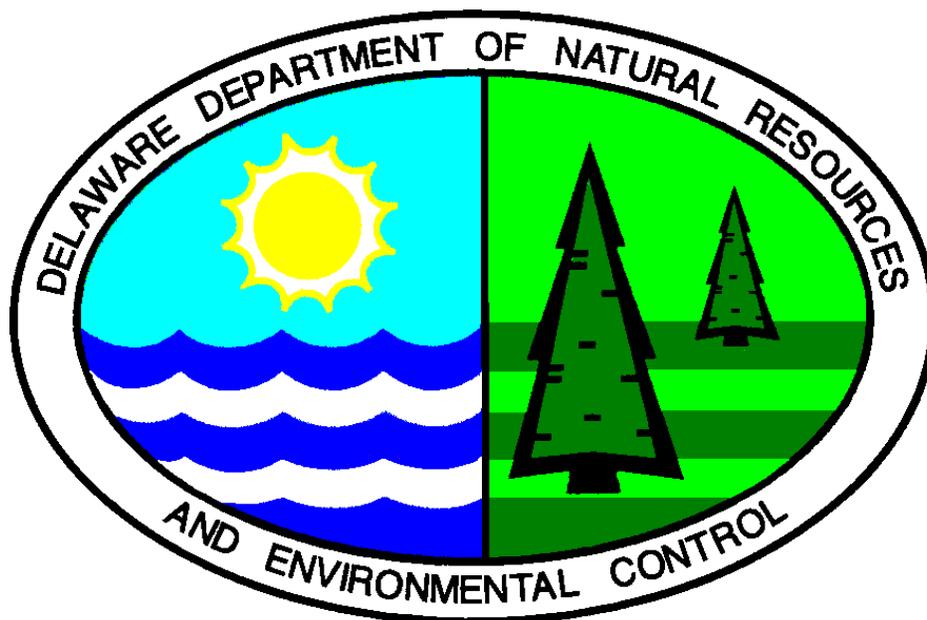


Proposed Plan of Remedial Action

Peninsula Park LLC
E. 7th Street Peninsula
Wilmington, Delaware

DNREC Project No. DE-1147



April 1999

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

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1 INTRODUCTION

In March 1999, the Peninsula Park LLC entered into an agreement with the Department of Natural Resources and Environmental Control (DNREC) under the authority granted by the Hazardous Substance Cleanup Act (HSCA) (7 Del. C., Ch. 91) to conduct a Voluntary Cleanup Program (VCP) Focused Feasibility Study (FFS) at their property located on the E. 7th Street Peninsula in Wilmington, Delaware (Tax Parcels 26-45.00-11, 12). The Peninsula Park LLC hired EA Engineering to prepare the FFS.

The purpose of the FFS is to evaluate risks to public health and the environment associated with identified contamination, and to develop remedial alternatives for the Site if required. The DNREC proposes to incorporate the selected remedial action into the planned construction of the site.

This document is the DNREC-Site Investigation & Restoration Branch's (SIRB) Proposed Plan of Remedial Action for the property. The Proposed Plan is issued under the provisions of HSCA and the Delaware Regulations Governing Hazardous Substance Cleanup ("Regulations"). It presents the DNREC-SIRB's assessment of the risk to public health, welfare and the environment posed by the site, and a comparison of the remedial alternatives.

The DNREC-SIRB will provide the public with 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 DNREC-SIRB shall issue a Final Plan of Remedial Action that shall designate the selected remedial action for the Site.

2 SITE DESCRIPTION AND HISTORY

The Peninsula Park LLC is in the process of developing approximately 12 of the 15 acres of vacant land. This proposed plan deals with only the soil and subsoil portion of the 12 acre project area which includes the Bell Atlantic facility (~6.5 ac), EDIS Lot #3 (~3 ac) and the Tri-State Lot #4 (~2.22 ac).

This proposed plan does not involve an evaluation of the soils in the wooded wetland (Lot #1) area on the west side of the property. It does not address the groundwater media for the entire 15 acres nor the sediment and surface water media along the property in the Brandywine Creek. These media shall be addressed as a second operable unit. See figure 1 for site boundaries that this proposed plan addresses.

The exact history of the property is unknown. Historical industry (1876-1932) to the west of the property included rail car manufacturing, shipbuilding, iron foundry operations, and other heavy industry. Test pit logs from the DNREC-SIRB initiated Brownfield Preliminary Assessment II for the E. 7th Street Peninsula North-Side sampling event (conducted on the property in the Fall

of 1998) revealed municipal waste, black granular sandy material, ash, and ash-like material below construction fill.

