STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

REGION III
ID# 5995

Rohm & Haas

Spring House, Pennsylvania
November 18, 1994

Facility/Unit Type:	**Research facility**
Contaminants:	**Tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2-dichloropropane (1,2-DCP), and total 1,2-dichloroethylene (1,2-DCE)**
Medium:	**Ground water**
Remedy:	***Permit modification including conditions for discontinuation of ground-water recovery and treatment system; continued maintenance of system in case of need to reactivate; and ground-water monitoring.***

FACILITY DESCRIPTION

On September 30, 1992, EPA Region III issued a RCRA Corrective Action Permit to the Rohm & Haas Research Laboratory requiring that the facility conduct quarterly ground-water monitoring and a Corrective Measures Study to identify and evaluate alternatives to address contamination in ground water beneath the facility. Because contamination levels have significantly decreased since the facility initiated its own recovery and treatment program in 1990, EPA has determined that a "Permit Modification for Remedy" is necessary to amend the existing permit and to address any further ground-water contamination at the facility.

The 140-acre Rohm & Haas-Spring House site serves as the company's principal research facility and is located in Spring House, Pennsylvania. The lab is dedicated to small-scale chemical and physical research on existing and potential product lines such as coatings, adhesives, leather, paper, textiles, petroleum, monomers, polymers, resins, agricultural chemicals, and chemical specialties. Typical daily operations include synthesis, application, analysis, and process improvement research.

Most of the contamination is located near buildings 1, 5, and 8A. Buildings 1 and 5 were old drum storage and engine cleaning areas. All releases were from historic practices and accidental spills which resulted in releases to the soil. The contamination near building 8A is from unknown historic practices. The volume of released material is unknown.

The facility is located in a northwestern suburb of Philadelphia. The immediate area is primarily residential and commercial, and there are housing developments within one mile of the site. The North Wales Water Authority (NWWA) has two municipal wells, NWWA 25 and NWWA 13, in the vicinity of the facility. The hazardous constituents found in the ground water beneath the facility have not been detected in either municipal water well. While NWWA 13 is not downgradient and is not affected by the onsite contamination, NWWA 25 is downgradient from the contamination and draws water from both the upper and lower aquifers. However, the pattern of ground-water contamination suggests that there may be a geologic barrier which inhibits migration from the facility to NWWA 25. The exact nature of this barrier has not been determined.

The surface topography slopes gently. There is a watershed divide which runs approximately through the middle of the property. Water drains off the property through ephemeral streams.

There are four basic types of hazardous waste managed at the facility: surplus acquired materials; wastes generated by onsite operations; empty containers, contaminated laboratory utensils, spill residues; and wastes identical to the above which are received from satellite operations. These wastes are generated in the laboratories, stored in permitted container storage areas, and disposed of offsite.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration (µg/l)	Action Level (µg/l)	Cleanup Goals (µg/l)	Point of Compliance
ground water (8/89)		tetrachloroethylene (PCE)	320		5	
		trichloroethylene (TCE)	16		5	
		1,2-dichloropropane (1,2-DCP)	ND		5	
		total 1,2-dichloroethylene (1,2-DCE) (cis)	13		70	
		total 1,2-dichloroethylene (1,2-DCE) (trans)	ND		100	
ground water (10/93)		tetrachloroethylene (PCE)	38		5	
		trichloroethylene (TCE)	ND		5	
		1,2-dichloropropane (1,2-DCP)	ND		5	
		total 1,2-dichloroethylene (1,2-DCE) (cis)	ND		70	
		total 1,2-dichloroethylene (1,2-DCE) (trans)	ND		100	

Beginning in the mid-1980's, Rohm & Haas initiated voluntary ground-water and soil investigations at the site. Investigations have shown that the two aquifers in the area of ground-water contamination flow to the northeast. The upper semiconfined aquifer is separated from the confined lower aquifer by a dense, unfractured shale which inhibits ground-water flow between the two aquifers. According to these investigations, only the upper aquifer is contaminated.

