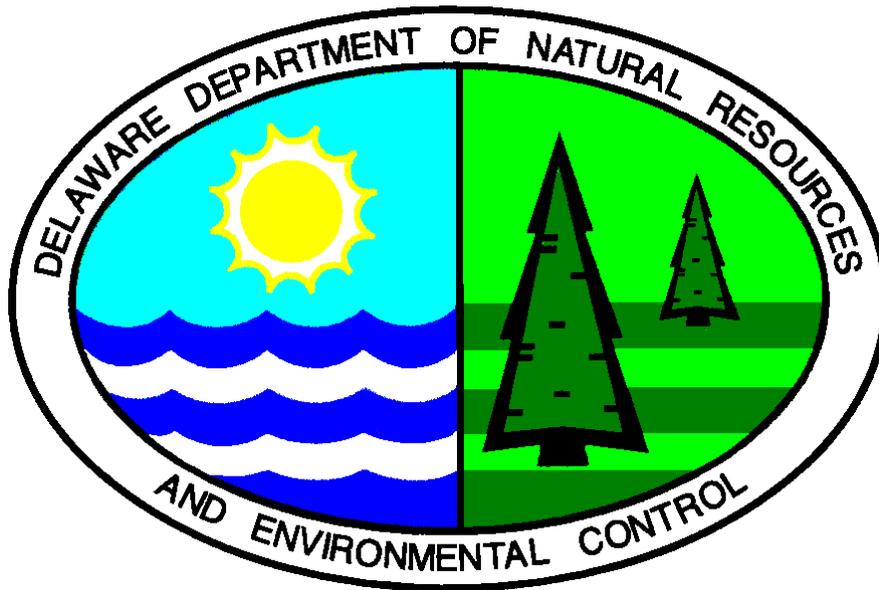


# PROPOSED PLAN OF REMEDIAL ACTION

200 and 206 Maryland Avenue Site  
Wilmington, DE

DNREC Project No. DE 1217



March 2001

Delaware Department of Natural Resources and Environmental Control  
Division of Air and Waste Management  
Site Investigation & Restoration Branch  
391 Lukens Drive  
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## TABLE OF CONTENTS

<b>I. INTRODUCTION .....</b>	<b>1</b>
<b>II. SITE DESCRIPTION AND HISTORY .....</b>	<b>1</b>
<b>III. INVESTIGATION RESULTS.....</b>	<b>2</b>
<b>IV. REMEDIAL ACTION OBJECTIVES .....</b>	<b>3</b>
<b>V. PROPOSED PLAN OF REMEDIAL ACTION.....</b>	<b>4</b>
<b>VI. PUBLIC PARTICIPATION.....</b>	<b>4</b>
<b>APPENDIX A.....</b>	<b>5</b>

## LIST OF FIGURES

<b><u>Figure</u></b>	<b><u>Title</u></b>
<b>1</b>	<b>Site Location/Topographic Map</b>
<b>2</b>	<b>Sampling Locations</b>

## **I. INTRODUCTION**

The 200 and 206 Maryland Avenue Site (“Site”) is located at the corner of Maryland Avenue and Lower Elm Street in Wilmington, Delaware (Figure 1). In order to determine the potential for environmental liability prior to the purchase of the Site, the Reybold Group entered into the Department of Natural Resources and Environmental Control-Site Investigation and Restoration Branch’s (“DNREC-SIRB’s”) Voluntary Cleanup Program (“VCP”) under the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 (“HSCA”). Through a VCP Agreement, Reybold agreed to investigate the potential risks posed to the public health, welfare, and the environment. Reybold contracted WIK Associates, Inc. to perform a Remedial Investigation (“RI”) of the Site.

The purpose of the RI was to: 1) understand the nature and extent of any soil and/or groundwater contamination at the Site, 2) evaluate risks to public health, welfare, and the environment associated with identified contamination, and 3) perform a Feasibility Study that would identify and recommend a Remedial Action, if required by DNREC-SIRB. The potential purchaser of the property desired to obtain a Certification of Completion of Remedy from DNREC upon completion of a remedy at the Site.

This document is the Department’s Proposed Plan of Remedial Action (“Proposed Plan”) for the Site. It is based on the results of the previous investigations performed at the Site. This Proposed Plan is issued under the provisions of the HSCA and the Regulations Governing Hazardous Substance Cleanup (Regulations). It presents the Department’s assessment of the potential health and environmental risk posed by the Site.

As described in Section 12 of the Regulations, DNREC-SIRB will provide notice to the public and an opportunity for the public to comment on the Proposed Plan. At the comment period’s conclusion, DNREC-SIRB will review and consider all of the comments received and then DNREC-SIRB will issue a Final Plan of Remedial Action (“Final Plan”). The Final Plan will designate the selected remedy for the Site. The Proposed Plan, the comments received from the public, DNREC-SIRB’s responses to those comments, and the Final Plan will constitute the Remedial Decision Record.

