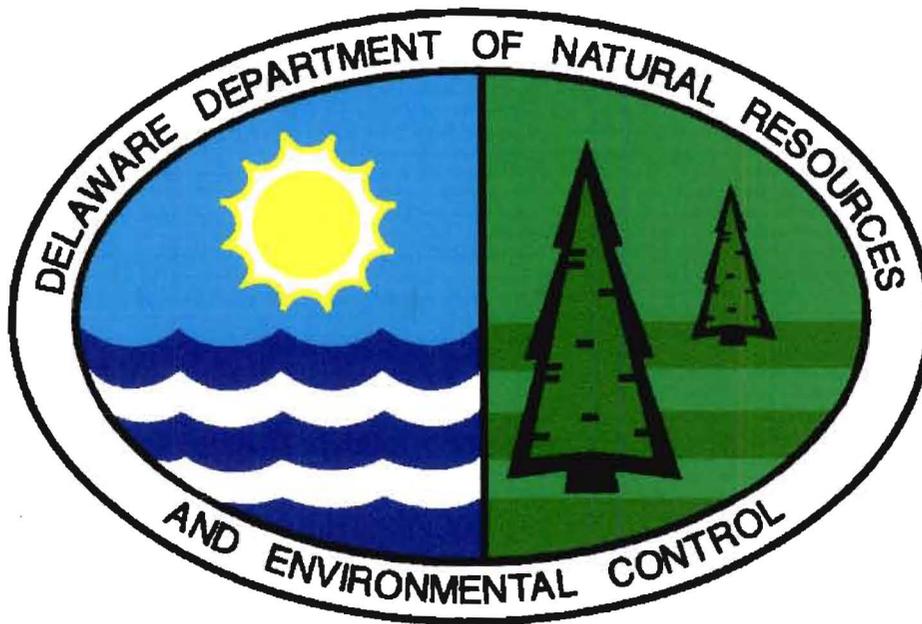


**REVISED
FINAL PLAN OF REMEDIAL ACTION
FOR THE
NVF-NEWARK COMPANY SITE
NEWARK, DELAWARE**



May, 2000

SCANNED

SEP 27 2000

DE 199

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**DNREC Project DE-199
Project Officer: Ann L. Breslin**

**Prepared by:
Delaware Department of Natural Resources and Environmental Control
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 was 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 revised Final Plan of Remedial Action (“Final Plan”) is based on the FE/FFS and treatability study completed by Alliance, on behalf of Commonwealth Management, Inc., and presents to the public the Department’s final selection of any remedial activities to occur at the NVF-Newark Company site. This Final 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”).

The Department provided public notice and opportunity to comment on the re-issued Proposed Plan in accordance with HSCA and Section 12 of the Regulations. This Final Plan, which designates the selected procedures and stipulations concerning current and future activities, the revised Proposed Plan, any comments received from the public, the Department's responses to the comments, and all of the site documents forming the basis for the re-issued Proposed and Final Plans will constitute the remedial decision record required for re-issuing the Final Plan.

Included in Section II is a site description for the NVF-Newark Company site. Section III provides a description of the investigation results. Section IV presents the revised Proposed and Final Plans of Remedial Action. Section V discusses public participation requirements and Section VI presents the Director's declaration.

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 Alliance, 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, Alliance conducted the FE 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, soils 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 would 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 was removed from the 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 FINAL 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 final plan of remedial action is Alternative 2. As stated in Section III, a repeat of the December 1998 Rapid Bioassessment Project (RBP) is to be performed in December 2000 to see if the “mild toxicity” conditions that were present in 1998 have stabilized.

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.

Secretary’ Order No. 2000-A-0024 was issued on May 23, 2000 adopting the revised Proposed Plan of Remedial Action for the NVF-Newark Company site as the Final Plan of Remedial Action.

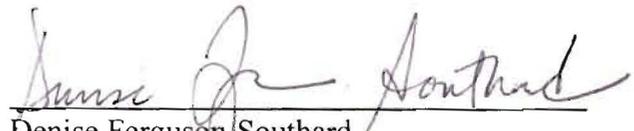
V PUBLIC PARTICIPATION

The Department actively solicited public comments or suggestions on the revised Proposed Plan of Remedial Action and welcomed opportunities to answer questions. Several comments were received. A copy of the “Department Response to Public Comments on the Revised Proposed Plan of Remedial Action” is available at the DNREC-SIRB office, 391 Lukens Drive, New Castle, Delaware, 19720.

