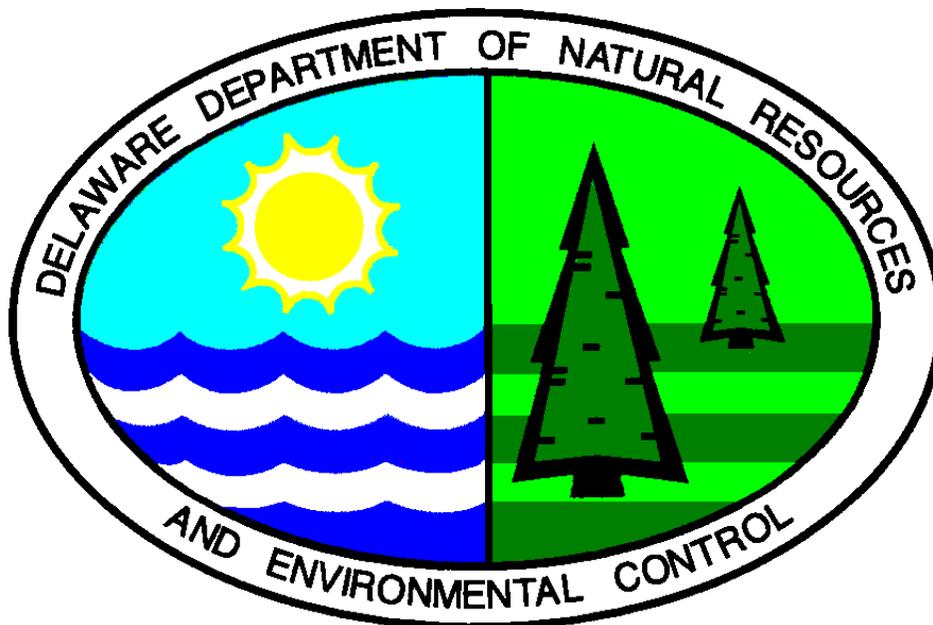


**FINAL PLAN OF REMEDIAL ACTION**

**FOR THE**

**NEWPORT BOAT RAMP SITE  
NEWPORT, DELAWARE**



**December, 2000**

**Prepared by:**

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

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## **I INTRODUCTION**

The Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife (DNREC-Fish & Wildlife), with concurrence with the DNREC Site Investigation and Restoration Branch (DNREC-SIRB), performed a Remedial Investigation (RI)/Focused Feasibility Study (FFS) of an approximate 2-acre site located along the Christina River within the City of Newport Delaware that is proposed for development in the future as a boat ramp facility. The work was conducted as per the Delaware Hazardous Substance Cleanup Act (“HSCA”) 7 Del. C. Chapter 91. The purpose of the RI/FFS conducted for this site was to:

1. Identify potential sources of contamination within the area proposed for boat ramp development, and
2. Develop remedial alternatives for the detected contamination that would protect human health and the environment during and after construction of the boat ramp.

To accomplish these purposes, Tetra Tech, Inc. was contracted by DNREC Fish and Wildlife to perform an environmental assessment/remedial investigation that included soil, sediment, and ground-water sampling and analysis in the area proposed for boat ramp development to characterize the existing levels of contaminants from past site activities. The collection and analysis of these samples was performed in accordance with HSCA, the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), Delaware Standard Operating Procedures for Chemical Analytical Programs (SOPCAP), guidance documents, and other Department policies and procedures.

## **II PURPOSE**

This document is the Department’s Final Plan of Remedial Action (Final Plan) for the site. It is based on the technical reports of an environmental assessment (RI), focused feasibility study, the remedial action objectives, and the Regulations. The Final Plan presents the Departments assessment of human health and environmental risks associated with the site.

The Department provides 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 will review and consider the comments received and will issue the Final Plan of Remedial Action (Final Plan) that designates the remedial action and the selected procedures and stipulations concerning future activities within the site. This Final Plan, the comments received from the public, the Department’s response to the comments, the drafted Proposed Plan, and all of the documents that form the basis for the Proposed and Final Plans of Remedial Action will constitute the “Remedial Decision Record.”

