## DECISION DOCUMENT

The Wills Building Brownfield Cleanup Program Long Island City, Queens County<br>Site No. C241143<br>July 2015



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

# DECLARATION STATEMENT - DECISION DOCUMENT 

The Wills Building Brownfield Cleanup Program<br>Long Island City, Queens County<br>Site No. C241143<br>July 2015

## Statement of Purpose and Basis

This document presents the remedy for the The Wills Building site, a brownfield cleanup 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.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the The Wills Building site and the public's input to the proposed remedy presented by the Department.

## 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. Cover System

A site cover currently exists and will be maintained to allow for restricted residential use of the
site. Any site redevelopment will maintain the existing site cover, which consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).
3. Air Sparge with Soil Vapor Extraction (SVE)

Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (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 soil zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system will be used to remove the injected air and contaminated vapors. The SVE system applies a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated as needed to be discharged to the atmosphere.

At this site, air injection wells will be installed in the western and southwestern portion of the building, in an area known to contain high levels of VOCs in groundwater. These injection wells will be installed to a depth of approximately 20 feet, which is approximately 8 feet below the water table. To capture the volatilized contaminants, six SVE wells will be installed in the vadose zone at a depth of approximately 11 feet below ground surface. The air containing VOCs extracted from the SVE wells will be treated by passing the air stream through activated carbon, which removes the VOCs from the air prior to it being discharged to the atmosphere.

An initial goal of this aspect of the remedy is to achieve a bulk reduction in on-site groundwater contamination. Should this goal not be attained within a 5 -year time frame, this component of the remedy will be reassessed, and options will be evaluated/implemented to achieve the goal.

## 4. In-Situ Groundwater Treatment

In-situ treatment will be implemented to treat site-related contamination in groundwater on the southern/downgradient edge of the site. A treatment agent will be applied via a minimum of five injection points installed below the water table. The precise number of injection points and the type and volume of treatment agent will be determined based upon information gathered during the first year of operation of the AS/SVE system. Periodic groundwater monitoring will be performed to determine the effectiveness of the treatment and the number of additional injections to be performed.

The operation of the components of the remedy shall continue until the Department determines that the goals have been met or continued operation is technically impracticable or not feasible.

## 5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to prevent the migration of vapors into the building from soil and groundwater.

## 6. Institutional Control

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 restricted residential, commercial and industrial uses as defined by Part $375-1.8(\mathrm{~g})$, 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 New York City DOH; and - requires compliance with the Department approved Site Management Plan.

7. Site Management Plan

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 6 above.
Engineering Controls: The site cover discussed in Paragraph 2, the Air Sparge with SVE system discussed in Paragraph 3, the in-situ groundwater treatment discussed in Paragraph 4, and the sub-slab depressurization system discussed in Paragraph 5 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;
- provision for removal or further treatment of the source area located under the on-site building if and when the building is demolished;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- 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 groundwater and indoor air to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
c. 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:
- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O\&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O\&M records.


## Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.


July 30, 2015

## Date

Robert Cozzy, Director
Remedial Bureau B

# DECISION DOCUMENT 

The Wills Building<br>Long Island City, Queens County<br>Site No. C241143<br>July 2015

## 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 contaminants 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 contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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:

Queens Public Library - Long Island City Branch<br>Attn: Tienya Smith<br>37-44 21st Street<br>Long Island City, NY 11101<br>Phone: 718-752-3700

## 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 site is located in an urban area in the Long Island City neighborhood of Queens County at the corner of 43rd Avenue and 21st Street.

Site Features: The site is a 1.11-acre parcel and is currently developed with a brick and steelreinforced concrete 3-story building with a partial basement.

Current Zoning and Land Use: The site is zoned M1-4, allowing for manufacturing. The building is currently fully occupied by numerous small businesses with activities ranging from warehousing to light manufacturing work. The surrounding area consists mostly of commercial and industrial buildings, and the nearest residential buildings appear to be over 500 feet from the site.

Past Use(s) of the Site: Past land uses include x-ray equipment manufacturing, cosmetic manufacturing, clothing manufacturing and uniform service companies.

Site Geology and Hydrogeology: The property is relatively flat, with an approximate ground elevation of 19 feet above mean sea level. General topography in the area of the site slopes slightly to the west. The East River is located approximately $1 / 2$ mile west of the site.

Overburden materials are comprised of brown sands, silty sands, and trace amounts of fine gravel. Bedrock beneath the site has been encountered at approximately 20 feet below ground surface (bgs). Groundwater has been encountered in the overburden at approximately 12 feet bgs, and its flow is to the south. Bedrock groundwater appears to flow towards the west.

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 restricted-residential use (which allows for 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 Remedial Investigation (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 available in the RI Report.

