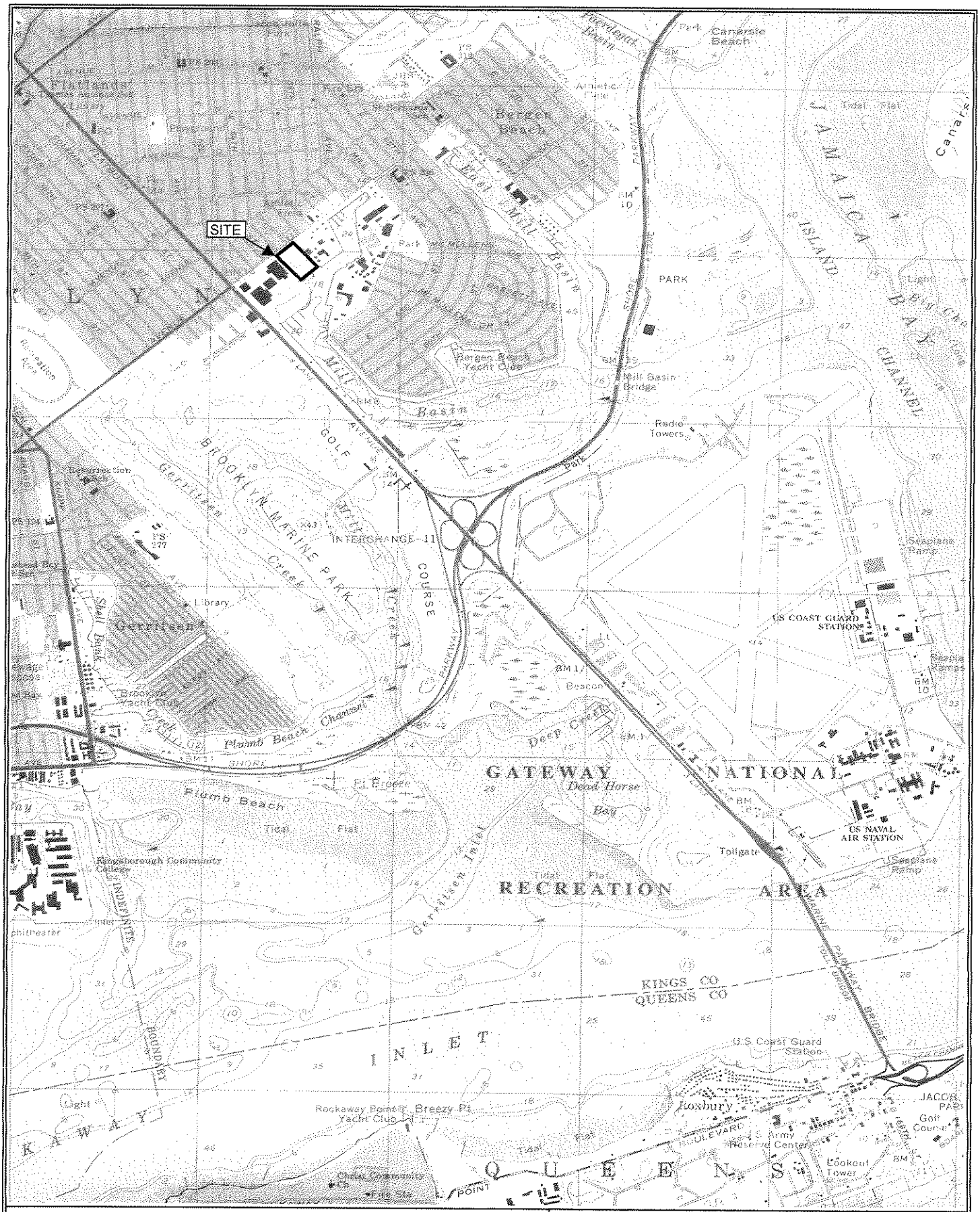
All exposure monitoring conducted during the project will be recorded with a description of the field activities. The recorded results and the methodologies will be kept for a period of least 30 years. All logs and reports required by either local, state, and federal regulations will be kept and submitted accordingly.

