RECORD OF DECISION

Former Majestic Garment Cleaners
State Superfund Project
Brooklyn, Kings County
Site No. 224035
March 2014

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Former Majestic Garment Cleaners
State Superfund Project
Brooklyn, Kings County
Site No. 224035
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Statement of Purpose and Basis

This document presents the remedy for the Former Majestic Garment Cleaners site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Former Majestic Garment Cleaners site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

   A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

   - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
   - Reducing direct and indirect greenhouse gases and other emissions;
   - Increasing energy efficiency and minimizing use of non-renewable energy;
   - Conserving and efficiently managing resources and materials;
   - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
   - Maximizing habitat value and creating habitat when possible;
   - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and

- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Remediation of source area soils to achieve residential soil cleanup objectives (SCOs) and reduce the migration of volatile organic compounds (VOCs) through the soil gas will be accomplished by excavation and off-site transportation and disposal of approximately 30 cubic yards of soil in the vicinity of soil boring SB-8 which exceed residential use SCOs for semi-volatile organic compounds (SVOCs), as defined by 6 NYCRR Part 375-6.8, down to the depth of the water table (approximately 10 feet); and the implementation of soil vapor extraction (SVE) to remove VOCs from the subsurface (for those VOC contaminants that exceed their respective groundwater standards; the goal of the SVE system will be to reduce concentrations in the soil to the protection of groundwater SCO, to the extent feasible). VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. Groundwater Treatment

Treatment of on-site (in the western portion of the site) groundwater to reduce VOC concentrations to SCGs by air sparging with off-gas collection and treatment to meet applicable discharge requirements. Air sparging will be implemented to address the groundwater plume contaminated by VOCs. VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As the injected air rises through the groundwater, the VOCs volatilize and transfer from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone where a soil vapor extraction (SVE) system is used to remove the injected air.

4. Soil Vapor Extraction

Installation of an off-site SVE system with off-gas treatment as necessary to prevent the off-site migration of PCE and its breakdown products in soil vapor, if necessary, based on the results of the periodic off-site soil vapor monitoring.

5. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for residential,

restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

6. Site Management

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The environmental easement discussed in Paragraph 5 above.

Engineering Controls: The AS/SVE systems described in Paragraphs 2 and 3 above, and/or the SVE system described in Paragraph 4 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of on-site soil vapor and groundwater to assess the performance and effectiveness of the remedy;
- monitoring of off-site soil vapor and groundwater to determine the need for off-site mitigation measures;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting; and
- providing the Department access to the Site and O&M records.

There is the potential that the site may be purchased for development purposes prior to implementation of the selected remedy.

If the site is developed, resulting in the excavation of the VOC-contaminated soil consistent with Alternative 3, the Department will accept this as an alternate remedy for this site with treatment of both on- and off-site groundwater. In this event, a pilot study will be performed to evaluate the effectiveness and design parameters of the in-situ treatment to be applied to address the on- and off-site groundwater.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 18, 2014

Date

Robert W. Schick, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

Former Majestic Garment Cleaners
Brooklyn, Kings County
Site No. 224035
March 2014

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Brooklyn Public Library
Attn: Ms. Dowshon A. Perveen
1197 Sutter Avenue
Brooklyn, NY 11208
Phone: 718-277-6004

A public meeting was also conducted. At the meeting, the findings of the remedial investigation

(RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The Former Majestic Garment Cleaners site is approximately 0.47 acres in size and is located at 740 Pine Street (a.k.a. 1151 Loring Avenue) in Brooklyn, at the northeast corner of the intersection of Loring Avenue and Pine Street in the East New York section of Brooklyn.

Site Features:

The property is surrounded by a chain link fence and previously contained a one-story brick building which was demolished sometime in 2008. The property is currently vacant except for construction and demolition debris and parked vehicles.

Current Zoning and Land Use:

The property is a vacant lot in a residential zone. It is zoned R4 (Residential) with a C1-2 (Commercial) overlay. The surrounding parcels are currently used for a mix of commercial and residential uses.

Past Use of Site:

The site was formerly used as an industrial laundry and dry cleaning facility from 1926 to 2007, and operated out of a large one-story brick building which was constructed in 1926. The building was later expanded with a smaller attached one-story cinder block building on its north side.

In early 1999, the U. S. Environmental Protection Agency (EPA) conducted two separate

inspections of the Majestic Garment Cleaners facility, one on January 25, 1999, and the other on March 29, 1999. During those inspections EPA personnel observed employees disposing of tetrachloroethene (PCE) contaminated water from steam presses onto the ground behind the facility on the western side of the property. They also noticed that the areas around the dry-cleaning equipment were visibly contaminated with PCE-contaminated lint and a dark liquid residue. EPA subsequently learned that Majestic employees regularly vacuumed PCE-contaminated lint and disposed of it in a dumpster behind the building.

In the Fall of 2001, the Department conducted an investigation which showed that the groundwater underlying the site was contaminated with PCE and its breakdown products. A Phase II investigation was conducted in June 2009. Soil samples were collected and the results showed exceedances above unrestricted soil cleanup objectives (SCOs) for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

Site Geology and Hydrogeology:

Much of the surface soil at the site consists of urban fill composed of mixed sand with varying amounts of gravel, brick, and concrete debris. The urban fill (i.e., debris, brick, etc.) at the site extends down to approximately 8 feet below ground surface (bgs); the fill is underlain by organic rich clay and sand. The depth to groundwater has been observed to be approximately 10 feet bgs. The groundwater flow direction in the vicinity of the site is to the southwest. It appears that a local hydraulic low, which was historically observed near piezometer PZ-2, may have been due to efforts to dewater the basement of the former on-site building when the building was present and in use.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to residential use (which allows for restricted-residential use, commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

1151 Loring Avenue, LLC

World Cleaners, Inc.

Jodave Realty, Inc.

MAJ Realty, Inc.

In January 2004, MAJ Realty Inc. entered into a Voluntary Cleanup Agreement (VCA) with the Department to address the environmental contamination at the site (VCP Site No. V00608). In June 2006, however, the Department terminated the VCA following the failure of MAJ Realty, Inc. to submit an Remedial Investigation Report documenting the results of the investigation. The site was subsequently referred for a State-funded Remedial Investigation (RI)/Feasibility Study (FS) in November 2008.

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal action by the State for recovery of all response costs the State has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

Tetrachloroethylene (PCE)
1,2-Dichloroethylene (1,2-DCE)
Trichloroethene (TCE)
Vinyl Chloride
Benzo(a)pyrene

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for the Site.

Nature and Extent of Contamination:

Based on the Remedial Investigation, the primary contaminants of concern (COCs) at the site include tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2-dichloroethylene (1,2-DCE), vinyl chloride, and benzo(a)pyrene. Elevated levels of these constituents were found primarily in the western portion of the site.

Groundwater - PCE (detected up to 260 ppb) and associated daughter products, cis-1,2-DCE (detected up to 410 ppb), TCE (detected up to 72 ppb) and vinyl chloride (detected up to 150 ppb) were identified at levels exceeding their respective groundwater standards. The groundwater standard for PCE, 1,2-DCE, and TCE is 5 ppb. The groundwater standard for vinyl chloride is 2 ppb.

Soils - Soils exceeding residential soil cleanup objective (SCOs) are present only in the western portion of the site. Benzo(a)pyrene was detected in subsurface soil (in a sample collected from the 10-foot to 11-foot depth interval) at a level of 2.6 ppm which exceeded the residential use soil cleanup objective (SCO) of 1 ppm. PCE was detected in subsurface soil at 8.1 ppm in a soil boring sample collected from the 11-foot to 12-foot depth interval in the western portion of the site in the vicinity of the former loading dock area. PCE was also detected in another soil boring sample from the 10-foot to 11-foot depth interval at a concentration of 6.8 ppm. This sample was also collected in the western portion of the site. Both of these concentration levels exceeded the protection of groundwater SCO of 1.3 ppm.

Soil Vapor - Elevated soil vapor concentration levels were detected in the western portion of the site in the same general area of the highest groundwater and soil contamination. The most significant results were: PCE at 640,000 µg/m3; vinyl chloride at 330,000 µg/m3; cis-1,2-DCE at 440,000 µg/m3; trans-1,2-DCE at 4,800 µg/m3; TCE at 25,000 µg/m3; and 1,1-DCE at 2,000 µg/m3. Based on the elevated soil vapor concentrations in the western portion of the site, additional off-site soil vapor sampling was conducted. Elevated soil vapor concentrations were observed in most of the off-site samples located west of the site including samples collected near the laundromat. The most significant results were: PCE at 310,000 µg/m3; cis-1,2-DCE at 1,300 µg/m3; and TCE at 7,000 µg/m3. Elevated levels of gasoline-related compounds were also observed in some of the samples, but these compounds are not considered to be site-related.

