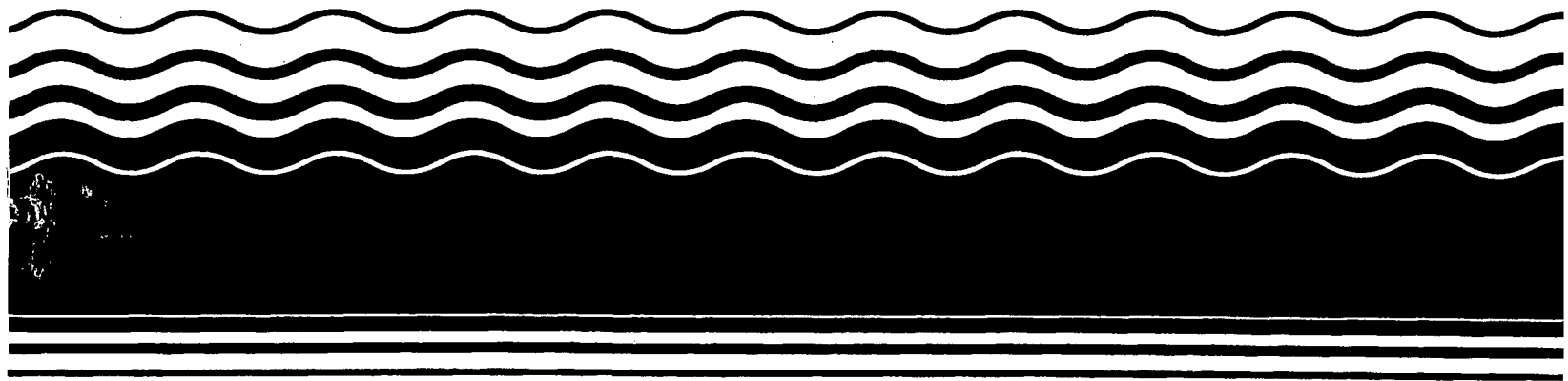


**PB97-963137
EPA/541/R-97/140
January 1998**

**EPA Superfund
Explanation of Significant Difference
for the Record of Decision:**

**De Rewal Chemical Co.
Kingwood Township, NJ
6/12/1997**



EXPLANATION OF SIGNIFICANT DIFFERENCES

DEREWAL CHEMICAL COMPANY

Site Name and Location

DeRewal Chemical Company
Kingwood Township
Hunterdon County, New Jersey

Introduction

The United States Environmental Protection Agency (EPA) presents this Explanation of Significant Differences (ESD) to explain a change made to the remedy selected in the September 29, 1989 Record of Decision (ROD) for the DeRewal Chemical Company Superfund site as amended by a prior ESD signed on December 5, 1994. This proposed change relates to the portion of the remedy which addresses the treatment of inorganic-contaminated soil and is the result of information obtained and developed subsequent to the 1989 ROD and the 1994 ESD.

This ESD is issued in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. 9617(c), and Section 300.435(c)(2)(I) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.435(c)(2)(I), which contain provisions for addressing and documenting changes that occur to a remedy after a ROD is signed. The ESD and documents which form the basis for the decision to change the response action will be incorporated into the Administrative Record for the site in accordance with Section 300.825(a)(2) of the NCP. The Administrative Record is available for review during normal business hours at EPA Region II, 290 Broadway, New York, New York 10007, (212) 637-4308, and at the information repository near the site at the Hunterdon County Library located on New Jersey Route 12 in Raritan Township.

Summary of Site History, Contamination Problems, and Selected Remedy

The site is located in Kingwood Township, approximately one-half mile south of Frenchtown, between New Jersey State Route 29 to the east and the Delaware River to the west. A bike path, which is part of the Delaware and Raritan Canal State Park, divides the site into eastern and western portions. Three buildings are located on the eastern portion of the site: a private residence, a building formerly occupied by the DeRewal Chemical Company, and a garage. The western portion of the site is a wooded area that extends to the Delaware River.