Section II presents a summary of the site description, site history and previous investigations of the Site. Section III provides a description of the Remedial Investigation results. Section IV presents a discussion of the Remedial Action Objectives. Section V presents the Proposed Plan of Remedial Action. Section VI discusses public participation requirements.

## **II. SITE DESCRIPTION AND HISTORY**

### *Site Setting*

The site consists of 0.18 acres of land located at the corner of Maryland Avenue and Lower Elm Street in Wilmington, Delaware (See Figure 1 & 2). The 200 Maryland Avenue Property consists of approximately 0.14 acres (tax parcel number 26-042.20-015) and the 206 Maryland Avenue Property consists approximately 0.04 acres (tax parcel number 26-042.20-016). The Site contains a four story,

commercial building on the larger parcel and the adjoining parcel is currently a vacant lot. The building covers the majority of the land surface of the Site.

The Site is bordered by Lower Elm Street to the east, Liberty Street to the south, a vacant lot to the west, and an alley known as Nancy Street to the north.

### *Site and Project History*

WIK Associates, Inc., through a review of aerial photographs, United States Geologic Survey topographic maps, historical fire insurance maps and city directories investigated the historical use of the Site. Based on the information supplied by WIK, it appears that the 200 Maryland Avenue Property has been used for a combination of commercial and industrial uses since at least the 1920s.

The Site is adjacent to the Kirk Building Site (DE-1132). Both the Kirk Building Site and the 200 Maryland Avenue Property (larger parcel) were at one time owned/operated by Liberty Morocco Co., which was a leather tanning operation. A dwelling appeared to have been present on the smaller parcel (at 206 Maryland Avenue)

In order to obtain a Certification of Completion of Remedy, the prospective purchaser entered a VCP Agreement with DNREC-SIRB to perform a RI. The objectives of the RI were to evaluate the soil and groundwater quality at the Site.

## **III. INVESTIGATION RESULTS**

Seven surface, four subsurface soil samples and two groundwater samples were collected as part of the 200 and 206 Maryland Avenue Site RI. Sampling locations are shown on Figure 2. The samples were collected and analyzed in accordance with the DNREC-SIRB approved work plan.

The samples were analyzed for contaminants listed on the Target Analyte List and the Target Compound List (TAL/TCL). The analytical results were first compared to the DNREC-SIRB Uniform Risk Based Remediation Standards (URS) in a non-critical water resource area, using the restricted use scenario. The proposed grid size and number of sampling points were determined using the Environmental Protection Agency's ("EPA's") Data Quality Objectives Process ("DQO-PRO"). The number of samples required, based on the grid unit spacing of approximately 36 feet wider and the total sampling area, is six. However, based on the Site layout, the existing building covers approximately 80% of the project area. This caused some sampling points to be greater than 35 feet apart.

Surface soil samples GP01-S001, GP02-S001 and GP06-S001, had arsenic concentrations of 4.4 milligrams per kilogram (mg/Kg), 5.8 mg/Kg and 5.1 mg/Kg, respectively, which slightly exceed the restricted URS for arsenic of 4 mg/Kg. Sample GP05-S001 had an iron concentration of 71,400 mg/Kg, which exceeds the restricted URS for iron of 61,000 mg/Kg. Sample GP01-S001 had lead concentration of 1,120 mg/Kg, which slightly exceeded the restricted URS for lead of 1,000 mg/Kg. Benzo(a)pyrene is the only semi-volatile organic compound to exceed the restricted use regulatory criteria of 0.8 mg/Kg. Benzo(a)pyrene was detected at a concentration of 1.5 mg/Kg in sample GP01-S001 and 2.1 mg/Kg in sample GP02-S001.

The results of the subsurface soil samples revealed no exceedance when compared to the restricted use URS for TAL/TCL analyses.

The results of the groundwater samples revealed that iron and manganese exceeded the groundwater regulatory criteria. The results of the ground water samples, GP06-W-001 and GP10-W001, revealed iron concentrations of 60,000 micrograms per liter ( $\mu\text{g/L}$ ) and 47,100  $\mu\text{g/L}$  respectively which is in excess of the iron drinking water Secondary Maximum Contaminant Level (SMCL) standard of 300  $\mu\text{g/L}$ . Manganese was detected in these samples with concentrations at 783  $\mu\text{g/L}$  and 1,200  $\mu\text{g/L}$  respectively, which are in excess of the manganese drinking water SMCL standard of 50  $\mu\text{g/L}$ .

A risk assessment was performed to evaluate the cumulative risk associated with the exposure to soil and ingestion of groundwater on the site. The calculations were conducted using the DNREC Site-Specific Calculator for Multiple Analytes (DNREC May 2000 version) assuming a current and future restricted use scenario.