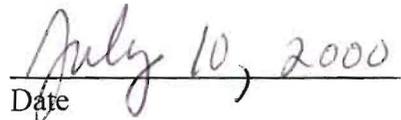
The public comment period for the revised Proposed Plan of Remedial Action began on January 2, 2000 and closed at the close of business (4:30 p.m.) on February 8, 2000. A public hearing on the revised Proposed Plan was held on March 28, 2000. A copy of the hearing transcript is also available for public review at the above address.

VI DECLARATION

This Final Plan of Remedial Action for the NVF-Newark Company site is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

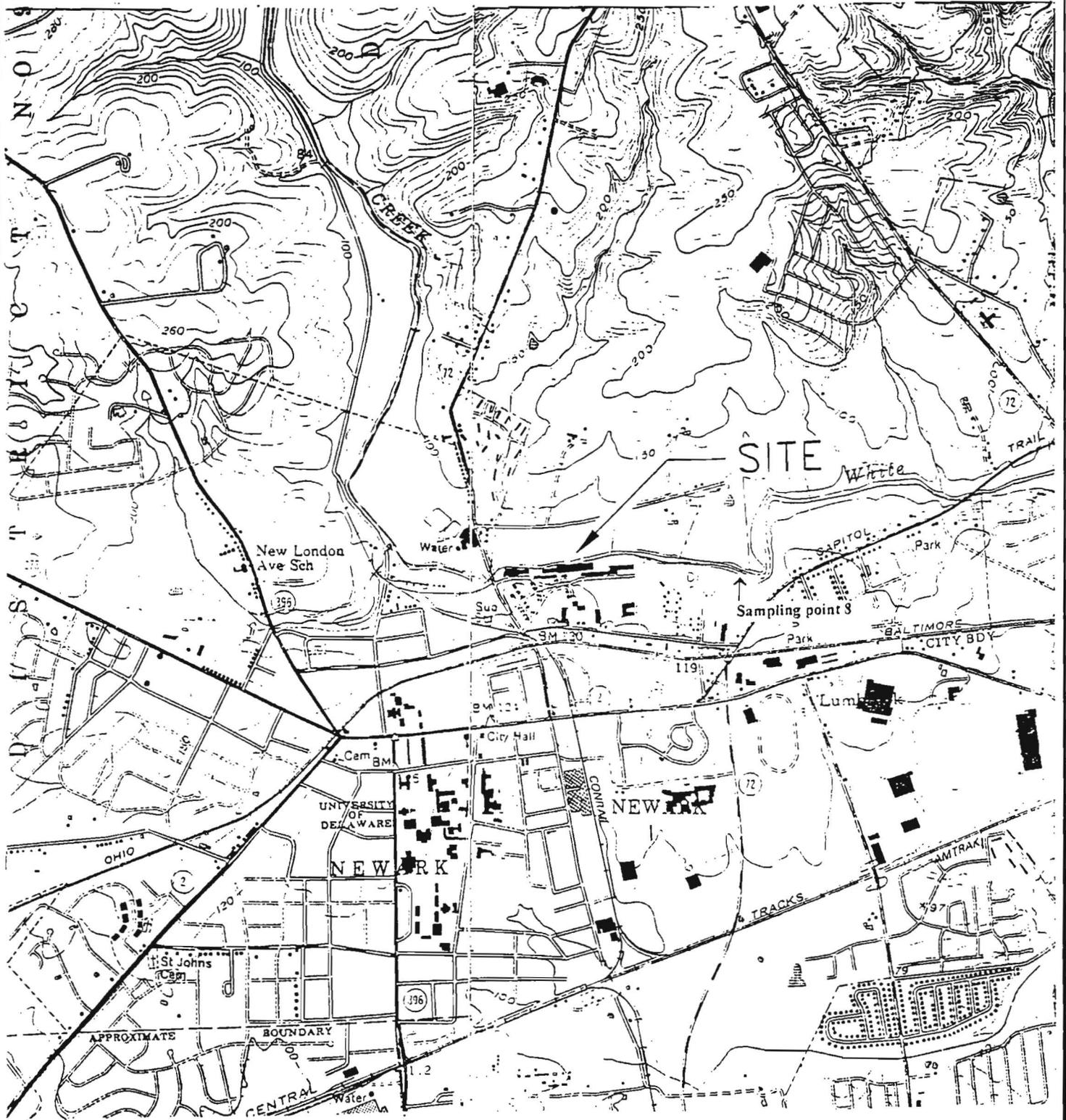


Denise Ferguson-Southard
Director, Division of Air and Waste Management



Date

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Source: USGS Newark, DE Quadrangle

