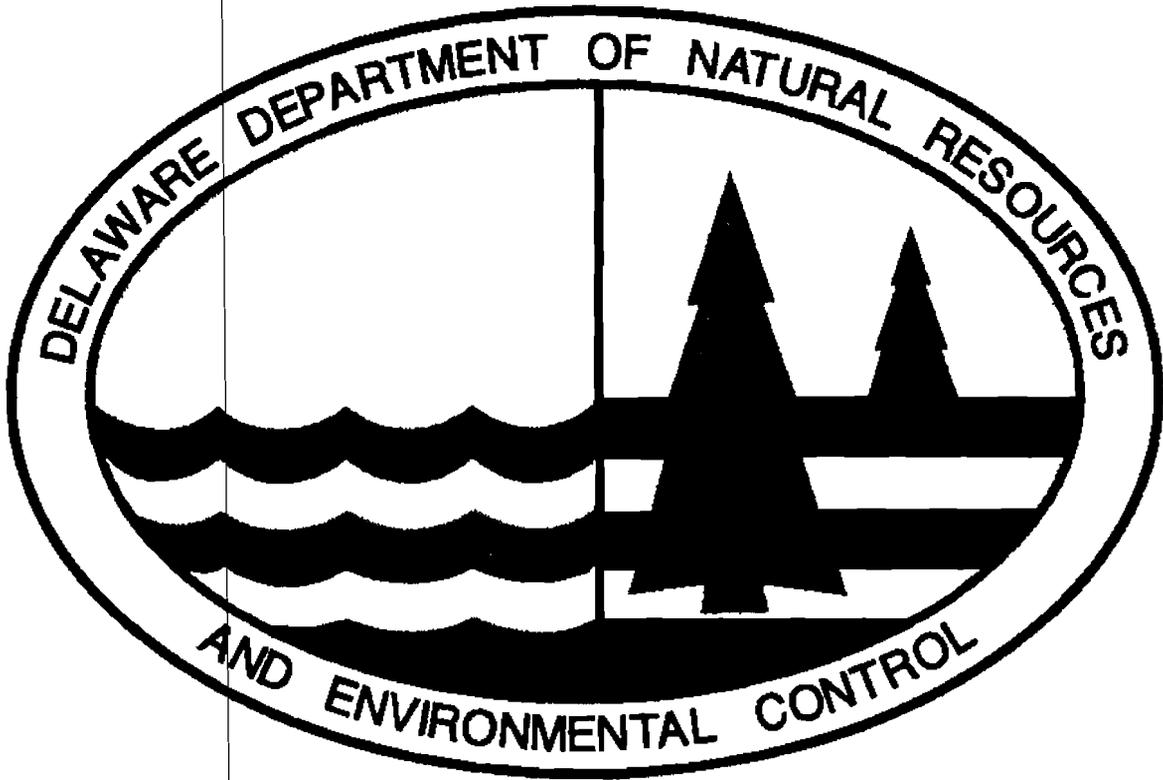


Proposed Plan of Remedial Action

101, 103, 105 & 121 N. Poplar Street
Wilmington, DE



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Prepared by:

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

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I. INTRODUCTION

On August 29, 1996, the Department of Natural Resources and Environmental Control (“DNREC” or “Department”) under the authority granted by the Hazardous Substance Cleanup Act (7 Del. C., Ch. 91) reached an agreement with the potential buyer of the 121 North Poplar Street site, SBM Housing, Inc., to perform a Remedial Investigation/Feasibility Study (“RI/FS”) of the soil at the 121 North Poplar Street site (hereinafter “the Site”). In October of 1996, owners of the adjacent community garden (101, 103, & 105 N. Poplar Street), reached an agreement with DNREC to be included under the same RI/FS study as the 121 N. Poplar Street site.

The site is located within the city limits of the City of Wilmington, Delaware. The RI/FS was conducted consistent with the Delaware Regulations Governing Hazardous Substance Cleanup (“HSCA”), Delaware Standard Operating Procedures (“SOP”) for Chemical Analytical Programs (“CAP”), the Guidance Document and other Departmental policies or procedures.

The overall purpose of the RI/FS process is to determine the nature and extent of surface and subsurface contamination at the site, identify potential sources of contamination, evaluate risks to the public and environment associated with identified contamination, and perform a feasibility study that will identify, evaluate and recommend a remedial action, if required, that will be protective of public health, welfare and the environment.

