

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL- SITE INVESTIGATION AND RESTORATION BRANCH

FINAL PLAN OF REMEDIAL ACTION



Berger Brothers Site Wilmington, DE

DNREC Project No. DE-131

This final plan of remedial action (final plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) preferred cleanup alternative for the remediation at the Berger Brothers site in Wilmington. For site-related reports and more information, please see the public participation section of this document.

The purpose of the final plan is to provide specific information about the soil contamination and the cleanup alternatives DNREC has considered. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), DNREC has provided notice to the public and an opportunity for the public to comment on the proposed plan. The comment period began on November 19, 2003, and ended on December 8, 2003. At the comment period's conclusion, DNREC did not receive any comments or requests for a public hearing. DNREC is now issuing the final plan. The final plan shall designate the selected remedy for the site. All investigations of the site, the proposed plan, comments received from the public, DNREC's responses to the comments, and the final plan will constitute the Remedial Decision Record.

This final plan summarizes the 1998 Grid Sampling Report, the 2000 Phase I Remedial Investigation (Phase I RI) Report of Findings, the July 2003 Remedial Investigation/Feasibility Study (RI/FS) Report and the administrative record file upon which this final plan is based.

Copies of these documents can be obtained or viewed at locations listed at the end of this document.

INTRODUCTION

Berger Brothers Co. has owned the site since 1996 and operated a furniture warehouse at this property which is located at 101 South West Street, Wilmington, Delaware (tax parcel number 26-042.00-019). The site consists of 2.12 acres of land and is bounded by the Madison Street Connector right-of-way to the south and east, Justison Street and Kirk Plumbing and Heating Supply to the west and Penn Central Railroad to the north (see Figure 1). Commonwealth Development Corporation (Commonwealth) plans to demolish the warehouse buildings on the site and construct a new office building and parking structure on the property. In addition, Commonwealth has reviewed and summarized prior investigations of the property and performed an additional remedial investigation. The future owner of the site, Commonwealth, has agreed to enter into a Voluntary Cleanup Program (VCP) agreement with DNREC-SIRB.

SITE DESCRIPTION AND HISTORY

The site has been an industrial site since the late 1800s and contains several large buildings formerly used for shipbuilding. These buildings are now used for warehousing. Access to the property is through the Madison Street Connector or Water Street.

INVESTIGATION RESULTS

Based on a review of all the environmental investigations conducted at the site, the analytical results indicated that out of the forty-four (44) sample locations located within the property boundaries, only nine (9) individual samples had contaminants in soil or groundwater that exceeded their respective DNREC Uniform Risk-Based Standard (URS) values for a restricted use (commercial/industrial property). These URS values are guidance values against which DNREC evaluates remediation of the contamination for the given use of the site. The following table describes the contaminant, its concentration as well as its respective URS value:

SOIL

<u>Sample Location</u>	<u>Contaminant</u>	<u>Concentration (mg/kg)</u>	<u>URS (mg/kg)</u>
<u>South Area Composite</u>	Iron	134,000	61,000
	Arsenic (total recoverable)	23.7	11
	Lead (TCLP analysis)	12.6	5
<u>BB-Int2-3-4.6</u>	Iron	81,900	61,000
	Arsenic (total recoverable)	16.6	11
<u>GP-652 (WIK 1998)</u>	TPH-DRO	2,400	1,000
<u>TT 11</u>	Benzo(a)pyrene	5.5	0.8

<u>Sample Location</u>	<u>Contaminant</u>	<u>Concentration (mg/kg)</u>	<u>URS (mg/kg)</u>
<u>TT 18*</u>	Benzo(a)pyrene	1.7	0.8
<u>TT 21*</u>	Benzo(a)pyrene	1	0.8
<u>TT 24*</u>	C19-C18 Aliphatic Hydrocarbons	11,000	2,500
	C19-C36 Aliphatic Hydrocarbons	5,100	5,000
	C11-C22 Aromatic Hydrocarbons	6,300	2,000

* Sample was part of the investigation but was not located within the property boundaries.

BOLD indicates an exceedance of the URS value.

