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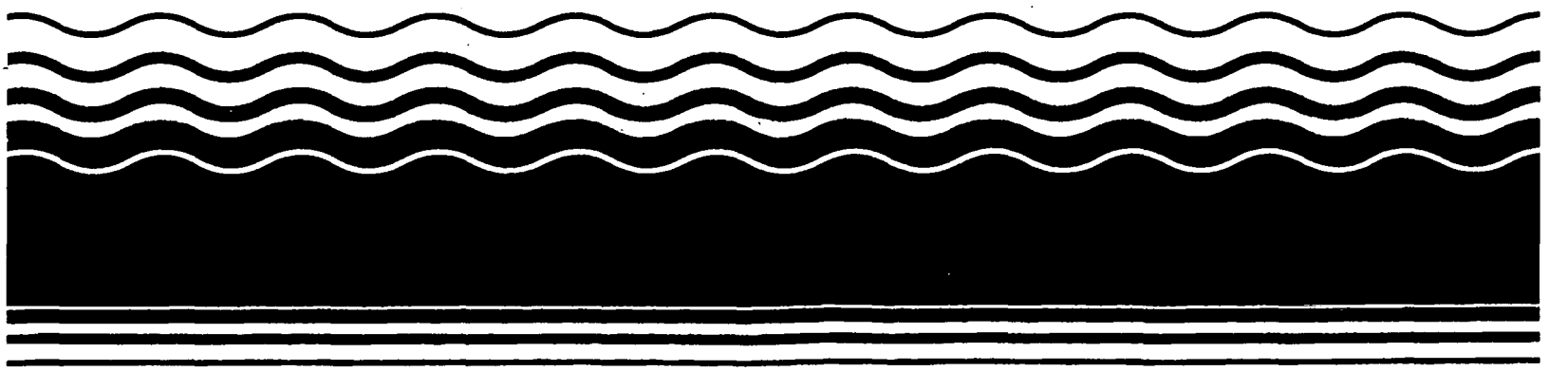
EPA Superfund Explanation of Significant Difference for the Record of Decision:

A.O. Polymer, Sparta Township, NJ 9/17/1996



REGIONAL ADMINISTRATOR'S APPROVAL OF CERCLA SECTION 117(c) EXPLANATION OF THE SIGNIFICANT DIFFERENCE INVOLVING THE A. O. POLYMER SUPERFUND SITE

Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §9617(c), requires that the Environmental Protection Agency (EPA) publish an Explanation of Significant Difference (ESD) whenever it takes any remedial action that differs in any significant respect from the final remedial action selected by EPA. The ESD must describe the significant difference(s) between the selected remedial action and the modified remedial action, including an explanation of why such changes were made. Section 117(d) of CERCLA, 42 U.S.C. §9617(D), requires public notification of the ESD in a newspaper of general circulation. The attached notice will be published in the New Jersey Herald.

The Record of Decision (ROD) for the A.O. Polymer Superfund Site (the Site), signed on June 28, 1991, called for the use of a soil vapor extraction system to remove contaminants from the soils that act as the source of groundwater contamination. The soil vapor extraction system has been operating since December 1994 and has removed 1400 gallons of contaminants from soils. The groundwater component of the ROD called for extraction of the contaminated groundwater, treatment with a powdered activated carbon treatment (PACT) system, and discharge of the treated water back into the groundwater aquifer.

Results from a treatability study performed on the PACT system with groundwater taken from the Site indicate that the effluent from the PACT system exceeds the surface water discharge limitations. In addition, information gathered since the issuance of the ROD has shown that the aquifer does not have sufficient capacity to accept the treatment system effluent without adversely affecting the groundwater plume and surrounding properties. Therefore, the treated groundwater will be discharged to the Wallkill River located 500 feet southeast of the Site. Further, air stripping will be used instead of PACT to remove contaminants from the groundwater. This technology is capable of meeting the surface water discharge limits.

This ESD calls for modifying the ROD to allow the use of an air stripper to remove contaminants from groundwater. The contingency surface water discharge point for treated groundwater contained in the ROD will be utilized. The groundwater pumping regime will also be modified in a manner consistent with the ROD. This remedy will be protective of human health and the environment.

