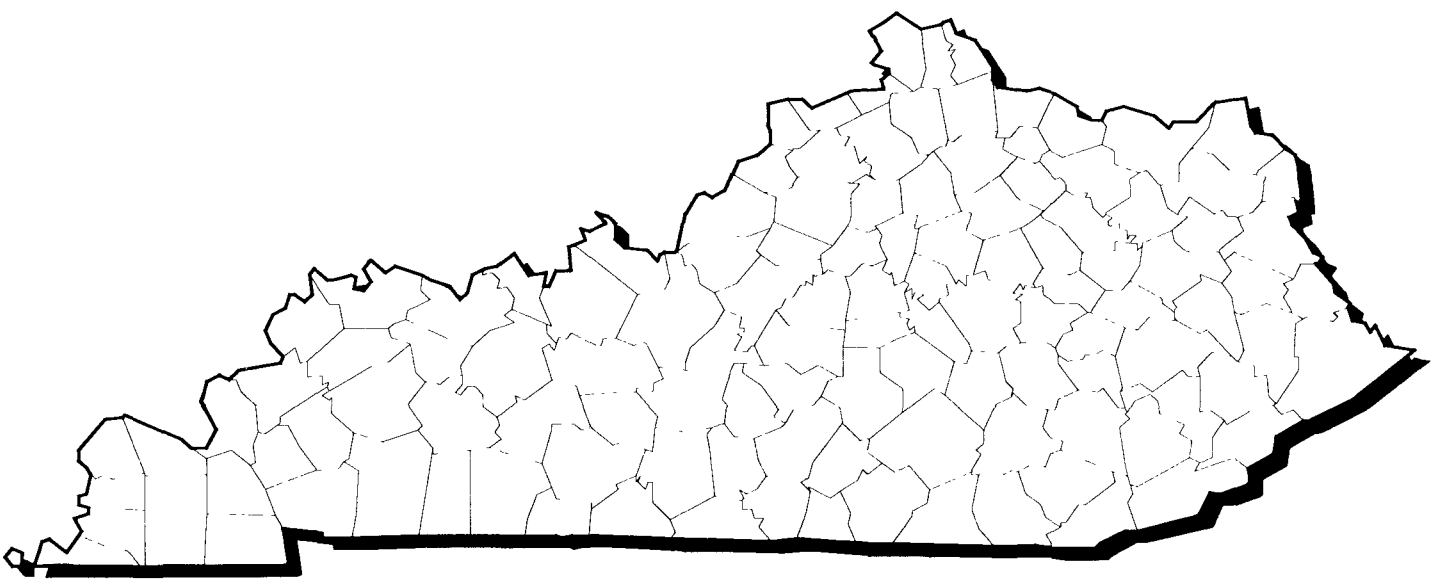
United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(5102 G)

EPA/540/R-93/016
December 1992
PB93-963217

SUPERFUND: Progress at National Priority List Sites



KENTUCKY 1992 UPDATE

Printed on Recycled Paper

Publication #9200.5-718B
December 1992

NATIONAL PRIORITIES LIST SITES:
Kentucky

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Emergency & Remedial Response
Office of Program Management
Washington, DC 20460

U.S. Environmental Protection Agency
Region 5, Library (PL-12J)
77 West Jackson Boulevard, 12th Floor
Chicago, IL 60604-3590

If you wish to purchase copies of any additional State volumes, contact:

National Technical Information Service (NTIS)
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
(703) 486-4650

The complete set of the 49 State reports may be ordered as PB93-963250.

TABLE OF CONTENTS

INTRODUCTION

A Brief Overview of Superfund v
Streamlining Superfund: The Superfund Accelerated Cleanup Model ix
How Superfund Works x

THE VOLUME

How to Use the State Book xi

A SUMMARY OF THE STATE PROGRAM xv

THE NPL REPORT

Progress to Date xix

THE NPL FACT SHEETS 1

THE GLOSSARY

Terms used in the NPL Book G-1

INTRODUCTION

A BRIEF OVERVIEW OF SUPERFUND

During the second half of the Twentieth Century, the environmental consequences of more than 100 years of industrialization in the United States became increasingly clear. Authors such as Rachel Carson wrote passionately about the often-hidden environmental effects of our modern society's widespread use of chemicals and other hazardous materials. Their audience was small at first, but gradually their message spread. Growing concern turned to action, as people learned more about the environment and began to act on their knowledge

The 1970s saw environmental issues burst onto the national scene and take hold in the national consciousness. The first Earth Day was observed in 1970, the year that the U.S. Environmental Protection Agency (EPA) was founded. By the end of the 1970s, Love Canal in New York and the Valley of the Drums in Kentucky had entered the popular lexicon as synonyms for pollution and environmental degradation.

Superfund Is Established

The industrialization that gave Americans the world's highest standard of living also created problems that only a national program could address. By 1980, the U.S. Congress had passed numerous environmental laws, implemented by the EPA, but many serious hazardous waste problems were slipping through the cracks.

Responding to growing concern about public health and environmental threats from uncontrolled releases of hazardous materials, the U.S. Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Popularly known as Superfund, CERCLA had one seemingly simple job—to uncover and clean up hazardous materials spills and contaminated sites.

A Big Job

Few in Congress, the EPA, the environmental community, or the general public knew in 1980 just how big the nation's hazardous materials problem is. Almost everyone thought that Superfund would be a short-lived program requiring relatively few resources to clean up at most a few hundred sites. They were quite mistaken.

As the EPA set to work finding sites and gauging their potential to harm people and the environment, the number of sites grew. Each discovery seemed to lead to another, and today almost 36,000 hazardous waste sites have been investigated as potential hazardous waste sites. They are catalogued in the EPA's computerized database, CERCLIS (for the Comprehensive Environmental Re-

sponse, Compensation, and Liability Information System).

The damage to public health and the environment that each site in CERCLIS might cause is evaluated; many sites have been referred to State and local governments for cleanup. The EPA lists the nation's most serious hazardous waste sites on the National Priorities List, or NPL. (These Superfund sites are eligible for federally-funded cleanup, but whenever possible the EPA makes polluters pay for the contamination they helped create.) The NPL now numbers 1,275 sites, with 50 to 100 added each year. By the end of the century, the NPL may reach as many as 2,100 sites.

