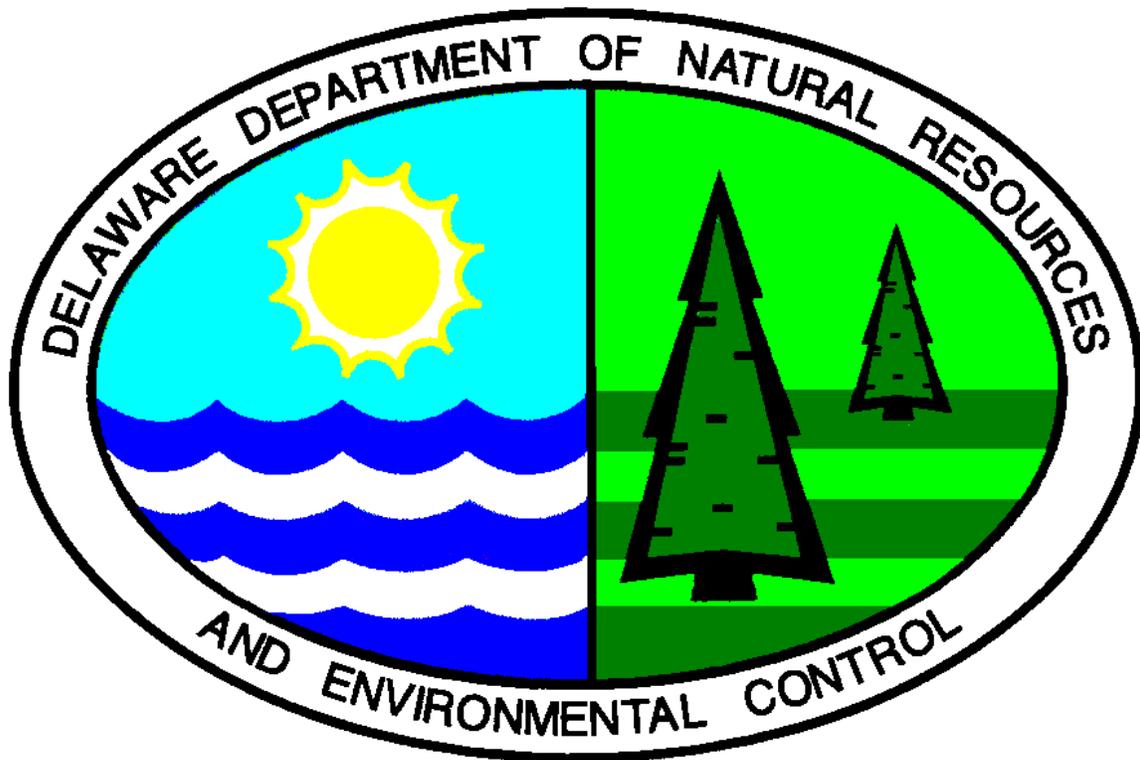


**Gray's Fine Printing Site
Final Plan of Remedial Action
DE1094**



June 1998

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

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Gray's Fine Printing Site Final Plan of Remedial Action

I. Introduction

The Delaware Department of Natural Resources and Environmental Control (“DNREC”) performed a Remedial Investigation (“RI”) at the Gray’s Fine Printing Site (“Site”) under the Delaware Hazardous Substance Cleanup Act (“HSCA”) 7 Del. C. Chapter 91. Based on the comprehensive environmental investigations performed for the Site and the interim action taken at the Site, DNREC concluded that the Site, in its present condition, does not present an unacceptable risk to public health, welfare or the environment.

II. Organization and Contents of the Proposed and Final Plans

DNREC issues this final plan under the provisions of HSCA and the Regulations Governing Hazardous Substance Cleanup, (“Regulations”). The final plan presents DNREC’s assessment of the health and environmental risks posed by the Site and plans for limited further action.