Environmental sampling indicates soil vapor intrusion may be a concern for on-site and off-site structures.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not contaminated by the site. The site is fenced, which limits public access. However, part of the lot is being used for parking and storage of building materials and persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. Volatile organic compounds in the groundwater and/or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The on-site building has been demolished, however the potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion in any future on-site building development and occupancy. Elevated concentrations of site-related contaminants were detected in soil vapor off-site. The potential for exposures in off-site buildings needs to be monitored and/or evaluated to determine if mitigation measures should be implemented.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Air Sparge/Soil Vapor Extraction with Limited Soil Excavation remedy.

The estimated present worth cost to implement the remedy is $1,120,000. The cost to construct the remedy is estimated to be $740,000 and the estimated average annual cost is $85,000.

The elements of the selected remedy are as follows:

1. Remedial Design

   A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

   - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Remediation of source area soils to achieve residential soil cleanup objectives (SCOs) and reduce the migration of volatile organic compounds (VOCs) through the soil gas will be accomplished by excavation and off-site transportation and disposal of approximately 30 cubic yards of soil in the vicinity of soil boring SB-8 which exceed residential use SCOs for semi-volatile organic compounds (SVOCs), as defined by 6 NYCRR Part 375-6.8, down to the depth of the water table (approximately 10 feet); and the implementation of soil vapor extraction (SVE) to remove VOCs from the subsurface (for those VOC contaminants that exceed their respective groundwater standards; the goal of the SVE system will be to reduce concentrations in the soil to the protection of groundwater SCO, to the extent feasible). VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. Groundwater Treatment

Treatment of on-site (in the western portion of the site) groundwater to reduce VOC concentrations to SCGs by air sparging with off-gas collection and treatment to meet applicable discharge requirements. Air sparging will be implemented to address the groundwater plume contaminated by VOCs. VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As the injected air rises through the groundwater, the VOCs volatilize and transfer from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone where a soil vapor extraction (SVE) system is used to remove the injected air.

4. Soil Vapor Extraction

Installation of an off-site SVE system with off-gas treatment as necessary to prevent the off-site migration of PCE and its breakdown products in soil vapor, if necessary, based on the results of the periodic off-site soil vapor monitoring.

5. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for residential, restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

6. Site Management

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The environmental easement discussed in Paragraph 5 above.

Engineering Controls: The AS/SVE systems described in Paragraphs 2 and 3 above, and/or the SVE system described in Paragraph 4 above.

This plan includes, but may not be limited to:

- º an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- º descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- º a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- º provisions for the management and inspection of the identified engineering controls;
- º maintaining site access controls and Department notification; and
- º the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- º monitoring of on-site soil vapor and groundwater to assess the performance and effectiveness of the remedy;
- º monitoring of off-site soil vapor and groundwater to determine the need for off-site mitigation measures;
- º a schedule of monitoring and frequency of submittals to the Department; and
- º monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- º compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting; and
- º providing the Department access to the Site and O&M records.

There is the potential that the site may be purchased for development purposes prior to implementation of the selected remedy.

If the site is developed, resulting in the excavation of the VOC-contaminated soil consistent with Alternative 3, the Department will accept this as an alternate remedy for this site with treatment of both on- and off-site groundwater. In this event, a pilot study will be performed to evaluate the effectiveness and design parameters of the in-situ treatment to be applied to address the on- and off-site groundwater.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the RI for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into two categories: volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Groundwater

The depth to groundwater has been observed at approximately 10 feet below ground surface (bgs). The groundwater flow direction in the vicinity of the site is to the southwest. Groundwater samples were collected from shallow monitoring wells (installed to a depth of 25 bgs) and deeper monitoring wells (installed to a depth of 50 feet bgs). The samples were collected to assess groundwater conditions on and off-site. The results indicate that contamination in the shallow and deep groundwater at the site exceeds SCGs for VOCs. The location of the monitoring wells and the detected concentrations are shown on Figure 2.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Tetrachloroethylene	ND[c] - 260	5	6 of 19
Trichloroethylene	ND - 72	5	5 of 19
cis-1,2-Dichloroethylene	ND - 410	5	8 of 19
trans-1,2-Dichloroethylene	ND - 8	5	3 of 19
Vinyl Chloride	ND - 150	2	7 of 19
Benzene	ND – 0.73	1	0 of 19
Isopropylbenzene	ND - 25	5	2 of 19

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).
c – non-detect.

The primary groundwater contaminants are tetrachloroethylene (PCE) and some of its daughter products (chemicals formed by the partial degradation of PCE including, trichloroethylene (TCE), 1,2-dichloroethylene (1,2-DCE), and vinyl chloride) associated with the former operation of the industrial laundry and dry cleaning

facility. As shown on Figure 2, the primary groundwater contamination is found on the western side of the site near the former loading dock area where inspections conducted by the U.S. Environmental Protection Agency in the late 1990s uncovered evidence of the disposal of PCE.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are:

Tetrachloroethylene (PCE)
Cis-1,2-Dichloroethylene (1,2-DCE)
Trichloroethylene (TCE)
Vinyl Chloride

Soil

During the operational history of the facility until around 2008 most of the site was covered with either structures or asphalt, therefore no surface soil samples were collected. Subsurface soil samples, however, were collected at the site during the RI. Soil borings were advanced to the water table or to refusal, and up to two soil samples per boring were collected from the unsaturated interval to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCG for VOCs and SVOCs. The location of the soil borings and the detected concentrations are shown on Figure 3.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b]/Protection of Groundwater SCG[c] (ppm)	Frequency Exceeding Unrestricted SCG	Frequency Exceeding Protection of Groundwater SCG	Residential Use SCG[d] (ppm)	Frequency Exceeding Residential SCG
VOCs						
Acetone	ND - 0.068	0.05	3 of 10	3 of 10	100	0 of 10
Benzene	ND - 0.15	0.06	1 of 10	1 of 10	2.9	0 of 10
cis-1,2-Dichloroethylene	ND - 1.4	0.25	2 of 10	2 of 10	59	0 of 10
Methylene Chloride	ND - 2.4	0.05	1 of 10	1 of 10	51	0 of 10
Tetrachloroethylene	ND - 8.1	1.3	3 of 10	3 of 10	5.5	2 of 10
Trichloroethylene	ND - 0.59	0.47	2 of 10	2 of 10	10	0 of 10
SVOCs						
Benzo(a)anthracene	ND - 3.1	1	1 of 10	1 of 10	1	1 of 10
Benzo(a)pyrene	ND - 2.6	1/22	1 of 10	0 of 10	1	1 of 10
Benzo(b)fluoranthene	ND - 3.1	1/1.7	1 of 10	1 of 10	1	1 of 10
Benzo(k)fluoranthene	ND - 1.2	0.8/1.7	1 of 10	0 of 10	1	1 of 10
Chrysene	ND - 3.1	1	1 of 10	1 of 10	1	1 of 10

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b]/Protection of Groundwater SCG[c] (ppm)	Frequency Exceeding Unrestricted SCG	Frequency Exceeding Protection of Groundwater SCG	Residential Use SCG[d] (ppm)	Frequency Exceeding Residential SCG
Indeno (1,2,3-cd) pyrene	ND - 1.3	0.5/8.2	1 of 10	0 of 10	0.5	1 of 10

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.
d -SCG:Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Residential Use, unless otherwise noted.

The primary soil contaminants are PCE associated with residues from the operation of the former industrial laundry and dry cleaning facility, and SVOCs, including polycyclic aromatic hydrocarbons (PAHs). As noted on Figure 3, the primary soil contamination is located in the western portion of the site.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are:

Tetrachloroethylene (PCE)
Cis-1,2-Dichloroethylene (1,2-DCE)
Trichloroethylene (TCE)
Benzo(a)pyrene (BaP)

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of soil vapor. At this site no buildings were present in impacted areas, so only soil vapor was evaluated.

A soil vapor survey was conducted during the initial phase of the RI to identify areas of the site where subsurface contamination could be present. Soil vapor samples were collected from a depth of approximately 5 feet bgs. Concurrent outdoor air samples were also collected to characterize site-specific background outdoor air conditions. Based on the results of the initial on-site sampling, additional off-site soil vapor samples were collected in the sidewalks to the east, west and south of the site to evaluate the potential for soil vapor intrusion into off-site commercial and/or residential structures located adjacent to the site. The results indicated elevated concentrations of VOCs, predominantly PCE and some of its daughter products, including TCE, cis-1,2-DCE, and vinyl chloride in on-site soil vapor in the western portion of the site. Elevated levels of PCE, TCE, and cis-1,2-DCE were also detected in soil vapor samples collected off-site to the west of the site. Elevated levels of petroleum-related compounds, including benzene, cyclohexane, heptane, hexane and toluene, were also detected in some of the off-site soil vapor samples, but these compounds are not considered to be site-related.