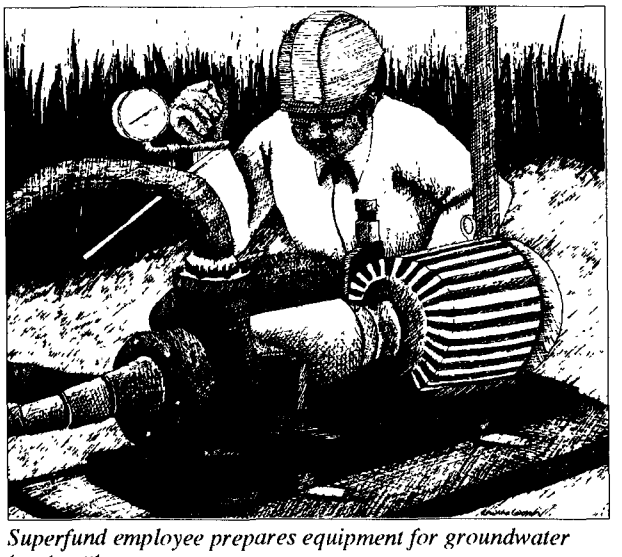
Superfund faces some of the most complex pollution problems ever encountered by an environmental program. Improperly stored or disposed chemicals and the soil they contaminate are one concern. More difficult to correct are the wetlands and bays, and the groundwater, lakes, and rivers often used for drinking water that are contaminated by chemicals spreading through the soil or mixing with storm water runoff. Toxic vapors contaminate the air at some sites, threatening the health of people living and working near by.

Superfund aims to control immediate public health and environmental threats by tackling the worst problems at the worst sites first. Wherever possible, Superfund officials use innovative treatment techniques—many developed or refined by the EPA—to correct hazardous materials problems once and for all. Many of the treatment techniques they use did not exist when the program was created.

The EPA Administrator had challenged Superfund to complete construction necessary for cleanup work at 130 NPL sites by the end of the 1992 federal fiscal year. By September 30, 1992, the end of fiscal year 1992, construction had been completed at a total of 149 NPL sites. Superfund is well on its way of meeting the Administrator's goal of completing construction at 200 NPL sites by the end of fiscal year 1993, and 650 sites by the end of fiscal year 2000.

Quick Cleanup at Non-NPL Sites

Long-standing hazardous waste sites are not Superfund's only concern. The EPA also responds to hazardous spills and other emergencies, hauling away chemicals for proper treatment or disposal. Superfund teams perform or supervise responses at rail and motor vehicle accidents, fires, and other emergencies involving hazardous substances. They also evacuate people living and working near by, if necessary, and provide clean drinking water to people whose own water is contaminated. Removal crews also post warning signs and take other precautions to keep people and animals away from hazardous substances.



Superfund employee prepares equipment for groundwater treatment.

Quick Cleanups, or Removals, are not limited to emergencies. When cleanup crews at contaminated sites find hazardous substances that immediately threaten people or the environment, they act right away to reduce the threat or to remove the chemicals outright. As the EPA implements the Superfund Accelerated Cleanup Model (SACM), more and more sites will undergo quick cleanups, and many of these will be cleaned up completely without ever being included on the NPL. (See "Streamlining Superfund: The Superfund Accelerated Cleanup Model.")

Some of Superfund's most significant gains in public health and environmental protection have been won by the removal program. As of March 31, 1992, the Emergency Response Program had logged more than 2,300 removal completions since Superfund was established.

Superfund employee removing drums from a Superfund site.

The Public's Role

Superfund is unique among federal programs in its commitment to citizen participation. Although the EPA is responsible for determining how dangerous a site is and how best to clean it up, the Agency relies on citizen input as it makes these decisions.

Community residents are often invaluable sources of information about a hazardous waste site, its current and previous owners, and the activities that took place there. Such information can be crucial to experts evaluating a site and its potential dangers.

Residents also comment on EPA cleanup plans by stating their concerns and preferences at public meetings and other forums and in formal, written comments to Agency proposals. The EPA takes these comments and concerns seriously, and has modified many proposals in response to local concerns. For, ultimately, it is the community and its citizens that will live with the results of the EPA's decisions and actions; it is only fair that citizens participate in the process.

A Commitment to Communication

The Superfund program is very serious about public outreach and communication. Community relations coordinators are assigned to each NPL site to help the public understand the potential hazards present, as well as the cleanup alternatives. Local information repositories, such as libraries or other public buildings, have been established near each NPL site to ensure that the public has an opportunity to review all relevant information and the proposed cleanup plans.

The individual State volumes contain summary fact sheets on NPL sites in each State and territory. Together, the fact sheets provide a concise report on site conditions and the progress made toward site cleanups as of March 1992. The EPA revises these volumes periodically to provide an up-to-date record of program activities. A glossary of key terms relating to hazardous waste management and Superfund site cleanup is provided at the back of this book.

INTRODUCTION

Superfund is, of course, a public program, and as such it belongs to everyone of us. This volume, along with other State volumes, comprises the EPA's report on Superfund progress to the program's owners for the year 1992.

STREAMLINING SUPERFUND: THE SUPERFUND ACCELERATED CLEANUP MODEL

Historically, critics and supporters alike have measured Superfund's progress by the number of hazardous waste sites deleted from the NPL. Although easy enough to tally, this approach is too narrow. It misses the major gains Superfund makes by reducing major risks at the nation's worst hazardous sites long before all clean-up work is done and the site deleted. It also ignores the Removal Program's contributions to meeting Superfund's twin mandates of maximizing public health and environmental protection.

Renewing Superfund's commitment to rapid protection from hazardous materials, the EPA is streamlining the program. The Superfund Accelerated Cleanup Model, or SACM, will take Early Actions, such as removing hazardous wastes or contaminated materials, while experts study the site. SACM also will combine similar site studies to reduce the time required to evaluate a site and its threats to people and the environment. This way, immediate public health and environmental threats will be addressed while long-term cleanups are being planned.

Emergencies such as train derailments and motor vehicle accidents will continue to be handled expeditiously. Teams of highly trained technicians will swing into action right away, coordinating the cleanup and removal of hazardous substances to ensure public safety as quickly as possible.

Breaking With Tradition

The traditional Superfund process begins with a lengthy phase of study and site assessment, but SACM will save time by combining separate, yet similar, activities. Each EPA Region will form a Decision Team of site managers, risk assessors, community relations coordinators, lawyers, and other experts to monitor the studies and quickly determine whether a site requires Early Action (taking less than five years), Long-term Action, or both.

While the site studies continue, the Decision Team will begin the short-term work required to correct immediate public health or environmental threats from the site. Besides removing hazardous materials, Early Actions include taking precautions to keep contaminants from moving off the site and restricting access to the site. Early Actions could eliminate most human risk from these sites, and Superfund will further focus its public participation and public information activities on site assessment and Early Action.

Long-Term Solutions

While Early Actions can correct many hazardous waste problems—and provide the bulk of public health and environmental protection—some contamination will take longer to correct. Cleanups of mining sites, wetlands, estuaries, and projects involving incineration of contaminants or restoration of groundwater can take far longer than the three to five years envisioned for Early Actions. Under SACM, these sites will be handled much as they are now.

Also under SACM, the EPA will continue its pursuit of potentially responsible parties who may have caused or contributed to site contamination. Expedited enforcement and procedures for negotiating potentially responsible party settlements will secure their participation. Superfund personnel will continue to oversee clean-up work performed by potentially responsible parties.