In accordance with the Regulations, DNREC provided notice to the public and an opportunity for the public to comment on the proposed plan in accordance with Section 12 of the Regulations. At the comment period’s conclusion, (June 24, 1998), DNREC did not receive any substantive comments to the proposed plan. Therefore, DNREC issues this final plan of remedial action. The final plan of remedial action designates the selected remedy for the Site. The proposed plan, the comments received from the public, DNREC’s responses to those comments, and the final plan of remedial action constitute the remedial decision record.

Section 8 of the Regulations discusses the contents of the proposed and final plan of remedial action. The proposed and final plan contain a description of the following Site information:

- A summary of the procedures, analytical results, and conclusions of the remedial investigation,
- A discussion of objectives,
- A summary of the risk assessment results, and
- A plan for the Site’s future.

III. Site Description

The Site is located at 11 East 8th Street in Wilmington, New Castle County, Delaware, see Figure 1. The Site consists of approximately 0.1 acres and contained a brick structure used as a printing shop from as early as 1884.

The Site is bounded to the north by the parking lot of the building, to the east by a commercial building, to the south by a city street (East 8th Street) and to the west by another commercial building.

The Site is characterized by rolling hills and is underlain by the Wilmington Complex (a meta-igneous and meta-sedimentary crystalline “bedrock”) which is overlain by approximately 20 to 50 feet of sandy silt to silty clay material. Fracture orientation and frequency control groundwater flow in this area. Well yields are generally low, with the average residential well yielding about one gallon per minute. Groundwater is also present in the overlying silty clay material (regolith). However, since the Site is located in the City of Wilmington, public water serves both the surrounding buildings and the Site.

Site surface elevations range from approximately 85 feet above mean sea level (“MSL”) at the north side of the building to approximately 82 feet MSL at East 8th Street. Surface drainage from the Site flows to the south into the City of Wilmington combined sewage and stormwater collection system.

Soil Survey for New Castle County, Delaware describes the on-site soils as Made Land, which typically describes land that has been filled with soil materials, debris, or both. In addition, Made Land has been so altered or disturbed by urban works and structures that soil classification is not feasible.

There are no mapped wetland areas present on the Site. There are no wetland plants or hydrology present on the Site.

There are no underground storage tanks present on the Site.

IV. Site History

The Site contained a three-story building with parking to the north. The building has been present on the property from 1884 to 1998. For approximately the last 100 years, the building has been Gray’s Fine Printing. The printing operation used a lead alloy printing process with a variety of inks and solvents.

Printing machine was located in the first floor of the three-story building. The basement of the building, which contained an earthen floor, housed the heating equipment and stored the scrap printing type. The second floor was used by Gray’s Fine Printing as office space and supply and storage space. The third floor was used to store type set.

In the past the building was heated by a coal fire furnace. Combustion residuals of coal burning were observed in the basement soils.

The Site is currently under the care of the Corporate Properties Services Inc. and is slated for redevelopment as an office type structure for training purposes which will fill the complete foot print of the Site. Corporate Properties Services Inc. entered into a voluntary agreement with DNREC to conduct an investigation and cleanup of the Site.

V. Remedial Investigation Procedures

DNREC conducted an extensive review of past investigations prepared for the Site. After review of the work conducted, DNREC worked with Duffield Associates, Inc. (“Duffield”), the consultant for Corporate Properties Services, Inc., to develop a Work Plan to address the following:

- Determine the presence or absence of contaminants in the underlying fill earthen basement floor material and in the structure itself; if present, determine the contaminant fate and transport, and
- Determine the presence or absence of a source in the underlying soils and structure and if present to remove the source.

The Work Plan called for Duffield to perform the following tasks:

- Re-sample and analyze the Site soils and building structure;
- Develop a profile of the volume of material impacted;
- A risk assessment, if necessary, both human health and/or ecological, and
- A FS, if the Site poses unacceptable risk to human health and the environment to correct these risks.

VI. Remedial Investigation Results

The following is a brief summary of the results of the investigations for the Site.

A. General Information

All surrounding buildings and structures are currently connected to public water and waste water systems.

Asbestos materials were noted as part of the building (roofing materials, sheet flooring, wall plaster, flue grout, and fiberboard).