The primary soil vapor contaminants are PCE, TCE, cis-1,2-DCE and vinyl chloride associated with the operation of the former dry cleaning facility. As shown on Figure 4, the primary soil vapor contamination is found in the western portion of the site near the former loading dock area. No further action is needed for buildings to the east of the site.

Based on the findings of the RI, the disposal of hazardous waste has resulted in the contamination of soil vapor. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process are:

Tetrachloroethylene (PCE)
1,2-Dichloroethylene (1,2-DCE)
Trichloroethylene (TCE)
Vinyl Chloride

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment. The No Action alternative does not require any time to implement.

Present Worth: *$0*
Capital Cost: *$0*
Annual Costs: *$0*

Alternative 2: Soil Excavation and In-Situ Chemical Oxidation using Sodium Permanganate (Restoration to Pre-Disposal or Unrestricted Conditions)

This alternative is the alternative most capable of achieving all of the SCGs discussed in Section 6.1.1 and Exhibit A including the unrestricted SCOs listed in Part 375-6.8 (a). This alternative includes the excavation of soils which exceed unrestricted SCOs in the excavation (source) area depicted on Figure 3. In order to achieve groundwater SCGs, Alternative 2 includes *in-situ* chemical oxidation (ISCO) to treat chlorinated solvents (i.e. PCE) in groundwater, and involves the injection of a chemical oxidant (sodium permanganate) into the subsurface to destroy the contaminants in the western portion of the site and immediate off-site areas to the south-southwest via permanently installed injection wells, or temporary injection points installed using direct-push methods. The method and depth of injection will be determined during the remedial design. The byproducts of the ISCO process are non-toxic and include carbon dioxide, water and inorganic compounds. Prior to full implementation of this technology, laboratory and on-site pilot scale studies will be necessary to more clearly define design parameters. This alternative also includes institutional controls in the form a site management plan to restrict the use of the property and the use of groundwater, imposition of an environmental easement on the property, and annual certification that the institutional and engineering controls remain effective. Post-excavation groundwater and soil vapor monitoring (on-site and off-site) is also included in this alternative. This alternative will also include a contingency for the implementation of mitigation measures based on an evaluation of the results of the soil vapor monitoring. It is estimated that treatment will take approximately three (3) years followed by two (2) years of long-term monitoring of groundwater and soil vapor.

Present Worth: *$1,880,000*
Capital Cost: *$1,720,000*
Annual Costs: *$35,000*

Alternative 3: Soil Excavation with In-Situ Enhanced Bioremediation

This alternative will include excavation and off-site disposal of soils in the western portion of the site which exceed residential SCOs, similar to Alternative 4 below. In order to achieve groundwater SCGs, Alternative 3 also includes *in-situ* enhanced bioremediation to treat VOCs, including chlorinated solvents (primarily, PCE and its daughter products) in on-site and off-site groundwater. The biological breakdown of contaminants

through anaerobic reductive dechlorination will be enhanced by the injection of an amendment such as, Hydrogen Release Compound (HRC®), a patented food-grade formulation of a viscous glycerol tripolactate, or Emulsified Oil Substrate (EOS®), which is a soybean oil/vegetable oil emulsion, and cultured microbial populations of *Dehalococcoides* into the subsurface to promote microbe growth and to treat contaminants in the groundwater. The method and depth of injection will be determined during the remedial design. Post-excavation groundwater and soil vapor monitoring (on-site and off-site) is also included in this alternative. This alternative will also include a contingency for the implementation of mitigation measures based on an evaluation of the results of the soil vapor monitoring. It is expected that treatment will take approximately three (3) years followed by up to three (3) years of long-term groundwater monitoring to verify that the remedial goals for groundwater have been achieved.

Present Worth: *$1,500,000*
Capital Cost: *$1,320,000*
Annual Costs: *$35,000*

Alternative 4: Excavation of Soils above Residential SCOs

This alternative will include excavation and off-site disposal of soils which exceed residential SCOs within the remediation area shown on Figure 3, and complete backfilling of the excavation with clean fill meeting the requirements of DER-10, Appendix 5 to establish the designed grades at the site. Approximately 900 cubic yards of unsaturated soil will be excavated from the source area down to the depth of the water table (approximately 10 feet). It is not expected that sheet-piling will be required to support the excavation sidewalls. Confirmation samples will be collected to ensure VOC concentrations remaining in the soil were below SCGs. Excavated soils will be stockpiled on-site (underlain and covered with plastic sheeting) for waste characterization. This alternative also includes institutional controls in the form a site management plan to restrict the use of the property and the use of groundwater, imposition of an environmental easement on the property, and annual certification that the institutional and engineering controls remain effective. Post-excavation groundwater monitoring (on-site and off-site) is also included in this alternative. It will take less than one (1) year to implement this alternative followed by at least ten (10) years of long-term groundwater and soil vapor monitoring.

Present Worth: *$1,340,000*
Capital Cost: *$950,000*
Annual Costs: *$30,000*

Alternative 5: Air Sparge/Soil Vapor Extraction with Limited Soil Excavation

This alternative will include the excavation and off-site disposal of soils in the vicinity soil boring SB-08 which exceed residential SCOs, and backfilling the excavation with clean fill meeting the requirements of DER-10, Appendix 5 to establish the designed grades at the site. Approximately 30 cubic yards of unsaturated soil will be excavated down to the depth of the water table (approximately 10 feet). In order to reduce the levels of VOCs in groundwater and source area soils to SCGs, Alternative 5 also includes air sparging. During air sparging, VOCs are physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. As injected air rises through the groundwater, the VOCs volatilize and transfer from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system is used to remove injected air. The SVE system applies a vacuum to wells that have been installed into

the vadose zone to remove VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

This alternative includes the installation of twenty-one (21) air injection wells in the remediation area in the western portion of the site (as shown on Figure 5) to a depth of approximately 30 feet bgs, which is 20 feet below the water table, and the installation of thirteen (13) SVE wells in the vadose zone to a depth of approximately 8 feet bgs to capture the volatilized contaminants. The air containing VOCs extracted from the SVE wells is treated by passing the air stream through activated carbon which removes the VOCs from the air prior to it being discharged to the atmosphere.

Post-excavation groundwater and soil vapor monitoring (on-site and off-site) is also included in this alternative. This alternative will also include a contingency for the implementation of mitigation measures based on an evaluation of the results of the soil vapor monitoring. It is estimated that treatment will take approximately two (2) years followed by approximately three (3) years of long-term monitoring of groundwater and soil vapor.

Present Worth: *$1,120,000*
Capital Cost: *$740,000*
Annual Costs: *$85,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	0	0	0
Alternative 2: Soil Excavation with ISCO using sodium permanganate (Restoration to Pre-Disposal Conditions)	$1,720,000	$35,000 for 5 years	$1,880,000
Alternative 3: Excavation of Soils above Residential SCOs with Enhanced Bioremediation	$1,320,000	$35,000 for 6 years	$1,500,000
Alternative 4: Excavation of Soils above Unrestricted SCOs	$950,000	$30,000 for 20 years	$1,340,000
Alternative 5: Air Sparge with Soil Vapor Extraction with Limited Soil Excavation	$740,000	$85,000 for 5 years	$1,120,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 5 as the remedy for this site: Air Sparge/Soil Vapor Extraction (SVE) with Limited Soil Excavation. This alternative will achieve the remediation goals for the site by the excavation and off-site disposal of SVOC-contaminated vadose zone soils in the source area, and physically removing VOCs from the groundwater and soil below the water table (saturated zone) by injecting air into the subsurface (air sparging). VOCs will be removed from the soil above the water table (vadose zone) by applying a vacuum to wells that have been installed in the vadose zone (soil vapor extraction). The elements of this remedy are described in Section 7. This remedy is depicted in Figure 5.

There is the potential that the site may be purchased for development purposes prior to implementation of the selected remedy.

If the site is redeveloped, resulting in the excavation of the VOC-contaminated soil consistent with Alternative 3, the Department will accept this as an alternate remedy for this site with treatment of both on- and off-site groundwater. In this event, a pilot study will be performed to evaluate the effectiveness and design parameters of the in-situ treatment to be applied to address the on- and off-site groundwater.