The 15-acre site is bordered to the north by the Brandywine Creek, to the east by Industrial Road, and vacant land and light industrial/commercial businesses to the west and north. The site is located within a region targeted for economic revitalization by the city of Wilmington and the Riverfront Development Corporation (RDC). The portion of land being considered for development for Bell Atlantic is bound roughly by Industrial Street, Plant Street (Paper Street), and the wetlands. The proposed development includes one building, at 10,750 square feet, four parking lots that will accommodate 200 vehicles, and associated utilities. EDIS Lot #3 and Tri-State Lot #4 are included in this Proposed Plan but are not subject to immediate development. These three lots are considered Operating Unit I.

3 PREVIOUS INVESTIGATIONS

In October 1998, a Brownfield Preliminary Assessment II (BPA II) was conducted by the DNREC-SIRB on the E. 7th Street Peninsula. The area of investigation was all properties bound by the Brandywine Creek, Industrial Street, E.7th Street and the Amtrak Rail Line. The Peninsula Park LLC Property was part of this investigation. Seven test pits on the property and one on Industrial Road adjacent to the property were excavated. Sixteen samples plus three QA/QC samples were collected and field screened. Four samples were sent for selected analytical analysis.

4 RESULTS OF INVESTIGATION

The Peninsula Park LLC property is extensively filled. Test pit logs show that the fill ranges from 8 feet to an excess of thirteen feet. The backhoe was not able to extend further than 13 feet below ground (BG) level. The depth of the fill increases toward the Brandywine Creek. Water was encountered in TP-19 and TP-21 at 10-12' BG. Municipal garbage was seen in TP-19 at 12' and in TP-26 at 2'. The log from monitor well (MW)-5 shows that fill is present down to 17-18' BG. Water was detected in the well at 11.5' BG. Municipal garbage may be present at 14' BG. Petroleum odors were detected in TP-21, TP-23, TP-24 and TP-26.

Groundwater samples were collected from monitoring well MW-5 located on the property. The monitoring well was constructed for the North-Side sampling event. The groundwater Uniform Risk-Based Standards (URS) set by the DNREC under the HSCA program (EPA) for groundwater.

Analytical data for organics is not available due to some of the data being considered invalid by the DNREC-SIRB.

Qualitatively, the organic data available suggests that there are no Total Compound List (TCL) volatile compounds at significant concentrations. In addition there were no Pesticides,

Polychlorinated Biphenyls (PBCs) or Semi-volatiles detected. The data does indicate the presence of petroleum compounds in the volatile analytical runs.

A **Surface water sample** was collected from a wetland on the property. The sample was not sent for confirmatory analysis.

Sediment samples were collected from the wetland onsite and the Brandywine Creek. The samples were not sent for confirmatory analysis due to relatively low screening levels utilizing the DNREC-SIRB mobile laboratory.

Soil samples were collected from 8 test pits. Eight shallow and 8 deep soil samples were collected as well as 3 quality assurance /quality control (QA/QC) samples. Four samples were sent for further chemical analysis to a fixed laboratory. Overall, shallow and deep samples are contaminated with Analytes, PAHs, and Pesticides/PCBs. All four samples had Arsenic and Lead contamination above the HSCA URS for Restricted Critical Water Resource Areas and PAH Benzo(a)pyrene was detected in TP-23S at 800 ppb which is equal to the HSCA URS benchmark of 800 ppb.

The analytical data indicates there are numerous Tentatively Identified Compounds (TICs). TP-17D, TP-22D and TP-23S contain 3, 4 & 5 ring PAH (C11-C22 Aromatics) which are petroleum compounds. The greatest concentrations for these PAHs were in TP-19D at 1,230 ppb and TP-23S at 1,410 ppb. TP-17D and TP-22D contain Hexadecanoic acid at 160 ppb and 210 ppb respectively. Additionally, the DNREC-SIRB analytical chemist states "TP-23s contains a dielectric fluid/lubricant. This is confirmed by the presence of PCBs. The result appears to exceed the DNREC-SIRB Uniform Risk-Based (URS) benchmark of 5,000 ppm for C18-C36".