TABLES

TABLE 3
EMERGENCY NOTIFICATION INFORMATION
Kings Plaza Shopping Center
5100 Kings Plaza
Brooklyn, New York

SITE LOCATION:	Kings Plaza Shopping Center 5100 Kings Plaza Brooklyn, New York
CROSS ROAD:	Avenue U and 55th Street
NEW YORK POLICE, FIRE, AMBULANCE:	911
NEAREST HOSPITAL:	Kings Highway Hospital 2310 Kings Highway Brooklyn, New York 11234 (718) 252-3000
NYSDEC HOTLINE:	1-800-457-7362
USEPA EMERGENCY RESPONSE TEAM:	(800) 424-8802
CHEMTREC:	(800) 262-8200
ADDL CONTACTS:	
VORNADO CONTACTS:	Al Zubczak (201) 587-1000 Emma Dawson (718) 253-5246 (On-Site Manager)
NYSDEC CONTACTS:	Ioana Munteanu (718) 482-44065 (Case Manager)

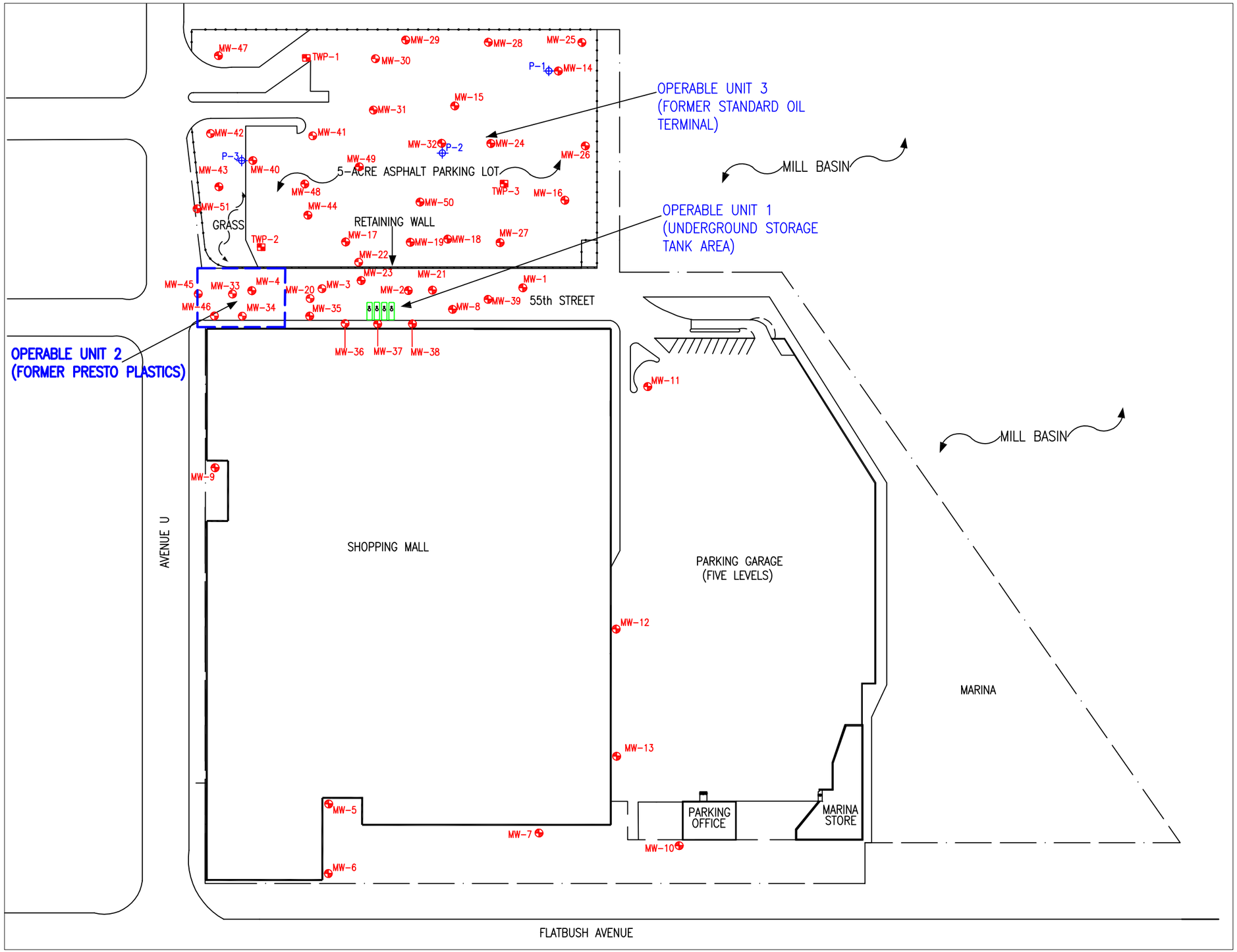
FIGURES



SOURCE:
UNITED STATES GEOLOGICAL SURVEY
7.5 MINUTE SERIES (TOPOGRAPHIC)
CONEY ISLAND, NY QUADRANGLE
1995

EXCEL ENVIRONMENTAL RESOURCES, INC.		
KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
FIGURE 1 SITE LOCATION MAP		
DRAWN BY: NA	SCALE: 1:24,000	10/17/2003
CHECKED BY: EM	REVISION: 2.0	PROJECT #: 02432

G:\PROJECTS\02432-OU 2\FIGURES\SITEPLAN-REVISED.DWG



LEGEND:

- PROPERTY BOUNDARY
- MW-12 EXISTING MONITORING WELL
- TWP-1 EXISTING TEMPORARY WELL
- P-1 EXISTING PIEZOMETER
- BOUNDARY OF AREA AT THE END OF 55TH STREET DEFINED AS OPERABLE UNIT 2

0 75 150 300
SCALE IN FEET

EXCEL Environmental Resources, Inc.

PROJECT: KINGS PLAZA SHOPPING CENTER BROOKLYN, NEW YORK		
DESCRIPTION: FIGURE 2 GENERALIZED SITE PLAN SHOWING LOCATION OF OPERABLE UNIT 2		
DRAWN BY: MLE	SCALE: 1" = 150'	DATE: 12/3/07
CHECKED BY: RAH	REVISION: 1.0	PROJECT # 02432

Appendix A

Community Air Monitoring Log

Community Air Monitoring
Data Sheet
Kings Plaza OU-2

(units in ppm)

Date: _____

Time / Station	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	Comments
A-1												
A-2												
A-3												
A-4												
A-5												
A-6												
A-7												