Basis for Selection

The selected remedies are based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 3 will satisfy this criterion by removing all soils contaminated above residential SCOs and treating groundwater contamination by *in-situ* enhanced bioremediation. Alternative 5 will also satisfy this criterion by removing soils contaminated with SVOCs above residential SCOs in the vicinity of soil boring SB-8, and by removing contaminants from soils and groundwater in the subsurface in the source area by using air sparge/soil vapor extraction, and in so doing, will address the source of the groundwater and the soil vapor contamination. Both Alternatives 3 and 5 will address the groundwater contamination and the movement of the soil vapor contamination, which are the most significant threats to public health and the environment. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 4 (soil excavation only) may not comply with this criterion in that this alternative removes source material but does not address the groundwater or the more significant soil vapor contamination. Alternative 4 relies on a restriction of groundwater use at the site to protect human health. Alternative 2 (soil excavation with *in-situ* chemical oxidation); Alternative 3 (soil excavation with *in-situ* enhanced bioremediation) and Alternative 5 (air sparge with soil vapor extraction and limited soil excavation) may all require a short-term restriction on groundwater use; however, it is expected the restriction could be removed in a relatively short period of time. Alternative 2 is considered to be the alternative most capable of returning the site to pre-disposal conditions. The potential for soil vapor intrusion will be significantly reduced by Alternatives 2, 3 and

5. On the other hand, the potential for soil vapor intrusion will remain high under Alternative 4.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternatives 2 through 5 comply with this criterion, but the degree of compliance is higher for Alternatives 2 and 3. Alternative 5 will comply with soil and groundwater SCGs on-site to the extent practicable. It may comply with SCGs for groundwater off-site over the long-term by removing the sources of groundwater contamination and treating the on-site groundwater contamination. Because Alternatives 2 through 5 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. Alternatives 2 and 3 will meet SCGs in a relatively short period of time. It is expected Alternative 5 will achieve soil and groundwater SCGs on-site in the short-term and may achieve groundwater SCGs off-site over a longer period of time.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Long-term effectiveness is best accomplished by those alternatives involving excavation or complete treatment of the contaminated soils (Alternatives 2 through 5). Since most of the contamination is in the western portion of the site, Alternatives 2 and 3, and to a slightly lesser extent, Alternative 5, result in the removal of almost all of the chemical contamination at the site, however, groundwater use restrictions and post-excavation monitoring will be required until soil and groundwater are treated to unrestricted use levels. Since Alternatives 2 and 3 both provide source area removal in addition to treatment of contaminants in the subsurface, both of these alternatives will also reduce the potential for soil vapor intrusion. Alternative 4 may not be as effective over the long-term since it does not address the groundwater or soil vapor contamination. Alternative 5 will be effective over the long-term, since the use of air sparge/soil vapor extraction and limited soil excavation will treat and/or remove contaminants in the subsurface, and remove contaminated soil vapor, thereby reducing the potential for off-site soil vapor intrusion.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 2 will reduce the toxicity of the chlorinated VOCs in groundwater (PCE and its daughter products) by oxidizing them to non-toxic end products. Excavation of source material will reduce the toxicity, mobility and volume of on-site contamination by transferring the material to an approved off-site location, and combined with *in-situ* chemical oxidation of contaminated groundwater, this alternative will be expected to greatly reduce the contaminant mass in the groundwater. Alternative 2 is considered to be the alternative most capable of returning the site to pre-disposal conditions. Similarly, Alternative 3 (soil excavation with *in-situ* enhanced bioremediation) will reduce the toxicity, mobility and volume of on-site contamination by facilitating reductive dechlorination of the chlorinated VOCs in groundwater, and transporting contaminated soil removed from the

site to an approved off-site location. Alternatives 2 and 3 will require a groundwater use restriction in the short-term. Alternative 4 (soil excavation only) and Alternative 5 (limited soil excavation with air sparge/soil vapor extraction) will reduce the toxicity, mobility and volume of on-site soil contamination by transferring the material to an approved off-site location. Alternative 4 will not be as effective in reducing the toxicity, mobility or volume of contaminated groundwater or soil vapor. Alternative 5 also involves the treatment of contaminated soil and groundwater (through air sparging) and the extraction of contaminated soil vapor. Although this alternative will not reduce the toxicity of the chlorinated VOCs, it will reduce the volume of on-site soil contamination (albeit to a slightly lesser extent than Alternatives 2, 3, and 4) by transferring material to an approved off-site location. In addition, Alternative 5 will be expected to reduce the mobility of contaminated soil vapor and the potential for soil vapor intrusion, and greatly reduce the contaminant mass in the soil and groundwater.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 2 through 5 all have short-term impacts which could easily be controlled. Alternatives 2 through 4 involve excavation and disposal of an increased volume of material compared to Alternative 5. Therefore, the short-term impacts from Alternatives 2 through 4 are expected to be higher than for Alternative 5. The short-term impacts include truck traffic through the neighborhood which will be higher under Alternatives 2 through 4 due to the increase in the volume of excavation and backfill material. The increased truck traffic could also increase the likelihood that contaminated material could be tracked off-site onto public roadways by trucks leaving the site. However, routine procedures are available to monitor and mitigate dust resulting from the construction activities and ensure that trucks leaving the site are free of any accumulations of contaminated soil. The time needed to achieve the remedial goals is similar for Alternatives 2, 3 and 5 and longer for Alternative 4.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Each of the alternatives could be readily implemented using regionally available resources.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

Alternatives 2 and 3 have the highest costs, but the capital cost for Alternative 3 (excavation with enhanced bioremediation) is lower than that of Alternative 2 (excavation with in-situ chemical oxidation (ISCO) using sodium permanganate) due to the high cost of implementing ISCO. The present worth cost of Alternative 4 (soil excavation only) is higher than that of Alternative 5 (air sparge/soil vapor extraction with limited soil excavation), however, Alternative 4 will not meet all of the remedial action objectives (RAOs) for the site. Alternative 5 will be less expensive than Alternatives 2 and 3, and it will meet all of the RAOs for the site.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may

consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Alternative 4 addresses exposures to contaminated soil and will allow for residential use of the site, however, this alternative will be less desirable because the contaminated groundwater and soil vapor will not be addressed. Alternatives 2, 3 and 5, on the other hand, will also address the contaminated groundwater, soil and soil vapor. Furthermore, with Alternatives 2, 3, and 5 all of the contaminated soil in the western portion of the site will either be removed down to the water table or treated, and restrictions on the use of the site will not be necessary once groundwater SCGs have been met.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

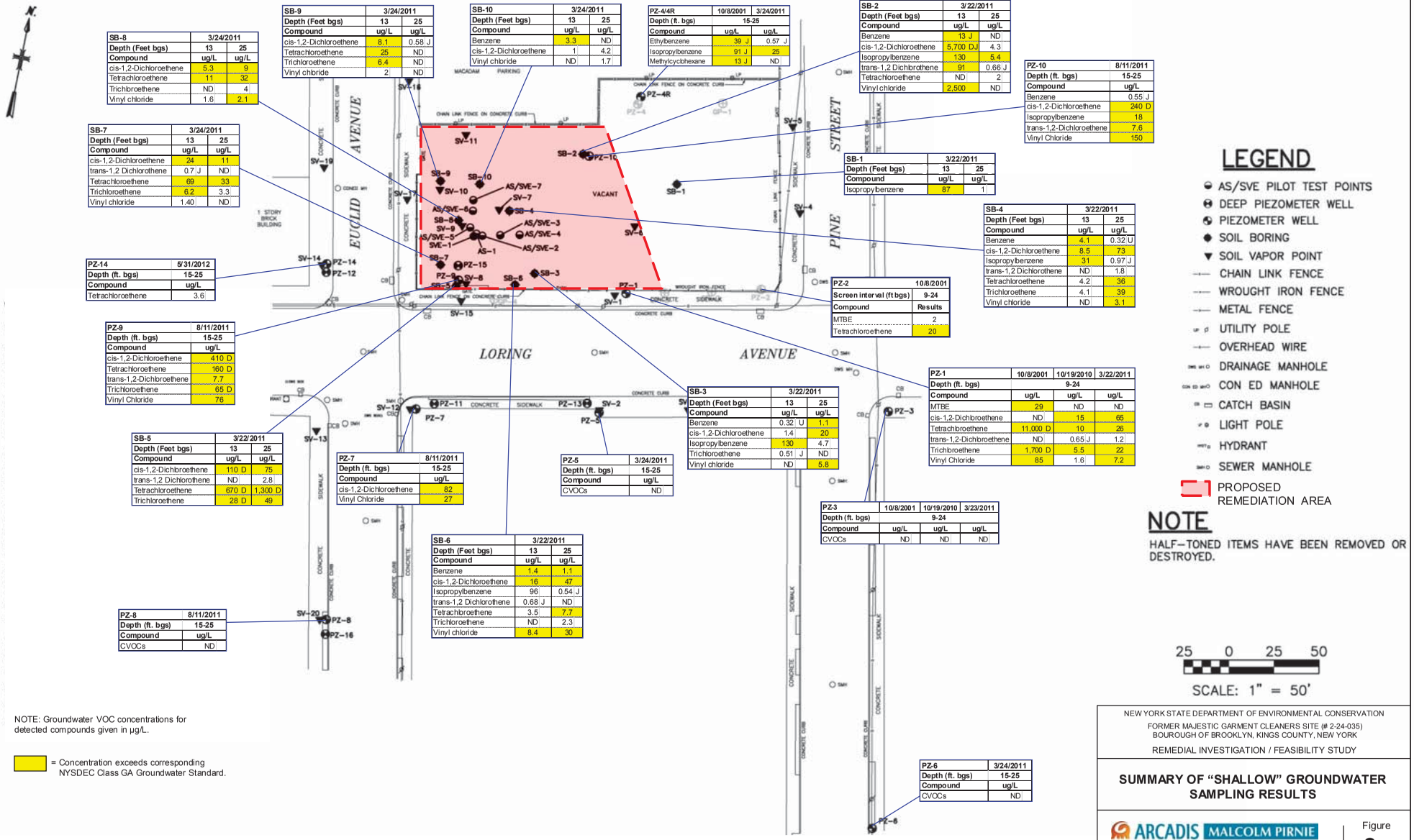
A choice of either Alternative 3 or 5 has been selected because, as described above, they satisfy the threshold criteria and provide the best balance of the balancing criterion.