5 REMEDIAL ACTION OBJECTIVES

According to 8.4(1) of the Regulations, during a remedial investigation remedial action objectives must be established. For the Peninsula Park LLC property, remedial action objectives were developed based on the findings identified during the Brownfield Preliminary Assessment II. These findings are:

- ❖ The site is currently vacant open land with approximately 3 acres of wooded wetland.
- ❖ The proposed future use of the site is light industrial.
- ❖ Surrounding land uses are vacant, commercial, and light industry.
- ❖ The site is within 2,600 feet southeast of a residential population. The nearest workers are located to the north and south of the property between 200 and 600 feet. The workers involved in commercial and light industrial jobs including auto repair, bridge fabricating, warehousing and clean fill operations.

- ❖ Inorganics such as arsenic and lead, and organics such as PAHs and PCBs have locally impacted soil at the site. Most notable PAH was TP-23S which had Benzo(a)pyrene at 800 equal to the HSCA URS of 800 ppb.
- ❖ Screening data for sediments from the site along the Brandywine Creek indicate Arsenic and Lead as well as PAH and pesticide contamination.
- ❖ Analytical data for groundwater at the site indicates there is inorganic (Arsenic, Iron, Manganese and Thallium) contamination. Data, though inconsistent between QA/QC samples, indicates the presence of petroleum in the volatile analytical runs.

The planned future site use in the area of investigation is light industrial. The property will become a switching station for Bell Atlantic, warehousing for EDIS, and warehousing and office space for Tri-State. This area of construction will be considered Operating Unit I. OU-I will deal with the soil media across 12 acres (the 3-acre wooded wetland is not included) and the sediments in the drainage easements.

5.1 Qualitative Remedial Action Objectives

Based upon these objectives, the Qualitative Remedial Action Objectives for Operating Unit I on the site are as follows:

- ❖ Control potential human and ecologic contact (dermal, ingestion, and inhalation) with contaminated soil or municipal waste across the 12 acres,
- ❖ Control soil erosion and the subsequent transportation of contaminated soil into the surface water, and
- ❖ Control ecological contact with contaminated soil, sediments, and surface water in the wetland area of Operable Unit I.

5.2 Quantitative Remedial Action Objectives

Based on the above Qualitative Remedial Action Objectives, the following Quantitative Remedial Action Objectives were developed using the Delaware Uniform Risk Based Standards (URS) for Restricted Use in a Critical Water Resource Area:

1. Prevent human and ecological receptor contact with soil that has an Arsenic concentration greater than **3.0 milligrams/kilogram (mg/Kg)**,
2. Prevent human and ecological receptor contact with soil that has a Lead concentration greater than **1,000 mg/Kg**,
3. Prevent human and ecological receptor contact with soil that has a benzo(a)pyrene concentration greater than **0.8 mg/Kg**,

4. Prevent human and ecological receptor contact with soil that has a total PCB concentration greater than **1.0 mg/Kg**,
5. Prevent human and ecological receptor contact with C18-C36 total petroleum hydrocarbons in excess of **5,000 mg/kg**.

6 POTENTIAL REMEDIAL ALTERNATIVES

To accomplish the remedial action objectives, three remedial alternatives were identified.

1. No further action would be required,
2. Containment of soil material exceeding the Restricted Non Critical Water Resource Area for the protection of human health, or
3. Complete removal of material exceeding the Restricted Non-Critical Water Resource Area for the protection of human health.

Alternative 1: No Further Action: This alternative does not require any measures be taken to remedy the contamination present at the site.

Alternative 2: Soil Containment: This alternative would involve containment of contaminated soils above the DNREC-SIRB URS levels for **Restricted Critical Water Resource Areas** by placing the soils under building foot prints, placement of a minimum of one foot of clean fill – six inches of crush and run and 4 inches of asphalt, capping in parking lots, or using a geotextile fabric assigned by the DNREC-SIRB (i.e., Amoco 4508) between the contaminated soil and a minimum of two feet of clean fill on top in open space areas. In addition, the property owner will place a restriction on the deed to the property limiting its to commercial/industrial purposes only. A statement will be included in the deed restriction requiring prior DNREC approval for any excavation activities following the remediation. The wetland area identified in Operable Unit I shall be remediated to the following protocol.

1. Analytical characterization and/or excavation of sediments and surface water in the 20' and 30' wide drainage easements to the northwest of the future Bell Atlantic Switching station.
 - (a) Excavation of sediments will be to Delaware URS levels for Restricted Critical Water Resource Areas,
 - (b) Field screening and subsequent analytical testing will be for metals, Pest/PCBs and semivolatiles.
2. The excavated wetland will need to be rehabilitated and/or recreated in accordance with Delaware wetland rehabilitation/creation guidelines,

3. Excavated soils and sediments may be reviewed pursuant to provisions conveyed above for containment.

An operation and maintenance plan shall be developed by the consultant and approved by the DNREC for this site following the remediation of the property.