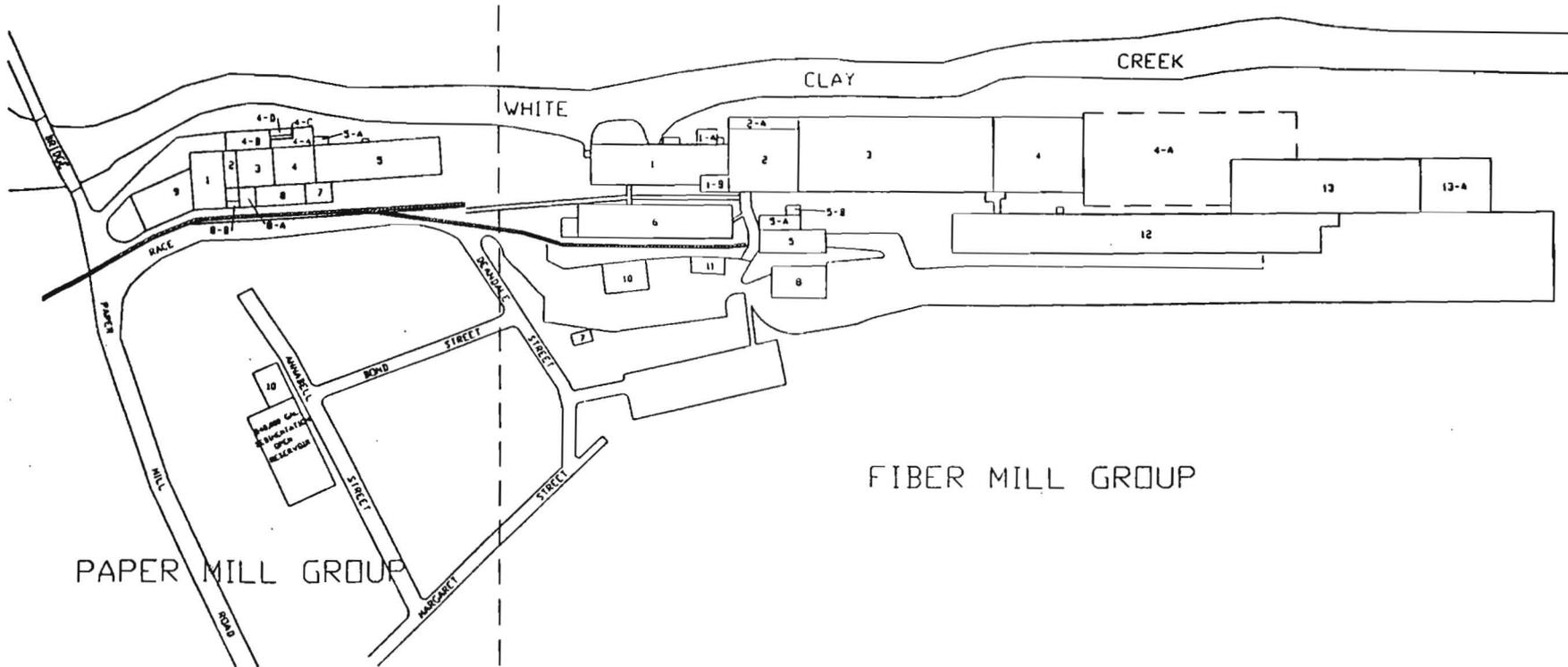


Environmental Alliance, Inc.
1812 Newport Gap Pike
Wilmington, DE 19808

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FIGURE 1
SITE LOCATION MAP
NVF NEWARK FACILITY
COMMONWEALTH GROUP, INC.
NEW CASTLE, DELAWARE