## **III SITE DESCRIPTION AND HISTORY**

The Newport Boat Ramp site is a approximate 2+ acre parcel with adjacent lands owned by the City of Newport located along the north bank of the Christina River approximately 1,600 feet south of the east end of Water Street in the City of Newport. This property is being developed by DNREC Fish & Wildlife as a boat ramp for the Christina River.

The site has been owned by the City of Newport since 1983. In general, there are no records indicating specific uses of the site, and historical data indicates no development or identifiable

land use at the site from the early 1900's through the present. The land has generally been vacant since the early 1900's, although the site was used as a barge loading area in mid-late 1999 as part of a remediation project being conducted upstream from the site at the Dupont Newport site. However, the site is adjacent to an area with a long history of industrial activities.

A remedial investigation (RI) was conducted at the site in Spring 1999 (Environmental Site Assessment of the Newport Boat Ramp, Newport, Delaware, prepared by Tetra Tech, May 1999), and a Focused Feasibility Study (FS) Report was prepared in Summer 2000 (Newport Boat Ramp Site Focused Feasibility Study Report, prepared by Tetra Tech, August 2000).

## **IV INVESTIGATION RESULTS**

The site contains a wide variety of analytes that are common to urban settings, including heavy metals, Polynuclear Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), and pesticides. These analytes were found in the surface soil, subsurface soil, and Christina River sediments at the site. Ground water at the site appears to be un-impacted.

The surface and subsurface soil contain concentrations of various heavy metals, PAHs, and PCBs that exceed the HSCA unrestricted human health Remediation Standards (URS) and environment URS. However, the exceedances are generally less than an order of magnitude greater than the unrestricted URS values, and many analytes are present at concentrations that would not exceed the restricted URS values. The distribution of analytes in the soil appears to be random, and there is no evidence of obvious source areas or widespread contamination at the site.

The Christina River sediment sampled as part of the study contain concentrations of various heavy metals that are in excess of environment URS, and in some cases, the unrestricted human health URS. However, the concentrations are consistent with concentrations detected in other sections of the Christina River, and are considered to be anthropogenic for the waterway.

In summary, most of the soil contamination is localized in nature, appears to be related to fill material, and generally exhibits low level contamination. Further, many of the analytes which exceed the unrestricted URS values do not exceed the restricted URS value, which indicates that the site poses only a minimal risk, if any, to human health and the environment. There was no evidence of free product, and there is no evidence of "hot spots" or contamination at concentrations, which exceed a risk of  $10^{-4}$ , or a hazard index of 10 that would require special attention.

The information gathered during the RI/FFS was used to develop this Final Plan of Remedial Action.

## **V REMEDIAL ACTION OBJECTIVES**

According to HSCA regulations 8.4(1), remedial action objectives must be established during a remedial investigation. There were designed based on the following factors:

- The site will be developed as a boat ramp facility, with driveways, parking lots, sidewalks, a storm water detention pond, and a boat ramp extending out into the Christina River.
- The surrounding land use is industrial and commercial, and the site is surrounded on two sides by the Christina River and a lagoon adjacent to the Christina River.
- Selected areas of surface and subsurface soil contain heavy metals and PAHs, primarily associated with the historic placement of fill at the site.
- The Christina River sediment contains heavy metals and PAHs, originating from a wide variety of documented sources upstream of the site.
- Ground water at the site does not appear to be impacted.
- After construction of the boat ramp, the future exposure pathways are limited, and would only include construction worker contact with soil
- The concentrations detected exceed HSCA URS values, but the exceedances are generally less than one order of magnitude greater than the URS values. The overall risk to human health and the environment is low.