A-8												
A-9												
A-10												
A-11												
A-12												
A-13												
A-14												
A-15												
A-16												
A-17												
A-18												
A-19												
A-20												

Calibration Data: _____ Date_____ Time_____

PPM - parts per million

G:\Projects\01363\airmonitoringwksheet

Appendix B

Tailgate Safety Meeting Form

TAILGATE SAFETY MEETING

DATE: _____ **TIME:** _____ **PROJECT NO:** _____

CLIENT:	Vornado Realty Trust
LOCATION:	Kings Plaza, Brooklyn, New York
TYPE OF WORK:	
POTENTIAL HAZARDS:	Traffic,petroleum compounds, equipment operation

SAFETY TOPICS PRESENTED

PROTECTIVE CLOTHING/EQUIPMENT: Modified Level D required, safety vests, road cones

CHEMICAL HAZARDS:

PHYSICAL HAZARDS:

EMERGENCY PROCEDURES:	Clear the work area, call 911, notify Excel Site Manger, Project Manager, and Vornado
HOSPITAL/CLINIC:	Beth Israel Medical Center **PHONE:** (718) 252-3000
HOSPITAL ADDRESS:	3201 Kings Highway Brooklyn, NY
DIRECTIONS TO HOSPITAL:	Travel west on Avenue U, turn right to travel north on Flatbush Avenue for 1.1 miles, turn left to travel west on Kings Highway for 0.3 miles, turn right to travel west Avenue M for 0.1 miles, turn left to travel south on 32nd Street for 0.1 miles.
POLICE:	NYPD **PHONE:** 911
SPECIAL EQUIPMENT:	PID

OTHER: work safe, watch slips, trips, and falls, be cautious of road traffic

ATTENDEES

NAME PRINTED	SIGNATURE

MEETING CONDUCTED BY:

NAME PRINTED	SIGNATURE

Appendix C

OSHA Occupational Injury/Illness Form 200

Bureau of Labor Statistics
Log and Summary of Occupational
Injuries and Illnesses

NOTE: This form is required by Public Law 91-596 and must be kept in the establishment for 5 years. Failure to maintain and post can result in the issuance of citations and assessment of penalties. (See posting requirements on the other side of form.)