Based on these results, Rohm & Haas voluntarily developed and initiated a ground-water protection program. Routine ground-water monitoring began in 1989, and the ground-water recovery and treatment that began in 1990 have since resulted in a significant decrease in the levels of hazardous constituents. EPA has determined that the level of contamination is decreasing throughout the facility and is unlikely to migrate beyond facility boundaries.

In 1988, Rohm & Haas submitted a report summarizing soil sampling and removal activities conducted at the site. Soils located near Building 5 were found to be the most contaminated with PCE, TCE, 1,2-DCP, and 1,2-DCE. These soils were determined to be the potential source of contamination in ground water underneath the facility and, in 1986, some of these contaminated soils were removed and the area was capped with asphalt.

In 1986, EPA conducted an RFA, and later in September 1992 issued a Corrective Action Permit. The permit recognized that the voluntary investigations of the SWMUs and AOCs at the site had fulfilled all of the requirements of an RFI. The investigations indicated that a release of hazardous constituents into ground water had occurred. Through the permit, EPA required the facility to keep the ground-water recovery and treatment operating, conduct quarterly ground-water detection monitoring, and to conduct a Corrective Measure Study (CMS) to identify and evaluate alternatives to address the contamination.

The permit required the ground-water detection monitoring program to continue until, based on information submitted in the CMS Final Report and any other relevant data, EPA selected a final corrective measure for the facility and modified the permit to incorporate such corrective measures.

EXPOSURE PATHWAYS

Because the contaminated soil at the facility has been remediated, the only remaining potential threat to human health and the environment is through contact with contaminated ground water. Possible human exposure pathways include contact

through showering with or drinking contaminated ground water. Possible environmental exposure will occur if the ground water enters surface water at a wetland or river. At this time there is no evidence of contaminated ground water in drinking water or surface water outside of the facility boundaries.

SELECTED REMEDY

The selected remedy for this site includes discontinuing the current Ground-Water Recovery and Treatment System and Ground-Water Monitoring Program; keeping the Recovery and Treatment System in good working order so that it may be reactivated within 48 hours of EPA notification or discovery of contamination: and meeting the requirements of the permit modification which include submitting a plan to protect NWWA 25 with an appropriate treatment technology and sampling ground water for PCE, TCE, 1,2-DCP, and 1,2-DCE according to a revised schedule and flow chart. If the concentration of any of the above chemicals exceeds the MCL in three wells located between the area of highest contamination and NWWA 25 (wells K, M, and Y) or ten times the MCL in any other onsite wells, then the second stage of the conditions for remedy will be activated. Phase II consists of reactivating the Ground-Water Recovery and Treatment System as well as sampling wells K, M, Y, and NWWA 25 each month for the above contaminants. Phase III of the plan will be activated within seven calender days of the Permitee's receipt of Phase II monthly sampling analyses if any of the above contaminants is detected above the MCL in NWWA 25. The Permitee shall then implement the approved plan to fit NWWA 25 with an appropriate treatment system and continue operation of the Phase II plan.

INNOVATIVE TECHNOLOGIES CONSIDERED

None.

PUBLIC PARTICIPATION

The public participation period lasted from August 19 until October 13, 1994. On October 4, EPA representatives attended a scheduled meeting of the Rohm & Haas Citizen Advisory Council at the facility to explain and answer questions concerning the provisions of the permit modification. EPA received three comments from Rohm & Haas regarding the construction of a new monitoring well H 20 feet to the north of the existing well H, requesting the modification of the Flow Chart for Remedy, and requesting that the facility be able to use Method 601 instead of Method 624 (GC/MS) to analyze ground-water samples collected at the site. EPA concurred with all requested changes to the permit modification.

NEXT STEPS

Once the facility has met all of these requirements and demonstrated with 95% confidence that no well will exceed the MCL for any of the hazardous constituents and that the ground water at the site is no longer a threat to human health and the environment, the facility may apply to EPA for approval to discontinue all corrective action.

KEYWORDS

Ground water; direct contact, ingestion (gw); VOCs (PCE, TCE, DCE); ground-water monitoring

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