### ***Qualitative Remedial Objectives***

- Control potential human contact (dermal and ingestion) with contaminated soil and sediment; and
- Control soil and sediment runoff into the Christina River

### ***Quantitative Remedial Objectives***

- Prevent future site users from directly contacting soil having constituents which exceed a risk of 10E-05 or a hazard index of 1; and
- Prevent future construction workers from directly contacting existing soil to an extent that would result in an unacceptable risk.

## **VI PROPOSED REMEDIAL ACTION PLANS**

The proposed remedial actions reviewed were based upon the Remedial Action Objectives.

### ***Potential Remedial Alternatives***

Three potential remedial alternatives were evaluated to address the remedial action objectives. The alternatives for the site were as follows:

Alternative 1: No Action -- This alternative would consist of no additional remedial measures related to the construction/operation of the boat ramp except the requirement for special health and safety considerations to protect workers during construction activities; and deed restrictions or notices to ensure that any future subsurface work at the site will require special health & safety considerations to protect workers during construction activities.

Alternative 2: Capping -- This alternative would consist of capping the entire site using an asphalt cap to prevent human health exposure and sediment runoff from the site into the Christina River. This alternative can be easily incorporated into the boat ramp facility design which already includes nearly complete asphalt parking lot paving, sidewalks, etc. of the site that would meet the objective of preventing human contact with the underlying soil and eliminate soil runoff from the site

Alternative 3: Excavation and Off-Site Disposal – This alternative would consist of the excavation and off-site disposal of surface soil areas and associated subsurface soils, and dewatered sediments that exceed the unrestricted or ecological URS values. This remedial approach would result in no deed or property restrictions, and would result in the unrestricted use of the site.

## **VII FINAL PLAN OF REMEDIAL ACTION**

Based on the information and results of the environmental assessment/RI performed at the Newport Boat Ramp site, the DNREC-SIRB concludes that remedial action is required to prevent contact with site soil and sediment, and to eliminate runoff from the site.

The Final Plan for the Newport Boat Ramp site recommends that Alternative 3 be implemented to provide adequate protection to public health and the environment. The No Further Action alternative and the Cap Construction alternative (as a stand alone alternative) were not considered as viable alternatives for this site. Although both of these alternatives are generally protective and would meet the overall remedial objectives given the nature of the site development (i.e., paving of most of the site), residual contamination would remain at the site, and it would require a deed restriction. A deed restriction was not considered acceptable for this site because of development considerations, which requires that the site be considered “clean” as part of the funding of boat ramp construction.

Alternative 3 is the localized removal of impacted soil and sediment (where required as part of boat ramp construction) and the off-site disposal of this material to an appropriate and permitted facility. Approximately 1000 tons of soil and sediment are estimated to be impacted at the site (based on the findings of the environmental assessment/remedial investigation). Most of the impacted soil appears to be fill material placed historically at the site, and not the native material. During construction, special worker health and safety precautions will be implemented to minimize exposure to soil and sediment, and sediment and erosion control measures will be constructed as required to control runoff from the site construction activities.

The long-term elimination of soil runoff from the site will be accomplished through the development of the site into a boat ramp, which will result in the capping of a large percentage of the site with driveway, parking lot, sidewalk, and the installation of a storm-water collection and treatment (detention pond) system mandated by storm-water control and sediment and erosion control requirements.

Compliance monitoring will consist of the collection of demonstration of attainment confirmatory soil samples only, and waste characterization sampling and analysis for purposes of waste disposal evaluation. Once the attainment of remediation standards has been demonstrated, and construction is complete, there is no further compliance monitoring requirement.

## **VIII PUBLIC PARTICIPATION**

The Department actively solicited public comments or suggestions on the Proposed Plan of Remedial Action.

The public comment period for the Proposed Plan of Remedial Action began Friday January 05, 2001 and ended at the close of business (4:30 p.m.) on February 02, 2001. No comments were received and no public hearings were requested.

## **IX DECLARATION**

This Final Plan of Remedial Action for the Newport Boat Ramp site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

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Date

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