William J. Muszynski

SEP 17 1998

JEANNE M. FOX
REGIONAL ADMINISTRATOR

DATE

A.O. POLYMER SUPERFUND SITE
Sparta Township, New Jersey

Explanation of Significant Difference

USEPA - Region 2 July 1996

Introduction

The United States Environmental Protection Agency (EPA) prepared this *Explanation of Significant Difference* (ESD) to explain modifications to the remedy selected in the Record of Decision (ROD) dated June 28, 1991 for the A.O. Polymer Site (the Site). This ESD explains changes to the remedy relating to the capture and treatment of contaminated groundwater. As explained in further detail below, under this ESD, the groundwater treatment process will be changed from Powdered Activated Carbon Treatment (PACT) to air stripping. Also, the groundwater capture zone will be smaller, but strategically located to clean up the aquifer in the same amount of time contemplated in the ROD.

The remedy is being implemented by the potentially responsible party (PRP). Under the Superfund Law (the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)), owners and operators of facilities and transporters and generators of hazardous chemicals can be held responsible for cleanup activities.

EPA is issuing this ESD in accordance with Section 117(c) of CERCLA, as amended, 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 C.F.R. §300.435(c)(2)(i) (the NCP contains the EPA regulations for implementing the Superfund program). This ESD and those documents that form the basis for the decision to modify the remedy will be incorporated into the Administrative Record maintained for the Site in accordance with Section 300.835(a)(2) of the NCP. The Administrative Record is available for review during business hours at EPA Region II, 290 Broadway, New York, New York 10007, (212) 637-4308, and at an information repository at the Sparta Township Library, 22 Woodport Road, Sparta, New Jersey 07871, (201)729-3101.

Site Location, History, and Contamination Problems

The Site, located at 44 Station Road in the Township of Sparta, New Jersey, occupies approximately four acres near Sparta Station along the New York, Susquehanna and Western (NYS&W) Railway. It is bounded to the north and east by Station Park, a municipal recreation area, to the southeast by Station Road, and to the south and west by the NYS&W Railway. Several small businesses and three homes are located on Station Road near the Site. The Wallkill River flows 500 feet to the southeast. The Site was operated as a specialty polymer and resin manufacturing facility for approximately 30 years. Mohawk Industries began operation at the Site in the early 1960s and was involved in the production of various resins using polymerization processes. Mohawk also engaged in the reclamation of electronic component cleaning fluids containing various freon compounds in alcohol.

The Site has been divided into two areas: the facility area, and the disposal pit area.

The facility area consists of office and laboratory facilities, a main reactor building, assorted storage buildings and tanks, and a non-contact cooling water pond. The office, reactor building, lab, and tanks were used by A.O. Polymer from 1978 until the Site was abandoned in 1994. The disposal pit area is located in the northern area of the Site property and consisted of unlined pits into which chemical wastes, primarily solvents containing volatile and semi-volatile organic compounds (VOCs), were discarded.

In 1980 and 1981, a surface cleanup of the disposal pit area was initiated by the New Jersey Department of Environmental Protection (NJDEP). The cleanup included the removal of surface drums and the excavation and removal of contaminated soil in the disposal pit area to a depth of approximately 10 feet. After excavation of the disposal pits, the area was backfilled with clean soil.

Detection of VOC contamination in the groundwater in the surrounding area resulted in additional investigations by NJDEP. The Site was placed on the National Priorities List on September 1, 1983. In December 1986, NJDEP initiated a Remedial Investigation at the Site to determine the nature and extent of contamination. A ROD signed in June 1991 selected the remedial action for the remaining soil contamination in the disposal pit area and the resulting groundwater contamination.

Selected Remedies in the ROD

The selected remedy called for a soil vapor extraction system to remove organic compounds in soils. This system works by vacuuming air through a system of perforated pipes placed in the contaminated soil. A vacuum is applied to the pipes and volatile compounds are drawn from the soil. The selected remedy also called for extracting contaminated groundwater through a system of pumping wells and treatment utilizing a powdered activated carbon filtration system.

The soil vapor extraction system has been operating since December 1994 and has removed over 1400 gallons of contaminants from approximately 7,500 cubic yards of contaminated soil. The groundwater pump and treatment system is currently being designed.

Description of Significant Difference

In the ROD, EPA selected a Powdered Activated Carbon Treatment (PACT) system to treat the contaminated water. The treated groundwater would then be discharged to the aquifer by use of reinjection wells or recharge basins.