In 1970, Mr. Manfred DeRewal leased the eastern portion of the site from the Flemington Block and Supply Company. From 1970 to 1973, the DeRewal Chemical Company used the facility for the storage of chemicals. The first of a series of reports of improper chemical handling at the facility was received by the New Jersey Department of Environmental Protection (NJDEP) in 1972, which led to several unsuccessful attempts to force the company to abide by permit requirements. Numerous spills were reported in 1973, including one incident in which a tank truck containing a highly acidic chromium solution was allowed to drain onto the soil. Inspectors estimated that the spill involved 3,000 to 5,000 gallons of waste.

In September 1984, the site was included on the National Priorities List of Superfund sites. EPA conducted a remedial investigation and feasibility study (RI/FS) from June 1985 to June 1989 to determine the nature and extent of contamination at the site and to develop alternatives for remediating that contamination. The analytical results of the samples taken during the RI indicated that the soil on the site was contaminated with organic and inorganic compounds. In addition, low levels of organic contaminants and metals were found in the shallow ground water zone. Based on the results of the RI, EPA and NJDEP established cleanup goals and objectives for the site. The goals and objectives were to minimize the risks to human health from exposure to contaminated soil on the site, to limit the migration of contaminants from the soil to the ground water and to minimize the potential for migration of low levels of ground water contamination. To accomplish these goals and

objectives, EPA selected a remedy in the ROD, signed on September 29, 1989, which included the following major elements:

- Excavation of soil contaminated with organic and inorganic compounds above action levels;
- On-site thermal treatment of the organic-contaminated soil;
- On-site solidification/stabilization of the thermally treated soil and the remaining inorganic-contaminated soil;
- Extraction of shallow ground water contaminated above drinking water standards, on-site storage, and off-site disposal at an approved industrial wastewater treatment facility;
- Provision of a treatment system for the on-site residential well;
- Appropriate environmental monitoring to ensure the effectiveness of the remedy; and
- Establishment of deed restrictions, as necessary, to ensure the effectiveness of the remedy.

As a result of information developed during the Remedial Design, EPA reconsidered the on-site thermal treatment portion of the remedy. EPA determined that off-site treatment of the organic-contaminated soil could be completed in a much shorter time frame than on-site treatment because off-site treatment would not require the mobilization of a treatment unit and the performance of a trial burn. Further, there was little difference in the estimated costs of on-site thermal treatment and off-site thermal treatment. Therefore, in the ESD signed on December 5, 1994, EPA changed the remedy for the organic-contaminated soil from on-site thermal treatment to off-site thermal treatment and disposal.

Description of the Significant Differences and the Basis for those Differences

The differences between the remedy selected in the 1989 ROD, as modified by the 1994 ESD, and the actions described in this ESD relate to the on-site treatment of the inorganic-contaminated soil. Other portions of the remedy selected in the 1989 ROD, as amended by the 1994 ESD, remain unchanged.

In the ROD, EPA evaluated the following three alternatives for remediating the inorganic-contaminated soil on the site: no action/limited action; excavation, on-site solidification/stabilization and backfilling of the solidified mass in the excavation; and off-site disposal. Each alternative was evaluated with respect to a number of criteria including overall protection of human health and the environment; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; and cost.

The no action/limited action alternative was eliminated from consideration because it was not protective of human health and the environment. Although EPA determined that the off-site disposal alternative would provide the greatest overall protection to human health and the environment at the site, it was not selected primarily because its cost was estimated to be approximately \$2 million more than the on-site treatment alternative, which EPA believed would be effective. It was thought that the on-site solidification/stabilization alternative would reduce the mobility of the inorganic contaminants, be protective of human health and the environment, and be cost effective. Based on that evaluation, on-site solidification/stabilization was selected as the preferred alternative for the inorganic-contaminated soil.