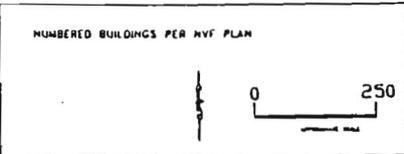
ASSEMBLY DATE 8/98



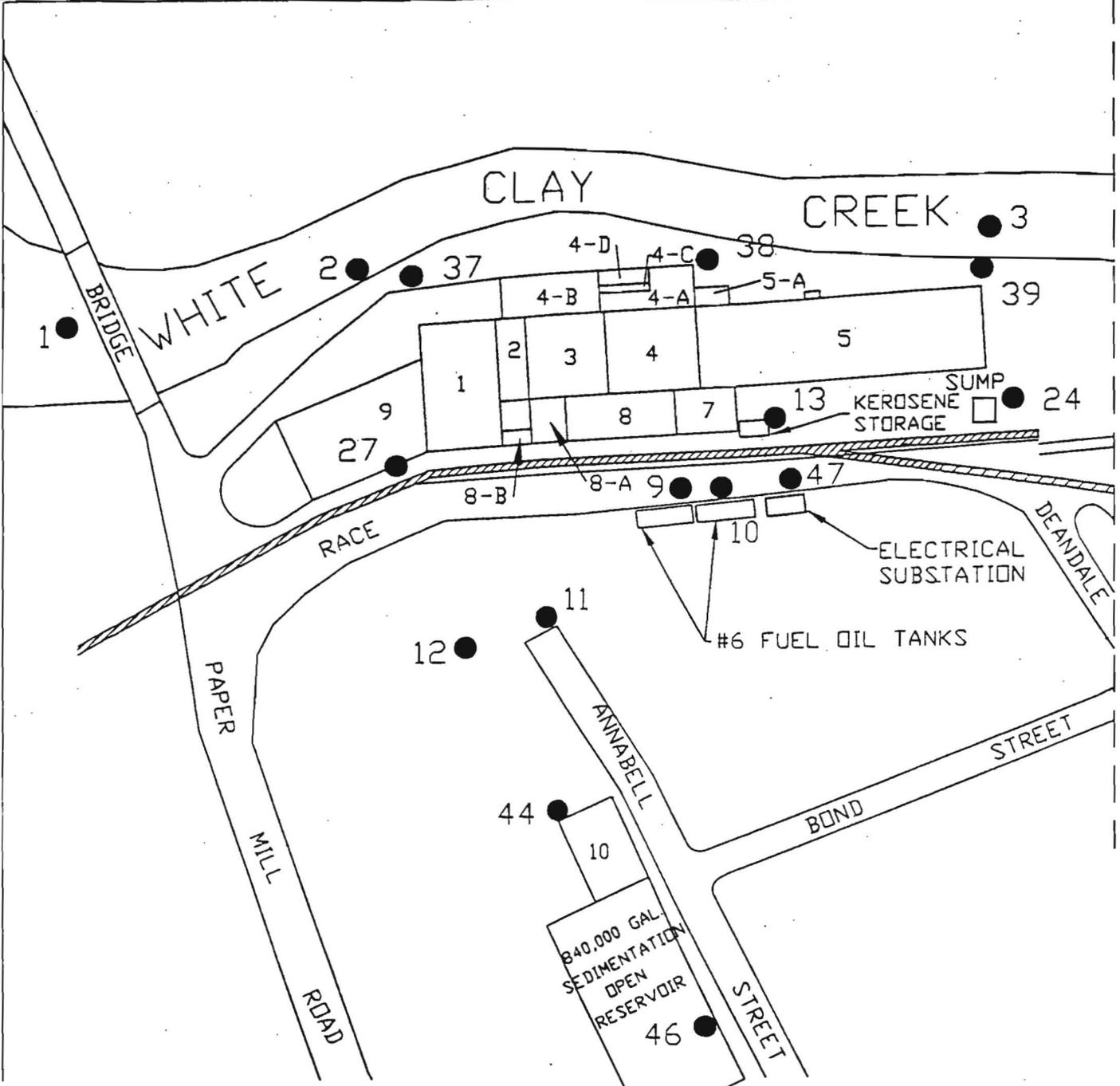
FIBER MILL GROUP

PAPER MILL GROUP

KEY:



REVISION DATE: 8/25/98		Environmental Alliance, Inc. 1812 Newport Gap Pike Wilmington, DE 19808 Phone (302) 369-7444 Fax (302) 369-0041
DESIGNED BY: RK		FIGURE 2 FACILITY PLAN NVF-NEWARK FACILITY EVALUATION FOR COMMONWEALTH GROUP, INC.
DRAWN BY: AW		
CHECKED BY:		



KEY:

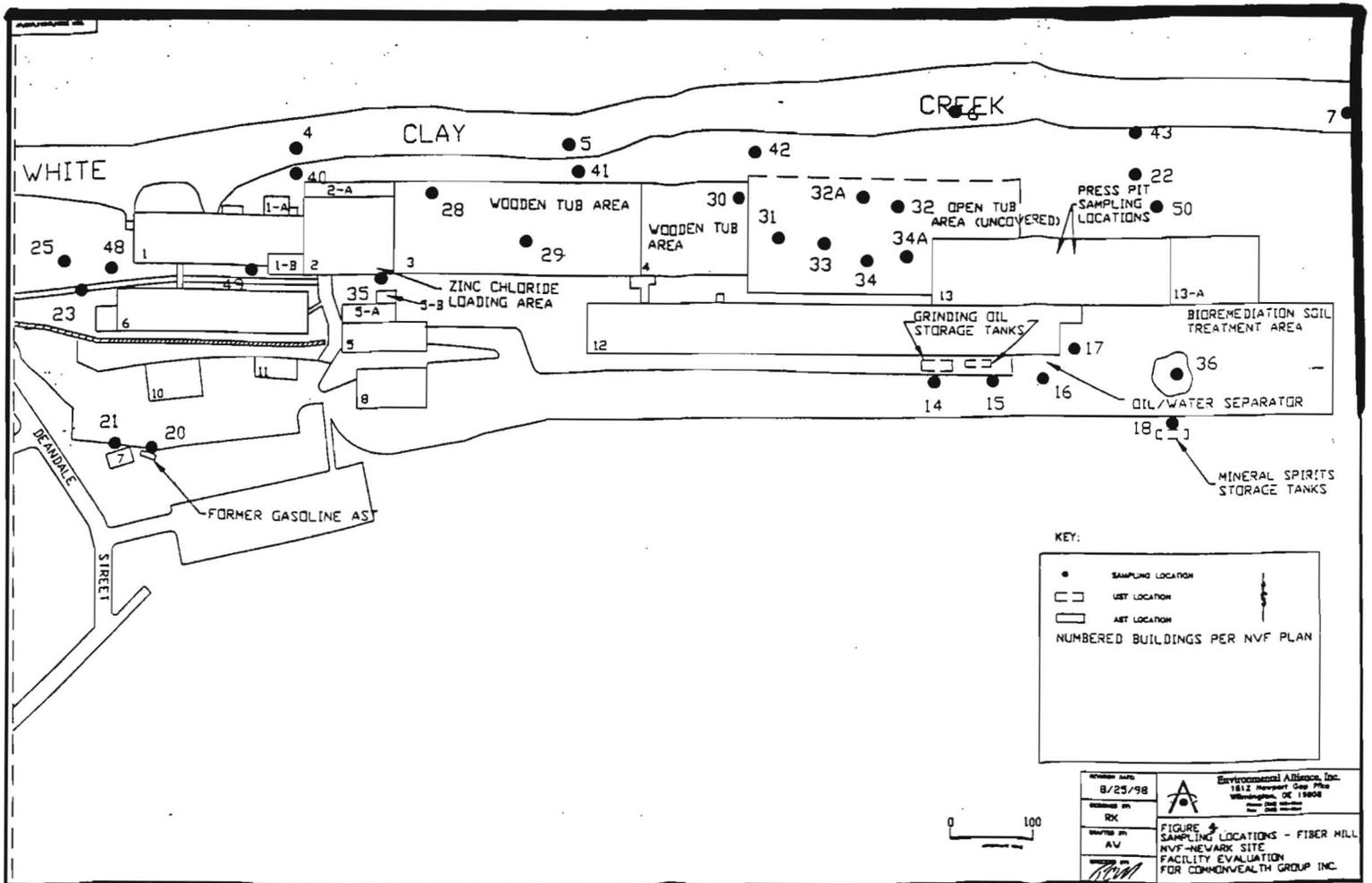
● SAMPLING LOCATION
 □ AST LOCATION
 NUMBERED BUILDINGS PER NVF PLAN

0 100
APPROXIMATE SCALE

REVISION DATE:	6/23/98
DESIGNED BY:	RK
DRAFTED BY:	AW
CHECKED BY:	RCM

Environmental Alliance, Inc.
 1812 Newport Gap Pike
 Wilmington, DE 19808
 Phone (302) 993-7344
 Fax (302) 993-0841

FIGURE 3
 SAMPLING LOCATIONS PAPER MILL
 GROUP
 NVF-NEWARK SITE
 FACILITY EVALUATION
 FOR COMMONWEALTH GROUP INC.