HOW SUPERFUND WORKS

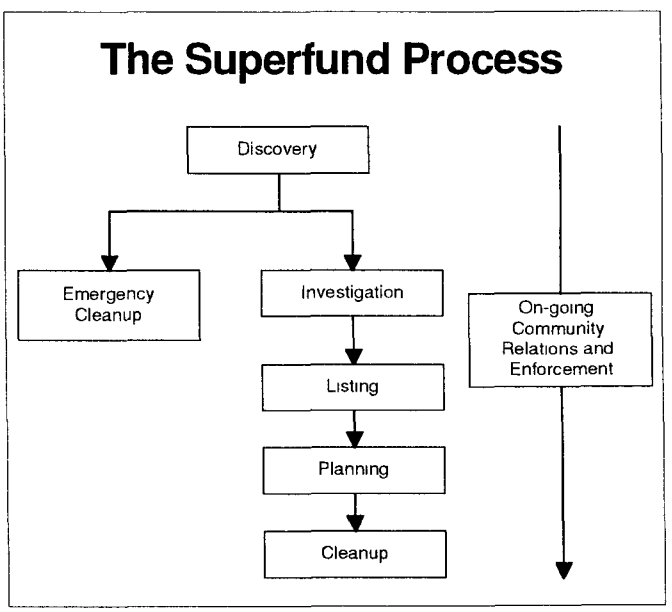
Each Superfund site presents a different set of complex problems. The same hazardous materials and chemicals often contaminate many sites, but the details of each site are different. Almost always, soil is contaminated with one or more chemicals. Their vapors may taint the air over and around the site. Contaminants may travel through the soil and reach underground aquifers which may be used for drinking water, or they may spread over the site to contaminate streams, ponds, and wetlands. The contaminating chemicals may interact with each other, presenting even more complicated cleanup problems.

Superfund's cleanup process is arduous and exacting. It requires the best efforts of hundreds of experts in science and engineering, public health, administration and management, law, and many other fields.

The average NPL site takes from seven to ten years to work its way through the system, from discovery to the start of long-term cleanup. Actual cleanup work can take years, decades if contaminated groundwater must be treated. Of course, imminent threats to public health or the environment are corrected right away.

The diagram to the right presents a simplified view of the cleanup process. The major steps in the Superfund process are:

- Site discovery and investigation to identify contaminants and determine whether emergency action is required;
- Emergency site work such as removing contaminants for proper treatment or disposal, and securing the site to keep people and animals away, if warranted by conditions at the site;
- Site evaluation to determine how people living and working nearby, and the environment, may be exposed to site contaminants;
- Detailed studies to determine whether conditions are serious enough to add the site to the National Priorities List of sites eligible for federally funded cleanup under Superfund;
- Selection, design, and implementation of a cleanup plan, after a thorough review of the most effective cleanup options, given site conditions, contaminants present, and their potential threat to public health or the environment.
- Follow-up to ensure that the cleanup work done at the site continues to be effective over the long term.



From the earliest stages, EPA investigators work hard to identify those responsible for the contamination. As their responsibility is established, the EPA negotiates with these "responsible parties" to pay for cleaning up the problem they helped create. This "enforcement first" policy saves Superfund Trust Fund monies for use in cleanups where the responsible parties cannot be identified, or where they are unable to fund cleanup work.

THE VOLUME

How to Use the State Book

The site fact sheets presented in this book are comprehensive summaries that cover a broad range of information. The fact sheets describe hazardous waste sites on the NPL and their locations, as well as the conditions leading to their listing ("Site Description"). The summaries list the types of contaminants that have been discovered and related threats to public and ecological health ("Threats and Contaminants"). "Cleanup Approach" presents an overview of the cleanup activities completed, underway, or planned. The fact sheets conclude with a brief synopsis of how much progress has been made in protecting public health and the environment. The summaries also pinpoint other actions, such as legal efforts to involve polluters responsible for site contamination and community concerns.

The fact sheets are arranged in alphabetical order by site name. Because site cleanup is a dynamic and gradual process, all site information is accurate as of the date shown on the bottom of each page. Progress always is being made at NPL sites, and the EPA periodically will update the site fact sheets to reflect recent actions and will publish updated State volumes. The following two pages show a generic fact sheet and briefly describe the information under each section.

How Can You Use This State Book?

You can use this book to keep informed about the sites that concern you, particularly ones close to home. The EPA is committed to involving the public in the decision making process associated with hazardous waste cleanup. The Agency solicits input from area residents in communities affected by Superfund sites. Citizens are likely to be affected not only by hazardous site conditions, but also by the remedies that combat them. Site cleanups take many forms and can affect communities in different ways. Local traffic may be rerouted, residents may be relocated, temporary water supplies may be necessary.

Definitive information on a site can help citizens sift through alternatives and make decisions. To make good choices, you must know what the threats are and how the EPA intends to clean up the site. You must understand the cleanup alternatives being proposed for site cleanup and how residents may be affected by each one. You also need to have some idea of how your community intends to use the site in the future, and you need to know what the community can realistically expect once the cleanup is complete.

The EPA wants to develop cleanup methods that meet community needs, but the Agency only can take local concerns into account if it understands what they are. Information must travel both ways in order for cleanups to be effective and satisfactory. Please take this opportunity to learn more, become involved, and assure that hazardous waste cleanup at "your" site considers your community's concerns.

