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September 1991

EPA

Superfund Record of Decision:

White Chemical, NJ

50272-101

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 4.4-acre White Chemical site is a former chemical manufacturing facility in Newark, Essex County, New Jersey. Land use in the area is predominantly industrial and residential, with an estimated daytime population of 12,000 within one-quarter mile of the site. Onsite features include five major buildings and three smaller facility support buildings. From 1983 to 1990, White Chemical Corporation (WCC) used the site to manufacture acid chlorides and flame retardant compounds. As a result of State inspections, a number of investigations were initiated by the State and EPA that identified 10,900 55-gallon drums containing improperly stored hazardous substances; 150 gas cylinders; 126 storage tanks, vats, and process reactors; 12,000 laboratory-size containers; and other miscellaneous hazardous material present onsite. In 1989, the State conducted several site investigations and issued notices of violation for improper management and storage of hazardous waste. In 1990, the State reinspected the site and again found various violations, and ordered WCC to clean up the site. As a result of WCC's failure to respond to any State notices or directives, the State initiated a removal action to stabilize the site. After removing 1,000 drums, the State exhausted its authorized funds and

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - White Chemical, NJ
First Remedial Action
Contaminated Medium: debris
Key Contaminants: VOCs (benzene, xylenes), other organics, inorganics

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 41
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

suspended operations. Shortly thereafter, the State requested that EPA consider conducting a removal action at the site. Later in 1990, EPA issued WCC a Unilateral Administrative Order (UAO) to discontinue all site activities and evacuate all personnel. EPA also performed several site assessments and initiated stabilization activities under removal authorities. Ongoing actions include drum overpacking, segregating incompatible substances, and restaging containers. EPA removed an additional 3,200 empty 55-gallon drums and repaired the chain-link fence that secures the property. The contents of many containers are still unknown. This Record of Decision (ROD) addresses interim remedial measures for surface contamination. A future ROD will address additional remedial measures deemed necessary as a result of a comprehensive RI/FS. The primary contaminants of concern identified in the tanks, drums, and containers are VOCs including benzene and xylenes, other organics, inorganics, and shock-sensitive compounds.

The selected remedial action for this interim remedy includes continuing the site stabilization process performed during the ongoing removal action; compiling an inventory, staging incompatible substances, and consolidating compatible substances for onsite temporary storage; tranferring the contents of any container of questionable integrity to a new container; overpacking fuming or leaking containers; disposing of or recycling any empty containers, along with any extremely hazardous substances offsite to ensure the stability of the site; possibly mobilizing a treatment system to treat or neutralize some of the onsite hazardous substances; decontaminating empty tanks, reaction vessels, and process piping, followed by onsite storage; transporting the contaminated material offsite to a RCRA-approved treatment facility, to a hazardous waste disposal facility, or to an appropriate facility for recycling or processing; developing an emergency response contingency plan for responding to any emergencies that may occur during stabilization efforts, and possibly a transportation safety contingency plan for transporting hazardous substances; continuing implementation of site security measures; and conducting environmental monitoring, and additional investigations to fully characterize the nature and extent of contamination in other environmental media at the site, and to evaluate additional remedial measures. The estimated present worth cost for this remedial action is $22,096,000. No O&M costs are associated with this remedial action.

PERFORMANCE STANDARDS OR GOALS: Not applicable.

ROD FACT SHEET

SITE

Name:	White Chemical Corporation Superfund Site
Location:	Newark, Essex County, New Jersey
EPA Region:	II
HRS Score (date):	Quick Listing, May 1991
NPL Rank (date):	September 25, 1991

ROD

Date Signed: September 26, 1991

Selected Remedy:

- Appropriate security measures;
- Site stabilization
- On-site pretreatment or neutralization of contaminated material;
- Off-site treatment, recycling, or disposal of contaminated material;
- Decontamination and off-site disposal or recycling of empty drums and small containers;
- Decontamination and on-site storage of tanks and process piping; and
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

Capital Cost:	$22,096,000
O & M:	0
Present Worth:	$22,096,000

LEAD

Agency:	Federal Remedial Lead
Primary Contact:	Silvina Fonseca (212) 264-7604
State Contact:	Frank Richardson (609) 984-2990

WASTE

Type:	Drums, tanks, vats, laboratory size containers containing a wide variety of chemicals were stored haphazardly through out the site. Contents of containers included, combustibles, flammables, water- and air-reactive, corrosives and shock sensitive substances.
Origin:	Residues and byproducts of White Chemical Corporation's manufacturing of acid chlorides and flame retardant compounds.

DECLARATION STATEMENT

RECORD OF DECISION

WHITE CHEMICAL CORPORATION

Site Name and Location

White Chemical Corporation, Newark, Essex County, New Jersey

Statement of Basis and Purpose

This decision document presents the selected interim remedial action for surface contamination at the White Chemical Corporation site, in Newark, New Jersey, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the administrative record for the site.

The State of New Jersey concurs with the selected interim remedy.

Assessment of the Site

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

The interim remedy described in this document represents the first component of a permanent remedy for the White Chemical Corporation site. It addresses the current and future threats to human health and the environment associated with the surface contamination present at the site. Additional investigations will be required to fully characterize the nature and extent of contamination in other environmental media at the site, and to evaluate additional remedial measures. The selection of such measures will be the subject of a future Record of Decision to fully address the remaining principal threats posed by conditions at the site. This decision document addresses only surface contamination.

The major components of the selected interim remedy include:

- Appropriate security measures;
- Site stabilization;

- On-site pretreatment or neutralization of contaminated material;
- Off-site treatment, recycling, or disposal of contaminated material;
- Decontamination and off-site disposal or recycling of empty drums and small containers;
- Decontamination and on-site storage of tanks and process piping; and
- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

Statutory Determinations

The selected interim remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the extent practical given the limited scope of the action, and is cost effective. Requirements which cannot be achieved by the interim remedy may be waived pursuant to Section 121 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, and will be addressed as part of the final remedial action at the site. This interim remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Subsequent actions may be necessary to fully address the other principal threats posed by conditions at the site.

William J. Muszynski
Constantine Sidamon-Eristoff
Regional Administrator

Sept. 26, 1991
Date

State of New Jersey
Department of Environmental Protection and Energy
Office of the Commissioner
CN 402
Trenton, NJ 08625-0402
Tel. # 609-292-2885
Fax. # 609-984-3962

Scott A. Weiner
Commissioner

September 24, 1991

Mr. Constantine Sidamon-Eristoff
Regional Administrator
USEPA - Region II
Jacob K. Javits Federal Building
New York, NY 10278

Dear Mr. Eristoff:

Re: White Chemical Corporation
Record of Decision Concurrence Letter

The Department of Environmental Protection has evaluated and concurs with the selected remedy for the White Chemical Corporation Site outlined below:

The selected remedy represents the first planned remedial action for the site. It involves removal of surface waste contamination in accordance with State and Federal requirements. A subsequent decision document will address the remediation of ground water, surface waters and soils associated with the site.

The major components of the selected remedy include the following:

- Appropriate security measures;
- Site stabilization;
- On-site pretreatment or neutralization of contaminated material;
- Off-site treatment, recycling, or disposal of contaminated material;
- Decontamination and off-site disposal or recycling of empty drums and small containers;
- Decontamination and on-site storage of tanks and process piping;

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- Appropriate environmental monitoring to ensure the effectiveness of the remedy; and

- Preparation of a comprehensive remedial investigation and feasibility study to address contamination in other environmental media.

The Department reserves its final comments on the complete Record of Decision pending an opportunity to review the completed documents, including the document's Responsiveness Summary.

Sincerely,

Scott A. Weiner
Commissioner

DECISION SUMMARY

RECORD OF DECISION

WHITE CHEMICAL CORPORATION

SITE LOCATION AND DESCRIPTION

The White Chemical Corporation site is a 4.4-acre, inactive facility that formerly manufactured acid chlorides and flame retardant compounds. The site is located at 660 Frelinghuysen Avenue in a heavily populated and industrialized area of Newark, Essex County, New Jersey. The general site location is shown on Figure 1.

The site is located immediately east of two large manufacturing facilities; a feather company and a sportswear manufacturer. A large clothing manufacturing company is located north of the site. The eastern border of the site is adjacent to Conrail and Amtrak rail lines that serve as a major rail corridor to New York City. The Newark brewery of Anheuser-Busch, Inc., is located on the eastern side of the railroad line. Approximately one-half mile further east are U.S. Highways 1 and 9, and Newark International Airport. Weequahic Park, several large housing complexes, and several high-rise senior citizen residences are present near the site. There is a daytime population of approximately 12,000 within a one-quarter mile radius of the site.

The White Chemical Corporation site property is owned by AZS Corporation. White Chemical Corporation (WCC) operated the facility from 1983 until July 1990 when it ceased most operations. In September 1990, the U.S. Environmental Protection Agency (EPA) issued a Unilateral Administrative Order (UAO) to WCC barring the Corporation from continuing on-site operations and ordering evacuation of all personnel. In October 1990, the U.S. District Court for the district of New Jersey issued an order enforcing EPA's UAO.