RECORDABLE CASES: You are required to record information about every occupational death; every nonfatal occupational illness; and those nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid). (See definitions on the other side of form.)

Case or File Number	Date of Injury or Onset of Illness	Employee's Name	Occupation	Department	Description of Injury or Illness
Enter a nonduplicating number which will facilitate comparisons with supplementary records.	Enter Mo./day.	Enter first name or initial, middle initial, last name.	Enter regular job title, not activity employee was performing when injured or at onset of illness. In the absence of a formal title, enter a brief description of the employee's duties.	Enter department in which the employee is regularly employed or a description of normal workplace to which employee is assigned, even though temporarily working in another department at the time of injury or illness.	Enter a brief description of the injury or illness and indicate the part or parts of body affected. Typical entries for this column might be: Amputation of 1st joint right forefinger; Strain of lower back; Contact dermatitis on both hands; Electrocution—body.
(A)	(B)	(C)	(D)	(E)	(F)
					PREVIOUS PAGE TOTALS →
					TOTALS (Instructions on other side of form.) →

OSHA No. 200

FOLD

U.S. Department of Labor

For Calendar Year 19 ______ Page ___ of ___

Company Name

Establishment Name

Establishment Address

Form Approved
O.M.B. No. 1220-0029
See OMB Disclosure Statement on reverse.

Injury Related — Fatalities	Nonfatal Injuries — Injuries With Lost Workdays				Injuries Without Lost Workdays	Type, Extent of, and Outcome of ILLNESS — Type of Illness: CHECK Only One Column for Each Illness (See other side of form for terminations or permanent transfers.)							Fatalities — Illness Related	Nonfatal Illnesses — Illnesses With Lost Workdays				Illnesses Without Lost Workdays
Enter DATE of death. Mo./day/yr.	Enter a CHECK if injury involves days away from work, or days of restricted work activity, or both.	Enter a CHECK if injury involves days away from work.	Enter number of DAYS away from work.	Enter number of DAYS of restricted work activity.	Enter a CHECK if no entry was made in columns 1 or 2 but the injury is recordable as defined above.	Occupational skin diseases or disorders	Dust diseases of the lungs	Respiratory conditions due to toxic agents	Poisoning (systemic effects of toxic materials)	Disorders due to physical agents	Disorders associated with repeated trauma	All other occupational illnesses	Enter DATE of death. Mo./day/yr.	Enter a CHECK if illness involves days away from work, or days of restricted work activity, or both.	Enter a CHECK if illness involves days away from work.	Enter number of DAYS away from work.	Enter number of DAYS of restricted work activity.	Enter a CHECK if no entry was made in columns 8 or 9.
(1)	(2)	(3)	(4)	(5)	(6)	(7) (a)	(b)	(c)	(d)	(e)	(f)	(g)	(8)	(9)	(10)	(11)	(12)	(13)

INJURIES ILLNESSES

Certification of Annual Summary Totals By ______________________ Title ______________________ Date ______________

OSHA No. 200

POST ONLY THIS PORTION OF THE LAST PAGE NO LATER THAN FEBRUARY 1.

Instructions for OSHA No. 200

I. Log and Summary of Occupational Injuries and Illnesses

Each employer who is subject to the recordkeeping requirements of the Occupational Safety and Health Act of 1970 must maintain for each establishment a log of all recordable occupational injuries and illnesses. This form (OSHA No. 200) may be used for that purpose. A substitute for the OSHA No. 200 is acceptable if it is as detailed, easily readable, and understandable as the OSHA No. 200.