THE VOLUME

NPL LISTING HISTORY

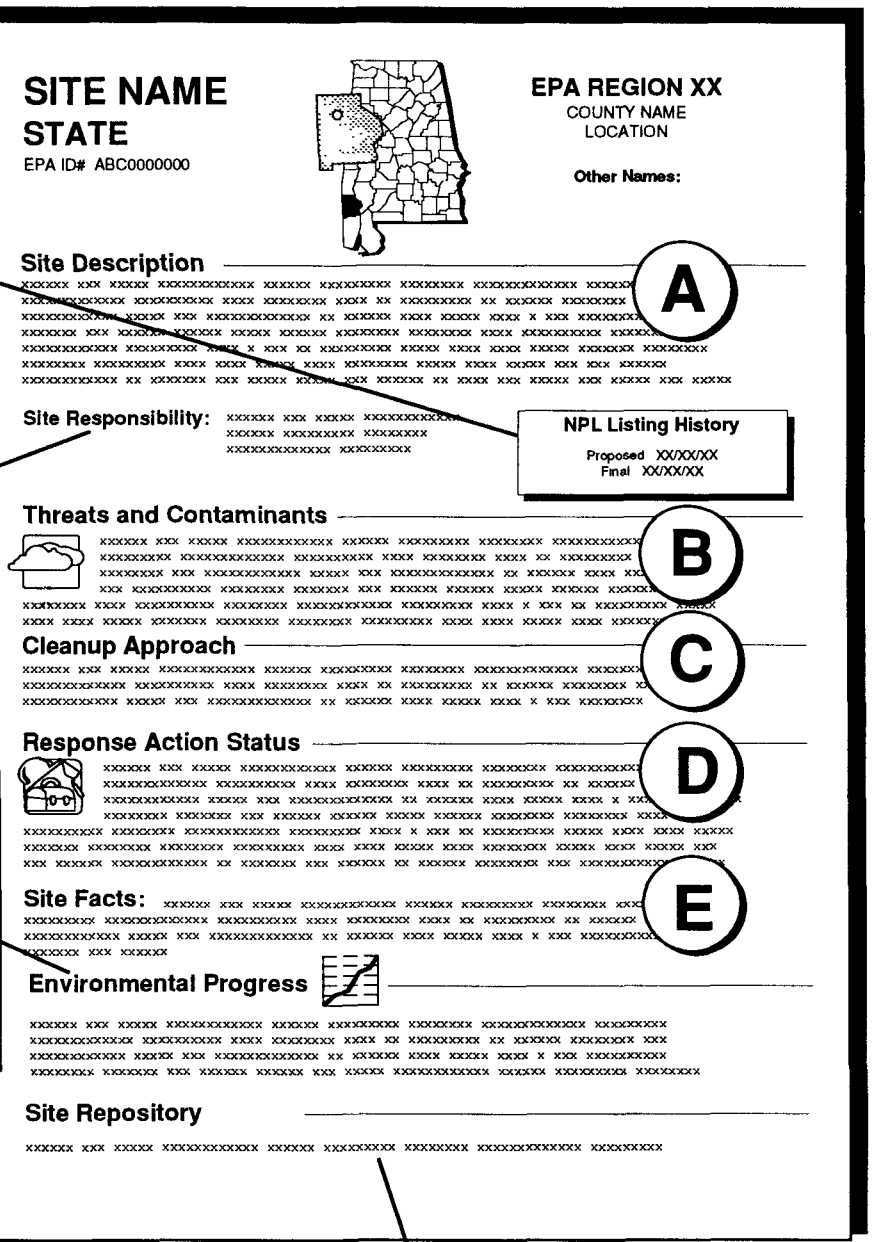
Provides the dates when the site was Proposed, made Final, and Deleted from the NPL.

SITE RESPONSIBILITY

Identifies the Federal, State, and/or potentially responsible parties taking responsibility for cleanup actions at the site.

ENVIRONMENTAL PROGRESS

Summarizes the actions to reduce the threats to nearby residents and the surrounding environment and the progress towards cleaning up the site.



SITE REPOSITORY

Lists the location of the primary site repository. The site repository may include community relations plans, public meeting announcements and minutes, fact sheets, press releases, and other site-related documents.

A

SITE DESCRIPTION

This section describes the location and history of the site. It includes descriptions of the most recent activities and past actions at the site that have contributed to the contamination. Population estimates, land usages, and nearby resources give readers background on the local setting surrounding the site.

B

THREATS AND CONTAMINANTS

The major chemical categories of site contamination are noted, as well as which environmental resources are affected. Icons representing each of the affected resources (may include air, groundwater, surface water, soil, and contamination to environmentally sensitive areas) are included in the margins of this section. Potential threats to residents and the surrounding environments arising from the site contamination also are described.

C

CLEANUP APPROACH

This section contains a brief overview of how the site is being cleaned up.

D

RESPONSE ACTION STATUS

Specific actions that have been accomplished or will be undertaken to clean up the site are described here. Cleanup activities at NPL sites are divided into separate phases, depending on the complexity and required actions at the site. Two major types of cleanup activities often are described: initial, immediate, or emergency actions to quickly remove or reduce imminent threats to the community and surrounding areas; and long-term remedial phases directed at final cleanup at the site. Each stage of the cleanup strategy is presented in this section of the summary. Icons representing the stage of the cleanup process (initial actions, site investigations, EPA selection of the cleanup remedy, engineering design phase, cleanup activities underway, and completed cleanup) are located in the margin next to each activity description.

E

SITE FACTS

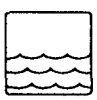
Additional information on activities and events at the site are included in this section. Often details on legal or administrative actions taken by the EPA to achieve site cleanup or other facts pertaining to community involvement with the site cleanup process are reported here.

THE VOLUME

The "icons," or symbols, accompanying the text allow the reader to see at a glance which environmental resources are affected and the status of cleanup activities at the site.

Icons in the Threats and Contaminants Section

Contaminated *Groundwater* resources in the vicinity or underlying the site. (Groundwater is often used as a drinking water source.)



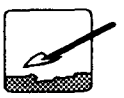
Contaminated *Surface Water and Sediments* on or near the site. (These include lakes, ponds, streams, and rivers.)

Contaminated *Air* in the vicinity of the site. (Air pollution usually is periodic and involves contaminated dust particles or hazardous gas emissions.)

Contaminated *Soil and Sludges* on or near the site. (This contamination category may include bulk or other surface hazardous wastes found on the site.)

Threatened or contaminated *Environmentally Sensitive Areas* in the vicinity of the site. (Examples include wetlands and coastal areas or critical habitats.)

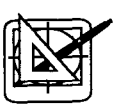
Icons in the Response Action Status Section



Initial, Immediate, or Emergency Actions have been taken or are underway to eliminate immediate threats at the site.

Site Studies at the site to determine the nature and extent of contamination are planned or underway.

Remedy Selected indicates that site investigations have been concluded, and the EPA has selected a final cleanup remedy for the site or part of the site.

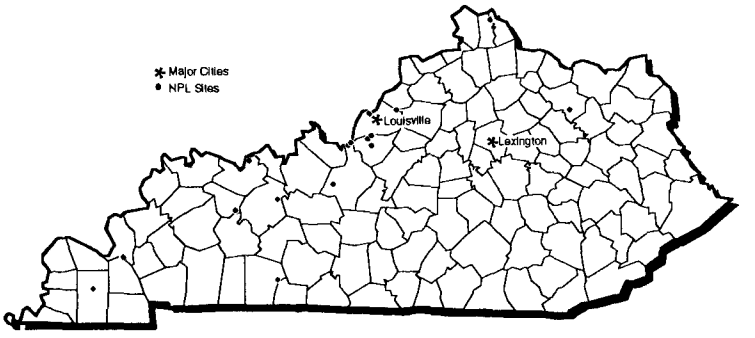


Remedy Design means that engineers are preparing specifications and drawings for the selected cleanup technologies.

Cleanup Ongoing indicates that the selected cleanup remedies for the contaminated site, or part of the site, currently are underway.

Cleanup Complete shows that all cleanup goals have been achieved for the contaminated site or part of the site.