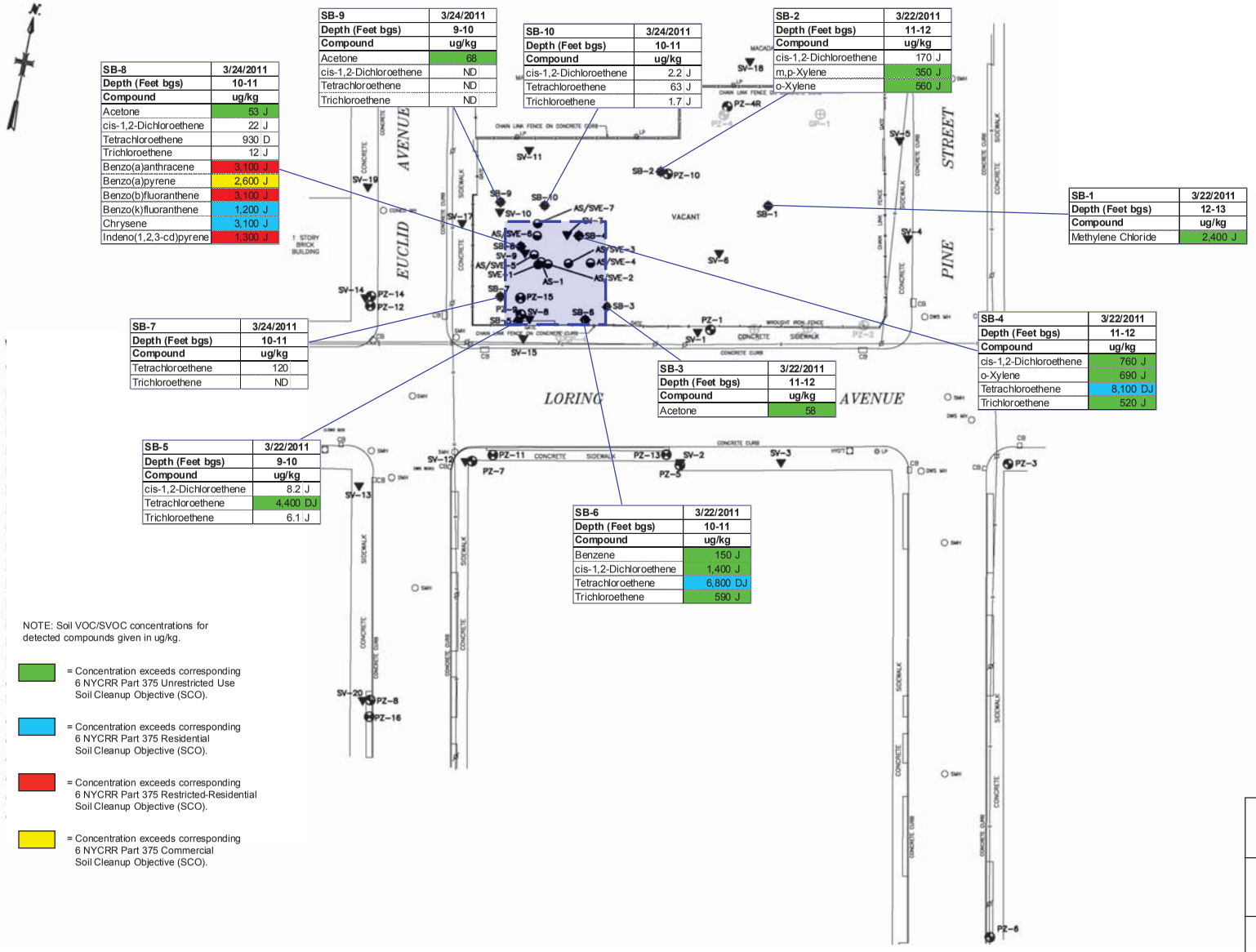
Figure 1

Site Map

Former Majestic Garment Cleaners
Brooklyn, Kings County
Site No. 224035

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •


N
SB-8 | 3/24/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
cis-1,2-Dichloroethene | 5.3 | 9
Tetrachloroethene | 11 | 32
Trichloroethene | ND | 4
Vinyl chloride | 1.6 | 2.1
SB-9 | 3/24/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
cis-1,2-Dichloroethene | 8.1 | 0.58 J
Tetrachloroethene | 25 | ND
Trichloroethene | 6.4 | ND
Vinyl chloride | 2 | ND
SB-10 | 3/24/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Benzene | 3.3 | ND
cis-1,2-Dichloroethene | 1 | 4.2
Vinyl chloride | ND | 1.7
PZ-4/4R | 10/8/2001 | 3/24/2011
Depth (ft. bgs) | 15-25
Compound | ug/L | ug/L
Ethylbenzene | 39 J | 0.57 J
Isopropylbenzene | 91 J | 25
Methylcyclohexane | 13 J | ND
SB-2 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Benzene | 13 J | ND
cis-1,2-Dichloroethene | 5,700 DJ | 4.3
Isopropylbenzene | 130 | 5.4
trans-1,2 Dichlorothene | 91 | 0.66 J
Tetrachloroethene | ND | 2
Vinyl chloride | 2,500 | ND
PZ-10 | 8/11/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
Benzene | 0.55 J
cis-1,2-Dichloroethene | 240 D
Isopropylbenzene | 18
trans-1,2-Dichloroethene | 7.6
Vinyl Chloride | 150
SB-7 | 3/24/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
cis-1,2-Dichloroethene | 24 | 11
trans-1,2 Dichlorothene | 0.7 J | ND
Tetrachloroethene | 69 | 33
Trichloroethene | 6.2 | 3.3
Vinyl chloride | 1.40 | ND
SB-1 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Isopropylbenzene | 87 | 1
SB-4 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Benzene | 4.1 | 0.32 U
cis-1,2-Dichloroethene | 8.5 | 73
Isopropylbenzene | 31 | 0.97 J
trans-1,2 Dichlorothene | ND | 1.8
Tetrachloroethene | 4.2 | 36
Trichloroethene | 4.1 | 39
Vinyl chloride | ND | 3.1
PZ-14 | 5/31/2012
Depth (ft. bgs) | 15-25
Compound | ug/L
Tetrachloroethene | 3.6
PZ-2 | 10/8/2001
Screen interval (ft bgs) | 9-24
Compound | Results
MTBE | 2
Tetrachloroethene | 20
PZ-9 | 8/11/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
cis-1,2-Dichloroethene | 410 D
Tetrachloroethene | 160 D
trans-1,2-Dichloroethene | 7.7
Trichloroethene | 65 D
Vinyl Chloride | 76
SB-3 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Benzene | 0.32 U | 1.1
cis-1,2-Dichloroethene | 1.4 | 20
Isopropylbenzene | 130 | 4.7
Trichloroethene | 0.51 J | ND
Vinyl chloride | ND | 5.8
PZ-1 | 10/8/2001 | 10/19/2010 | 3/22/2011
Depth (ft. bgs) | 9-24
Compound | ug/L | ug/L | ug/L
MTBE | 29 | ND | ND
cis-1,2-Dichloroethene | ND | 15 | 65
Tetrachloroethene | 11,000 D | 10 | 26
trans-1,2-Dichloroethene | ND | 0.65 J | 1.2
Trichloroethene | 1,700 D | 5.5 | 22
Vinyl Chloride | 85 | 1.6 | 7.2
SB-5 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
cis-1,2-Dichloroethene | 110 D | 75
trans-1,2 Dichlorothene | ND | 2.8
Tetrachloroethene | 670 D | 1,300 D
Trichloroethene | 28 D | 49
PZ-7 | 8/11/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
cis-1,2-Dichloroethene | 82
Vinyl Chloride | 27
PZ-5 | 3/24/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
CVOCs | ND
PZ-3 | 10/8/2001 | 10/19/2010 | 3/23/2011
Depth (ft. bgs) | 9-24
Compound | ug/L | ug/L | ug/L
CVOCs | ND | ND | ND
SB-6 | 3/22/2011
Depth (Feet bgs) | 13 | 25
Compound | ug/L | ug/L
Benzene | 1.4 | 1.1
cis-1,2-Dichloroethene | 16 | 47
Isopropylbenzene | 96 | 0.54 J
trans-1,2 Dichlorothene | 0.68 J | ND
Tetrachloroethene | 3.5 | 7.7
Trichloroethene | ND | 2.3
Vinyl chloride | 8.4 | 30
PZ-8 | 8/11/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
CVOCs | ND
PZ-6 | 3/24/2011
Depth (ft. bgs) | 15-25
Compound | ug/L