The remedial action conducted for the soil and subsoil for this Operable Unit shall not affect the Department's decision regarding the need to remedy groundwater at this site. Any additional cost incurred for the remediation of groundwater at this site as a consequence of the planned development or the completed development for this site shall be borne by the current VCP applicant, or the successor to this Site.

Alternative 3: Complete removal of soil exceeding the Restricted Non-Critical Water Resource Area for the protection of human health.

7 REMEDIAL ALTERNATIVES EVALUATION

Pursuant to Subsection 8.5 of the Regulations, remedial alternatives are evaluated against the nine criteria identified below in bold type. A remedial alternative is considered acceptable if it can be shown to meet the requirements of all nine criteria. The following is a comparison of the three remedial alternatives to the nine criteria.

Protection of public health, welfare and the environment - Alternative 2 provides long term protection by physically isolating the site soils from the zone of casual human contact. Alternative 2 introduces an increased short-term risk of exposure during implementation due to increased material handling. Development and implementation of a Workers Health and Safety Plan during construction activities will address this concern. Alternative 1 does not offer any additional protection to public health, welfare and the environment. Alternative 3 fulfills these criteria by the removal and off-site disposal of all hazardous substances.

Compliance with all applicable local, state and federal laws - Alternatives 2 and 3 comply with all applicable local, state and federal laws if implemented properly. Alternative 1 would not comply with all applicable laws and regulations.

Community acceptance – It is anticipated that Alternatives 2 and 3 would be acceptable to the community. Alternative 1 would probably not be acceptable to the public.

Monitoring required - Alternative 1 and 2 would require additional monitoring upon completion of OU-I. Alternative 2 would require general maintenance of the containment remedy. Alternative 3 would not require monitoring since all contaminated soils above the HSCA URS would be removed.

Technical practicability - Alternatives 1, 2, and 3 are technically practicable. Alternative 1 does not offer protection to human health or the environment. Alternative 2 is feasible within a workable time frame and would provide the required protection to human health and the

environment. Alternative 3, though technically practicable, would require extensive excavation, shoring of trench areas and extensive dewatering.

Restoration time frame – Alternative 1 would not have a restoration time frame since there would be no remediation. Alternative 2 would take several months to implement as the property is developed. Alternative 3 could be accomplished within a one-year time span.

Reduction in toxicity, mobility and volume – Alternative 1 would not reduce the volume nor would it reduce the toxicity or mobility of contaminants. Alternative 2 would reduce mobility and minimize exposure to potentially toxic material; the volume and concentration of contaminated material would generally remain the same. Alternative 3 would eliminate toxicity and mobility of contaminants by excavation of all soils above HSCA URS levels.

Long term effectiveness – Alternative 1 would not be effective since remediation would not occur. Alternative 2 is effective in protecting public health, welfare and the environment, and will be maintained by the implementation of the Operation and Maintenance Plan to be developed during remedial design phase. Alternative 3 would also be an effective remedy over the long term.

Short-term effectiveness – Alternative 1 does not provide short-term protection. Alternative 2 is protective of public health, welfare and the environment. Potential short-term risks from exposure to excavated materials will be minimized through the use of appropriate Health and Safety procedures, excavation and filling procedures and site access controls. Alternative 3 would decrease short-term effectiveness due to the extent of soil disturbance during excavation of all contaminated material.

8 PROPOSED REMEDIAL ACTION PLAN

Based on the above criteria, Alternative 2 (permanent capping with buildings, paved parking lots, and a combination of geotextile fabric and clean fill) is the proposed remedial action to be undertaken at the property. This remedy complies with all the factors considered in the selection of a remedial action, and this remedy is as equally protective as Alternative 3. In addition, pursuant to HSCA Regulation Subsection 8.5(c), preference shall be given to the remedial action that is most cost effective. Alternative 2 is more cost effective than Alternative 3. Therefore, Alternative 2 is the Department's preferred remedy for this site.

9 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 & Restoration Branch
ATTN: Karissa D. Hendershot
391 Lukens Drive, Riveredge Park
New Castle, Delaware 19720
(302) 395-2618.

A public hearing is scheduled for May 13, 1999.

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