A SUMMARY OF THE STATE PROGRAM



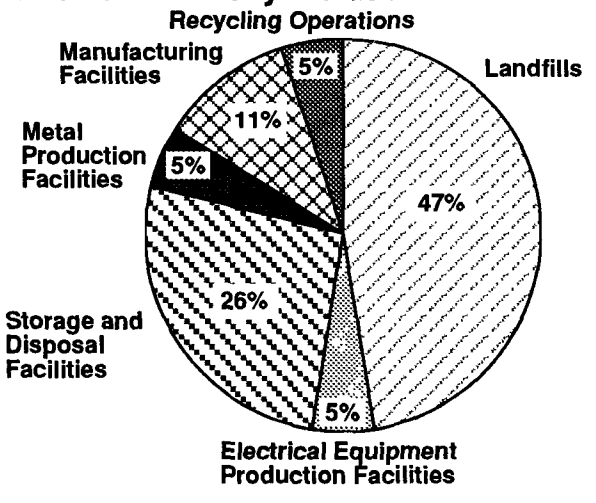
Superfund Activities in Kentucky

The Commonwealth of Kentucky is located within EPA Region 4, which includes the eight southeastern States. The Commonwealth covers 40,410 square miles. According to the 1990 Census, Kentucky experienced nearly a 1 percent increase in population between 1980 and 1990, and is ranked twenty-third in U.S. population with approximately 3,685,000 residents.

The Kentucky Environmental Protection Law, enacted in 1980, establishes the Hazardous Waste Management Fund and provides for a site priority list, citizen suits, and Commonwealth enforcement authorities. The statute authorizes the Natural Resources and Environmental Protection Cabinet to compel polluters to perform site cleanup or to recover the cost of Commonwealth action. In practice, the Commonwealth's program attempts to negotiate settlements with the polluter to encourage polluter participation in cleanup activities. In the event that the State is unable to reach a settlement, the Commonwealth is authorized to issue orders compelling polluter participation. In addition to the 10 percent contribution from the Commonwealth required by the Federal Superfund program, Kentucky provides funding in emergency situations when the polluter is unable to address the site. Commonwealth funding may not be used if Federal Superfund money is available, except in emergencies. Currently, 17 sites in the Commonwealth of Kentucky have been listed as final on the NPL. Two new sites were proposed for listing in 1992.

The Natural Resources and Environmental Protection Cabinet implements the Superfund Program in the Commonwealth of Kentucky

Activities responsible for hazardous waste contamination in the Commonwealth of Kentucky include:



Facts about the 19 NPL sites in Kentucky:

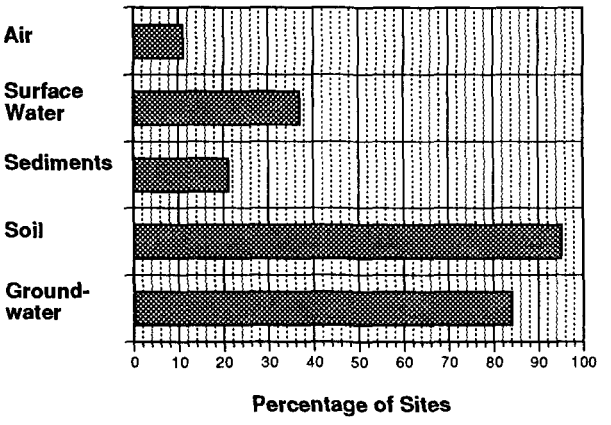
Immediate Actions (such as removing hazardous substances or restricting site access) were performed at 18 sites.

One site endangers sensitive environments.

Thirteen sites are located near residential areas.

Most Sites Have Multiple Contaminants and Contaminated Media:

Media Contaminated at Sites



Contaminants Found at Sites

	Percentage of Sites
VOCs	79%
Heavy Metals	79%
PCBs	37%
Creosotes	21%
Gases	16%
Plastics	11%
Pesticides/Herbicides	5%
Radiation	5%
Petrochemicals/Explosives	5%
Other*	5%

*Other contaminants include cyanide and fuoride.

The Potentially Responsible Party Pays...

In the Commonwealth of Kentucky, potentially responsible parties are paying for or conducting cleanup activities at 13 sites.

For Further Information on NPL Sites and Hazardous Waste Programs in the Commonwealth of Kentucky Please Contact:

☎ EPA Region 4 Public Arrairs Office	For information concerning community involvement	(404) 347-3004
☎ National Response Center	To report a hazardous waste emergency	(800) 424-8802
☎ Natural Resources and Environmental Protection Cabinet: Division of Waste Management, Superfund Branch	For information about the State's responsibility in the Superfund Program	(502) 564-6716
☎ EPA Region 4 Waste Management Division	For more information about the Regional Superfund Program	(404) 347-5065
☎ EPA Superfund Hotline	For information about the Federal Superfund Program	(800) 424-9068

THE NPL REPORT

PROGRESS TO DATE

The following Progress Report lists all sites currently on, or deleted from, the NPL and briefly summarizes the status of activities for each site at the time this report was prepared. The steps in the Superfund cleanup process are arrayed across the top of the chart, and each site's progress through these steps is represented by an arrow (⇨) indicating the current stage of cleanup.

Large and complex sites often are organized into several cleanup stages. For example, separate cleanup efforts may be required to address the source of the contamination, hazardous substances in the groundwater, and surface water pollution, or to clean up different areas of a large site. In such cases, the chart portrays cleanup progress at the site's *most advanced* stage, reflecting the status of site activities rather than administrative accomplishments.

- ⇨ An arrow in the "Initial Response" category indicates that an emergency cleanup, immediate action, or initial action has been completed or currently is underway. Emergency or initial actions are taken as an interim measure to provide immediate relief from exposure to hazardous site conditions or to stabilize a site to prevent further contamination.

- ⇨ A final arrow in the "Site Studies" category indicates that an investigation to determine the nature and extent of the contamination at the site currently is ongoing or planned.

- ⇨ A final arrow in the "Remedy Selection" category means that the EPA has selected the final cleanup strategy for the site. At the few sites where the EPA has determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No Action" remedy has been selected. In these cases, the arrows are discontinued at the "Remedy Selection" step and resume in the "Construction Complete" category.

- ⇨ A final arrow at the "Remedial Design" stage indicates that engineers currently are designing the technical specifications for the selected cleanup remedies and technologies.

- ⇨ A final arrow in the "Cleanup Ongoing" column means that final cleanup actions have been started at the site and currently are underway.

- ⇨ A final arrow in the "Construction Complete" category is used only when all phases of the site cleanup plan have been performed, and the EPA has determined that no additional construction actions are required at the site. Some sites in this category currently may be undergoing long-term operation and maintenance or monitoring to ensure that the cleanup actions continue to protect human health and the environment.

