DECISION DOCUMENT

Brooklyn Navy Yard Industrial Park
Operable Unit Number: 01
Voluntary Cleanup Program
Brooklyn, Kings County
Site No. V00120
February 2011

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

DECLARATION STATEMENT - DECISION DOCUMENT

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Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 01 of the Brooklyn Navy Yard Industrial Park site, a voluntary cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law, and applicable guidance.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Number: 01 of the Brooklyn Navy Yard Industrial Park site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Construction and/or maintenance of a site-wide protective cover. Existing buildings, roads and parking lots (either paved, or of compacted gravel) currently cover the majority of the site and are considered an acceptable cover in their present state. When these areas are penetrated, repaired, or built upon in the future, reconstruction will include a concrete or paving system at a minimum of six inches in thickness. Any vegetated areas not covered by buildings, roads or parking lots (i.e. landscaped areas) will be covered by a one-foot thick soil cover consisting of clean soil underlain by a demarcation layer to delineate the cover soil from the subsurface soil. The top six inches of soil must be of sufficient quality to support vegetation. Clean soil is soil that is tested and meets the Division of Environmental Remediation’s criteria for backfill.

3. Imposition of an institutional control in the form of a deed restriction 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) Limits the use and development of the property to commercial use, which also permits industrial uses;

c) Restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;

d) Prohibits agriculture or vegetable gardens on the controlled property; and

e) Requires compliance with the Department approved Site Management Plan.

4. Since the remedy results in contamination remaining at the site that does not allow for unrestricted use, a Site Management Plan is required, which includes the following:

(a) 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 assure the following institutional and/or engineering controls remain in place and effective:

Engineering Controls: The protective cover discussed in Paragraph 2, above
Institutional Controls: The deed restrictions discussed in Paragraph 3, above.

This plan includes, but may not be limited to:

(i) A Soil Management Plan which details the provisions for management of future excavations in areas of remaining contamination;

(ii) Descriptions of the provisions of the deed restrictions including any land use and groundwater use restrictions;

(iii) Provisions for the management and inspection of the identified engineering controls;

(iv) Maintaining site access controls and Department notification;

(v) The steps necessary for the periodic reviews and certification of the institutional and/or engineering controls; and

(vi) The future decommissioning of twenty-three (23) transformer substations, including Substation H which was previously slated for cleanup under the OU 3 (Building 294) Remedial Action Work Plan, where PCB impacts have been identified and delineated. The substations will be cleaned to a goal of 1 ppm in the upper 1 foot of soils and 10 ppm in subsurface soils as these facilities are upgraded or decommissioned. Concrete surfaces will be cleaned to 10 ug/100 sq cm, or 100 ug/100 sq cm if encapsulated in accordance with PCB Spill Decontamination standards and procedures (40 CFR Part 761.79).

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.

2/15/2011
Date

Robert Cozzy, Director
Remedial Bureau B

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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 will 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 substances and petroleum.

The Voluntary Cleanup Program (VCP) is a voluntary program. The goal of the Voluntary Cleanup Program (VCP) is to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfields." This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: SITE DESCRIPTION AND HISTORY

The Brooklyn Navy Yard Voluntary Cleanup Program site consists of 213 acres of the 353 acre Brooklyn Navy Yard Industrial Park. The site is generally bounded by the East River on the north, Flushing Avenue to the south, Kent Avenue to the east and Navy Street to the west. The Navy Yard itself is an industrial/commercial area, while the property surrounding the Navy yard is mixed commercial and residential use.

The main site features include large dry docks used for ship repair, several older buildings, roadways and a newly-constructed movie studio.

The site is currently used as an industrial park, including manufacturing, warehousing and the making of films.

The site was used as a ship building and repair facility from the 1800's to the mid-1900's. These activities included metal fabrication, painting and sand blasting, as well as various support activities including the maintenance of their electrical system. These functions may have resulted in the release of metals, petroleum products and PCBs.

The site has had two areas completely studied and remedies have been selected. The remaining property has undergone a comprehensive study, and the draft Decision Document and Remedial

Action Work Plan (RAWP) were put out for public review in December of 2010. The public comment period ended on January 14, 2011 with no comments having been received.

Operable Unit (OU) Number 01 is the subject of this document.

A Decision Document was issued previously for OU 02,03.

A site location map is attached as Figure 1.

SECTION 3: 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. For this site, an alternative that restricts the use of the site to commercial use (which allows for industrial use) as described in DER-10, Technical Guidance for Site Investigation and Remediation was evaluated in comparison to the Department's seven criteria for remedy selection.