KEY:

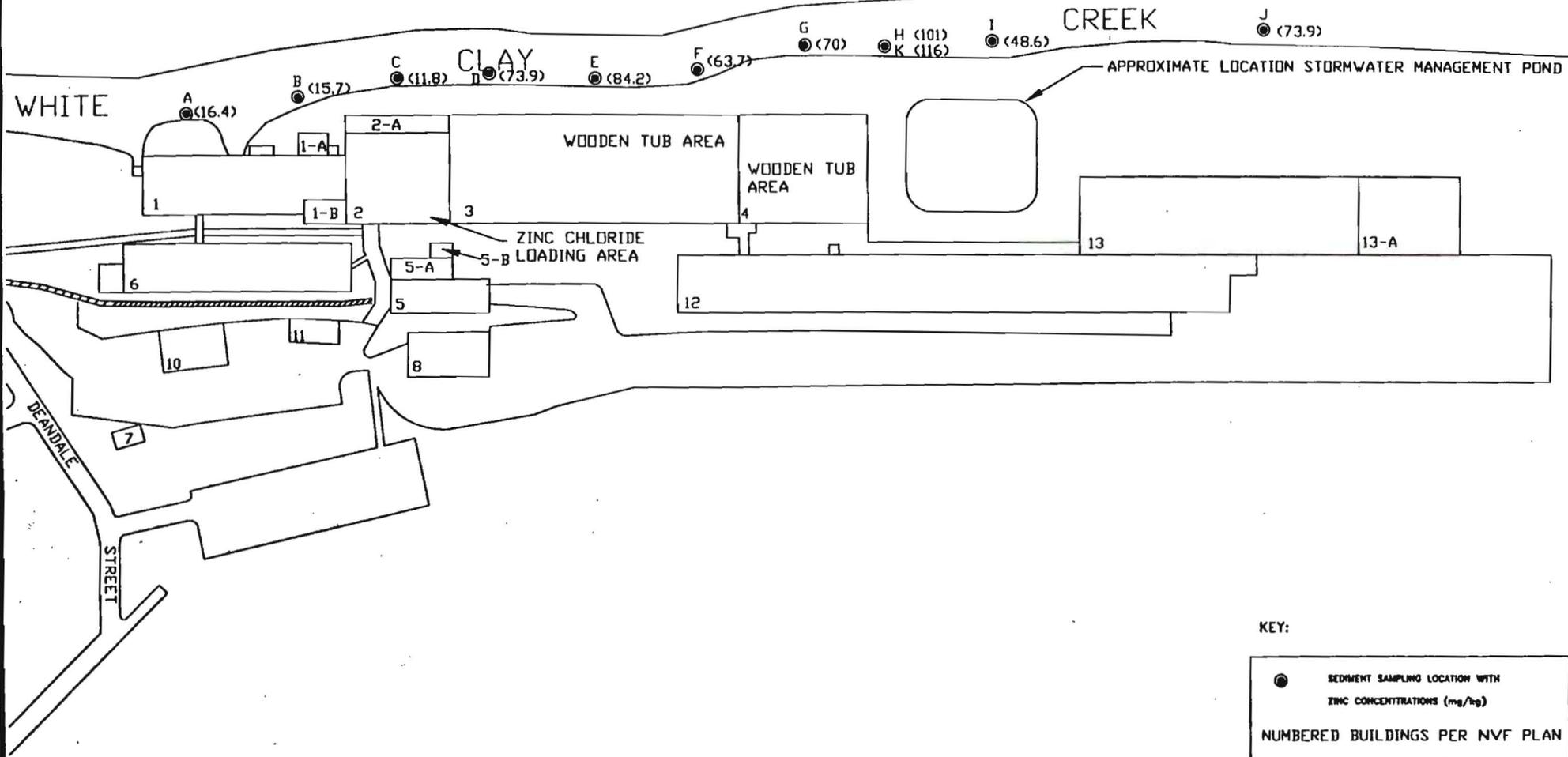
- SAMPLING LOCATION
- USE LOCATION
- AET LOCATION
- NUMBERED BUILDINGS PER NVF PLAN



ISSUED DATE	8/25/98	<p>Environmental Alliance, Inc. 1812 Newport Gap Pike Wilmington, DE 19806</p>
DESIGNED BY	RK	
DRAWN BY	AV	
CHECKED BY	[Signature]	

FIGURE 4
SAMPLING LOCATIONS - FIBER MILL
NVF-NEWARK SITE
FACILITY EVALUATION
FOR COMMONWEALTH GROUP INC.