This document is the Department’s Proposed Plan of Remedial Action for the site. It is based on the results of the RI/FS for the site. This Proposed Plan is issued under the provisions of the Delaware Hazardous Substance Cleanup Act (“HSCA”) and the Regulations Governing Hazardous Substance Cleanup (“the Regulations”). It presents the Department’s assessment of the potential unacceptable health and environmental risk posed by the site.

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 a detailed analysis of remedial alternatives, including identification of and rationale for selection of alternatives and description of alternatives. Section VI discusses public participation requirements.

The Department will provide public notice and opportunity to comment on the Proposed Plan in accordance with Section 12 of the Regulations. At the conclusion of the comment period, the Department, after review and consideration of the comments received, shall issue a Final Plan of Remedial Action which shall designate the remedial action. The Proposed Plan, the comments received from the public, responses to the comments and the Final Plan will constitute the “Remedial Decision Record”.

II. SITE DESCRIPTION AND OPERATIONAL HISTORY

2.1 Site Description

The site consists of an irregular shaped .93± acre parcel of land located in Wilmington, Delaware (Figure 1). The site is bounded by Second Street to the north, Walnut Street to the west, Poplar Street to the east and Front Street to the south (see Figure 2). Improvements to the site include a three-story apartment building, paved parking areas, a community garden and landscaping. The 24 unit apartment building is currently vacant. Surrounding land use is generally residential. The site is currently zoned as residential (R-5B; Apartment House Medium Density). The New Castle County tax parcel number for the site is: 26-043.40-50.

2.2 Site History

According to the current deed, the Wilmington Housing Authority has owned the 121 N. Poplar Street property and ± 30 feet of the adjacent community garden since June 30, 1970. The Robinson Street Company, a Delaware Corporation, owned the property from December 23, 1968 until June 30, 1970. Prior to that, from December 3, 1968 until December 23, 1968, Wilmington Housing Authority owned the property, which they acquired through condemnation proceedings against previous owners. The properties appeared to be privately owned prior to December 3, 1968.

The historical use of the site was investigated through a review of the following sources: aerial photographs, fire insurance and other historical maps and interviews with past and/or present owners and operators. Based on the sources reviewed, at least eight leather manufacturers operated, all or in part, on the subject property from at least 1868 until some time between 1950 and 1961. One of these factories was located on Second Street on the northern portion of the subject property. Another leather factory was located near the western border of the subject property on Walnut Street. Operations at this factory appear to have ceased between 1931 and 1938. The other leather factory was located near the western border of the subject property on Walnut Street. Operations at this location appear to have ended at some time between 1950 and 1961.

2.3 Previous Investigations

In June, 1996, a Phase I Environmental Site Assessment was conducted by WIK Associates, Inc. at the site to identify potential environmental risks. Based on this historical site usage, WIK found that the Wilmington Housing Authority property could present a significant risk to the Sunday Breakfast Mission (i.e., WIK's client) in terms of potential environmental liability exposure. Based on these findings, WIK recommended that a limited Phase II investigation be conducted at the site.

WIK conducted a Phase II investigation at the site during August, 1996. During that investigation, WIK installed five (5) hand auger borings and collected two (2) surficial soil samples and one (1) subsurface soil sample. Hand auger sample locations are included on Figure 2. Analytical results and chemicals analyzed are summarized in Table 1.

As shown in Table 1, the surficial soil samples contained several polycyclic aromatic hydrocarbons (PAHs), including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, which exceeded DNREC Reporting Levels for residential soils. Lead was also detected in the surficial soils at levels which exceed DNREC Reporting Levels for residential soils. Analytical results of the subsurface soil sample indicated that arsenic and barium exceeded DNREC Reporting Levels.

The results of the Phase II Investigation indicated that additional sampling was warranted. A Limited Site Investigation Work Plan was submitted and approved by DNREC. The purpose of this investigation was to delineate the extent of arsenic impacted soil discovered during the Phase II investigation.