GROUNDWATER

<u>Sample Location</u>	<u>Contaminant</u>	<u>Concentration (ug/L)</u>	<u>URS (ug/L)</u>
<u>TT 3</u>	Vinyl Chloride	2	2
<u>TT 21*</u>	C9-C10 Aromatic Hydrocarbons	230	200
<u>Middle Area Composite</u>	Aldrin	0.032 J	0.004
	Antimony	14.1 J	6
	Manganese	292	50
<u>South Area Composite</u>	Dieldrin	0.11 J	0.004
	p,p- DDD	0.41	0.3
	p,p- DDT	0.42	0.2
	Iron	1,400	300
	Manganese	1,480	50

* Sample was part of the investigation but was not located within the property boundaries.

J= Concentration was detected below the method detection limit and is, therefore, an estimated value.

BOLD indicates an exceedance of the URS value.

The contaminants of concern in soil at the Berger Brothers site include metals, polycyclic aromatic hydrocarbons (PAHs) and other petroleum hydrocarbons. These compounds exceed the URS values for restricted use.

Groundwater at the site contains several contaminants of concern which include metals, volatile organic compounds (VOCs), hydrocarbons and pesticides that exceed groundwater URS values. Groundwater at the site is not suitable as a drinking water source. In the City of Wilmington, the use of groundwater for drinking water purposes is prohibited through a Groundwater Management Zone (GMZ) established by DNREC. This will restrict potential human exposure to contaminated groundwater via consumption. In addition, a vapor barrier will be installed beneath the concrete/asphalt slab of the two (2) new buildings to prevent vapor intrusion of groundwater contaminants.

With respect to the Christina River, mass loading calculations of the contaminants present in groundwater migrating into the Christina River did not result in exceedances of surface water criteria.

REMEDIAL ACTION OBJECTIVES

The following qualitative objectives have been determined to be appropriate for the site:

- Prevent exposure to impacted media;
- Minimize potential exposure to site contaminants of concern for construction workers at the site; and
- Prevent environmental impacts to onsite indoor commercial workers.

These objectives are consistent with the current and proposed future use of the site as a commercial/industrial property in an urban setting, City of Wilmington zoning policies, state regulations governing water supply and worker health and safety.

Based on the qualitative objectives, the quantitative objectives are:

1. Prevent human exposure to soils contaminated by the following contaminants: benzo(a)pyrene, arsenic, lead, and iron, which were found to be at concentrations above their respective restricted-use URS values; and
2. Prevent contact with and vapor intrusion of groundwater contaminated by the following contaminants: PAHs, vinyl chloride, naphthalene, aldrin, dieldrin, DDD, and DDT.

FINAL PLAN OF REMEDIAL ACTION

Based on DNREC's evaluation of the site information, which includes current and past environmental investigations, historical information and the above remedial action objectives, the following alternatives were evaluated including: no action; capping the entire site; and removal of all contaminated soil. It was determined, based on the contamination present at the site, that a combination of the alternatives be implemented as described below:

1. Regrading and capping the entire site with the construction of two (2) new buildings, or an impermeable cover with the following components: 1) a barrier layer that consists of a minimum of a six (6) inch thick or greater compacted low-permeability soil in combination with a concrete/asphalt slab and a vapor barrier to be placed under the new buildings; 2) an erosion layer that is six (6) inches in thickness; 3) a low-maintenance vegetative cover that is sustained by the erosion layer.
2. Implementing a deed restriction within ninety (90) days following DNREC's adoption of the final plan that: 1) prohibits current and future residential use of the property; 2) prohibits any digging, drilling, excavating, grading, constructing, earth moving, or any other land disturbing activities on the property except for routine maintenance as described in the O&M plan without the prior written approval of the DNREC; 3) requires written approval from DNREC prior to any repair, renovation or demolition of the paved surfaces and buildings pursuant to the remedy for the site as described in the O&M plan; 4) prohibits the installation of any water well on, or use of groundwater at, the site without the prior written approval of DNREC, and notes that the site is included in a groundwater management zone (GMZ) for the City of Wilmington.
3. Preparing and implementing a DNREC-approved Operation and Maintenance (O&M) Plan to maintain the integrity of the structures, landscape and asphalt cover and the soil cap.

The GMZ is an internal DNREC document that restricts groundwater withdrawals at the site. DNREC-SIRB will include the site in the GMZ for the City of Wilmington no later than six (6) weeks following DNREC's adoption of the final plan.

DECLARATION

This final plan of remedial action for the Berger Brothers site is protective of human health, welfare and the environment, and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

John Blevins
Director, Division of Air and Waste Management

Date

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Figure 1
Location of the Berger Brothers Site in Wilmington,
New Castle County, Delaware.