Five major buildings are located on the site, as well as three smaller, facility support buildings (see Figure 2). Tanks are present in three areas of the property, and 55-gallon drums are located throughout an area east of the buildings. The site is secured by a chain-link fence that was repaired by EPA in October 1990 as part of a removal action that was initiated in September 1990.

During an EPA assessment conducted prior to the initiation of the removal action, numerous violations of the Resource Conservation and Recovery Act (RCRA), as amended, 42 U.S.C § 6901 et seq., were discovered. It was estimated in September 1990, that 10,900 55-gallon drums of hazardous substances were found precariously stacked or in other ways improperly stored throughout the site.

Drums and other containers were found in various stages of deterioration, fuming, and leaking their contents onto the soil. Numerous stains were observed on the soil. As a result of the on-going removal action, 4,200 empty drums have been shipped off the site and approximately 6,700 staged drums remain on the site. The contents of most drums could not be identified because of poor, improper, or multiple labeling. Some containers were found labeled "Salvage - Hazardous Waste Rejected."

Other containers found on the site included approximately 150 gas cylinders; 126 storage tanks, vats, and process reactors; hundreds of fiberpack drums; glass and plastic bottles; carboys; boxes; and several thousand laboratory-type containers. Only a small quantity of these containers were empty.

Prior to the initiation of removal activities, a laboratory on the site contained thousands of unsegregated laboratory chemicals in deteriorating containers. These containers were haphazardly stored on structurally unsound shelving, or stacked in piles on the floor. The laboratory-size containers, which number approximately 12,000, have been restaged into segregated indoor areas.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Historical Site Use

In September 1970, Central Services Corporation (CSC) purchased the property on which the site is located from the Union Carbide Corporation. It is believed that much of the present site infrastructure, including sewer and utility conduits, and buildings, may date from the time of Union Carbide's ownership. CSC sold the property to the Lancaster Chemical Company, a division of AZS Corporation, in August 1975. In 1983, WCC leased the site and moved its operations from Bayonne, New Jersey to the site in Newark.

WCC operated on the site from 1983 to 1990, manufacturing a variety of fire retardant chemicals, generally in small quantities, for specialty purposes. The products were generally formulated in batches according to individual customers' specifications. Most of the finished products were solids and powders.

Removal and Remedial Actions to Date

The New Jersey Department of Environmental Protection and Energy (NJDEPE) conducted several inspections of the facility between June and September 1989 pursuant to RCRA. During these inspections, NJDEPE issued Notices of Violation (NOVs) for improper drum management, leaking drums, open containers, and inadequate aisle space.

On September 22, 1989, the site was reinspected and it was noted that the facility had attained only partial compliance. As a result, an Administrative Order and penalty was issued on March 15, 1990. According to NJDEPE, WCC never complied with the order and never paid the penalty.

From March 27 through March 29, 1990, NJDEPE reinspected the facility and again found many RCRA violations. NJDEPE issued NOVs under the New Jersey Spill Compensation and Control Act and ordered WCC to immediately remediate all spills and other violations. WCC never complied with the NOVs.

On May 8, 1990, NJDEPE issued a Directive to WCC pursuant to the New Jersey Spill Compensation and Control Act, in order to secure the perimeter of the facility, provide 24-hour security and attempt to stabilize drums located on the premises. WCC never responded to the Directive.

A removal action to stabilize the site was initiated by NJDEPE on May 15, 1990, under the New Jersey Spill Compensation and Control Act. However, after removing approximately 1,000 drums, NJDEPE exhausted its current authorized funds of $825,000 and suspended operations in August 1990. On August 24, 1990, NJDEPE requested that EPA consider taking a removal action at the site.

In response to the NJDEPE's request, EPA performed a preliminary assessment of the WCC facility on September 7, 1990 and found numerous air and water reactive substances in 55-gallon drums. At that time, EPA overpacked 11 fuming drums and secured them for future handling. On September 28, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a health consultation that concluded that the site posed an imminent and substantial health and safety threat to nearby residents and workers. A Public Health Advisory was later issued in November 1990.

EPA performed supplementary assessments of the site on October 2 and 4, 1990 which included the laboratory located in the main building. The thousands of small jars, bags, bottles, and other vessels discovered in the laboratory contained flammable liquids, corrosives, acids, oxidizers, shock-sensitive material, and air/water-reactive substances.

EPA is presently maintaining 24-hour security at the inactive facility and is continuing to perform site stabilization activities through its removal authority. On-going actions include drum overpacking on an emergency basis, segregating incompatible substances, and further assessing the nature of the chemicals present. Approximately 12,000 laboratory containers have been restaged and inventoried, however, the results of the inventory have not yet been fully compiled.

Based on the known contamination present, EPA proposed the White Chemical Corporation site for inclusion on the National Priorities List of Superfund sites on May 9, 1991.

EPA prepared a Focused Feasibility Study (FFS) to develop and evaluate a limited number of alternatives for addressing the known surface contamination. Information obtained from the removal action was used to prepare the FFS.

Current Conditions

The site is presently under the control of EPA, which maintains 24-hour security at the site. The site is fenced on all sides and signs are posted indicating that the site is hazardous and entry to the property is restricted. EPA is currently conducting a removal action to stabilize the site.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The FFS report and the Proposed Plan for the White Chemical Corporation site were released to the public for comment on June 21, 1991. These two documents were made available to the public in both the administrative record at EPA's Region II office and the information repository maintained at Newark Public Library. A public comment period was held from June 21, 1991 to August 21, 1991. A public meeting was held on July 11, 1991 to present the findings of the FFS and the Proposed Plan, and to solicit public input. The issues raised at the public meeting and during the public comment period are addressed in the Responsiveness Summary, which is part of this Record of Decision (ROD). This decision document presents the selected remedial action for the White Chemical Corporation site, chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601 et seq., and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision for this site is based on the administrative record.

SCOPE AND ROLE OF ACTION

The remediation of the site is complicated by the quantity of surface contamination. This remedy will be considered an early remedial response, based on the FFS report. This action will address surface contamination only (e.g., drums, tanks, laboratory containers) and further stabilize the site until an overall, permanent remedy can be selected. Other potentially contaminated media including soil, ground water, surface water, and buildings will be addressed at a later date when a comprehensive remedial investigation and feasibility study (RI/FS) will be performed. This early remedial response is consistent with Section 104 of CERCLA, as amended, in that it

will provide an orderly transition into, and will contribute toward, the efficient performance of future remedial actions.

SUMMARY OF SITE CHARACTERISTICS

The majority of the containers previously described remain on the site, including approximately 6,700 drums, 126 tanks, 12,000 laboratory-type containers, and 10 gas cylinders. All of the containers have material in them. Approximately 4,200 empty drums have been removed from the site. Removal response actions to date have focused primarily on site stabilization.

Much of the information gathered about the contaminants on the site is based on data from White Chemical's 1989 SARA Title III Survey, the on-going removal action and the FFS report.

Approximately 6,700 drums remain on the site. Drums contain both organic and inorganic substances with many different hazardous characteristics (e.g., corrosive, water-reactive, combustible, flammable). To date, all remaining drums have been staged as part of the removal program's efforts. A partial inventory of drums is presented in Table 1.

A total of 126 tanks are present on the site. These include storage tanks, vats and reaction vessels. Some substances found in the tanks include phosphorous trichloride, xylene, and pivaloyl chloride. Approximately 55 are empty and 71 have been sampled. Table 2 describes the contents and condition of the tanks and reaction vessels. Although some tanks and reactors have been identified as empty, some contain residues which may be hazardous substances. Due to the poor condition of some tanks, it was necessary to transfer their contents into new containers. The contents of seven tanks were sent off site for disposal; the contents of two other tanks were taken back by the chemical supplier

The on-site laboratory contains approximately 12,000 lab-size containers. All of these small containers have been staged and segregated. However, the contents of 50 percent of the containers are still unknown. Table 3 shows some of the substances which were found in the small containers. Among the chemicals identified include bromine, benzene, and red phosphorous.

Along with the hazardous substances found in the drums, tanks, and laboratory containers, a quantity of shock sensitive material is present on the site. This material, which has been isolated for safety, includes sodium nitrite crystals, magnesium nitrate and acrolein. Table 4 shows an inventory of the shock sensitive material.

Because of the nature and extent of contamination at the site, migration into the environment is a concern. Contaminant migration consists of two elements: (1) a source and mechanism of release to the environment and (2) an environmental transport medium (e.g., ground water, air). Factors that can affect the rate of release and transport include the characteristics of the media of transport, physical/chemical characteristics of the contaminants, and interactions between the media and the contaminants. These factors have the potential to accelerate or impede contaminant migration. Primary routes of migration of contaminants in the environment typically include migration through ground water, surface water, and air.