CVOCs | ND
EUCLID AVENUE
PINE STREET
LORING AVENUE
VACANT
1 STORY BRICK BUILDING
MACADAM PARKING
CHAIN LINK FENCE ON CONCRETE CURB
WROUGHT IRON FENCE
CONCRETE
SIDEWALK
CONCRETE CURB
CB
DMH
SMH
CONES MH
SV-1
SV-2
SV-3
SV-4
SV-5
SV-6
SV-7
SV-8
SV-9
SV-10
SV-11
SV-12
SV-13
SV-14
SV-15
SV-16
SV-17
SV-19
SV-20
SB-1
SB-2
SB-3
SB-4
SB-5
SB-6
SB-7
SB-8
SB-9
SB-10
AS-1
AS/SVE-1
AS/SVE-2
AS/SVE-3
AS/SVE-4
AS/SVE-5
AS/SVE-6
AS/SVE-7
PZ-1
PZ-2
PZ-3
PZ-4
PZ-4R
PZ-5
PZ-6
PZ-7
PZ-8
PZ-9
PZ-10
PZ-11
PZ-12
PZ-13
PZ-14
PZ-15
PZ-16
LEGEND
AS/SVE PILOT TEST POINTS
DEEP PIEZOMETER WELL
PIEZOMETER WELL
SOIL BORING
SOIL VAPOR POINT
CHAIN LINK FENCE
WROUGHT IRON FENCE
METAL FENCE
UTILITY POLE
OVERHEAD WIRE
DRAINAGE MANHOLE
CON ED MANHOLE
CATCH BASIN
LIGHT POLE
HYDRANT
SEWER MANHOLE
PROPOSED REMEDIATION AREA
NOTE
HALF-TONED ITEMS HAVE BEEN REMOVED OR DESTROYED.
25 0 25 50
SCALE: 1" = 50'
NOTE: Groundwater VOC concentrations for detected compounds given in µg/L.
= Concentration exceeds corresponding NYSDEC Class GA Groundwater Standard.
SOURCE: 2001/2002, APRIL 2011, AUGUST 2011, JUNE 2012 SURVEY PERFORMED BY YEC, INC., VALLEY COTTAGE, NY
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER MAJESTIC GARMENT CLEANERS SITE (# 2-24-035)
BOUROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
SUMMARY OF "SHALLOW" GROUNDWATER SAMPLING RESULTS
ARCADIS MALCOLM PIRNIE
Infrastructure · Water · Environment · Buildings
Figure
2



SB-8	3/24/2011
Depth (Feet bgs)	10-11
Compound	ug/kg
Acetone	53 J
cis-1,2-Dichloroethene	22 J
Tetrachloroethene	930 D
Trichloroethene	12 J
Benzo(a)anthracene	3,100 J
Benzo(a)pyrene	2,600 J
Benzo(b)fluoranthene	3,100 J
Benzo(k)fluoranthene	1,200 J
Chrysene	3,100 J
Indeno(1,2,3-cd)pyrene	1,300 J

SB-9	3/24/2011
Depth (Feet bgs)	9-10
Compound	ug/kg
Acetone	68
cis-1,2-Dichloroethene	ND
Tetrachloroethene	ND
Trichloroethene	ND

SB-10	3/24/2011
Depth (Feet bgs)	10-11
Compound	ug/kg
cis-1,2-Dichloroethene	2.2 J
Tetrachloroethene	63 J
Trichloroethene	1.7 J

SB-2	3/22/2011
Depth (Feet bgs)	11-12
Compound	ug/kg
cis-1,2-Dichloroethene	170 J
m,p-Xylene	350 J
o-Xylene	560 J

SB-1	3/22/2011
Depth (Feet bgs)	12-13
Compound	ug/kg
Methylene Chloride	2,400 J

SB-7	3/24/2011
Depth (Feet bgs)	10-11
Compound	ug/kg
Tetrachloroethene	120
Trichloroethene	ND

SB-3	3/22/2011
Depth (Feet bgs)	11-12
Compound	ug/kg
Acetone	58

SB-4	3/22/2011
Depth (Feet bgs)	11-12
Compound	ug/kg
cis-1,2-Dichloroethene	760 J
o-Xylene	690 J
Tetrachloroethene	8,100 DJ
Trichloroethene	520 J

SB-5	3/22/2011
Depth (Feet bgs)	9-10
Compound	ug/kg
cis-1,2-Dichloroethene	8.2 J
Tetrachloroethene	4,400 DJ
Trichloroethene	6.1 J

SB-6	3/22/2011
Depth (Feet bgs)	10-11
Compound	ug/kg
Benzene	150 J
cis-1,2-Dichloroethene	1,400 J
Tetrachloroethene	6,800 DJ
Trichloroethene	590 J

NOTE: Soil VOC/SVOC concentrations for detected compounds given in ug/kg.

= Concentration exceeds corresponding 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objective (SCO).

= Concentration exceeds corresponding 6 NYCRR Part 375 Residential Soil Cleanup Objective (SCO).

= Concentration exceeds corresponding 6 NYCRR Part 375 Restricted-Residential Soil Cleanup Objective (SCO).

= Concentration exceeds corresponding 6 NYCRR Part 375 Commercial Soil Cleanup Objective (SCO).

LEGEND

- AS/SVE PILOT TEST POINTS
- DEEP PIEZOMETER WELL
- PIEZOMETER WELL
- SOIL BORING
- SOIL VAPOR POINT
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- METAL FENCE
- UTILITY POLE
- OVERHEAD WIRE
- DRAINAGE MANHOLE
- CON ED MANHOLE
- CATCH BASIN
- LIGHT POLE
- HYDRANT
- SEWER MANHOLE
- POTENTIAL EXCAVATION AREA

NOTE

HALF-TONED ITEMS HAVE BEEN REMOVED OR DESTROYED.

25 0 25 50

SCALE: 1" = 50'