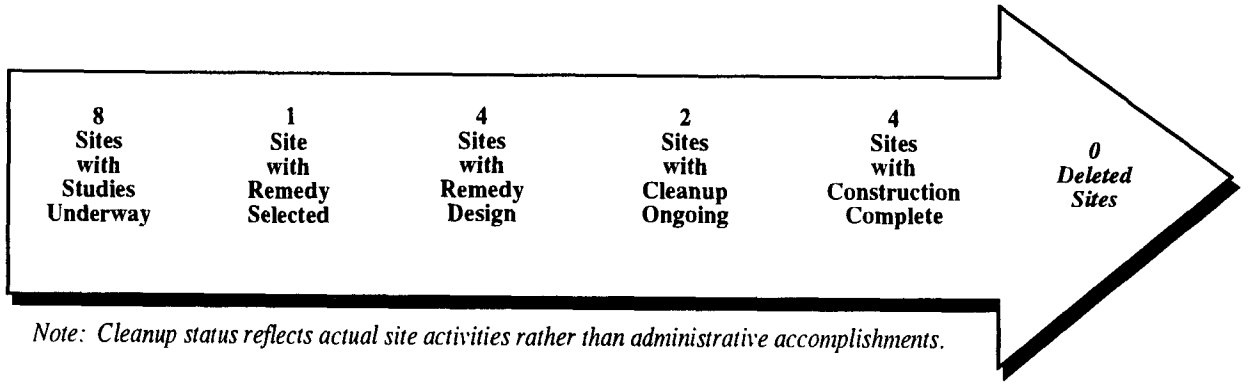
- ✓ A check in the "Deleted" category indicates that the site cleanup has met all human health and environmental goals and that the EPA has deleted the site from the NPL.

Further information on the activities and progress at each site is given in the site "Fact Sheets" published in this volume.

Progress Toward Cleanup at NPL Sites in the State of Kentucky

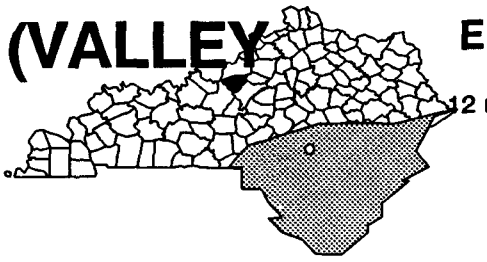
Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
A. L. TAYLOR (VALLEY OF DRUMS)	BULLITT	Final	09/08/83	⇨	⇨	⇨	⇨	⇨	⇨	
AIRCO	MARSHALL	Final	09/21/84	⇨	⇨	⇨	⇨			
B.F. GOODRICH	MARSHALL	Final	09/08/83	⇨	⇨	⇨	⇨			
BRANTLEY LANDFILL	MCLEAN	Final	02/21/90	⇨	⇨					
CALDWELL LACE LEATHER CO., INC.	LOGAN	Final	08/30/90	⇨	⇨					
DISTLER BRICKYARD	HARDIN	Final	09/08/83	⇨	⇨	⇨	⇨	⇨		
DISTLER FARM	JEFFERSON	Final	09/08/83	⇨	⇨	⇨	⇨	⇨	⇨	
FORT HARTFORD COAL CO. STONE QUARRY	OHIO	Final	08/30/90	⇨	⇨					
GENERAL TIRE & RUBBER COMPANY (MAYFIELD LANDFILL)	GRAVES	Final	08/30/90		⇨					
GREEN RIVER DISPOSAL, INC.	DAVIES	Final	02/21/90	⇨	⇨					
HOWE VALLEY LANDFILL	HARDIN	Final	07/22/87	⇨	⇨	⇨	⇨			
LEE'S LANE LANDFILL	JEFFERSON	Final	09/08/83	⇨	⇨	⇨	⇨	⇨	⇨	
MAXEY FLATS NUCLEAR DISPOSAL	FLEMING	Final	06/10/86	⇨	⇨	⇨				
NATIONAL ELECTRIC COIL CO./ COOPER INDUSTRIES	HARLAN	Proposed	07/29/91	⇨	⇨					
NATIONAL SOUTHWIRE ALUMINUM CO.	HANCOCK	Proposed	07/29/91	⇨	⇨					
NEWPORT DUMP	CAMPBELL	Final	09/23/83	⇨	⇨	⇨	⇨	⇨	⇨	
RED PENN SANITATION COMPANY LANDFILL	OLDHAM	Final	03/31/89	⇨	⇨					
SMITH'S FARM	BULLITT	Final	06/10/86	⇨	⇨	⇨	⇨	⇨		
TRI-CITY DISPOSAL CO.	BULLITT	Final	03/31/89	⇨	⇨	⇨	⇨			

Progress Toward Cleanup at NPL Sites in the State of Kentucky (Continued)



Note: Cleanup status reflects actual site activities rather than administrative accomplishments.

A.L. TAYLOR (VALLEY OF DRUMS)
KENTUCKY
EPA ID# KYD980500961



EPA REGION 4
Bullitt County
12 miles south of Louisville

Other Names:
Valley of Drums

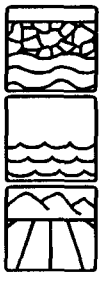
Site Description

The A.L. Taylor site is located on 13 acres and first was identified as a waste disposal site by the Kentucky Department of National Resources and Environmental Protection (KDNREP) in 1967. The owner excavated pits on site and emptied the contents of waste drums into the pits before recycling the drums. Soils from nearby hills were eventually used to cover the pits. Thousands of drums also were stored on the surface. The owner never applied for the required State permits throughout the history of site operations from 1967 to 1977. The KDNREP first documented releases of hazardous substances in 1975. They pursued legal actions against the owner until his death in 1977. The EPA inspected the site in 1981 and discovered deteriorating and leaking drums that were discharging pollutants into a nearby creek. Approximately 100 people live in a residential area located within a mile of the site.

Site Responsibility: The site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 10/23/81
Final Date: 09/08/83

Threats and Contaminants



The groundwater, surface water, and soil were polluted with heavy metals, volatile organic compounds (VOCs) such as ketones, plastics such as phthalates, and polychlorinated biphenyls (PCBs) from spills and deteriorating waste drums. Accidental ingestion of and direct contact with the contaminated groundwater, soil, and surface water presented possible health threats. Approximately 4,000 drums containing hazardous wastes were leaking into a nearby tributary of the Ohio River.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on site stabilization and monitoring.

Response Action Status

Immediate Actions: As early as 1979, the EPA responded to releases of oil and hazardous substances at the site. The KDNREP contacted six potentially responsible parties in 1980, who voluntarily identified and removed approximately 30 percent of the wastes remaining on site. In 1981, the EPA conducted a cleanup action to upgrade the existing treatment system and to remove the remaining 4,200 drums of surface waste off site. The EPA also installed interceptor trenches to halt runoff into a nearby creek.

Site Stabilization and Monitoring: The EPA completed the following cleanup actions at the site: removed contaminated pond water; secured pond sediments, sludge and materials from low-lying areas beneath the cap; installed a final cover to contain the waste materials; constructed a surface water drainage diversion to reroute surface water; and conducted tests to evaluate the effectiveness of the clay cap to reduce runoff of surface contaminants. After the cleanup work was completed in 1987, groundwater monitoring data showed that contaminant levels were reduced by 100 to 1,000 times from the original levels. The required 30 years of operation and maintenance to ensure the effectiveness of the remedy began in 1988.