The ROD indicated that additional studies would need to be performed during the Remedial Design to determine if the solidified material could be returned to the site. The ROD contained a provision that, if it was determined that the material could not be returned to the site, the contaminated soil would be disposed of off site in accordance with applicable regulations.

As required by the ROD, EPA conducted treatability study tests during the Remedial Design to determine if returning the solidified mass to the excavation would be protective of human health and the environment. During the treatability study, EPA tested a total of 28 different stabilization mixes. The results of the treatability tests showed that the solidified mass would continue to leach inorganic contaminants into the ground water at levels above the New Jersey State Drinking Water Maximum Contaminant Levels (MCLs). In fact, in a number of instances, adding the stabilization mixture actually increased the leaching of inorganic contaminants due to pH changes. Since a primary goal of treating the inorganic-contaminated soil by the solidification/stabilization process was to prevent the migration of contaminants into the ground water, this situation was considered to be unacceptable. Based on the results of the treatability study tests performed during the Remedial Design, EPA determined that returning the solidified mass to the excavation would not be protective of human health and the environment. As a result, EPA has decided that off-site disposal of the inorganic-contaminated soil is preferable to on-site disposal. Because no costs associated with mobilizing and demobilizing a solidification/stabilization unit at the site will be incurred, this change to the remedy for the inorganic-contaminated soil will not increase the overall cost of the remedy and may actually decrease the cost of the remedy.

During the RI, EPA collected a number of soil samples to determine the volume of contaminated soil at the site. EPA collected all of the RI soil samples from above the water table, which is located a minimum of eight feet below the ground surface. Prior to initiating the Remedial Design, EPA collected several samples of the soil located below the water table. The results of the analysis of these samples showed that approximately 6,500 cubic yards of soil below the water table contained concentrations of chromium that were above the cleanup goal established in the ROD. No other inorganic contaminants were found to be present in the samples at concentrations above their respective cleanup goals. Based on these results, EPA initially believed that the saturated chromium-contaminated soil would need to be excavated along with the shallower soil.

As part of the treatability studies performed during the Remedial Design, EPA conducted leaching tests on untreated samples of the inorganic-contaminated soil from both above and below the water table. The results of the leaching tests involving soil samples collected above the water table showed that inorganic contaminants were leaching from the soil at levels above their respective MCLs. These results confirmed that the inorganic-contaminated soils located above the water table represent a continuing source of contamination to the ground water. In contrast, test results involving chromium-contaminated soil samples collected from below the water table showed that the soil was not leaching chromium into the ground water above its MCL. Therefore, EPA has determined that this soil does not represent a source of ground water contamination. Based on the results of the leaching tests which indicated that the chromium detected in this soil is not adversely impacting the ground water, and the fact that it is located 10 to 15 feet below the ground surface, EPA has determined that excavation of this soil is not required.

In summary, based on the results of the treatability studies performed as part of the Remedial Design at the site, EPA has determined that the remedy selected in the ROD for the inorganic-contaminated soil at the site, on-site solidification/stabilization and disposal, would not be protective of human health and the environment. Therefore, the excavated inorganic-contaminated soil will be transported off site for disposal. EPA has also determined that the chromium-contaminated soil located below the water table will not require excavation because the soil is not leaching chromium into the ground water at a level above its MCL.

Following completion of the remedial action for the soil, EPA will reevaluate the need for remediation of the ground water at the site. All other portions of the remedy selected by EPA in the 1989 ROD, as amended by the 1994 ESD, remain the same.

Support Agency Comments

The State of New Jersey supports EPA's revision to the remedy and decision to issue this ESD.

Affirmation of Statutory Determinations

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA and NJDEP believe that the remedy remains protective of human health and the environment, complies with federal and state requirements that were identified in the ROD and this ESD as applicable or relevant and appropriate to this remedial action, and is cost effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

Public Participation Activities

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. However, EPA will announce the availability of the ESD in the Delaware Valley News. The ESD has been placed in the Administrative Record for the site.



Jeanne M. Fox
Regional Administrator

6/12/97

Date