A comparison of the results of the investigation 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 4: ENFORCEMENT STATUS

The voluntary cleanup agreement is with a Volunteer. If the Volunteer elects not to complete the remedial program under the VCP, the Department will make a determination if the site poses a significant threat to human health and the environment. If the site is determined to pose a significant threat, the Department will approach the potentially responsible parties (PRPs) to implement the remedy. 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.

A Voluntary Cleanup Agreement to address this site was signed in May of 1998.

SECTION 5: SITE CONTAMINATION

5.1: 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 may 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 5.4.

5.1.1: 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

5.1.2: RI Information

The analytical data collected on this site includes data for:

- Groundwater
- Soil
- Sediment

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 for this Operable Unit at this site is/are:

Lead	Naphthalene
Arsenic	Benzo(a)pyrene
Polychlorinated Biphenyls (PCBs)	Xylene

The contaminant(s) of concern exceed the applicable standards, criteria and guidance for:

- Soil
- Groundwater
- Sediments

5.2: 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.

5.3: 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 in the area around Brooklyn Navy Yard are not exposed to site contaminants in their drinking water since the area is served with public water. Any contamination that may remain in soil at the site following excavation and off-site disposal will be inaccessible since it will be under pavement, structures or one foot of clean soil over a demarcation layer. Data collected during investigations indicate that it is unlikely that people in the area of the site would be breathing any site-related contaminants.

5.4: 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 the existing and potential impacts from the site to fish and wildlife receptors.

The majority of the Brooklyn Navy Yard is underlain by historic fill, and soil and groundwater quality at the site is reflective of this. Much of the low to moderate-level metal and Semi-Volatile Organic Compound (SVOC) contamination identified during the study is attributable to coal ash, cinders, asphalt and other fill materials in the upper soil layer (0 ft-20ft below ground surface), with concentrations of contaminants typically elevated above state Unrestricted, Residential, and Restricted Residential Use Cleanup Objectives, but generally near the state's Restricted Commercial Use Cleanup Objectives (see 6 NYCRR Part 375-6).

The metals and SVOC compounds detected in site soil/fill appear to be bound through physical and chemical processes, limiting the potential for ground water impacts, as well as curtailing pathways to environmental receptors (i.e., groundwater and down gradient surface waters).

Groundwater contamination with metals and SVOCs is present at levels that are generally reflective of the historic fill present at the facility, with only one well showing SVOC levels appreciably above standards, and that well (MW-04) is thought to be impacted by contamination emanating from the nearby former manufactured gas plant at the adjacent "13-Acre Parcel" site (Site ID No. 224019B). That site is being addressed under a separate investigation, and the impacts to groundwater will be assessed under the remedy for that site. Metals in excess of

groundwater standards appears to be largely an artifact of the sampling technique (i.e., soil particles became entrained in the water sample), as opposed to a wide-spread plume of dissolved contamination.

Soil vapors were assessed at the facility and while certain contaminants were detected, the levels were not considered to be indicative of a potential threat to indoor air.

Twenty-seven electrical sub-stations are located within the Navy Yard, and twenty-four (24) of those were found to be contaminated with polychlorinated biphenyls (PCBs). The levels of contamination vary, but in no case were PCBs found at a level which the NYSDEC considers a "source area of contamination," and the contamination was often limited to the concrete foundation the transformers rest upon.

Sediments contained several metals and SVOCs above screening criteria, however, the aquatic ecological evaluation shows the benthic and finfish communities to be of moderate diversity and population size, consistent with other similar settings in the New York City area. The investigation concluded that the ecological resources at the Brooklyn Navy Yard (Wallabout Basin) have not been significantly impacted by site contamination.

SECTION 6: ELEMENTS OF THE SELECTED REMEDY

The alternative developed for the site and the evaluation of the remedial criteria are presented in the Remedial Action Selection Report, which is part of the Remedial Action Work Plan. The remedy was selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Construction and/or maintenance of a site-wide protective cover. Existing buildings, roads and parking lots (either paved, or of compacted gravel) currently cover the majority of the site and are considered an acceptable cover in their present state. When these areas are penetrated, repaired, or built upon in the future, reconstruction will include a concrete or paving system at a minimum of six inches in thickness. Any vegetated areas not covered by buildings, roads or parking lots (i.e. landscaped areas) will be covered by a one-foot thick soil cover consisting of clean soil underlain by a demarcation layer to delineate the cover soil from the subsurface soil. The top six inches of soil must be of sufficient quality to support vegetation. Clean soil is soil that is tested and meets the Division of Environmental Remediation's criteria for backfill.