III. FOCUSED REMEDIAL INVESTIGATION

On September 5, 1996, WIK Associates, Inc. supervised the installation of eight (8) geoprobe borings at 121 North Poplar Street (Figure 2). Borings were installed to delineate the extent of arsenic impacted soils discovered during the Phase II investigation. Based on observed site conditions, eight soil samples were collected and analyzed for arsenic. Samples were collected in accordance with the DNREC approved work plan. No groundwater samples were collected as groundwater was not encountered in the borings. As shown in Table 1, five (5) of the eight (8) arsenic concentrations are above the DNREC subsurface soil reporting level.

On October 2, 1996, it was determined that approximately 3000 square feet of an adjacent community garden is part of the 121 North Poplar property. DNREC requested that samples be collected from the garden to determine if this portion of the property needs to be considered for remediation (Figure 2). Two (2) soil samples were collected and analyzed for arsenic, one (1) sample was collected and analyzed for lead and arsenic, and one (1) sample was collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. As shown in Table 2, lead concentrations in samples SS02G and SS04G are above the DNREC residential surface soil reporting level. No other metal was detected above DNREC residential surface soil reporting levels.

On November 5, 1996, the remaining portion of the community garden, contained within the 101, 103 and 105 N. Poplar Street properties, was sampled by WIK Associates, Inc (Figure 2). WIK collected nine shallow soil samples under DNREC oversight. Three soil samples, one from each property, were analyzed for TCL semivolatiles and 8 RCRA metals. The remaining 6 samples, two from each property, were analyzed for arsenic and lead only. All three of the semivolatile samples exceeded DNREC's reporting levels for benzo(a)pyrene (Table 3). A total of seven samples exceeded DNREC's residential reporting levels for lead (Table 4).

IV. REMEDIAL ACTION OBJECTIVES

According to HSCA regulation 9.4, when a release of hazardous substances occurs, treatment, removal or containment measures must be implemented to reduce the levels of hazardous substances in soils.

“Soil cleanup levels and the depth to which cleanup levels will apply, shall be based on estimates of the facility use and the reasonable maximum exposure expected to occur under both current and future facility use conditions or may otherwise reasonably be determined by the Department to abate the threat to public health, welfare and the environment”.

According to HSCA regulation 9.4(2)(b), soil cleanup levels are established as follows:

“When the natural background level is less than the 10E-05 cancer risk level or a level corresponding to hazard index value of one, for direct exposure or inadvertent ingestion, then the 10E-05 cancer risk level or a level corresponding to a hazard index value equal to one becomes the cleanup level”.

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

- The site is currently zoned as residential (R-5B; Apartment House medium Density) and a vacant 24 unit apartment building is present on the property.
- The future site use is expected to be residential. Improvements to the site include a three-story apartment building, paved parking area and landscaping.
- The site is within 1,000 feet of human population.
- Surrounding land uses are mixed, including manufacturing, commercial and residential.
- Surficial soils at the site have been impacted by lead and PAHs. Subsurface soils at the site have been impacted by arsenic. Based on the nature and extent of the contaminants, arsenic, lead and benzo(a)pyrene have been chosen as the primary contaminants of concern.
- The primary exposure pathway is direct ingestion and contact with PAH and metal impacted soils.
- The major risk associated with the site is potential human contact and ingestion of PAH and metal impacted soils.

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

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

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

- Prevent contact with soils having an arsenic concentration greater than 23 mg/Kg.
- Prevent contact with soils having a lead concentration greater than 400 mg/Kg.
- Prevent contact with soils having a benzo(a)pyrene concentration greater than 0.088 mg/Kg.

The quantitative remedial action objectives are based on EPA Region III risk based concentrations (1996), and DNREC's "Interim Guidance on Soil Screening Levels" (1996) in lieu of performing a full risk assessment.

V. POTENTIAL REMEDIAL ALTERNATIVES

To accomplish the above remedial objectives, three (3) potential remedial alternatives were reviewed. These are listed and discussed further below:

1. Removal and Isolated Capping.
2. Capping the property.
3. No further action.

Alternative 3 has been eliminated from consideration because it would not meet the provisions of Section 9 of the HSCA Regulations, which requires the protection of public health, welfare and the environment.

Alternative 1: Removal of contaminated materials and isolated capping would involve excavating approximately the upper two feet of PAH impacted soils and transporting the material to an appropriate disposal facility. Removal in the area of the garden would also extend to approximately two feet below the existing grade. When the impacted soils have been removed, confirmatory samples will be collected and analyzed for lead and PAHs. Clean fill would be brought in after removal of contaminants to below quantitative remedial action objective levels to bring the site back to grade.