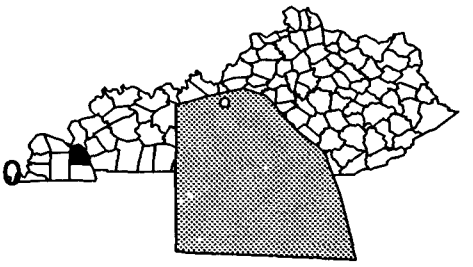
Environmental Progress

All cleanup construction activities have been completed at the A.L. Taylor (Valley of Drums) site. These activities at this site have reduced threat of contamination, and the operation and maintenance phase will continue to ensure that nearby residents are protected. The EPA has begun the process of deleting this site from the NPL.

Site Repository

Bullitt County Public Library, Ridgeway Memorial Library, Second and Walnut Streets, Shepherdsville, KY 40165

AIRCO
KENTUCKY
EPA ID# KYD041981010



EPA REGION 4
Marshall County
1/2 mile northeast
of Calvert City

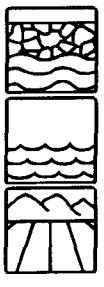
Site Description

The 2 3/4-acre Airco site is an industrial landfill that lies near the southern bank of the Tennessee River. From the mid-1950s until 1971, it is estimated that the landfill accepted 18,000 tons of caustics, acids, volatile organic compounds (VOCs), zinc, mercuric acetate, and mercuric chloride. From 1971 to 1980, an industrial lessee dumped 14,000 tons of metal-contaminated coal ash at the landfill, as well as polyvinyl chlorides (PVCs), ferric hydroxide sludge, and construction wastes. The landfill was unregulated until 1968, when it received a permit under Kentucky's new solid waste management program. The landfill was capped and closed in 1981. Another Superfund site, B.F. Goodrich (Calvert City), borders the Airco property on the east. Because of their proximity and a common history of use, these two sites were studied together and will undergo a combined cleanup. This site is located in a highly industrialized area. Approximately 3,600 people live in nearby Calvert City, and the closest residents live about a mile south of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/21/84

Threats and Contaminants



Groundwater, sediments, and soil are contaminated with polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and VOCs including benzene and toluene from the former waste disposal practices. Direct contact with or accidental ingestion of the contaminated surface soils, groundwater, and drainage sediments poses a risk to the health of the nearby population.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Initial Actions: When Air Products, Inc., the industrial lessee, discontinued use of the site in 1980, it closed the landfill in accordance with a State-approved plan. In 1981, Air Products constructed a clay cap over the landfill, a measure designed to keep rainwater and runoff from spreading site contaminants.

Entire Site: In 1988, the EPA selected the following remedies for the Airco site, in conjunction with cleanup at the adjacent B.F. Goodrich site. The remedies for groundwater are: (1) extract and treat contaminated groundwater; and (2) discharge treated water to the Tennessee River using a permitted outfall. The selected remedies for soil are: (1) impose deed restrictions to prevent residential development on the site; (2) excavate contaminated surface soils around portions of the landfill and place them in the former burn pit area on the Goodrich site; and (3) build an organic vapor recovery system and impermeable cap over the burn pit. The selected remedies for the landfill include: (1) rebuild the dikes around the landfill for flood prevention; (2) improve the existing clay landfill cap by adding more clay and re-contouring the surface; and (3) install a system for extracting leachate from the waste. The parties potentially responsible for the contamination at the Airco and Goodrich sites began designing the remedy in 1989, but have since put design activities on hold while differences between the EPA and the State are resolved.

Site Facts: In 1989, the parties potentially responsible for the contamination at the Airco Carbide and Goodrich sites began designing the remedy, but the State intervened, and the activity has been temporarily suspended. The State wants soil and sediment cleanup to occur to background levels in the areas surrounding the landfill. Other issues that need to be resolved include the landfill cap design and groundwater cleanup levels.

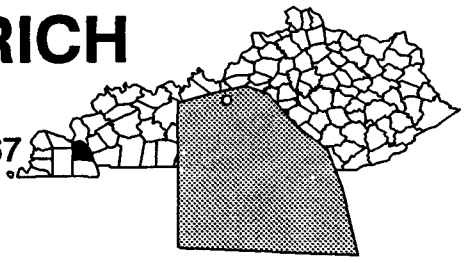
Environmental Progress

The closure and capping of the landfill have reduced the potential for exposure to hazardous materials at the Airco site while design activities are being completed and activities for permanent cleanup of the site are being planned.

Site Repository

Contact the Region 4 Superfund Community Relations Office.

B.F. GOODRICH
KENTUCKY
EPA ID# KYD006370167



EPA REGION 4
Marshall County
Calvert City

Site Description

The B.F. Goodrich site is a 2-acre industrial landfill near the southern bank of the Tennessee River. The B.F. Goodrich Company disposed of wastes on the site from 1969 to 1972 and engineered a former creek channel for landfilling. Workers disposed of 54,000 tons of construction waste and plant trash, buried 370 cubic yards of salt-brine sludge, and burned over 2 million gallons of liquid chlorinated organics in several burn pits at the site. From 1973 to 1980, the only waste disposed of at the site was excavation dirt. In 1980, an inspection by the Kentucky Department of Natural Resources and Environmental Protection (KDNREP) disclosed a leaching problem along the river side of the landfill. The landfill was closed under a State-approved closure plan in 1980. Another NPL site, Airco Carbide, Inc., borders the Goodrich property on the east. Because of their proximity and a common history of use, these two sites were studied together and will undergo a combined cleanup. The site is located in a highly industrialized area. Approximately 3,600 people live in nearby Calvert City, and the closest residents are about a mile south of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants

Groundwater, soil, and sediments are contaminated with volatile organic compounds (VOCs) including benzene and toluene from the former waste disposal activities. Direct contact with or accidental ingestion of contaminated groundwater, surface soils, or sediments poses a health risk.

Cleanup Approach

The site is being addressed in two stages: initial actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status

Initial Actions: In 1980, the landfill was sealed with a clay cap to prevent rainwater and runoff from spreading contaminants. The area was planted with vegetation to prevent erosion.

Entire Site: In 1988, the EPA selected the remedy for the site, which will be cleaned up in conjunction with the adjacent Airco site. The remedy for groundwater includes: (1) extract and treat contaminated groundwater; and (2) discharge treated water to the Tennessee River via a permitted outfall. The remedy for soil includes: (1) excavate contaminated surface soils around portions of the landfill; (2) place them in the former burn pit area; and (3) build an organic vapor recovery system and cap over the burn pit. The selected remedy for the landfill includes: (1) rebuild the dikes around the landfill for flood prevention; (2) improve the existing clay landfill cap by adding more clay and recontouring the surface; (3) install a system for extracting leachate from below the waste; and (4) impose deed restrictions to prevent residential development on the site. The parties potentially responsible for the contamination at the Airco and Goodrich sites began designing the remedy in 1989, but have since put design activities on hold while differences between the EPA and the State are resolved.