One of the immediate concerns at the White Chemical site is the migration of contaminants through the air. Because of the nature, quantity, and storage condition of the substances known to exist on the site, there is an immediate risk to public health and the environment.

The presence of water-reactive substances, such as phosphorus tribromide and phosphorus trichloride, and concentrated acids poses a threat of fire or explosion, and the subsequent release of hazardous substances into the atmosphere. In addition, the presence of air-reactive substances, such as red phosphorus, and shock-sensitive material, greatly increases the potential for a catastrophic event.

Air monitoring and qualitative modelling have been performed by EPA to determine the potentially affected area in the event of a release of hazardous substances into the atmosphere. These efforts indicate that a plume resulting from fire, explosion, or chemical reaction could adversely impact an area up to one-quarter mile radius around the site. It is also estimated that a secondary plume could produce adverse human health effects up to five miles away.

Site-related contamination of soils, ponded surface water, runoff, and ground water is considered likely, based on observations of site conditions and of known releases. Additional releases are possible as long as drums and other "source" material remain on site. The nature and extent of potential contamination of other media will be fully evaluated in a comprehensive RI/FS which will need to be subsequently performed.

SUMMARY OF SITE RISKS

Human Health Risks

On September 27, 1990, EPA requested that ATSDR review site information and data for the White Chemical Corporation site and characterize the threat to public health posed by the site.

ATSDR responded to that request by performing a Health Consultation on September 28.

ATSDR concluded that the threat of catastrophic release posed by the uncontrolled storage of hazardous substances, and conditions of on-going release at the site, present an imminent and substantial threat to public health. On the basis of that threat, ATSDR issued a Public Health Advisory to alert EPA, the State of New Jersey, and the public of a serious threat to human health from a potential catastrophic release of hazardous substances.

Because of the limited information available as to the exact nature of the chemicals on the site, a quantitative risk assessment could not be performed as part of the FFS. However, EPA, in consultation with ATSDR, did an analysis to estimate the health problems that could result if the contamination and hazardous conditions at the White Chemical Corporation site were not cleaned up. This assessment, referred to as a Public Health Evaluation (PHE), is presented in the FFS. Because surface contaminants at the site pose a potential immediate health threat, consultations with ATSDR served as the primary supporting information for the PHE.

Approximately 12,000 people are estimated to live and work within a one-quarter mile radius of the site, and could be at risk during a catastrophic occurrence at the site. A manufacturing plant employing approximately 225 individuals is located immediately west and adjacent to the site. Immediately north of the site, a garment manufacturer employs approximately 200 workers. To the east and adjacent to the site is a major commuter rail line. The Newark International Airport and U.S. Highways 1 and 9 are located approximately one-half mile further east of the site. Weequahic Park is located within one-quarter mile. In addition, there have been documented reports of trespassing on the site.

Potential current and future exposure routes and potentially or currently exposed populations are shown in Table 5. Exposed or potentially exposed populations include nearby residents, workers, trespassers, fire-fighting personnel and railway commuters. The predominant route of exposure is inhalation for all of the exposed populations, and direct contact for trespassers or fire-fighting personnel.

Non-carcinogenic and carcinogenic adverse health effects have been associated with many of the contaminants identified on the site. Chronic inhalation of or direct contact with site contaminants by the previously mentioned populations would be expected to result in deleterious health effects. The release of acid fumes has already occurred on frequent occasions. The presence of acids was detected in ambient air off the site by

colormetric testing methods. The potential for nearby residents, workers, and site trespassers to be exposed to contaminants by inhalation and/or direct contact, currently exists. Persons who suffer impaired respiratory function (e.g., asthma, bronchitis) are expected to be at greater risk than the general public.

Site circumstances suggest that the present unstable situation could lead to a catastrophic release of hazardous material that would likely affect the surrounding community. Mixtures of incompatible substances can lead to fire, explosion or release of vapors. Improper storage of incompatible substances on site could result in a rapidly spreading fire upon uncontrolled release, which could involve large quantities of flammable and toxic materials and result in a significant airborne release of toxic organic and inorganic chemicals. Many of the substances will react upon contact with moisture or air, forming toxic and irritating substances. A catastrophic release similar to the releases described above would likely cause the generation of a plume that could contain hazardous concentrations of acid gases, or irritating and toxic substances which would significantly endanger the public and workers in the area. Such an event would also introduce new receptor populations (e.g., additional emergency response personnel).

Current exposures to on-site hazardous materials and the threat of a catastrophic release posed by the uncontrolled storage of materials on site pose an imminent and substantial threat to public health.

Environmental Risks

Due to the nature and complexity of the site the environmental risks have not been fully explored. However, at this time, the primary pathway for any potential exposure would be through an air release. A full and detailed evaluation of environmental risks will be performed as part of the comprehensive RI/FS.

Conclusion

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives have been established for the site in relation to the surface contamination sources. The objectives have been established by considering the known contamination present, the threats to public health and the environment associated with the hazards at the site, and any applicable or

relevant and appropriate requirements (ARARs) of other Federal and State environmental laws and regulations.

The objectives of this action are to address those hazards at the site that require immediate attention, and are intended to further stabilize the site until an overall, permanent remedy can be selected and implemented. Such an action would continue the stabilization efforts that began with the removal action. Remedial alternatives for a permanent cleanup of the entire site will be evaluated later in the RI/FS.

The specific remedial action objectives for the site are presented below. The remedial objectives are the basis for the development and evaluation of remedial alternatives. The development of remedial alternatives is presented in further detail in the FFS.

The drums, tanks and small containers located at the site pose several imminent hazards to public health and the environment. Many of the drums and tanks contain hazardous substances which have been released or are threatened to be released into the environment. The objectives of the early remedial response for the drums, tanks and small containers are to:

1. Prevent ingestion/inhalation/direct contact with hazardous substances at concentrations posing a potentially imminent and substantial endangerment; and

2. Prevent releases of hazardous substances that would result in or through a catastrophic event (e.g., explosion, fire, generation of contaminant vapor plume) or migration of hazardous substances that would result in contamination of ground water, surface water, soil, or releases into the atmosphere.

DESCRIPTION OF ALTERNATIVES

The Comprehensive Environmental Response, Compensation, and Liability Act, as amended, requires that each selected site remedy be protective of human health and the environment, comply with ARARs, utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and be cost effective. The FFS developed and evaluated, in detail, three alternatives for an early remedial response to the surface contamination at the White Chemical Corporation site that might satisfy these criteria.

Alternative 1: No Further Action

Estimated Capital Cost:	$	0
Estimated Present Worth of Five-Year Review:	$	38,000

The No Further Action alternative provides a basis for comparing existing site conditions with those resulting from implementation of the other identified alternatives. Under the no further action alternative, no additional measures would be taken to remediate the contaminant sources or their potential migration pathways beyond those already taken under the removal action. The no further action alternative would allow significant sources of contamination, and their migration pathways, to remain in place. Deteriorating drums would continue to degrade and hazardous substances would leak from these containers. No effort would be made to change or maintain the current condition of the tanks. Small containers would remain on the site in their present condition. The potential for a catastrophic event would continue with the presence of non-stabilized reactive substances. The potential for exposure to contaminants is not reduced in this scenario, and exposure-related risks will remain similar to those discussed in the PHE.

The access restrictions (i.e., fencing, warning signs) that have been installed and maintained under the removal action would remain in place, but no further maintenance would be provided. It is assumed that these deterrents would lose their effectiveness over time and that trespassers would gain unrestricted access to the site.

Because this alternative would result in contaminants remaining on the site, a review of site conditions at the end of five years, as mandated by CERCLA, as amended, would be required to determine whether or not contamination has spread.

There are no costs associated with the implementation of the no further action alternative beyond those associated with the five-year review.

Alternative 2: Site Stabilization and On-site Storage

Estimated Capital Cost:	$ 7,767,000
Estimated Annual Operation and Maintenance (O & M) Costs:	$ 2,652,000
Estimated Present Worth:	$18,062,000
Implementation Timeframe:	2 years
O & M Timeframe:	5 years

The site stabilization and on-site storage alternative is an interim response action that would be a continuation and modification of the removal action currently in progress. Only

limited measures would be taken toward site remediation; i.e., measures to prevent further releases to the environment. This, therefore, is an interim remedial action.

Although much of the site stabilization process has already been performed by the on-going removal action, it may be necessary to perform some additional activities. The alternative involves compiling an inventory of hazardous substances present on the site and restaging incompatible substances to prevent uncontrolled reactions in the event of an accident, inclement weather, or container failure. This would include sampling and compatibility analysis of drums and other containers prior to restaging. Once container contents are characterized, they could be segregated and stored appropriately in anticipation of a final response action. For leaking or inappropriate containers, overpacking or "labpacking" would be required to prevent further release of contents.

If the condition of a container was found to be such that it could not be moved without releasing its contents, the contents would be transferred to an approved container to prevent further leakage or spillage. This response action is adaptable for many materials on the site, but is particularly effective for liquids which can be easily transferred. This technique would also be employed for tanks of questionable integrity.