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d) Prohibits agriculture or vegetable gardens on the controlled property; and

e) Requires compliance with the Department approved Site Management Plan.

4. Since the remedy results in contamination remaining at the site that does not allow for unrestricted use, a Site Management Plan is required, which includes the following:

(a) 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 assure the following institutional and/or engineering controls remain in place and effective:

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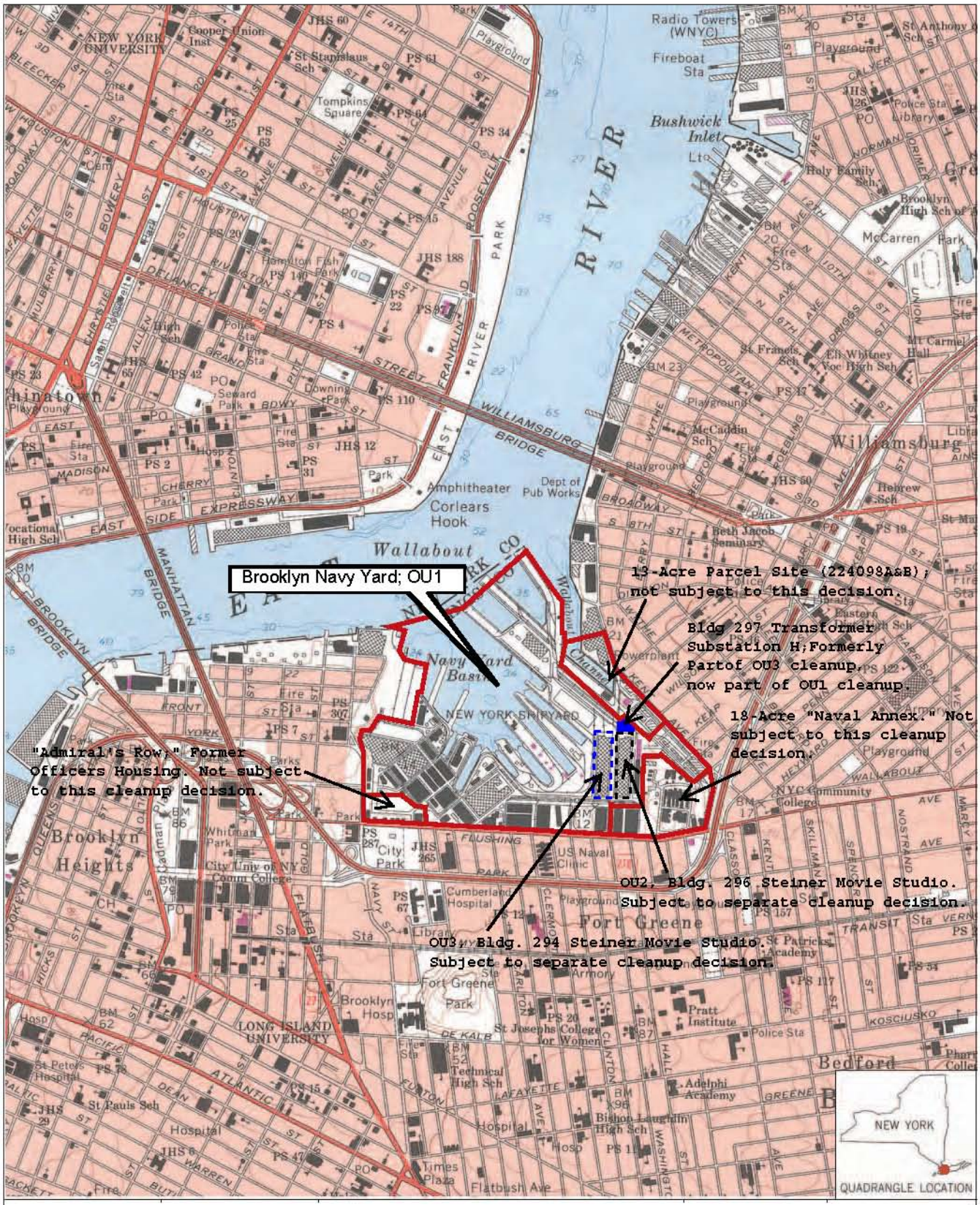

Figure 1: Site Location and Features