Enter each recordable case on the log within six (6) workdays after learning of its occurrence. Although other records must be maintained at the establishment to which they refer, it is possible to prepare and maintain the log at another location, using data processing equipment if desired. If the log is prepared elsewhere, a copy updated to within 45 calendar days must be present at all times in the establishment.

Logs must be maintained and retained for five (5) years following the end of the calendar year to which they relate. Logs must be available (normally at the establishment) for inspection and copying by representatives of the Department of Labor, or the Department of Health and Human Services, or States accorded jurisdiction under the Act. Access to the log is also provided to employees, former employees and their representatives.

II. Changes in Extent of or Outcome of Injury or Illness

If, during the 5-year period the log must be retained, there is a change in an extent and outcome of an injury or illness which affects entries in columns 1, 2, 6, 8, 9, or 13, the first entry should be lined out and a new entry made. For example, if an injured employee at first required only medical treatment but later lost workdays away from work, the check in column 6 should be lined out, and checks entered in columns 2 and 3 and the number of lost workdays entered in column 4.

In another example, if an employee with an occupational illness lost workdays, returned to work, and then died of the illness, any entries in columns 9 through 12 should be lined out and the date of death entered in column 8.

The entire entry for an injury or illness should be lined out if later found to be nonrecordable. For example: an injury which is later determined not to be work related, or which was initially thought to involve medical treatment but later was determined to have involved only first aid.

III. Posting Requirements

A copy of the totals and information following the fold line of the last page for the year must be posted at each establishment in the place or places where notices to employees are customarily posted. This copy must be posted no later than *February 1 and must remain in place until March 1.*

Even though there were no injuries or illnesses during the year, zeros must be entered on the totals line, and the form posted.

The person responsible for the *annual summary totals* shall certify that the totals are true and complete by signing at the bottom of the form.

IV. Instructions for Completing Log and Summary of Occupational Injuries and Illnesses

Column A – CASE OR FILE NUMBER. Self-explanatory.

Column B – DATE OF INJURY OR ONSET OF ILLNESS.
For occupational injuries, enter the date of the work accident which resulted in injury. For occupational illnesses, enter the date of initial diagnosis of illness, or, if absence from work occurred before diagnosis, enter the first day of the absence attributable to the illness which was later diagnosed or recognized.

Columns C through F – Self-explanatory.

Columns 1 and 8 – INJURY OR ILLNESS-RELATED DEATHS. Self-explanatory.

Columns 2 and 9 – INJURIES OR ILLNESSES WITH LOST WORKDAYS. Self-explanatory.

Any injury which involves days away from work, or days of restricted work activity, or both must be recorded since it always involves one or more of the criteria for recordability.

Columns 3 and 10 – INJURIES OR ILLNESSES INVOLVING DAYS AWAY FROM WORK. Self-explanatory.

Columns 4 and 11 – LOST WORKDAYS—DAYS AWAY FROM WORK.
Enter the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness. The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.
NOTE: For employees not having a regularly scheduled shift, such as certain truck drivers, construction workers, farm labor, casual labor, part-time employees, etc., it may be necessary to estimate the number of lost workdays. Estimates of lost workdays shall be based on prior work history of the employee AND days worked by employees, not ill or injured, working in the department and/or occupation of the ill or injured employee.

Columns 5 and 12 – LOST WORKDAYS—DAYS OF RESTRICTED WORK ACTIVITY.
Enter the number of workdays (consecutive or not) on which because of injury or illness:
(1) the employee was assigned to another job on a temporary basis, or
(2) the employee worked at a permanent job less than full time, or
(3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

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Columns
5 and 12 – INJURIES OR ILLNESSES WITHOUT LOST WORKDAYS. Self-explanatory.

Columns 7a
through 7g – TYPE OF ILLNESS.
Enter a check in only one column for each illness.

TERMINATION OR PERMANENT TRANSFER—Place an asterisk to the right of the entry in columns 7a through 7g (type of illness) which represented a termination of employment or permanent transfer.

