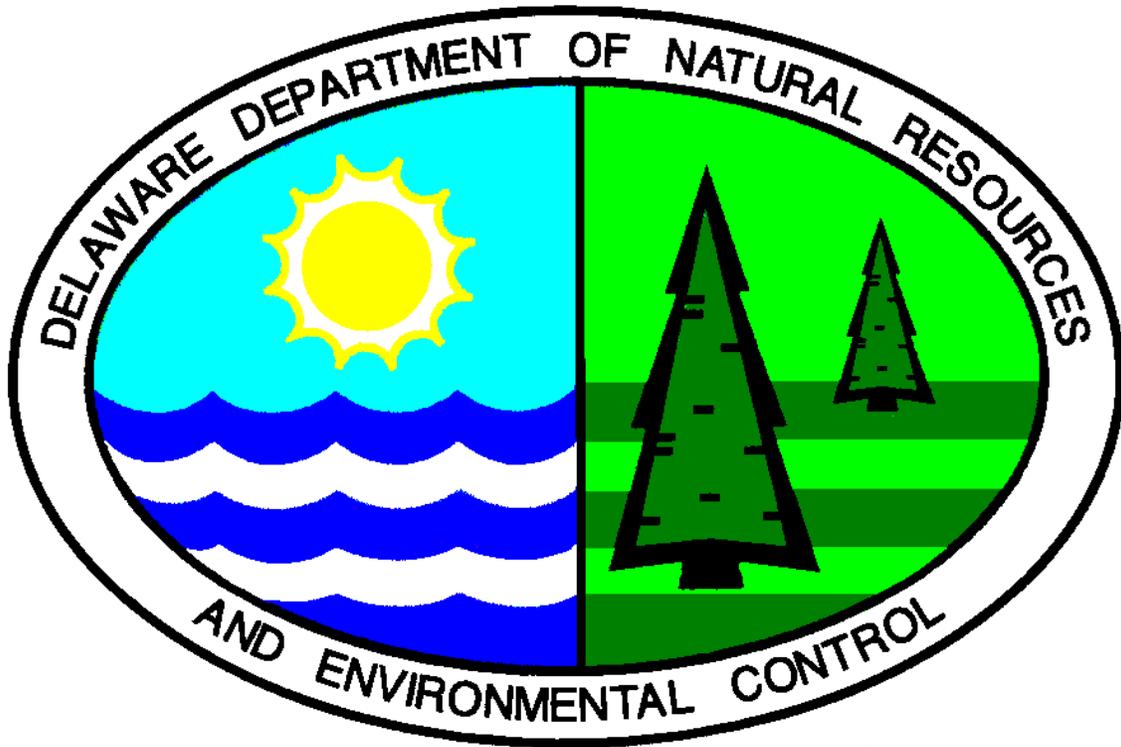


# FINAL PLAN OF REMEDIAL ACTION



KENT BUILDING  
Wilmington, Delaware

DNREC Project No. DE-1197

November 2000

Department of Natural Resources and Environmental Control  
Division of Air and Waste Management  
Site Investigation and Restoration Branch

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## I INTRODUCTION

In August 2000, the Department of Natural Resources and Environmental Control (“DNREC or “Department”) under the authority granted by the Hazardous Substance Cleanup Act (“HSCA”) (7 Del. C., Ch 91) entered into a Voluntary Cleanup Letter Agreement with the Riverfront Development Corporation (“RDC”) to provide technical review of a completed remedial investigation (“RI”) at the Kent Building site, located at 1 South Orange Street in Wilmington, Delaware. The RI included sampling of the surface and subsurface soils and groundwater at various locations at the site.

Because of past industrial uses in the Wilmington area, the subsurface soils have been impacted by a variety of industrial residues including petroleum hydrocarbons and other organic compounds and metals. The purposes of the RI were to:

1. Identify potential sources of contamination within the improvement area, and
2. Develop remedial alternatives for the detected contamination that would protect human health and the environment during and after construction.

To accomplish these purposes EA Engineering, Science, and Technology, Inc. was contracted by the Riverfront Development Corporation (RDC) to perform a remedial investigation that included soil drilling, sampling and analysis in and along the planned improvements to characterize the existing levels of contaminants from past industrial practices. The collection and analysis of these soil samples was performed in accordance with HSCA, the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), Delaware Standard Operating Procedures for Chemical Analytical Programs (SOPCAP), guidance documents, and other Department policies and procedures.

## II PURPOSE

This document is the Department’s Final Plan of Remedial Action for the site. It is based on the technical reports of sampling, the remedial action objectives, and the Regulations. The Final Plan presents the Department's assessment of human health and environmental risks associated with the site.

The Department provided public notice and the opportunity to comment on the Proposed Plan of Remedial Action in accordance with Section 12 of the Regulations. At the conclusion of the comment period, the Department received no comments and issues this Final Plan of Remedial Action which designates the remedial action and the selected procedures and stipulations concerning future activities within the site. The Final Plan of Remedial Action, which considers any comments received from the public, the Department's response to the comments, the Proposed Plan of Remedial Action, and all of the documents which formed the basis for the Proposed and Final Plans of Remedial Action will constitute the “Remedial Decision Record.”