The soil cumulative risk was calculated using 95% of the upper confidence level (UCL) of the mean of the soil concentrations (EPA, 1989). The assessment indicated the cumulative risks, carcinogenic and non-carcinogenic are below  $3\text{E-}06$  and below a hazard quotient of one. Therefore, the soil does not pose an unacceptable risk to human health and the environment.

The groundwater cumulative risk was calculated using the mean of the data set. The assessment indicated that the cumulative carcinogenic risk is below  $7\text{E-}07$ , which is below the DNREC's risk guideline of  $1\text{E-}05$ . However, the cumulative non-carcinogenic risk hazard quotient is 5.14, which is above the DNREC-SIRB guideline of one. However, 95% of the hazard quotient risk was attributed to iron assuming that groundwater is consumed as a primary drinking water source. However, the ground water at the Site is not used for drinking and there are no drinking water resources, including water supply wells or surface intakes, within one mile of the Property. Based, on this information, the iron concentrations in the ground water, regardless of their source, do not pose a risk to human health.

#### **IV. REMEDIAL ACTION OBJECTIVES**

According to Section 8.4 (1) of the Regulations, site-specific Remedial Action Objectives (RAO) must be established for all Plans of Remedial Action.

Qualitative objectives describe, in general terms, what the ultimate result of the Remedial Action at the facility should be. The majority of the Site is currently covered by a four-story building and is located in an urban setting. The primary receptors of contamination are humans. Therefore, the qualitative RAO for this Site is to prevent human contact such as dermal contact, inhalation, or ingestion with the groundwater.

Quantitative objectives define specific levels of Remedial Action to achieve protection of human health and the environment. Based on the qualitative objectives, the quantitative objectives will be to ensure that future site users such as site workers, construction workers, visitors, and trespassers are not exposed to groundwater containing iron contamination above the DNREC-SIRB's URS. Based on the Site layout, some sample locations required modification from the actual spacing size recommended by EPA's DQO-PRO Hot Spot Calculator. Because uncertainty that exists regarding contaminants in the subsurface soils underneath the building (tax parcel number 26-042.20-015), DNREC-SIRB requires that a deed restriction be put in place that requires the owner to notify

DNREC-SIRB, if soils beneath the building are disturbed or the building is demolished. Any of these type of actions may trigger additional investigation and if necessary a remedial action.

The only compound that poses a potential hazard in ground water is iron. Elevated iron concentrations in ground water are common in the shallow aquifer in the Wilmington, Delaware area (Woodruff, 1970; Johnson, 1973). The iron in groundwater may possibly be attributable to manmade activities as well as natural resources. However, the ground water at the Site is not used for drinking and there are no drinking water resources, including water supply wells or surface intakes, within one mile of the property. Based on this information, the iron concentrations in the ground water, regardless of their source, do not pose a risk. The study concludes that the ground water at the Site should not be used for potable water sources. If the areas were going to be developed as a source of drinking water, then ground water would have to be treated for iron due to aesthetic problems prior for distribution to public. Other HSCA Sites that are closer to Christina River, indicated presence of even higher iron concentration in the down gradient ground water as well. The impact to the surface waters if any from iron is groundwater, will be further evaluated by DNREC-SIRB in a separate study at a later date.

## **V. PROPOSED PLAN OF REMEDIAL ACTION**

As stated in Section III of this Proposed Plan of Remedial Action, the contamination at the Site appears to be confined to the ground water. In order to meet the RAOs, DNREC-SIRB proposes to employ an institutional control (i.e. deed restriction) at the Site.

The deed restriction (a) will restrict the use of the Site to commercial and industrial uses only, (b) prohibit use of groundwater on the Site without the prior written approval of DNREC-SIRB, and (c) require written approval from DNREC-SIRB prior to any soil disturbing activities under, or demolition of, the existing building on tax parcel number 26-042.20-015. DNREC-SIRB may require an additional investigation of the area under the building, and, if necessary, a remedial action of that area if additional contamination is found.

## **VI. PUBLIC PARTICIPATION**

The Department actively solicits public comments or suggestions on the Proposed Plan of Remedial Action and welcomes opportunities to answer questions. Please direct written comments to:

DNREC Site Investigation and Restoration Branch  
391 Lukens Drive  
New Castle, Delaware 19720  
Attention: Mandeep Talwar

The comment period begins March 7, 2001, and ends at the close of business (4:30 p.m.) February 29, 2001 and if so requested, a public meeting will be held on the Proposed Plan. The meeting time and place will be announced if said meeting is requested.

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## **Appendix A**

## **Figures 1 & 2 from Remedial Investigation Report**

Prepared by WIK Associates February 2001.