In many cases, it may be more practical to consolidate similar or compatible substances for on-site storage. When sufficiently similar materials are found in this case, they would be consolidated or bulked in bulking chambers. The consolidated material would then be transferred into a tanker truck and appropriately stored on the site until a final response action is taken. Empty containers remaining after the bulking operation would be rinsed and sent off site for recycling. If containers could not be recycled, they would be crushed for appropriate disposal.

It might be necessary, however, to dispose of some of the extremely hazardous substances at off-site facilities to ensure the stability of the remaining material stored on the site. For example, it may be inappropriate to store shock-sensitive, or similarly reactive, materials on the site because of the threat that they pose to overall site stability.

An emergency response contingency plan would be developed to provide a mechanism for responding to any releases, fires, etc., that might occur during the stabilization effort. Further, because large amounts of hazardous substances would remain on the site under this alternative, extensive monitoring would be required to ensure the integrity of the stabilized containers. The site security measures implemented under the removal action would need to be continued. A review of site conditions at the

end of five years, as mandated by CERCLA as amended, would also be required to determine whether or not contamination had spread. Additionally, remedial investigation activities would be required to determine the nature and extent of contamination present in other environmental media at the site.

It is estimated that it would take two years to stabilize the site, and that on-site storage would be required for a period of five years until a final response action would be taken.

The cost estimate for this alternative was based on information about materials and costs which was determined during the initial stages of the removal action. This information was extrapolated and conservatively utilized to calculate costs for addressing the remainder of the material on the site.

Alternative 3: Stabilization/Treatment and Off-site Disposal

Estimated Capital Cost:	$22,096,000
Estimated Annual O & M Costs:	$ 0
Estimated Present Worth:	$22,096,000
Implementation Timeframe:	2 years

This alternative includes all of the process options and materials handling techniques presented in Alternative 2, however, it also provides for the treatment and off-site disposal of material. This alternative is developed as a final remedy for the contamination sources (i.e., drums, tanks, other containers), but recognizes that additional efforts would be required to complete the overall site remediation. No measures are included in this alternative to address the potential contamination of soil, ground water, surface water, buildings, or other environmental media.

As noted above, the site stabilization measures described for Alternative 2 would be employed, as appropriate. This alternative could also involve mobilizing a treatment unit, or units, to the site and treating, or neutralizing, some of the hazardous substances on the site prior to off-site disposal. Contaminated material would need to be sampled and analyzed to determine the most appropriate treatment process. It would probably be necessary to utilize several treatment processes to address the various constituents present on the site.

Where materials are found to be sufficiently free of impurities, under this alternative, they would be sent off site to reuse as product. Additionally, it may be possible to reuse some of the treated material, if it is of value.

Once the material has been sufficiently stabilized, bulked, and/or treated, it would be transported off site to a RCRA-approved treatment facility, to a hazardous waste disposal

facility, or to an appropriate facility for recycling or processing. Additional risks which would arise from the off-site transportation of hazardous material would be minimized by utilizing appropriate shipping containers and preparing a transportation safety contingency plan. All containers will be decontaminated and removed from the site for disposal or recycling. Empty containers, such as drums, carboys, and small containers, will be decontaminated on site and removed from the site for disposal or recycling. Empty tanks, reaction vessels, and process piping will be decontaminated and stored on site.

Environmental monitoring would be conducted during the implementation of this alternative to ensure the mitigation of any releases. An emergency response contingency plan would also be developed to provide a mechanism for responding to any releases, fires, etc., that might occur during the stabilization, treatment, and off-site disposal efforts. The site security measures implemented under the removal action would need to be continued for the duration of the remedial action; however, once the material has been removed from the site, security measures could be greatly reduced. Because this alternative would be a final remedy for the surface contamination, a five-year review would not be required. (Additional remedial investigation activities would be conducted to determine the nature and extent of contamination present in other environmental media.)

It is assumed that it would take two years to complete the source remediation under this alternative. Because all of the contamination sources will have been removed from the site, no operation and maintenance is anticipated for this alternative. As noted above, site security measures would be reduced, in all likelihood, to passive access restrictions, such as the existing fencing and warning signs.

The cost estimate for this alternative was based on information about materials and costs which was determined during the initial stages of the removal action. This information was extrapolated and conservatively utilized to calculate costs for addressing the remainder of the material on the site.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

Evaluation Criteria

The three alternatives noted above were evaluated using criteria derived from the NCP and CERCLA, as amended. These criteria relate directly to factors mandated by CERCLA, as amended, in Section 121, including Section 121(b)(1)(A-G). The criteria are as follows:

- Overall protection of human health and the environment

- Compliance with applicable or relevant and appropriate requirements
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume via treatment
- Short-term effectiveness
- Implementability
- Cost
- State acceptance
- Community acceptance

Overall Protection of Human Health and Environment

Overall protection of human health and the environment is the central mandate of CERCLA, as amended. Protection is achieved by reducing health and environmental threats and by taking appropriate action to ensure that, in the future, there would be no unacceptable risks to human health and the environment through any exposure pathway.

The No Further Action alternative would provide no further protection of human health and the environment than that afforded by the removal action to date. Deteriorating containers would continue to degrade and release hazardous substances. Small containers would remain on the site in their present condition. The potential for a catastrophic event would continue and increase with the presence of non-stabilized reactive materials. Because site security measures would be discontinued, trespassing and exposures to hazardous materials could not be prevented.

Alternative 2 is an interim remedial action that would provide a significant level of protection because the site would be stabilized. However, extensive monitoring, security, and preventive maintenance measures would need to be taken to preserve the protectiveness of the action.

Alternative 3 would provide the greatest degree of protection of human health and the environment because, in addition to stabilizing conditions on the site, hazardous materials would be removed from the site for appropriate off-site processing or disposal. Proper materials handling techniques would be employed during the action to ensure that risks are controlled. Additional risks which would arise from the off-site transportation of hazardous materials would be minimized

by utilizing appropriate shipping containers and preparing a transportation safety contingency plan.

Compliance with ARARs

Section 121(d) of CERCLA, as amended, requires that remedies for Superfund sites comply with Federal and State laws that are applicable and legally enforceable. Remedies must also comply with the requirements of laws and regulations that are not applicable, but are relevant and appropriate. Applicable requirements are defined as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, remedial action, location, or other circumstance at a Superfund site. Relevant and appropriate requirements are defined as substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location or circumstance at a Superfund site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. EPA has also developed another category of requirements, known as "to be considered" (TBCs), that includes nonpromulgated criteria, advisories, guidance, and proposed standards issued by Federal or State governments. TBCs are not potential ARARs because they are neither promulgated nor enforceable. It may be necessary to consult TBCs to interpret ARARs, or to determine preliminary remediation goals when ARARs do not exist for particular contaminants. However, identification and compliance with TBCs is not mandatory in the same way that it is for ARARs.

ARARs for the White Chemical site include the Resource Conservation and Recovery Act, the New Jersey Air Pollution Control Act, and the Clean Air Act.

EPA has divided ARARs into three categories to facilitate their identification:

Action-Specific ARARs are usually technology- or activity-based requirements or limitations on actions or conditions involving specific substances.

Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies used to determine acceptable concentrations of chemicals that may be found in or discharged to the environment.

Location-specific ARARs restrict actions or contaminant concentrations in certain environmentally sensitive areas.

Examples of areas regulated under various Federal laws include floodplains, wetlands, and locations where endangered species or historically significant cultural resources are present.

Alternative 1 would not comply with ARARs because hazardous substances would remain improperly stored on the site. Releases would continue to occur, in violation of Clean Air Act and RCRA requirements.

Alternative 2 would comply with most ARARs, although some RCRA requirements relating to the storage of hazardous materials would not be met.

Alternative 3 would comply with ARARs. Activities related to the handling of wastes would comply with all ARARs, including Occupational Safety and Health Administration requirements. Off-site transportation of hazardous materials would be accomplished in accordance with Department of Transportation regulations and hazardous waste management requirements. Materials removed from the site would be treated, processed, or disposed of in accordance with RCRA requirements and Land Disposal Restrictions (LDRs).

Reduction of Toxicity, Mobility, or Volume via Treatment

This evaluation criterion relates to the performance of a technology or remedial alternative in terms of eliminating or controlling risks posed by the toxicity, mobility, or volume of hazardous substances.

The No Further Action alternative would not reduce the toxicity, mobility, or volume of contaminants to any degree. Additionally, the mobility of the contaminants may significantly increase as the deteriorating containers continue to degrade. In the event of a fire, the toxicity and mobility of the contaminants could also increase.

Alternative 2 would reduce the mobility of the contaminants through the site stabilization effort, however, this reduction would not be achieved through treatment. Although this alternative provides for the removal of extremely hazardous materials, the volume of hazardous substances remaining on the site would not be substantially reduced. Further, there would be no reduction in the toxicity of the materials remaining on the site.