V. Totals

Add number of entries in columns 1 and 8.
Add number of checks in columns 2, 3, 6, 7, 9, 10, and 13.
Add number of days in columns 4, 5, 11, and 12.
Yearly totals for each column (1-13) are required for posting. Running or page totals may be generated at the discretion of the employer.

If an employee's loss of workdays is continuing at the time the totals are summarized, estimate the number of future workdays the employee will lose and add that estimate to the workdays already lost and include this figure in the annual totals. No further entries are to be made with respect to such cases in the next year's log.

VI. Definitions

OCCUPATIONAL INJURY is any injury such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from an exposure involving a single incident in the work environment.
NOTE: Conditions resulting from animal bites, such as insect or snake bites or from one-time exposure to chemicals, are considered to be injuries.

OCCUPATIONAL ILLNESS of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

The following listing gives the categories of occupational illnesses and disorders that will be utilized for the purpose of classifying recordable illnesses. For purposes of information, examples of each category are given. These are typical examples, however, and are not to be considered the complete listing of the types of illnesses and disorders that are to be counted under each category.

7a. Occupational Skin Diseases or Disorders
Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; chrome ulcers; chemical burns or inflammations; etc.

7b. Dust Diseases of the Lungs (Pneumoconioses)
Examples: Silicosis, asbestosis and other asbestos-related diseases, coal worker's pneumoconiosis, byssinosis, siderosis, and other pneumoconioses.

7c. Respiratory Conditions Due to Toxic Agents
Examples: Pneumonitis, pharyngitis, rhinitis or acute congestion due to chemicals, dusts, gases, or fumes; farmer's lung; etc.

7d. Poisoning (Systemic Effect of Toxic Materials)
Examples: Poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays such as parathion, lead arsenate; poisoning by other chemicals such as formaldehyde, plastics, and resins; etc.

7e. Disorders Due to Physical Agents (Other than Toxic Materials)
Examples: Heatstroke, sunstroke, heat exhaustion, and other effects of environmental heat; freezing, frostbite, and effects of exposure to low temperatures; caisson disease; effects of ionizing radiation (isotopes, X-rays, radium); effects of nonionizing radiation (welding flash, ultraviolet rays, microwaves, sunburn); etc.

7f. Disorders Associated With Repeated Trauma
Examples: Noise-induced hearing loss; synovitis, tenosynovitis, and bursitis; Raynaud's phenomena; and other conditions due to repeated motion, vibration, or pressure.

7g. All Other Occupational Illnesses
Examples: Anthrax, brucellosis, infectious hepatitis, malignant and benign tumors, food poisoning, histoplasmosis, coccidioidomycosis, etc.

MEDICAL TREATMENT includes treatment (other than first aid) administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does NOT include first-aid treatment (one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care) even though provided by a physician or registered professional personnel.

ESTABLISHMENT: A single physical location where business is conducted or where services or industrial operations are performed (for example: a factory, mill, store, hotel, restaurant, movie theater, farm, ranch, bank, sales office, warehouse, or central administrative office). Where distinctly separate activities are performed at a single physical location, such as construction activities operated from the same physical location as a lumber yard, each activity shall be treated as a separate establishment.

For firms engaged in activities which may be physically dispersed, such as agriculture; construction; transportation; communications; and electric, gas, and sanitary services, records may be maintained at a place to which employees report each day.

Records for personnel who do not primarily report or work at a single establishment, such as traveling salesmen, technicians, engineers, etc., shall be maintained at the location from which they are paid or the base from which personnel operate to carry out their activities.

WORK ENVIRONMENT is comprised of the physical location, equipment, materials processed or used, and the kinds of operations performed in the course of an employee's work, whether on or off the employer's premises.

APPENDIX B

COMMUNITY AIR MONITORING LOG

Community Air Monitoring
Data Sheet
Kings Plaza OU-2
(units in ppm)

Date: _____

Time / Station	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	Comments
A-1												
A-2												
A-3												
A-4												
A-5												
A-6												
A-7												
A-8												
A-9												
A-10												
A-11												
A-12												
A-13												
A-14												
A-15												
A-16												
A-17												
A-18												
A-19												
A-20												

Calibration Data: _____ Date_____ Time_____

PPM - parts per million

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