### III SITE DESCRIPTION AND HISTORY

#### *Site Location*

The project area is located in the South Wilmington area of New Castle County, Delaware approximately 0.70 miles south-southwest of downtown Wilmington. The immediate surrounding area is mainly a mixture of commercial and industrial properties.

#### *Site History*

The subject site lies in an area that has historically been used for shipbuilding and a railroad station. The Kent Building, also known as the Berger Brothers Building, was most recently an office furniture warehouse, and the surrounding property was a parking lot and shipment area. The Kent Building is a wood frame and brick/masonry building constructed between 1889 and 1890.

### IV INVESTIGATION RESULTS

The findings of the Remedial Investigation (RI) showed that defined areas of soil were impacted above the DNREC-SIRB Uniform Risk Based Remediation Standards (URS) for unrestricted use surface and subsurface soil. The contaminants included metals (particularly lead and arsenic) and polynuclear aromatic hydrocarbons (PAHs).

A risk assessment, to analyze risk associated with contaminants of concern (“COCs”) in groundwater, surface water, subsurface soil and fugitive dust, was calculated based on the presence of pathways to receptors and other factors. In each case, the analysis led to the results that there were no unacceptable risks for these compounds with the possible exception of construction workers exposed to direct contact with subsurface soils.

The risk to the construction worker were assessed using U.S. EPA general guidance (U.S. EPA 1989, 1997) and U.S. EPA Region III guidance. Noncancer and cancer risks were estimated in accordance with EPA guidance (U.S. EPA 1989) and interpreted in the context of the National Contingency Plan (CFR Part 300).

Based on this assessment, noncancer and cancer risks to construction workers from the incidental ingestion of chemicals in total soil and dermal contact was found to be acceptable.

The information gathered during the RI was used to develop this Final Plan of Remedial Action.

### V REMEDIAL ACTION OBJECTIVES

According to HSCA regulation 8.4(1), remedial action objectives must be established during a remedial investigation. They were designed based on the following factors:

- The Kent Building will be rehabilitated into a commercial office building with a parking lot, and sidewalks.
- The surrounding land use is a mix of commercial and industrial.
- The Christina River is located approximately 20 feet south of the site, with a hydraulic communication to groundwater adjacent to the river.
- Select areas of the subsurface soil at the site is impacted with benzo(a)pyrene, dibenzo(a,h,)anthracene, lead, and arsenic.
- Groundwater at the site is impacted with chloroform, barium, iron and manganese.
- The exposure pathways are limited, however, the primary potential exposure pathways are inhalation and direct contact with soil.
- The human health risk assessment resulted in no unacceptable risk for construction workers from incidental ingestion and dermal contact with the soil.

#### *Qualitative Remedial Objectives*

Based on the above factors, the following qualitative remedial action objectives were developed:

- Control potential human contact (dermal and ingestion) with contaminated soil.

#### *Quantitative Remedial Objectives*

Based on the above qualitative remedial action objective, the following quantitative remedial action objectives were developed:

- Prevent future site users from directly contacting soil having constituents which exceed 10E-05,
- Prevent future construction workers from directly contacting existing soil to an extent that would result in acceptable risk.

## VI FINAL REMEDIAL ACTION PLAN

The final remedial action was based upon the Remedial Action Objectives.

### *Potential Remedial Alternatives*

Three (3) potential remedial alternatives were evaluated to address the remedial action objectives. The alternatives for the site were as follows:

Alternative 1: No further action. Do not redevelop the property.

Alternative 2: Containment of affected materials: Remove exposure routes of residually impacted material (i.e. asphalt and /or concrete cap (parking lot and sidewalks), formulate Operation and Maintenance (O&M) monitoring to ensure compliance and deed restrict the property to prevent future land uses that could cause unacceptable exposure risks to contaminated soils.

Alternative 3: Removal of soil with detected concentrations exceeding DNREC URS criteria: Excavate and dispose off-site material exceeding the unrestricted criteria.

## VII FINAL PLAN OF REMEDIAL ACTION

Based on the information and results of the RI performed at the Kent Building site, the DNREC-SIRB concluded that remedial action is required to prevent continued contact with site soils. The Final Plan of Remedial Action for the Kent Building site requires that Alternative 2 (containment of the affected material with an impermeable cap) be implemented in order to provide adequate protection to public health and the environment. The selected remedial alternative will be implemented during the redevelopment of the property. The selected remedy will require operation and maintenance (O&M) monitoring to ensure future compliance. DNREC-SIRB will require an O&M plan be developed and implemented for the containment remedy. The O&M plan will describe provisions for contacting DNREC-SIRB if future intrusive activities were required following completion of the final remedial action. The placement of a deed restriction will be required, subject to DNREC approval, which will prevent future land uses that could cause unacceptable exposure risks to contaminated soils under the containment system. Additionally, the implementation of a Groundwater Management Zone (“GMZ”) will restrict groundwater withdrawals.

## VIII PUBLIC PARTICIPATION

The Department actively solicited public comments or suggestions on the Proposed Plan of Remedial Action and welcomed opportunities to answer questions. No comments were received.

## IX DECLARATION

This Final Plan of Remedial Action for the Kent Building site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

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Denise Ferguson-Southard  
Director, Division of Air and Waste Management

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Date

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