Alternative 3 would reduce the toxicity, mobility, and volume, of some of the hazardous substances present at the site, through treatment and removal of hazardous substances remaining on the site. This alternative also provides for the recycling of as much material as practical.

Short-term Effectiveness

Short-term effectiveness measures how well an alternative is expected to perform, the time to achieve performance, and the potential adverse impacts of its implementation.

Alternative 1 would provide no short-term, effective remedial measures.

Alternatives 2 and 3 would begin to be effective as they are implemented. Both alternatives are expected to be fully effective within a two-year period. Alternative 2 involves the implementation of extensive monitoring and maintenance programs to ensure its effectiveness for both the short and long term.

Potential short-term adverse impacts could occur under Alternatives 2 and 3 during their implementation. Proper materials handling practices would need to be employed to minimize the potential for short-term adverse impacts under both alternatives. Alternative 3 would provide an additional potential for short-term impacts through the off-site transportation of hazardous materials; however, these concerns would be addressed through the preparation of a transportation safety contingency plan.

Long-term Effectiveness and Permanence

Long-term effectiveness and permanence address the long-term protection and reliability that an alternative affords.

The No Further Action alternative provides no long-term effectiveness and would result in significant risks to human health and the environment remaining at the site. This alternative provides no permanent remedy of site conditions.

Alternative 2 is an interim remedy that provides for extensive monitoring and maintenance activities to ensure its effectiveness for an estimated five-year period. It would be necessary to continue the interim action beyond that period, or implement a more permanent remedy, to provide long-term effectiveness and permanence.

Alternative 3 would be effective in the long term because the most serious threats posed by the site would be removed for off-site treatment, processing, or disposal. The remedy is considered permanent for the sources of the contamination; however, additional measures would need to be taken to remediate the contamination potentially

remaining at the site in other media, such as soil and ground water.

Implementability

Implementability considerations address how easy or difficult, feasible or infeasible, it would be to carry out a given alternative from design through construction and operation and maintenance. This criterion examines the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen remedy.

There are no remedial measures to be implemented under the No Further Action alternative.

Alternative 2 is easily implemented and, in fact, is an extension of the removal action currently in progress at the site. The necessary materials and equipment are readily obtained. Sufficient personnel trained in the proper techniques are available.

Alternative 3 is also an extension of the removal action and provides for treatment and off-site disposal of material. This alternative is also easily implemented. As with Alternative 2, the necessary materials and equipment are readily obtained. Sufficient personnel trained in the proper techniques are also available. Alternative 3 is technically feasible to implement. This alternative employs conventional treatment technologies that are commonly used.

Costs

Costs are evaluated in terms of remedial action capital costs, operation and maintenance costs, and present worth.

Because no actions are taken, other than a one-time monitoring event to review site conditions after five years, Alternative 1 has the lowest present worth, which is estimated to be $38,000. Conversely, Alternative 3, involving the most comprehensive cleanup approach, has the highest present worth. It is estimated to be $22,096,000. The estimated present worth of Alternative 2 is $18,062,000.

State Acceptance

The State Acceptance factor addresses whether the State of New Jersey supports, opposes, or has no comment on the preferred alternative.

The State of New Jersey supports the remedial action called for by the selected remedy.

Community Acceptance

This evaluation factor addresses public reaction to the remedial alternatives which were considered, and the preferred alternative.

Issues raised during the public comment period and at the public meeting held on July 11, 1991, are addressed in the Responsiveness Summary Section of this ROD.

SELECTED REMEDY

Section 121(b) of CERCLA, as amended, requires EPA to select remedial actions which utilize permanent solutions and alternative treatment technologies or resource recovery options to the maximum extent practicable. In addition, EPA prefers remedial actions that permanently and significantly reduce the mobility, toxicity, or volume of site wastes.

After careful review and evaluation of the alternatives evaluated in detail in the focused feasibility study, and consideration of all evaluation criteria, EPA presented Alternative 3, Stabilization/Treatment and Off-site Disposal as the preferred alternative in the Proposed Plan.

The input received during the public comment period, consisting primarily of questions and statements transmitted at the public meeting held on July 11, 1991, is presented in the attached Responsiveness Summary. Public comments received encompassed a wide range of issues but did not necessitate any changes in the remedial approach proposed to be taken at the site. Accordingly, the preferred alternative (Alternative 3, Stabilization/Treatment and Off-site Disposal) has been selected by EPA as the remedial solution for the surface contamination at the site.

The remedy will involve the continuation of site stabilization as well as the utilization of disposal measures for removing surface contamination (i.e., drums, tanks, other containers) from the site. These disposal methods might involve mobilizing a treatment unit or units to the site, and treating or neutralizing some of the materials prior to off-site disposal. If untreated material is found to be sufficiently free of impurities, it will be reused as product, as well as some of the treated material.

Once the material is sufficiently stabilized, bulked, and/or treated, it will be transported off the site to a RCRA-approved treatment facility, to a hazardous waste disposal facility, or to an appropriate facility for recycling or processing. Empty containers, such as drums, carboys, and small containers, will be decontaminated on site and removed from the site for disposal or recycling. Empty tanks, reaction vessels, and process piping will be decontaminated and stored on site.

The objectives of this early remedial response are to continue the efforts of the on-going removal action to stabilize and secure the site and to remediate the surface contamination. Due to the fact that this action will only address the surface contamination, it is necessary to conduct a comprehensive RI/FS to fully characterize conditions at the site. The comprehensive RI/FS will be initiated following the completion of the surface cleanup.

STATUTORY DETERMINATIONS

Superfund remedy selection is based on the Superfund Amendments and Reauthorization Act of 1986 and the regulations contained in the NCP. EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. Additionally, several other statutory requirements and preferences have been established. These specify that, when complete, the selected remedy must comply with ARARs, unless a statutory waiver of ARARs, pursuant to 121(d)(4)(A) of CERCLA, as amended, is justified. The remedy must also be cost effective and utilize permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. Finally, there is a preference for remedies which employ treatment that permanently and significantly reduce the toxicity, mobility, or volume of hazardous wastes as their principal element. The following sections discuss how the selected early remedial response action for the White Chemical Corporation site meet these requirements and preferences.

Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment, because, in addition to stabilizing the site, hazardous materials would be removed from the site for appropriate treatment, or disposal. The action will eliminate the on-going release of contamination at the site and will significantly reduce the risks posed to human health and the environment. Specifically, current exposures to on-site hazardous materials and the threat of a catastrophic release posed by the storage of materials on the site, which pose an imminent and substantial threat to public health, will be addressed through this action.

There are no short-term adverse impacts associated with the remedy which cannot be readily controlled. In addition, no cross-media impacts are expected from the remedy.

Compliance with Applicable and Relevant and Appropriate Requirements

The selected remedy will attain all ARARs, including chemical-specific, location-specific, and action-specific. They are discussed below.

Action-Specific

All remedial activities will comply with RCRA statutes and regulations.

- RCRA Subpart 268 - Land Disposal Restrictions

- RCRA Parts 262 and 263 standards are applicable to the proposed remedial activities involving RCRA hazardous waste. These provide standards for manifesting, transport, and recordkeeping. In addition, the date which accumulation began in each container must be clearly indicated on each container.

Chemical-Specific

- EPA plans to treat the chemicals in conjunction with off-site disposal. The pre-disposal treatment measures would reduce toxicity to levels (treatment standards) specified by the RCRA LDRs. Treatment methods will have to reduce the waste's leachability to Toxicity Characteristic Leaching Procedure concentrations established by LDRs.

- Potential emissions are expected in the form of volatilization of hazardous constituents and fugitive dust during treatment of chemicals. Emission control measures will be included in the operations at the site, and health and safety plans to ensure compliance with RCRA, Clean Air Act and State regulations during implementation.

