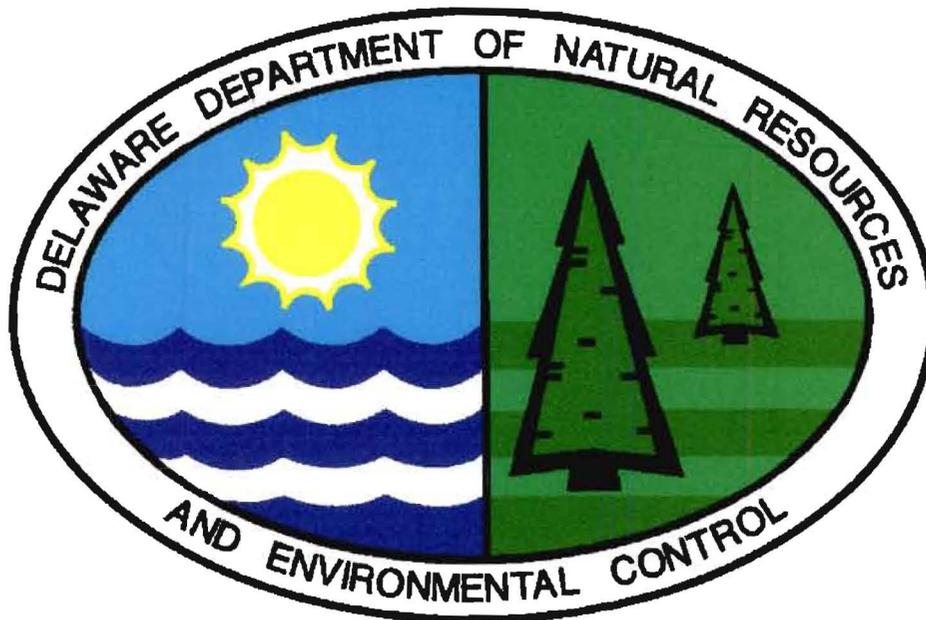


**REVISED
PROPOSED PLAN OF REMEDIAL ACTION
FOR THE
NVF-NEWARK COMPANY SITE
NEWARK, DELAWARE**



January, 2000

**DNREC Project DE-199
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Division of Air and Waste Management
Site Investigation and Restoration Branch**

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I INTRODUCTION

In April 1998, Environmental Alliance, Inc. ("Alliance"), on behalf of Commonwealth Management, Inc., conducted a Facility Evaluation ("FE") and Focused Feasibility Study ("FFS") of the National Vulcanized Fibers ("NVF") Company facility in Newark, Delaware under the direction of the Hazardous Substance Cleanup Act (HSCA)-Voluntary Cleanup Program (VCP). The FE/FFS was conducted in accordance with the Delaware Regulations Governing Hazardous Substance Cleanup ("Regulations") and the FE/FFS workplans previously approved by the Department of Natural Resources and Environmental Control, Site Investigation and Restoration Branch ("DNREC-SIRB"). The FE/FFS included the sampling of surface soil, subsurface soil, surface water, sediments, and groundwater at various locations throughout the facility.

The FE was completed in December 1998 and the FFS was completed in March, 1999.

A Final Plan of Remedial Action ("Final Plan") was issued in May 1999 by the DNREC-SIRB which included the following plan of recommended remedial action:

- Excavation of zinc, and lead impacted soil above the quantitative RAO standards. Placement of zinc and lead impacted soil under a building footprint. Placement of a deed restriction that prohibits excavation greater than a depth of 3 feet in areas of concern identified on a property map without DNREC-SIRB approval (i.e. under the building footprint). Removal of sediments from the White Clay Creek in exceedence of a zinc concentration of 410 mg/kg with either on-site storage and containment or off-site disposal. Excavation, removal and off-site disposal of TCLP lead failing soil and soil contaminated by hydrocarbons in excess of the DNREC URS Standards listed as quantitative remedial action objectives.

In October 1999, at the request of Commonwealth Management, Inc., Alliance contracted RMT, Inc to conduct a treatability study on soils exceeding the leachable lead remedial action objective ("RAO") of 5 mg/l. Departmental review of the results of this study indicated that on-site stabilization of leachable lead could be successfully performed.

As such, the Proposed Plan is being re-issued to incorporate the on-site stabilization of leachable lead containing soils into the recommended plan of remedial action for the site.

II PURPOSE

This Proposed Plan of Remedial Action ("Proposed Plan") is based on the FE/FFS and treatability study completed by Alliance, on behalf of Commonwealth Management, Inc. The Proposed Plan is issued under the provisions of the Delaware Hazardous Substance Cleanup Act, 7 Del.C. Chapter 91, (HSCA") and the Regulations Governing Hazardous Substance Cleanup ("Regulations"). This Proposed Plan presents the Department's assessment of the human health and environmental risk posed by the impacted areas of concern.