STREAM FLOW →



KEY:

●	SEDIMENT SAMPLING LOCATION WITH ZINC CONCENTRATIONS (mg/kg)
NUMBERED BUILDINGS PER NVF PLAN	

REVISION DATE: 11/03/99	 Environmental Alliance, Inc. 1812 Newport Gap Pike Wilmington, DE 19808 <small>Phone (302) 426-2044 Fax (302) 426-2044</small>
DRAWN BY: RK	
DRAFTED BY: MS	
CHECKED BY: RK	
FIGURE 5 SEDIMENT SAMPLING LOCATIONS OCTOBER 7, 1999 NVF-NEWARK SITE FOR COMMONWEALTH GROUP INC.	

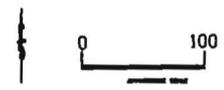


Figure 6
News Journal Legal Notice

 **DNREC-SIRB
LEGAL NOTICE**

PUBLIC NOTICE

**REQUEST FOR PUBLIC HEARING
FOR THE NVF-NEWARK COMPANY SITE**

The Department of Natural Resources and Environmental Control, Site Investigation and Restoration Branch (DNREC-SIRB) announces that a public hearing for the revised Proposed Plan of Remedial Action for the NVF-Newark Site is scheduled on March 28, 2000 at 6:00 p.m. in the cafeteria of Newark High School, Newark, Delaware 19711 at the request of the public pursuant to 7 Del. C. §9112. The Site is located in the northern portion of the City of Newark, bounded by Margaret and Race Street and the White Clay Creek. The Proposed Plan is issued under the authority of the Hazardous Substance Cleanup Act, 7 Del. C. Chapter 91 (HSCA).

DNREC-SIRB issued the original Proposed Plan of Remedial Action on March 27, 1999. The Final Plan of Remedial Action (Final Plan) for the Site was issued on June 18, 1999. Since the issuance of the Final Plan, DNREC has received new information which DNREC has determined necessitates certain revisions to the Final Plan for the Site. Therefore, the revised Proposed Plan was issued on January 5, 2000 to incorporate the on-site stabilization of leachable lead containing soils (as opposed to removal of these soils as called for in the June 18, 1999 Final Plan) as part of the recommended remedial action for the Site. Since there was extensive written public comment regarding the revised Proposed Plan, DNREC-SIRB prepared a Department Responsiveness Summary addressing the public comments. The summary is available at the DNREC-SIRB, 391 Lukens Drive, New Castle, DE 19720 (302) 395-2600. Additionally, DNREC-SIRB scheduled this public hearing to address public comments on the revised Proposed Plan.

The Site occupies approximately 20+ acres which was used as a mill for fiber products since the late nineteenth century until its closing in 1990. In April 1998, a Focused Facility Evaluation (FFE) and Focused Feasibility Study (FFS) was conducted to determine the existence or non-existence of contamination of site soils, groundwater, surface water and sediment of White Clay Creek. Based on the results from these environmental investigations, DNREC-SIRB concluded that a remedial action was required to prevent contact with site soils. These include soils contaminated with lead, Total Petroleum Hydrocarbons (TPHs) and zinc at concentrations exceeding state Uniform Risk Standards (URS).

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. 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. Based on the RBP, 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).

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The environmental investigations and the revised Proposed Plan have taken the following Qualitative and Quantitative objectives into consideration:

- The Site will be developed into residential and commercial property;
- The Site is located adjacent to the White Clay Creek;
- Prevention of human contact with contaminants of concern; and

The revised Proposed Plan of Remedial Action for NVF-Newark Company Site calls for the following:

- 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; and
- Perform an in-situ stabilization treatment and on site containment of soils containing leachable lead.

A copy of the revised Proposed Plan of Remedial Action for NVF-Newark Company Site is available at the Newark Public Library or at the following location:

DNREC-SIRB
391 Lukens Drive
New Castle, DE 19720
(302) 395-2600

The revised Proposed Plan is also posted on DNREC-SIRB's website at <http://SIRB.AWM.DNREC.State.DE.US> under the subject "announcements."

For additional information contact Ann Breslin at (302) 395-2610.

3/5-NJ (A-51491) (O-602290)