Volatile Organic Compounds ARARs

- NJAC 7:27-16
- NJAC 7:27-17

Location-Specific

- 40 CFR 50 National Ambient Air Quality Standards
- NJAC 7:27-13
- NJAC 7:27-5

To Be Considered

- The shipment of hazardous waste off site to a treatment facility should be consistent with the Off-Site Policy Directive Number 9834.11 issued by the Office of Solid Waste and Emergency Response which became effective November 13, 1987. This directive is intended to ensure that facilities authorized to accept CERCLA generated waste are in compliance with RCRA operating standards.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

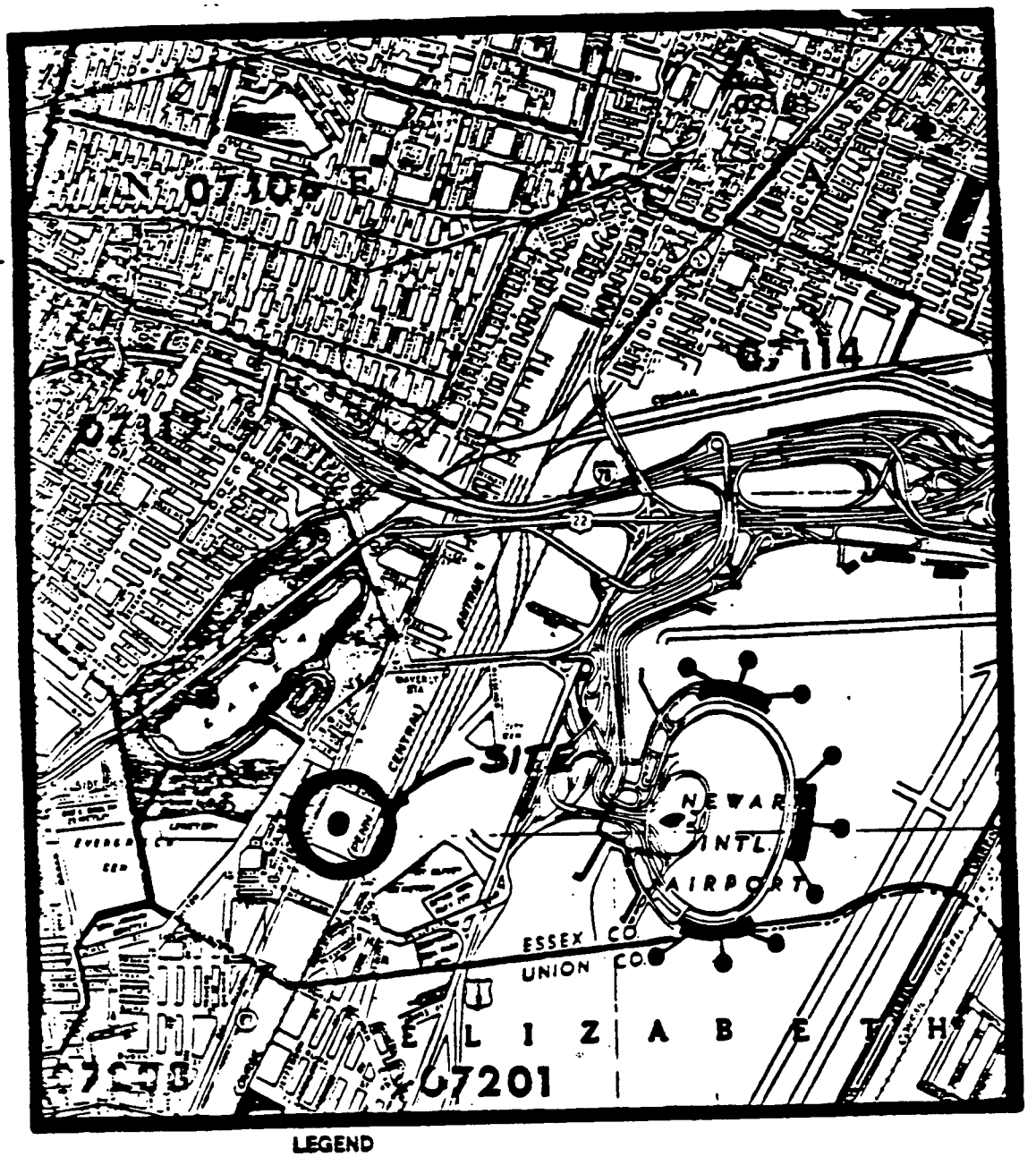
The selected remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, given the scope of the action, by providing the best balance among nine evaluation criteria of all the alternatives examined. Contaminated material will be transported off site to an appropriately approved processing, treatment or disposal facility. Of the five primary balancing criteria, short-term effectiveness and implementability were the most decisive factors in the selection process. Alternatives that offered minimal short-term risks, time-efficiency and maximum effectiveness were maintained through the selection process.

Cost Effectiveness

The selected alternative is determined to be cost-effective because it provides the highest degree of protectiveness among the alternatives evaluated, at reasonable cost.

Preference for Treatment as a Principal Element

The selected remedy addresses the immediate threats posed by the site through the use of treatment technologies. The variety of wastes found at the site indicates that several treatment methods (e.g., recycling, incineration, stabilization, neutralization, etc.) may be utilized. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

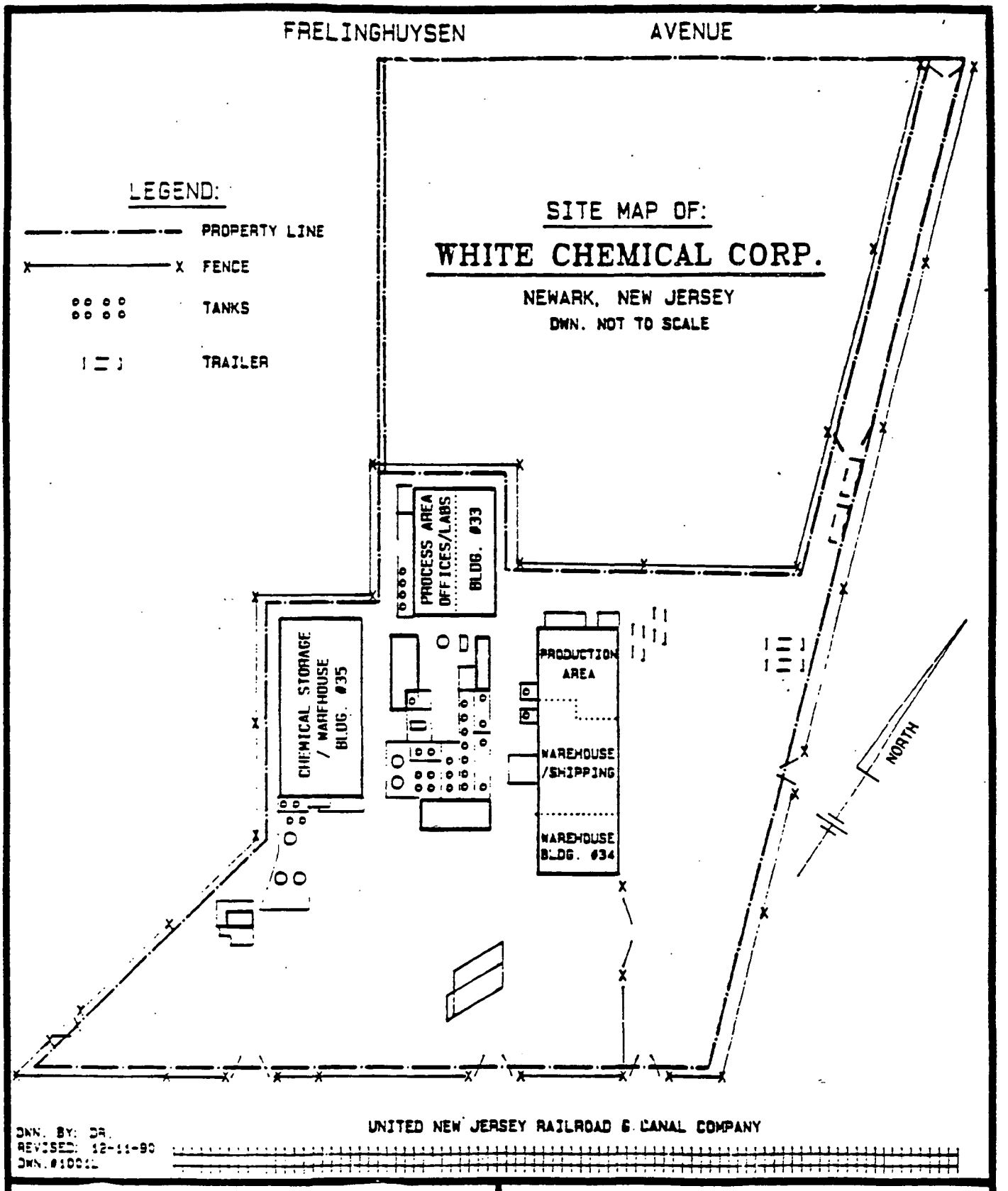


LEGEND

- Main Through Roads
- Highways under Const.
- Proposed Highways
- Other Roads & Streets
- N.J. Turnpike
- Garden State Pkwy
- Highway Symbols
- Railroad Lines and Stations
- Bus Lines
- Parks
- Cemeteries
- Golf Courses
- Airports
- State & Federal Lands
- Hospitals
- State Boundaries
- County Boundaries
- Municipal Boundaries
- Zip Code Boundaries