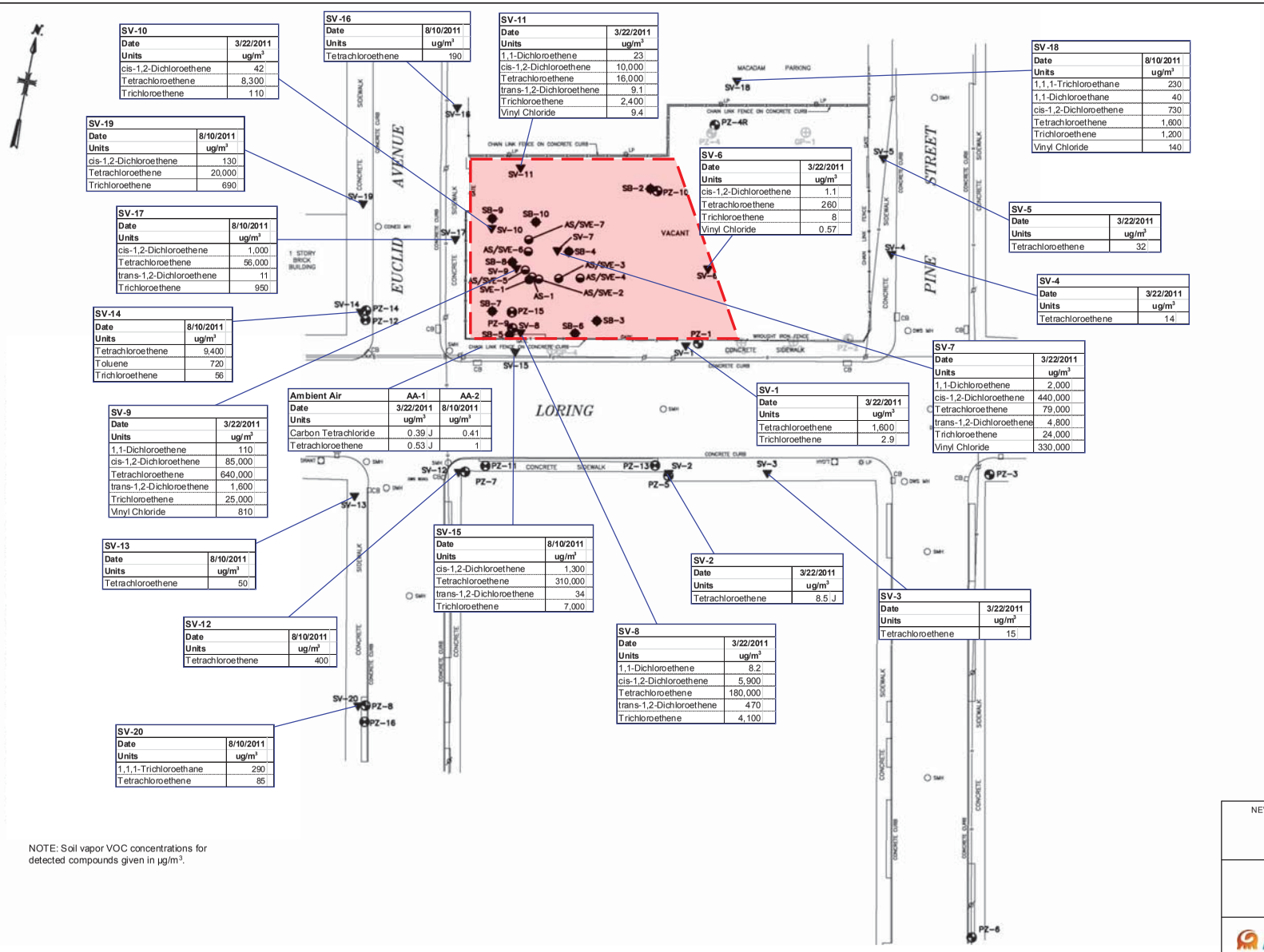
SOURCE: 2001/2002, APRIL 2011, AUGUST 2011, JUNE 2012 SURVEY PERFORMED BY YEC, INC., VALLEY COTTAGE, NY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER MAJESTIC GARMENT CLEANERS SITE (# 2-24-035)
BOUROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
REMEDIAL INVESTIGATION / FEASIBILITY STUDY

SUMMARY OF SOIL SAMPLING RESULTS

ARCADIS MALCOLM PIRNIE
Infrastructure · Water · Environment · Buildings

Figure
3



SV-10	
Date	3/22/2011
Units	ug/m³
cis-1,2-Dichloroethene	42
Tetrachloroethene	8,300
Trichloroethene	110

SV-16	
Date	8/10/2011
Units	ug/m³
Tetrachloroethene	190

SV-11	
Date	3/22/2011
Units	ug/m³
1,1-Dichloroethene	23
cis-1,2-Dichloroethene	10,000
Tetrachloroethene	16,000
trans-1,2-Dichloroethene	9.1
Trichloroethene	2,400
Vinyl Chloride	9.4

SV-18	
Date	8/10/2011
Units	ug/m³
1,1,1-Trichloroethane	230
1,1-Dichloroethane	40
cis-1,2-Dichloroethene	730
Tetrachloroethene	1,600
Trichloroethene	1,200
Vinyl Chloride	140

SV-19	
Date	8/10/2011
Units	ug/m³
cis-1,2-Dichloroethene	130
Tetrachloroethene	20,000
Trichloroethene	690

SV-6	
Date	3/22/2011
Units	ug/m³
cis-1,2-Dichloroethene	1.1
Tetrachloroethene	260
Trichloroethene	8
Vinyl Chloride	0.57

SV-5	
Date	3/22/2011
Units	ug/m³
Tetrachloroethene	32

SV-17	
Date	8/10/2011
Units	ug/m³
cis-1,2-Dichloroethene	1,000
Tetrachloroethene	56,000
trans-1,2-Dichloroethene	11
Trichloroethene	950

SV-4	
Date	3/22/2011
Units	ug/m³
Tetrachloroethene	14

SV-14	
Date	8/10/2011
Units	ug/m³
Tetrachloroethene	9,400
Toluene	720
Trichloroethene	56

SV-7	
Date	3/22/2011
Units	ug/m³
1,1-Dichloroethene	2,000
cis-1,2-Dichloroethene	440,000
Tetrachloroethene	79,000
trans-1,2-Dichloroethene	4,800
Trichloroethene	24,000
Vinyl Chloride	330,000

Ambient Air	AA-1	AA-2
Date	3/22/2011	8/10/2011
Units	ug/m³	ug/m³
Carbon Tetrachloride	0.39 J	0.41
Tetrachloroethene	0.53 J	1

SV-1	
Date	3/22/2011
Units	ug/m³
Tetrachloroethene	1,600
Trichloroethene	2.9

SV-9	
Date	3/22/2011
Units	ug/m³
1,1-Dichloroethene	110
cis-1,2-Dichloroethene	85,000
Tetrachloroethene	640,000
trans-1,2-Dichloroethene	1,600
Trichloroethene	25,000
Vinyl Chloride	810

SV-13	
Date	8/10/2011
Units	ug/m³
Tetrachloroethene	50

SV-15	
Date	8/10/2011
Units	ug/m³
cis-1,2-Dichloroethene	1,300
Tetrachloroethene	310,000
trans-1,2-Dichloroethene	34
Trichloroethene	7,000

SV-2	
Date	3/22/2011
Units	ug/m³
Tetrachloroethene	8.5 J

SV-3	
Date	3/22/2011
Units	ug/m³
Tetrachloroethene	15

SV-12	
Date	8/10/2011
Units	ug/m³
Tetrachloroethene	400

SV-8	
Date	3/22/2011
Units	ug/m³
1,1-Dichloroethene	8.2
cis-1,2-Dichloroethene	5,900
Tetrachloroethene	180,000
trans-1,2-Dichloroethene	470
Trichloroethene	4,100

SV-20	
Date	8/10/2011
Units	ug/m³
1,1,1-Trichloroethane	290
Tetrachloroethene	85

NOTE: Soil vapor VOC concentrations for detected compounds given in µg/m³.

LEGEND

- AS/SVE PILOT TEST POINTS
- DEEP PIEZOMETER WELL
- PIEZOMETER WELL
- SOIL BORING
- SOIL VAPOR POINT
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- METAL FENCE
- UTILITY POLE
- OVERHEAD WIRE
- DRAINAGE MANHOLE
- CON ED MANHOLE
- CATCH BASIN
- LIGHT POLE
- HYDRANT
- SEWER MANHOLE
- PROPOSED REMEDIATION AREA

NOTE

HALF-TONED ITEMS HAVE BEEN REMOVED OR DESTROYED.

25 0 25 50

SCALE: 1" = 50'