Removal would also include the excavation and disposal of the arsenic impacted subsurface soils. The arsenic impacted materials have been characterized as being a white silt material. This material is estimated to be approximately three (3) to five (5) feet deep. Visibly impacted materials will be removed and properly disposed. Upon removal, confirmatory soil samples would be collected and analyzed for arsenic.

A narrow strip of land lies between the sidewalks and roads surrounding the north, east, and west sides of the property. In this area the upper one (1) foot of soil will be excavated and transported to an appropriate disposal facility. The integrity of the sidewalk may be compromised if greater than one (1) foot of impacted soils are removed. This area will then be capped with approximately eight (8) inches of stone overlain by four (4) inches of reinforced concrete. This should serve to effectively isolate the PAH and lead impacted soils from direct human contact. The existing asphalt parking area will be patched. This should serve to effectively cap any impacted soils beneath the parking area. All excavated contaminated soils will be transported to an off-site facility which has been granted a permit to treat and dispose of contaminated soils from the site.

Alternative 2: Capping would involve installing an asphalt cover over the entire property. According to the Summary Report for the General Remedial Technology Cost Project: South Wilmington Area, this is the most appropriate containment technology for soils contaminated with metals and PAHs. The cap would include a minimum 4-inch thick layer of asphalt on a prepared base of crushed stone and/or a geotextile.

5.1 Remedial Alternatives Evaluation

The remedial alternatives evaluation criteria set forth in the HSCA regulations are summarized in Table 5. A brief discussion of the criteria follows:

Protection of public health, welfare and the environment - Alternative 1 introduces a slight increased risk of exposure during implementation due to increased material handling during removal. In addition, off-site disposal presents some exposure risk during transportation. Alternative 2 is protective of public health, welfare and the environment.

Compliance with all applicable local, state and federal laws - Alternatives 1 and 2 comply with all applicable local, state and federal laws.

Community acceptance - Alternative 1 is anticipated to be most acceptable to the community. Alternative 2 would leave no green space near the housing and is anticipated to be less acceptable to the community than alternative 1. This criteria will be fully evaluated during the public comment period.

Monitoring required - Alternative 1 would require minimal monitoring and maintenance of the capped area. Alternative 2 would require some long term maintenance of the cap and may also require some form of groundwater monitoring. However, groundwater was not encountered during site investigation activities (geoprobe maximum depth of 16 feet).

Technical practicability - Alternatives 1 is technically feasible. Alternative 2 is not technically feasible because the structure of the building could be compromised.

Restoration time frame - Alternatives 1 and 2 will take several months to implement.

Reduction in toxicity, mobility and volume - Alternative 1 would effectively reduce the toxicity, mobility and volume of the contaminated soils. Alternative 2 would reduce mobility and minimize exposure to potentially toxic material; the volume of contaminated materials would remain the same

Long term effectiveness - Alternatives 1 and 2 are effective in protecting public health, welfare and the environment.

Short term effectiveness - Alternatives 1 and 2 are protective of public health, welfare and the environment.

5.2 Conceptual Remedial Action Plan

Based on the above criteria, Alternatives 2 (capping) is not considered a viable alternative. Alternative 2 is not a technically practicable alternative because the structural integrity of the building may be compromised by adding two feet of fill to the site. In addition, this alternative may be less acceptable to the community.

Therefore, the most appropriate remedial alternative is 1, removal of PAH impacted soils and isolated capping. Alternative 1 will provide a cost effective means of meeting all remedial objectives while satisfying the evaluation criteria.

VI. PUBLIC PARTICIPATION

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

DNREC Site Investigation and Restoration Branch
Attn: Karl F. Kalbacher
715 Grantham Lane
New Castle, DE 19720

or call (302) 323-4540. The public comment period begins on December 4, 1996 and closes on December 24, 1996. Requests for a public meeting must be received by the close of business at 4:30 pm on December 24, 1996. Requests should be addressed to Karl Kalbacher, DNREC, Site Investigation & Restoration Branch, located at 715 Grantham Lane, New Castle, Delaware, 19720.

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