The Department will provide public notice and opportunity to comment on the re-issued Proposed Plan in accordance with HSCA and Section 12 of the Regulations. At the conclusion of the comment period, the Department, after review and consideration of the comments received, shall re-issue a Final Plan of Remedial Action ("Final Plan") which will designate the selected procedures and stipulations concerning current and future activities. The Proposed Plan, the comments received from the public, the Department's responses to the comments, and all of the site documents form the basis for the re-issued Final Plan.

The contents of this Proposed Plan include a description of the site, the analytical results of the FE, FFS and a discussion of the treatability study the site.

Site Description and History

The NVF-Newark site is located in the northern portion of the City of Newark as shown in Figure 1. The site is bounded by Margaret and Race Streets and the White Clay Creek. The site (Figure 2) occupies approximately 20± acres, as reported by NVF. The Curtis Paper Mill is located approximately 0.1 miles to the northwest along Paper Mill Road. This property is upstream of the NVF facility along White Clay Creek. Properties to the south and northeast of the NVF facility are primarily residential. The land directly across White Clay Creek to the north appears to be agricultural and undeveloped. A commercial automobile sales lot is adjacent to the southeastern part of the NVF facility.

The site was used as a mill for fiber products since the late nineteenth century. The mill expanded and operated up to its closing in 1990. The facility was used for the production of waterleaf paper and vulcanized fiber products in the form of boards, sheet and tubes. Additionally, insulating fiber blocks were produced for the railroad industry. Cloth rags were the raw material used to create a pulp for these processes. Aluminum sulfate (alum) was used in the pulp digestion process to bring down the pH to 3.0. Zinc chloride was used in the laminating process. Zinc chloride solutions were utilized in wooden vats to treat fiber products. Pigment and dyes were also used in the process. Other material used included fuel oil, hydraulic oils, and solvents (mineral spirits) for plant operations. The primary waste generated by the plant was zinc chloride sludge.

The plant is constructed in part with wood and soil floors, which may have allowed spills of zinc chloride solutions to enter the soil. The cutting and grinding operations generated waste water and cellulose fibers. Process wastewater was pumped through an industrial waste force main to the county sewer system, while the dried cellulose fibers were placed in three on-site drying beds. Non-contact cooling water, used for the surface condensation (which concentrated zinc chloride sludge), was discharged into White Clay Creek. Surface water runoff from the exterior of the plant also discharged into White Clay Creek.

In February 1998, DNREC and Commonwealth Management, Inc., signed a VCP Agreement allowing EA, the consultant to Commonwealth Management, inc., to conduct a FE at the site. The FE was conducted to determine the type and source of contamination and whether cleanup at the site was necessary.

III INVESTIGATION RESULTS

In April 1998, the FE was conducted by Alliance at the NVF-Newark site in accordance with the Regulations and the FE/FFS workplan approved by DNREC-SIRB. The Department requested that the investigation determine the existence, or non-existence of contamination in site soils, groundwater, and surface water, and sediment of White Clay Creek adjacent to the northern portion of the site. The scope of work included 38 sampling locations for surface soil, 10 for surface water, 10 for sediment, 24 for subsurface soil, and 6 for groundwater (see Figure 3, 4 and 5). The samples were collected in accordance with procedures described in the approved Workplan and were screened by use of the DNREC Mobile Laboratory (DML). The DML screened solid matrix samples for metals, polynuclear aromatic hydrocarbons (carcinogenic), pesticides, and polychlorinated biphenyls (PCBs). Selected samples (i.e. no less than 10% of samples) were analyzed by Envirotech Research, Inc., a Delaware Certified HSCA laboratory, using Standard Operating Procedures for Chemical Analytical Programs (DNREC, 1997) procedures and methods.

As a result of the completion of the FE, contaminants of concern were identified in site soils and stream sediments that will require remedial actions. These include soils containing zinc, and soils containing lead that leaches when subjected to Toxicity Characteristic Leaching Procedure (TCLP) extraction. The TCLP test mimics the conditions found in a municipal landfill, where materials are exposed to acidic leachates. In addition, soil surrounding several underground storage tanks (USTs) were found to be contaminated by Total Petroleum Hydrocarbons (TPHs) which will require remedial action. Finally, stream sediment, in a localized area of the White Clay Creek adjacent to the former production area (SED -5), was found to contain zinc at concentrations exceeding state Uniform Risk Standards (URS) for Protection of the Environment. Sediment sample SED-32A was not collected from White Clay Creek, but rather from a localized drainage area in the open tub area on the eastern portion of the site. Contaminants detected in this sampling location (SVOC's) will be addressed as per the zinc-contaminated soil.

According to HSCA regulation 8.4(1) remedial action objectives must be established for all Plans of Remedial Action. The remedial action is evaluated utilizing both the Qualitative and Quantitative Objectives. The following considerations were taken into account in the development of the Qualitative and Quantitative Objectives:

- The site will be developed into residential and commercial property, and
- The site is located adjacent to the White Clay Creek.

