DECISION DOCUMENT

Borinquen Court
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203056
April 2012



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

DECLARATION STATEMENT - DECISION DOCUMENT

Borinquen Court
Brownfield Cleanup Program
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Site No. C203056
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Statement of Purpose and Basis

This document presents the remedy for the Borinquen Court 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 Borinquen Court 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, 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 gas 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. Restricted residential use soil cleanup objectives (RRUSCOs) relevant to the planned use of the site will be used to guide excavation of contaminated soils. On-site soils which exceed RRUSCOs will be excavated and transported off-site for disposal. The site-

specific SCOs are restricted residential use SCOs (as defined by 6 NYCRR Part 375-6.8) for all contaminants with exception of the protection of groundwater SCOs for VOCs which exceed groundwater standards.

Approximately 4,000 tons of soil will be removed. A minimum of 2 feet of clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) over a demarcation layer will be brought in to replace the excavated soil and establish the designed grades at the site.

- 3. In-Situ Chemical Oxidation. In-situ chemical oxidation will be used to treat chlorinated ethene compounds (a type of volatile organic compound) in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. Several chemical oxidants are commercially available. For the purpose of this discussion Permanganate (as either potassium or sodium permanganate) will be the chemical oxidant evaluated. At this site, the chemical oxidant will be applied through injection wells screened from 25 to 15 feet to target chlorinated hydrocarbons.
- 4. 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 a site cover, which may consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. 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).
- 5. Vapor Mitigation. Soil vapor will continue to be monitored during the in-situ chemical oxidation injection activities to further evaluate the potential for soil vapor intrusion.
- 6. Institutional Control. Imposition of an institutional control in the form of an environmental easement for the controlled property that:
- a. 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);
- b. allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- c. 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 Department of Environmental Protection;
 - d. prohibits agriculture or vegetable gardens on the controlled property; and
 - e. 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 soil cover discussed 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. Monitoring Plan. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
 - monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - a schedule of monitoring and frequency of submittals to the Department;
 - monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required by the Institutional and Engineering Control Plan discussed in Paragraph 6 above.
- c. O&M Plan. An O&M Plan to operate the injections:
 - the operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

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.

April 6, 2012	AK J Sy	
Date	Robert Cozzy, Director	
	Remedial Bureau B	

DECISION DOCUMENT

Borinquen Court Bronx, Bronx County Site No. C203056 April 2012

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:

Mott Haven Library 321 East 140th Street Bronx, NY 10454 Phone: (718) 665-4878

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 +/- 1.8 acres, located at 285 East 138th St. in the Bronx. The Site is bordered on the west by the intersection of Morris and 3rd Avenues, to the north by East 139th St., to the east by residential buildings and the NYC Police Department 40th Precinct, and to the south by East 138th St. Properties surrounding the site are primarily residential, with some commercial and industrial uses.

Site Features:

The Site is currently occupied by a 7-story residential building which houses low-income senior citizens.

Historic Uses:

Former uses on the Site include a gasoline filling station with five 550-gallon underground storage tanks (USTs), which occupied the southwest corner of the property for at least 40 years prior to 1968. A parking garage and auto repair facility with 2 USTs occupied the north-central part of the site from at least 1935 through 1978. A metal works was located on the southeast portion of the site from 1951 through 1978, and a mattress manufacturing factory was located on the northwest part of the site from 1944 through 1978.

Geology and Hydrogeology:

During the 2011 remedial investigation (RI), soils encountered consisted mainly of clayey sand to silt mixtures. Refusal was encountered in one of the soil borings (SB-01) at 20 feet below ground surface (bgs). All other borings were completed to 25 feet bgs without encountering bedrock.

There are no significant surface water bodies in the vicinity of the Site. Stormwater runoff drains entirely via sheet flow and is managed via drywells and New York City sewers.

During MACTEC's Limited Phase II Environmental Site Assessment, two borings were converted into temporary wells. One well was screened between 14 and 19 feet bgs and was a good groundwater producer. The other well was screened between 24 and 28 feet bgs and was a poor groundwater producer. On-Site groundwater levels measured over the course of the RI project confirm the depth to groundwater to be in the range of approximately 13 to 17 feet bgs with flow toward the southwest.

A Brownfield Cleanup Agreement for this site was executed on June 28, 2011.

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 Applicant(s) does/do not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

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:

- air
- groundwater
- soil

- soil vapor
- indoor air

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:

BENZO(A)PYRENE TETRACHLOROETHYLENE (PCE)
BENZO(B)FLUORANTHENE TRICHLOROETHENE (TCE)
indeno(1,2,3-cd)pyrene LEAD
ETHYLBENZENE MERCURY
P-XYLENE DDE
M-XYLENE DDT

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 Decision Document.

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

Nature and Extent of Contamination:

Based on the investigations conducted to date, known contaminants including chlorinated solvents, semi-volatile organic compounds (SVOCs), metals, pesticides and other volatile organic compounds (VOCs) are present in the subsurface. These contaminants are impacting soil, groundwater, and soil vapor. Previous investigations included a Phase I Environmental Site Assessment and a Remedial Investigation.

Soil:

The concentrations of metals (barium, copper, mercury, lead and zinc), 4,4'-DDT, toluene, ethylbenzene and PAHs exceeded the UUSCOs in the samples collected from 0 to 10 feet in four borings installed across the Site (SB-04, SB-08 and SB-09). The concentrations of 4,4'-DDE, 4,4'-DDT, lead and PAHs exceeded UUSCOs in the 10-20 foot interval in only three borings (SB-04, SB-06 and SB-10). Ethylbenzene ranged from 0 to 1.4 ppm (restricted residential SCO of 41 ppm, Groundwater Protection SCO of 1 ppm) and toluene ranged from 0 to 1.1 ppm (restricted residential SCO of 100 ppm).

Groundwater:

VOCs detected in groundwater samples collected were tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cisi-DCE), ethylbenzene, meta- (m)/para- (p) xylene and isopropylbenzene. PCE ranged from 0 to 19 ppb, TCE ranged from 0 to 25 ppb, cis-1,2-DCE ranged from 22 to 43 ppb, m/p-xylenes ranged from 0 to 19 ppb, and propylbenzene ranged from 0 to 11 ppb.

Soil Vapor:

PCE was detected in three out of the four soil vapor samples and TCE was detected in only one sample at 2 ug/ m3. PCE ranged from 0 to 75 ug/ m3. Based on this data, soil vapor intrusion into on-site buildings is not occurring and no mitigation is necessary.

NYSDEC and NYSDOH have determined that this site does not pose a significant threat to the environment or public health.

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 who dig in landscaped areas may come into contact with contaminants in soil. Contact with contaminants located at depth is unlikely since a majority of the site is paved or covered

with building foundations. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination.

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.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

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 soil excavation, cover system, and groundwater 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, 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:
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 - e. requires compliance with the Department approved Site Management Plan.
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Institutional Controls: The Environmental Easement discussed in Paragraph 6 above. Engineering Controls: The soil cover discussed in Paragraph 4 above.

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- 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. Monitoring Plan. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
 - monitoring of groundwater to assess the performance and effectiveness of the remedy;
 - a schedule of monitoring and frequency of submittals to the Department;
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- c. O&M Plan. An O&M Plan to operate the injections:
 - the operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.