During the remedial design, extensive field activities were conducted to further define aquifer characteristics and determine the aquifer's capacity to accept the discharge from the treatment plant. Based on the results of these field studies (as documented in the Pre-Design Report, December 1995), it was found that discharge to the aquifer could have unacceptable consequences. Specifically, to accommodate discharge to the aquifer, recharge basins or numerous reinjection wells would have to be installed in areas of Station Park currently used as athletic fields. Due to the shallow water table in the area, such a discharge system has the potential to flood other areas of the park. Also, it has been determined that the contaminant plume is in a steady state condition since its size and boundaries have not changed over the last ten years. Discharge to the aquifer could destabilize the steady state condition of the contaminant plume, resulting in the expansion of the plume into areas not presently impacted.

Due to the consequences of discharge to the aquifer, discharge to the Wallkill River, which was described in the ROD as a contingency, will now be selected as the point of discharge. Direct discharge to surface water will avoid distrupting groundwater flow and therefore allow for the efficient capture of highest concentrations of contaminants by extraction wells, and further, will also cause minimum disturbance to adjoining properties.

During the remedial design, a treatability study was conducted to determine the level of effectiveness that could be provided by the PACT system. The treatability study results showed concentrations of VOCs including, trichloroethene, 1,1,1-trichloroethane, and tetrachloroethene, in the treated groundwater exceeded the New Jersey Pollutant Discharge Elimination System/Discharge to Surface Water permit equivalent effluent limitations. Since the treatability study of the PACT system indicated that system did not meet acceptable levels, the remedy will be modified. An air stripper will replace PACT to treat the contaminated groundwater. Air stripping has been used for the treatment of VOCs in dilute aqueous waste streams such as those that exist in the groundwater underlying the Site. Performance data for similar systems indicate that this technology will meet the discharge standards for the Site.

Modified Remedy

Under the modified remedy, an air stripper will be utilized to remove VOCs from contaminated groundwater and the treated groundwater will be discharged to the Wallkill River. An air stripping system runs groundwater through a tray, column, or tank and forces air in the opposite direction to the water flow. During this process, VOCs are transferred from the groundwater to the air stream. Contaminants in the air stream are then removed by air treatment equipment. This arrangement allows for use of a less complex treatment system that will meet discharge criteria. Construction of the groundwater capture and treatment system is scheduled to begin in the fall of 1996.

The groundwater extraction system would consist of wells located in the most contaminated part of the plume. This arrangement will avoid drawing clean river water into the capture zone, minimize construction and operations impacts on park property, and increase the efficiency of the pump and treatment system. The groundwater remedy will remove the most contaminated part of the plume allowing the remaining contaminants to naturally attenuate. A large portion of the plume will be allowed to naturally attenuate and will have no environmental impacts. Consistent with the ROD, it is estimated that the groundwater remedy will attain cleanup standards within a period of thirteen years once extraction of contaminated groundwater is started. The modified remedy will be protective of human health and the environment and comply with groundwater and discharge requirements.

Analysis of the Modified Remedy

In the ROD, EPA stated that the remedy would comply with the requirements of Section 121 of CERCLA, 42 U.S.C. § 9621. Section 121 requires that the remedy must at least satisfy the following two threshold criteria:

1. Overall Protection of Human Health and the Environment. This criterion addresses whether or not a remedy provides adequate protection and describes how risks posed by the contaminated material are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.

2. Compliance with ARARs. This criterion addresses whether or not a remedy meets all of the federal and state environmental

standards which are applicable or relevant and appropriate requirements (ARARs).

As described below, the modified groundwater remedy fully meets these criteria.

1. Overall Protection of Human Health and the Environment:

The modified remedy remains protective of human health and the environment. The removal of VOCs from groundwater by air stripping will achieve protective discharge levels established for the stream and reduce Site risks to an acceptable level. The amount of time required to reach the desired cleanup level in the groundwater remains the same.

2. Compliance with ARARs:

The modified remedy will comply with all ARARs identified in the ROD including the groundwater protection and discharge standards. The groundwater restoration ARARs are the Federal and State Safe Drinking Water Act Maximum Contaminant Levels (MCLs) and the discharge ARARs are New Jersey Pollutant Discharge Elimination System/Discharge to Surface Water Effluent Limitations (N.J.A.C. 7:14A), as specified in the 1991 ROD. All off-site disposal activities will be conducted in compliance with all local, state and federal regulations.

Support Agency Comments

NJDEP concurs with the modified remedy as described in this ESD.

Affirmation of Statutory Determinations

The modified remedy is protective of human health and the environment, complies with federal and state requirements identified in the ROD, and is cost effective.

In accordance with the requirements of CERCLA, EPA will publish a notice of this ESD in the local newspaper, The New Jersey Herald. This ESD will be included in the Site Administrative Record, which is available at the repositories for public review.