## SECTION 5: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Volunteer(s) does/do not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

## SECTION 6: SITE CONTAMINATION

## 6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- indoor air
- sub-slab 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. 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 contaminant 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 below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

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tetrachloroethene (PCE) benzo(a)pyrene
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trichloroethene (TCE)
The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion
- indoor air


## 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 Decision Document.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

## Sub-Slab Depressurization with Activated Carbon Treatment

The Interim Remedial Measure (IRM) at this site consisted of the installation of a sub-slab depressurization system (SSDS) in January of 2015. An SSDS operates in a manner similar to a radon mitigation system by creating a negative pressure beneath the building, thereby precluding contaminated soil vapors from entering the building. In this case, the vapors extracted beneath the building are then routed to an activated carbon treatment system in order to treat the
contamination in the airstream prior to discharge. Post-installation testing indicates that the SSDS is operating as designed.

## 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. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

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Nature and Extent of Contamination:
Previous investigations had identified the Wills Building site to be a likely source of groundwater contamination observed in the vicinity of the site. The investigation performed under the Brownfield Cleanup Program (BCP) built upon these earlier studies. Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. The following is a summary of data from all studies:

Groundwater: During the BCP investigation, groundwater wells were placed within, adjacent to, and upgradient of the Wills Building. These wells supplemented an already existing downgradient monitoring well network. Data from upgradient wells was assessed and results confirmed a significant chlorinated solvent contamination source is present beneath the building, with tetrachloroethene (PCE) contaminant levels as high as 90,000 parts per billion (ppb) and trichloroethene (TCE) present at 290 ppb in one on-site overburden well. A downgradient overburden well showed significant contamination as well, with recent PCE and TCE values as high as $7,300 \mathrm{ppb}$ and 75 ppb , respectively. Upgradient wells showed significantly less contamination, with a PCE high of 840 ppb and a TCE high of 32 ppb , confirming the site is a principal source for the observed downgradient contamination. Similar trends were noted for bedrock wells sampled. Overburden groundwater containing high concentrations of chlorinated solvents is migrating off-site to the south and potential off-site impacts will be addressed by other parties as a separate off-site investigation.

Sub-slab Vapor and Indoor Air: Data from the Wills Building site exhibited sub-slab PCE levels exceeding four million micrograms per cubic meter (ug/m3), and PCE indoor air values as high as $1,800 \mathrm{ug} / \mathrm{m} 3$. TCE was found in the sub-slab as high as $3,400 \mathrm{ug} / \mathrm{m} 3$, and as high as $31 \mathrm{ug} / \mathrm{m} 3$ in one indoor air sample. Based on this information, actions were implemented to address exposures resulting from soil vapor intrusion (SVI). Following the installation and operation of the SSDS, the indoor air concentrations have dropped significantly, with PCE ranging from less than 0.68 to $37 \mathrm{ug} / \mathrm{m} 3$, and TCE ranging from 0.39 to $0.96 \mathrm{ug} / \mathrm{m} 3$. Data indicate that this site has
the potential to be contributing to off-site SVI impacts at downgradient locations. As noted above, potential off-site impacts will be addressed by separate studies.

Soil: Soil samples collected from beneath the building did not precisely locate the source of PCE or TCE contamination, although other data (i.e., groundwater and sub-slab soil vapor) indicates the general location to be beneath the central/western portion of the building. Samples from beneath the alley just beyond the building footprint similarly found no VOC source material, but did reveal SVOCs at levels exceeding the restricted residential soil cleanup objectives (RRSCO) including benzo(a)pyrene at 9.5 parts per million (ppm) vs. an RRSCO of 1 ppm . Data do not indicate any off-site impacts in soil related to this site.

## 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.

Direct contact with contaminants in the soil is unlikely because the site is covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater 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. A sub-slab depressurization system (systems that remove the air beneath the building) has been installed in the on-site building to prevent the indoor air quality from being affected by the contamination in soil vapor beneath the buildings. However, an evaluation is needed to determine whether additional actions are needed to address soil vapor intrusion offsite.

## 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: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Air Sparge/Soil Vapor Extraction with Downgradient In-Situ Treatment remedy.

The elements of the selected remedy, as shown in Figure 2, 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. Cover System

A site cover currently exists and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover, which consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

## 3. Air Sparge with Soil Vapor Extraction (SVE)

Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (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 soil zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system will be used to remove the injected air and contaminated vapors. The SVE system applies a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then treated as needed to be discharged to the atmosphere.

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An initial goal of this aspect of the remedy is to achieve a bulk reduction in on-site groundwater contamination. Should this goal not be attained within a 5 -year time frame, this component of the remedy will be reassessed, and options will be evaluated/implemented to achieve the goal.

## 4. In-Situ Groundwater Treatment

In-situ treatment will be implemented to treat site-related contamination in groundwater on the southern/downgradient edge of the site. A treatment agent will be applied via a minimum of five injection points installed below the water table. The precise number of injection points and the type and volume of treatment agent will be determined based upon information gathered during the first year of operation of the AS/SVE system. Periodic groundwater monitoring will be performed to determine the effectiveness of the treatment and the number of additional injections to be performed.

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- requires compliance with the Department approved Site Management Plan.

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