FIGURE 1

Do Not Scale This Drawing



SITE MAP OF WEITE CHEMICAL CORPORATION

FIGURE 2

TABLE 1 DRUM INVENTORY
BUILDING 34A

DRUM #	CHEMICAL CONTENTS	CATEGORY*	DRUM CAPACITY	TYPE OF DRUM**	DRUM CONDITION***
34A01	PALMITOYL CHLORIDE	I, II	55 GAL	ST	F
34A02	OCTYL CHLORIDE	III	55 GAL	ST	F
34A03	O-CHLOROTOLUENE	III	55 GAL	ST	F
34A04	PHOSPHORIC ANHYDRIDE	I	60 LBS	ST	P
34A05	N-HEPTYL BROMIDE	IV	55 GAL	ST	P
34A06	PHOSPHOROUS ACID	I	55 GAL	ST	P
34A07	IPA BROMIDE W/CARBON	IV	55 GAL	ST	P
34A08	2-HYDROXY ETHYLMETHACRYLATE	IV	55 GAL	ST	P
34A09	BROMURE D'ALLYLE	IV	55 GAL	ST	P
34A10	TEREPHTHALOYL CHLORIDE	III	50 LBS	ST	P
34A11	LACTIC ACID	I	55 GAL	ST	P
34A12	LAURYL CHLORIDE	III	55 GAL	ST	P
34A13	TRITON W-30 CONCENTRATE	III	55 GAL	ST	P
34A14	DOW CORNING 36EMULSION	V	55 GAL	ST	F
34A15	HYDROBROMIC ACID	I	55 GAL	ST	F
34A16	HYDROBROMIC ACID	I	55 GAL	ST	F
34A17	HYDROBROMIC ACID	I	55 GAL	ST	F
34A18	METHYL DIBROMOPROPIONATE	?	40 GAL	ST	F
34A19	NEODECANOIC ACID	III	55 GAL	ST	P
34A20	NEODECANOIC ACID	III	55 GAL	ST	P
34A21	NEODECANOIC ACID	III	55 GAL	ST	P
34A22	ISOBUTYL BROMIDE	IV	55 GAL	ST	P

* CATEGORY
- I: Corrosive
- II: H2O Reactive
- III: Combustible
- IV: Flammable
- V: Organic
- VI: Inert Solid

** TYPE OF DRUM
- ST: Steel
- POLY: High Density Polyethylene
- FIBER: Cardboard or Fiberglass

*** DRUM CONDITION
- P: Poor
- F: Fair
- G: Good
- VB: Very Bad

TABLE 1 DRUM INVENTORY
BUILDING 34A

DRUM #	CHEMICAL CONTENTS	CATEGORY*	DRUM CAPACITY	TYPE OF DRUM**	DRUM CONDITION***
34A23	BROMIDE SOLUTION/ ZINC CALCIUM BROMIDE	I	55 GAL	ST	P
34A24	ZIRCONIUM TETRACHLORIDE	I	10 GAL	POLY	P
34A25	TETRAKIS HYDROXYMETHYL PHOSPHONIUM SULFATE	V	05 GAL	ST	P
34A26	ACETIC ACID	I	20 GAL	POLY	G
34A27	PHOSPHOROUS ACID	I	20 GAL	POLY	G
34A28	METAYLENE BIS (DBP)	?	40 GAL	ST	P
34A29	PHOSPHOROUS TRIBROMIDE	I	10 GAL	ST	P
34A30	PHOSPHOROUS TRIBROMIDE	I	10 GAL	ST	P
34A31	PBPHAE II	?	20 GAL	POLY	G
34A32	DUPONT ADIPIC ACID	III	40 GAL	POLY	G
34A33	ACPYATE CRUDE	?	10 GAL	POLY	G
34A34	HEPTANOYL CL	I	55 GAL	ST	P
34A35	UNKNOWN	?	55 GAL	ST	VB
34A36	UNKNOWN	?	55 GAL	ST	VB
34A37	UNKNOWN	?	55 GAL	ST	VB
34A38	UNKNOWN	?	55 GAL	ST	VB
34A39	UNKNOWN	?	55 GAL	ST	VB
34A40	UNKNOWN	?	55 GAL	ST	VB
34A41	PHOSPHORIC ACID	I	20 GAL	ST	VB
34A42	UNKNOWN	?	55 GAL	ST	P

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TABLE 1 DRUM INVENTORY
BUILDING 34A

DRUM #	CHEMICAL CONTENTS	CATEGORY*	DRUM CAPACITY	TYPE OF DRUM**	DRUM CONDITION***
34A43	MYRISTYL BROMIDE	III	55 GAL	ST	P
34A44	CORROSIVE	?	55 GAL	ST	G
34A45	CALCIUM CHLORIDE	VI	45 GAL	POLY	G
34A46	CALCIUM CHLORIDE	VI	45 GAL	POLY	G
34A47	CALCIUM CHLORIDE	VI	45 GAL	POLY	G
34A48	CALCIUM CHLORIDE	VI	45 GAL	POLY	G
34A49	CALCIUM CHLORIDE	VI	45 GAL	POLY	G
34A50	CALCIUM CHLORIDE	VI	55 GAL	ST	G
34A51	UNKNOWN	?	55 GAL	ST	G
34A52	UNKNOWN	?	55 GAL	ST	G
34A53	UNKNOWN	?	55 GAL	ST	G
34A54	UNKNOWN	?	55 GAL	ST	G
34A55	ALLUMINUM CHLORIDE, ANHYDROUS	I,II	20 GAL	ST	VB
34A56	ALLUMINUM CHLORIDE, ANHYDROUS	I,II	20 GAL	ST	VB
34A57	ALLUMINUM CHLORIDE, ANHYDROUS	I,II	20 GAL	ST	VB
34A58	ALLUMINUM CHLORIDE, ANHYDROUS	I,II	20 GAL	ST	VB
34A59	ANTIMONY TRICHLORIDE	I	10 GAL	FIBER	P
34A60	ANTIMONY TRICHLORIDE	I	10 GAL	FIBER	P
34A61	ANTIMONY TRICHLORIDE	I	10 GAL	FIBER	P
34A62	ANTIMONY TRICHLORIDE	I	10 GAL	FIBER	P
34A63	ANTIMONY TRICHLORIDE	I	10 GAL	FIBER	P

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** TYPE OF DRUM
ST: Steel
POLY: High Density Polyethylene
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*** DRUM CONDITION
P: Poor
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TABLE 2 TANK INVENTORY

TANK #*	SUSPECTED TANK CONTENTS	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
T-001	HYDROCHLORIC ACID 28%	II	8400	1357
T-002	CANNOT BE SAMPLED	II	8400	
T-003	HYDROCHLORIC ACID 28%	II	8400	-
T-004	HYDROCHLORIC ACID 28%	II	8400	3563
T-005	HYDROCHLORIC ACID 28%	II	600	235
T-006	HYDROCHLORIC ACID 28%	II	600	235
T-007	HYDROCHLORIC ACID 28%	II	2200	826
T-008	HYDROCHLORIC ACID 28%	II	2500	752
T-009	GLYCOL(CANNOT BE SAMPLED/ASBESTOS)	III	2800	
T-010	UNKNOWN	III	3200	47
T-011	FATTY ACID	III	5600	-
T-012	BROMINE	I	1600	
T-013	BROMINE	I	1600	
T-014	HYDROCHLORIC ACID 28%	II	8400	8144
T-015	HYDROCHLORIC ACID 28%	II	7400	-
T-016	OCTANOIC ACID	III	14000	135
T-017	ETHYLENE DICHLORIDE	II	14000	?
T-018	OCTANOIC ACID	III	14000	271
T-019	UNKNOWN	III	8400	2417
T-020	UNKNOWN	III	8400	403
T-021	EMPTY	III	8200	-
♦ T-022	XYLENE	II	9500	4283
T-023	UNKNOWN	III	9500	4283
T-024	EMPTY	III	9500	-
T-025	PIVALOYL CHLORIDE	I	7700	-
T-026	EMPTY	III	8300	-

* TANK #: T - TANKS
V - VESSELS
R - REACTORS

** CATEGORY I: Highly reactive Materials
CATEGORY II: Flammable, Reactive or Tank poor
CATEGORY III: Other

♦ Tank contents were emptied and sent off site for disposal.

TABLE 2 TANK INVENTORY

TANK #*	SUSPECTED TANK CONTENTS	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
T-027	EMPTY	III	18000	-
T-028	ACETYL CHLORIDE	I	7700	4332
T-029	EMPTY	III	8300	-
T-030	EMPTY	III	18000	-
T-031	EMPTY	III	33100	-
T-032	EMPTY	III	33100	-
T-033	UNKNOWN (CANNOT GET SAMPLE)	II	8800	449
T-034	FUEL OIL	III	6400	2256
• T-035	PHOSPHOROUS TRICHLORIDE	I	15000	-
T-036	EMPTY	III	15000	
T-037	PHOSPHOROUS TRICHLORIDE	II	900	-
T-038	HYDROCHLORIC ACID 30%	II	800	635
R-039	DPX XYLENE	II	900	-
R-040	DPX XYLENE	II	1000	-
♦ T-041	XYLENE	II	400	282
R-042	DPX XYLENE	II	1700	-
> R-043	DPX XYLENE	II	2300	-
T-044	XYLENE	II	600	47
T-045	SULFURIC ACID 40%	II	600	282
*** T-046	WATER	III	1000	

* TANK #: T - TANKS
V - VESSELS
R - REACTORS

** CATEGORY I: Highly reactive Materials
CATEGORY II: Flammable, Reactive or Tank poor
CATEGORY III: Other

*** Tank consists of two layers Top/Bottom

• 3,000 gallons were transferred to a tanker truck and removed off site by manufacturer.