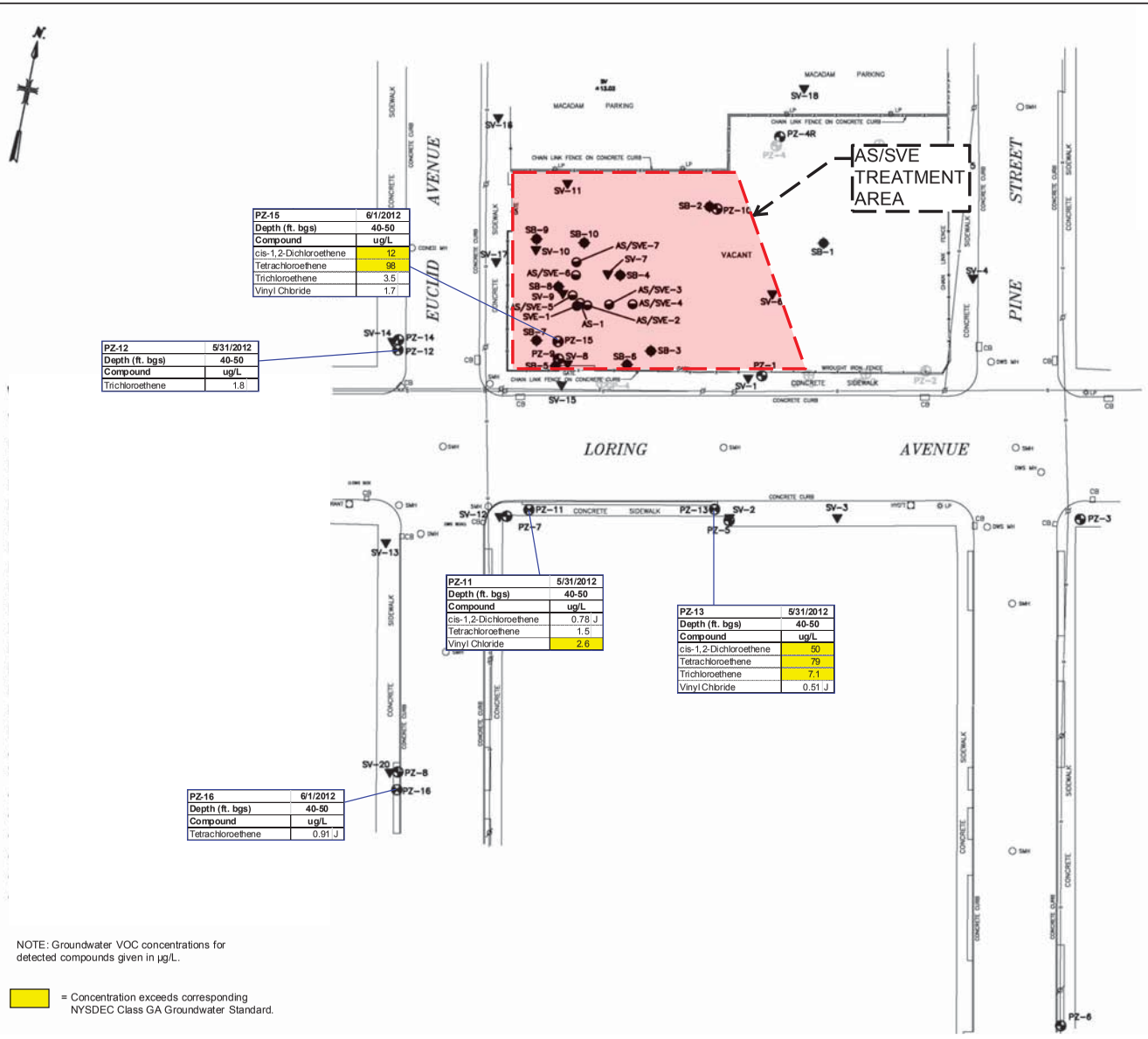
SOURCE: 2001/2002, APRIL 2011, AUGUST 2011, JUNE 2012 SURVEY PERFORMED BY YEC, INC., VALLEY COTTAGE, NY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER MAJESTIC GARMENT CLEANERS SITE (# 2-24-035)
BOUROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
REMEDIAL INVESTIGATION / FEASIBILITY STUDY

SUMMARY OF SOIL VAPOR SAMPLING RESULTS

ARCADIS MALCOLM PIRNIE
Infrastructure · Water · Environment · Buildings

Figure 4



NOTE: Groundwater VOC concentrations for detected compounds given in µg/L.

= Concentration exceeds corresponding NYSDEC Class GA Groundwater Standard.

SOURCE: 2001/2002, APRIL 2011, AUGUST 2011, JUNE 2012 SURVEY PERFORMED BY YEC, INC., VALLEY COTTAGE, NY

LEGEND

- AS/SVE PILOT TEST POINTS
- DEEP PIEZOMETER WELL
- PIEZOMETER WELL
- SOIL BORING
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NOTE

HALF-TONED ITEMS HAVE BEEN REMOVED OR DESTROYED.

25 0 25 50

SCALE: 1" = 50'

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER MAJESTIC GARMENT CLEANERS SITE (# 2-24-035)
BOUROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
REMEDIAL INVESTIGATION / FEASIBILITY STUDY

SUMMARY OF "DEEP" GROUNDWATER SAMPLING RESULTS

ARCADIS MALCOLM PIRNIE
Infrastructure · Water · Environment · Buildings

Figure
5

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Majestic Garment Cleaners
State Superfund Project
City of New York, Kings County, New York
Site No. 224035

The Proposed Remedial Action Plan (PRAP) for the Former Majestic Garment Cleaners site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repository on January 24, 2014. The PRAP outlined the remedial measure proposed for the contaminated soil, groundwater and soil vapor at the Former Majestic Garment Cleaners site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on February 11, 2014, which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Former Majestic Garment Cleaners site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on February 28, 2014.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

The following comments were received during the public meeting on February 11, 2014:

COMMENT 1: Are dry cleaners currently using tetrachloroethylene? Is it dangerous?

RESPONSE 1: Tetrachloroethylene is a manufactured solvent that continues to be used today for a number of purposes, including the dry-cleaning of fabrics. Other names for tetrachloroethylene include PERC, tetrachloroethene, perchloroethylene, and PCE. PCE is suspected to cause cancer in people; however, if handled properly by the dry cleaner it is not a danger to the public or the environment. Since petroleum-based solvents are generally considered less toxic than PCE, some dry cleaners are switching to petroleum-based dry cleaning as an alternative to dry cleaning with PCE. In addition, modern (4^{th} generation) dry cleaning machines recirculate used solvent so that it can be reclaimed and recycled back into the dry cleaning process, thereby eliminating the need for disposal and reducing potential exposures to PCE.

COMMENT 2: What is a part per billion (ppb)?

RESPONSE 2: This is a way of measuring concentration of contaminants in an environmental media, typically groundwater, but it may also be used for soil. It is the equivalent of one unit of

material mixed in with one billion units of another material. For example, one drop of ink dropped into a large pool containing of a billion drops of water. One ppb is one-thousandth ($^{1}/_{1000}$) of one part per million (ppm).

COMMENT 3: How is information on this site disseminated to the public? I live near the site, and until my Agency was contacted about providing a venue for this public meeting I never knew that a hazardous waste site existed at that location.

RESPONSE 3: Paper copies of the initial site Fact Sheet were sent to the site contact list (this Fact Sheet includes instructions on how to sign up for email updates on the site). After the first Fact Sheet, information about the investigation and cleanup of contaminated sites are distributed electronically by email. To receive site information, interested individuals need to sign up for the Division of Environmental Remediation's (DER's) email listserv at: www.dec.ny.gov/chemical/61092.html. If "paperless" notification is not an option, the individual should call or write to the Department's project manager and indicate their need to receive paper copies of fact sheets about the site through the Postal Service. The option to receive paper is available to households only, as groups, organizations, businesses, and government entities are assumed to have email access.

COMMENT 4: Are residents near the site drinking contaminated water?

RESPONSE 4: No, groundwater in the area of the site is not used for drinking water. The area is served by a public water supply that is not contaminated by the site and which is routinely tested to ensure that it is acceptable for drinking.

COMMENT 5: Are residents living near the site being exposed to contaminated soil vapors migrating from the site?

RESPONSE 5: The closest residences to the site are located to the south and east; soil vapor samples collected to the south and east of the site do not indicate elevated contaminant concentrations migrating in that direction. Elevated soil vapor concentrations have been found moving to the west of the site, in the area of commercial properties. The proposed groundwater air sparging and soil vapor extraction system will control potential soil vapor migration from the site. Off-site soil vapor monitoring will help us evaluate the effectiveness of the remedy for controlling soil vapor migration off-site and verify that off-site soil vapor levels are decreasing. If necessary, the on-site soil vapor extraction system will be expanded. Also, if monitoring indicates that we need to further assess the potential for soil vapor intrusion in nearby homes, we will contact owners of those homes and offer to sample their homes.

APPENDIX B

Administrative Record

ADMINISTRATIVE RECORD

Former Majestic Garment Cleaners
State Superfund Project
City of New York, Kings County, New York
Site No. 224035

1. Proposed Remedial Action Plan for the Former Majestic Garment Cleaners site, dated January 2014, prepared by the Department.
2. "NYSDEC Standby Immediate Investigation Work Assignment #D003825-35, Summary of Field Investigation Letter Report", dated February 19, 2002, prepared by URS Corporation.
3. "Executive Summary, Work Assignment #D004439-22, Former Majestic Garment Cleaners, 740 Pine Street, Brooklyn, New York, Site #2-24-035", dated October 2010, prepared by Malcolm Pirnie, Inc.
4. "Remedial Investigation/Feasibility Study, Former Majestic Garment Cleaners, 740 Pine Street, Brooklyn, New York, Site #2-24-035, Work Assignment #D004439-22", Revised October 29, 2013, prepared by Malcolm-Pirnie, Inc.