The Qualitative Objectives for this site are:

- Prevent human contact with contaminants of concern; and
- Eliminate ecologic receptor contact with elevated zinc concentrations in the sediments of the White Clay Creek.

Based on the qualitative objectives, the quantitative objectives that the DNREC-SIRB determined will meet the qualitative objectives include:

- Prevent human contact with soils contaminated with zinc over 5,000 mg/kg.
- Perform an in-situ stabilization treatment of the leachable lead containing soils located within the former Tub Building in order to eliminate potential future exposure to these soils that leach lead at a concentration in excess of 5 mg/l when subjected to TCLP extraction, and eliminate exposure to all additional lead containing soils in excess of 400 mg/kg, and
- Complete the UST and associated TPH contaminated soil removals to the satisfaction of the DNREC-Underground Storage Tank Branch and DNREC-SIRB Branch. The DNREC-SIRB URS Cleanup Standard is 100 mg/kg for C-5 through C-8 aliphatic hydrocarbons, 1000 mg/kg for C-9 through C-18 aliphatic hydrocarbons, and 2,500 mg/kg for C-19 through C-36 aliphatic hydrocarbons.

The UST and TPH contaminated soil removal was completed by Alliance in July 1999. A UST Removal Report was submitted by Alliance to the DNREC-UST Branch in September 1999 and was subsequently approved by the DNREC-UST Branch. Therefore, based on the above, the qualitative objective pertaining to the UST and TPH concerns has been removed from this revised Proposed Plan.

Three remedial alternatives were evaluated to address the RAOs. The alternatives for the site are as follows:

Alternative 1: No action. The site would be developed without any DNREC-SIRB requirements to remedy any soil and sediment.

Alternative 2: Excavation of zinc, and lead impacted soil above the quantitative RAO standards. Placement of zinc and lead (>400ppm, but <5mg/l TCLP) impacted soil under a building footprint. Placement of a deed restriction that prohibits excavation greater than a depth of 3 feet in areas of concern identified on a property map without DNREC-SIRB approval (i.e. under the building footprint). Perform an in-situ stabilization treatment of the leachable lead containing soils located within the former Tub Building in order to eliminate potential future exposure to these soils that leach lead at a concentration in excess of 5 mg/l when subjected to TCLP extraction and place these non-hazardous rendered soils under the building footprint.

Alternative 3: Excavation, removal and off-site disposal of all contaminated soils and sediments that exceed the quantitative RAO's.

The details of each remedial alternative are conveyed in the Alliance FFS for the site.

Zinc concentrations, above the URS screening criteria, were found in sediment samples collected from the White Clay Creek in the area immediately adjacent to the Fiber Mill buildings during

the FE. The principal contaminant of concern at the NVF-Newark site is zinc. An assessment of the benthic organisms in the sediments (DNREC Rapid Bioassessment Project (RBP, December 1998)) concluded that a mild toxicity condition existed in the sediments that contained zinc above the screening concentration. A cleanup standard of 410 mg/kg for zinc was established in association with medium level effects (effects range-medium, ERM) developed by the National Oceanic and Atmospheric Administration (NOAA).

A high water storm event on September 15-16, 1999 increased stream flow in White Clay Creek by a factor of at least 400, according to United States Geological Survey (USGA) provisional data. This flooding removed significant quantities of soil and sediment from the subject area and deposited additional sediment from upstream. This storm event created a need for additional data regarding zinc concentrations in the proposed sediment removal area.

The additional data collection occurred in October 1999. The total zinc results ranged from 11.8 mg/kg to 166mg/kg. As a result of this resampling of the White Clay Creek, none of the results exceeded the March 1999 Proposed Plan RAO of 410 mg/kg. Therefore, based on the additional data collected, the alternative for the sediment removal along the southern portion of the creek has been removed from the Proposed Plan.

IV REVISED PROPOSED PLAN OF REMEDIAL ACTION

Based upon the information and results of the investigation performed at the NVF Company facility in Newark, Delaware, the DNREC-SIRB recommended plan of remedial action is Alternative 2. Alternative 2 meets or exceeds all the criteria utilized in the evaluation of remedial alternatives that is conveyed in Subsection 8.5 of the Regulations and is the most cost effective remedy. Additional information regarding the evaluation of the remedial criteria is contained in the Alliance FFS for the site.

V PUBLIC PARTICIPATION

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

Department of Natural Resources and Environmental Control
Site Investigation and Restoration Branch
Attn: Paul W. Will
391 Lukens Drive
New Castle, Delaware 19720

Or call (302) 395-2600. The public comment period for this revised Proposed Plan of Remedial Action begins on January 2, 2000 and closes at the close of business (4:30p.m.) on February 8, 2000. If so requested, a public hearing on the revised Proposed Plan will be held. The meeting time and place will be announced if said meeting is requested.

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