B. Building Floor Boards

Analytical results for the wood chip samples from the floorboards of the first floor and the first floor joists indicated that the wood contained elevated concentrations of lead. Lead concentrations ranged from 1,140 mg/kg to 1,840 mg/kg.

C. Dust Samples

Wipe samples of dust through out the building indicate the elevated presence of metals and asbestos. Lead levels ranged from 4,370 mg/kg to 241,000 mg/kg. Arsenic and antimony levels ranged from 5.6 mg/kg to 362 mg/kg and from 652 mg/kg to 52,300 mg/kg, respectively.

D. Basement Soils

Surface soil samples collected in the soils of the basement and basement crawl space contained lead and antimony concentrations that exceeded the HSCA Remediation Standards. In the surface soil (0 to 3 inches below surface) lead ranged from 2,580 mg/kg to 71,700 mg/kg, and antimony from 393 mg/kg to 14,500 mg/kg. There was only one exceedance of PCB's in one location of 5.02 mg/kg.

Deeper soils in the basement and basement crawl space area did not report exceedances above the HSCA Remediation Standards. In the subsurface soils (2 to 8 inches from below surface) lead ranged from 39.9 mg/kg to 623 mg/kg, and antimony from 1.7 mg/kg to 92.8 mg/kg.

E. Summary

The results of the study indicated that the Site contains elevated concentrations in the basement surficial soils of lead and antimony contamination as related to the printing operation and elevated PCB basement surface soil contamination in one location as related to activities for the coal furnace.

The first floor floorboards and joists reported elevated lead.

Dust through out the building contained elevated concentrations of lead, arsenic and antimony.

VII. Interim Action

The agreement with Corporate Properties Services, Inc. provided that if during the course of investigation means became apparent to reduce the contamination or prevent its spread, appropriate action would be taken immediately. Therefore the following remedial interim actions have occurred:

- **Asbestos**: These asbestos containing materials were removed and disposed of properly as per State Law Chapter 60, Regulations Governing the Control of Air Pollution, Regulation 21, National Emission Standards for Hazardous Air Pollutants.
- **Contaminated Dust**: The asbestos and metals containing dust was removed and disposed of properly as 7 Del. C. Chapter 60, Regulations Governing the Control of Air Pollution, and National Emission Standards for Hazardous Air Pollutants.
- **Floorboards and Joists**: The floorboards and joists were removed and disposed of off-site properly as per the HSCA regulations.
- **Basement and Crawl Space Surface Soils**: The surface soils were protected from the demolition debris by a series of physical barriers. Once the building demolition debris was removed, the physical barriers were removed and disposed of offsite properly and then the contaminated surface soils were excavated, removed, and disposed of properly off-site.

VIII. Facility Remedial Action Objectives

The Regulations provide that DNREC sets objectives for land use, resource use, and cleanup levels that are protective of human health and the environment. The following objectives are determined to be appropriate for the Site:

- Prevent residential exposure to impacted media, and
- Continue the use of public water and sewer for all purposes to the surrounding community,

These objectives are consistent with the value of the Site as part the surrounding land use, New Castle County zoning policies, state regulations governing water supply, and worker health and safety.

IX. Risk Evaluation Summary

Duffield performed a health risk assessment to evaluate the possible effects on human health from the use of the Site consistent with the objectives discussed above.

The Risk Evaluation (“RE”) evaluated whether there was a possible health risk and/or environmental impacts from the release of hazardous substances from the Site. Given that nearly all the residents in the immediate area are connected to municipal water supply and the interim action removed all soil, wood, building debris and dust contamination, there is no completed pathway for exposure for any potential ecological or human receptors in the area.

X. Final Remedial Action Plan

Based on the results of the Remedial Investigation and Feasibility Study and the Interim Action at the Site, DNREC concludes that the risks at the Site are acceptable with a restricted groundwater access. Therefore, DNREC will:

- Restrict drinking water access and create a groundwater management zone for the Site.

XI. Declaration

This Final Plan of Remedial Action for the Gray’s Fine Printing Site is protective of human health, welfare, and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

Nicholas A. Di Pasquale, Director
Division of Air and Waste Management

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Figure 1 - Site Location

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