> Due to the poor condition of the tank the contents were transfered to 16 55 gal. drums, and removed off site.

♦ Tank contents were emptied and sent off site for disposal.

TABLE 2 TANK INVENTORY

TANK #*	SUSPECTED TANK CONTENTS	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
♦ T-047	DPX XYLENE	II	2900	372
T-048	XYLENE	II	600	329
♦ T-049	XYLENE	II	3900	1871
♦ T-050	XYLENE	II	2900	1536
♦ T-051	XYLENE	II	1200	256
T-052	XYLENE	II	1100	-
T-053	XYLENE	II	1100	47
T-054	UNKNOWN	▼		24
T-055	UNKNOWN	▼		2262
R-056	EMPTY	▼	1500	-
R-057	EMPTY	▼	1300	-
T-058				
R-059	EMPTY	▼	2500	-
R-060	UNKNOWN	▼	1300	235
R-061	EMPTY	▼		-
R-062	EMPTY	▼	3075	-
V-063	UNKNOWN	▼		106
T-064	EMPTY	▼		-
R-065	EMPTY	▼		
R-066	UNKNOWN	▼		3379
T-067	UNKNOWN	▼	71	71
T-068	EMPTY	▼	71	-
R-069	EMPTY	▼	3000	-
T-070	UNKNOWN	▼	71	

* TANK #: T - TANKS
V - VESSELS
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** CATEGORY I: Highly reactive Materials
CATEGORY II: Flammable, Reactive or Tank poor
CATEGORY III: Other

▼ Tank not categorized: Anticipated categorization for remaining tanks: CATEGORY I: 10%
II: 57%
III: 33%

♦ Tank contents were emptied and sent off site for disposal.

TABLE 2 TANK INVENTORY

	TANK #*	CONTENTS OF TANK	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
	R-071	EMPTY	▼		-
	R-072	EMPTY	▼	1777	-
	R-073	UNKNOWN	▼		24
	T-074	NO SAMPLE/SCRUBBER COLUMN	▼		-
	R-075	UNKNOWN	▼		47
	T-076	EMPTY	▼		-
>>	T-077	PHOSPHOROUS TRICHLORIDE	▼		-
	T-078		▼		
***	R-079	UNKNOWN	▼		212/740
	R-080	UNKNOWN	▼		864
	V-081	UNKNOWN	▼		159
	T-082	NO SAMPLE/SCRUBBER COLUMN	▼		-
	T-083	NO SAMPLE/SCRUBBER COLUMN	▼		-
	T-084	NO SAMPLE/SCRUBBER COLUMN	▼		-
	T-085	NO SAMPLE/SCRUBBER COLUMN	▼		-
	T-086	UNKNOWN	▼		564
	R-087	EMPTY	▼		-
	R-088	EMPTY	▼	3650	-

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CATEGORY III: Other

*** Tank consists of two layers Top/Bottom

>> Due to the poor condition of the tank the contents were transfered to 3 55gal. drums, and removed off site.

▼ Tank not categorized: Anticipated categorization for remaining tanks: CATEGORY I: 10%
II: 57%
III: 33%

TABLE 2 TANK INVENTORY

TANK #*	CONTENTS OF TANK	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
R-089	UNKNOWN	▼	6450	4759
R-090	UNKNOWN	▼	6450	3769
R-091	EMPTY	▼	1200	-
T-092	EMPTY	▼	3310	-
R-093	UNKNOWN	▼		864
R-094	UNKNOWN	▼		1904
R-095	EMPTY	▼	4050	-
V-096	EMPTY	▼		-
*** R-097	UNKNOWN	▼		432/2591
T-098	UNKNOWN	▼		48
T-099	UNKNOWN	▼	550	24
V-100	UNKNOWN	▼		188
V-101	EMPTY	▼		-
V-102	EMPTY	▼		-
V-103	EMPTY	▼		-
R-104	EMPTY	▼	1200	-
V-105	VOID-AIR DRYER NOT A TANK	▼		VOID
V-106	UNKNOWN	▼	320	132
R-107	EMPTY	▼	270	-
R-108	UNKNOWN	▼	1175	1028
R-109	EMPTY	▼	470	-

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*** Tank consists of two layers Top/Bottom

▼ Tank not categorized: Anticipated categorization for remaining tanks: CATEGORY I: 10%
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III: 33%

TABLE 2 TANK INVENTORY

TANK #*	CONTENTS OF TANK	CATEGORY**	TANK CAPACITY (gallons)	CONTENT VOLUME (gallons)
R-110	UNKNOWN	▾		470
T-111	EMPTY	▾		-
T-112	EMPTY	▾		-
T-113	UNKNOWN	▾		73
T-114	EMPTY	▾		-
T-115	EMPTY	▾		-
T-116	EMPTY	▾		-
T-117	EMPTY	▾		-
T-118	EMPTY	▾		-
T-119	EMPTY	▾		
T-120	EMPTY	▾		-
T-121	UNKNOWN	▾		212
T-122	EMPTY	▾		-
T-123	EMTPY	▾		-
T-124	EMPTY	▾		-
T-125	UNKNOWN	▾		40
T-126	UNKNOWN	▾		26

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▾ Tank not categorized: Anticipated categorization for remaining tanks: CATEGORY I: 10%
II: 57%
III: 33%

TABLE 3

CLASSIFIED SMALL CONTAINERS

HAZARD CLASSIFICATION	PARTIAL LIST OF CHEMICALS IDENTIFIED
Oxidizer/inorganic peroxide	bromine, chromic acid, potassium permanganate, zinc peroxide
Flammable	hexane, acetone, red phosphorus, benzene
Combustible	cyclohexanol, n-butylamine, triethanolamine, behenyl alcohol
Corrosive/acid	crude iodine, formic, sulfuric, and hydrochloric acids
Poisonous/heavy metal	toluene diisocyanate, aniline oil, mercuric oxycyanide, lead acetate
Halogenated organic	polybrominated biphenyls, ethylene dibromide, methylene dichloride
Corrosive/base	ethylene diamine, lithium hydroxide, 1,5,9-cyclododecatriene, ammonium hydroxide
Shock sensitive/organic peroxide	p-nitrosophenol, vinylidene chloride

TABLE 4

SHOCK SENSITVE MATERIALS

Chemical Description	Size Container	Type Container	Percent Volume
Sodium Nitrite Crystals	3.0 kg	Poly	60
Magnesium Nitrate	454.0 g	Glass	100
Acrolien 97%	500.0 g	Glass	100
Ethyl Mercaptan	1.0 pt	S.Tank	100
Propylene Oxide	1.0 gal	Metal	10
Pyridine	4.0 L	Glass	100
Red Phosphorous 99% (2 bottles)	500.0 g	Glass	100
Methyl Methacrylate	1.0 gal	Metal	90
Ethyl Benzene	1.0 gal	Metal	30
Methyl Acrylate	500.0 g	Glass	90
Petroleum Ether	8.0 pt	Metal	30
Benzoyl Peroxide	50.0 g	Poly	5
Methylacrylate	2.0 oz	Glass	1
2,4-Pentanedione	100.0 g	Glass	75
Styrene 99%	2.2 lb	Glass	90
Chloroethane	6.0 oz	Glass	1
Chloroethane	6.0 oz	Glass	1
Chloroethane	6.0 oz	Glass	1
Benzoyl Peroxide	4.0 oz	Poly	50
Styrene Monomer	8.0 oz	Glass	90
Benzoyl Peroxide	1.0 lb	Fiber	100
Methylacrylate	1.0 qt	Fiber	75
Isobutyl Nitrate	1.0 qt	Glass	50
Isobutyl Nitrate [RA54]	1.0 qt	Glass	25
Ethyl Chlorformate	100.0 g	Glass	100
Benzoyl Peroxide	1.0 lb	Poly	100
Tetrahydrofuran	2.0 L	Glass	20
Tetrahydrofruan	2.0 L	Glass	25
Hydrazine 4.8%	500 ml	Glass	35
Methyl Ethyl Ketone	500 ml	Glass	15
Methoxyethanol	4.0 L	Glass	40
Sodium Methoxide	4.0 L	Glass	40
Sodium Methoxide	100.0 g	Metal	75
Sodium Spheres under Mineral Spirits	100.0 g	Glass	60
Sodium Amide	250.0 g	Glass	75

Table 5

Potentially Exposed Population	Inhalation	Direct Contact
Nearby residents*	x	
Nearby Workers*	x	
Trespassers*	x	x
Railway Commuters +	x	
Fire fighters +	x	x

* Represents a current exposure

\+ Significant exposure likely to occur only in case of a catastrophic fire/explosion event