Site Facts: In 1989, the parties potentially responsible for the contamination at the Airco Carbide and Goodrich sites began designing the remedy, but the State intervened, and the activity has been temporarily suspended. The State wants soil and sediment cleanup to occur to background levels in the areas surrounding the landfills. Disagreements also have arisen over the landfill cap design and groundwater cleanup levels.

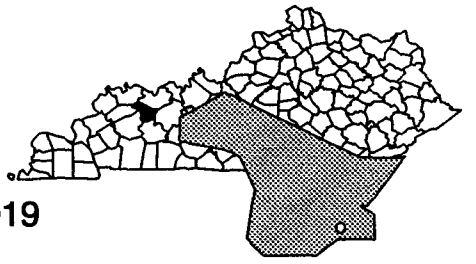
Environmental Progress

Sealing the landfill with a cap prohibiting further dumping activities at the site have reduced the potential for exposure to contaminants while actions for permanent cleanup of the site are being planned.

Site Repository

Marshall County Library, 1003 Poplar Street, Benton, KY 42025

BRANTLEY LANDFILL
KENTUCKY
EPA ID# KYD980501019



EPA REGION 4
McLean County
Highway 85

Other Names:
Barmet of Kentucky

Site Description

The Brantley Landfill site was used as a coal strip mining pit in the late 1960s. In 1978, Doug Brantley and Sons, Inc. received an industrial landfill permit for the disposal of salt cake fines, a by-product from Barmet Aluminum Corporation's aluminum recycling operation. Before the landfill was closed in 1980, 250,000 tons of salt cake fines were disposed of at the site. Salt cake fines are dust-like materials containing various contaminants that react with water to form gases. The waste was deposited in pond water in the pit and also possibly deposited below the water table. A layer of soil placed over the landfill area during closure has partially eroded, and some waste materials are exposed. In 1986, the EPA's Environmental Services Division (ESD) conducted air monitoring in the vicinity of the Brantley Landfill. Ammonia was found in most samples downwind from the disposal area. Moreover, the Kentucky Division of Air Pollution Control has received numerous complaints from residents of ammonia odor. In 1987, ESD collected soil, water, and sediment samples at and around the landfill, which showed that the site was contaminated. Land use within a 1-mile radius of the site is primarily agricultural and residential. Approximately 200 people live within 1/4 mile of the site. There are six private wells within a 1-mile radius of the site; the closest is approximately 500 feet to the north of the landfill and belongs to the current site owner.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 02/21/90

Threats and Contaminants

Soil beneath the landfill cap is contaminated with heavy metals including chromium, copper, titanium, vanadium, aluminum, magnesium, and sodium from former waste disposal practices. The salt cake fines contain various heavy metals and react with water to form several gases, including ammonia, acetylene, methane, hydrogen, and hydrogen sulfide. Dust and gas emissions have been reported at the site, but the site since has been closed and covered. Placement of wastes below the water table could have caused groundwater contamination, which could affect drinking water sources. The site has been fenced to restrict access.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: In 1990, the parties potentially responsible for the site contamination fenced the entire site to restrict site access and to minimize exposure to potential contamination.

Entire Site: The parties potentially responsible for the site contamination began a study of the type and extent of site contamination in 1990. The investigation also will recommend the best strategies for final cleanup. After completion of the study, slated for 1993, the EPA will select the cleanup strategy and begin cleanup activities.

Environmental Progress

The initial actions described above have reduced the potential for exposure to hazardous materials at the Brantley Landfill site while further studies leading to the selection of final cleanup remedies are being conducted.

Site Repository

Island City Hall, 160 South First Street, Island, KY 42350

CALDWELL LACE LEATHER CO., INC.
KENTUCKY
EPA ID# KYD045738291

EPA REGION 4
Logan County
1/2 mile northwest
of Auburn

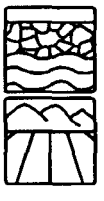
Site Description

The 40-acre Caldwell Lace Leather Co., Inc. site consists of three tannery waste areas. From 1972 to 1982, wastes such as chrome and vegetable tanning sludge from the leather-tanning process were buried in trenches or placed in unlined lagoons in a 5 1/2-acre area of the property. In 1982, the Kentucky Department of Natural Resources and Environmental Protection (KDNREP) granted a permit to Caldwell to mix waste sludges into the soil on a 29-acre landfarm. This method of disposal continued until 1985. The KDNREP granted a conditional permit in 1983 for a third disposal area, a 5-acre landfill, which accepted only solid wastes from tannery operations. Leather-tanning operations occurred at the facility until 1985, when it was sold to North Park, Inc. In 1983, the KDNREP detected chromium in a private well 1,200 feet from the landfill area. This well has been taken out of service. Approximately 600 people obtain drinking water from private wells within 3 miles of the site. The closest surface water intake for a public water system is 2 miles southeast of the site. The majority of the residences around the site now are connected to the public water supply.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 08/30/90

Threats and Contaminants



A private well 1,200 feet from the landfill area is contaminated with lead and hexavalent chromium, the most toxic form of chromium. Contaminants, primarily chromium, also have been found in the soil on the site. This contamination occurred from the site landfills and disposal areas. A study conducted in 1991 indicated that site contamination has not migrated to residential wells.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Initial Actions: The site has been regraded and capped to prevent exposure to the contaminated materials. A fence surrounding the site prevents access by people and animals.

Entire Site: In 1990, the EPA began a study to determine the type and extent of the contamination at the site. An initial sampling program for the study was completed in 1993. The sampling results are being reviewed and will be used to determine if additional samples are needed to complete the study. Sampling results have so far indicated no site-related contamination in residential wells. The study, which is expected to be completed in 1992, will recommend alternatives for site cleanup. As part of the plan to close the site properly, Caldwell and North Park, Inc. have been monitoring surface water and groundwater to track the extent of the contamination.

Site Facts: In 1984, Caldwell entered into an Agreed Order with the State to correct past violations and to prevent further violations of State law. In 1985, the State approved a plan to close the old landfill.

Environmental Progress

Capping the site and restricting access with a security fence have reduced the potential for exposure to site contaminants while investigations continue at the Caldwell Lace Leather Co., Inc. site.

Site Repository

Contact the Region 4 Superfund Community Relations Office.

DISTLER BRICKYARD

KENTUCKY

EPA ID# KYD980602155

EPA REGION 4

Hardin County

1/2 mile southeast of West Point

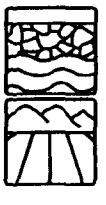
Site Description

The 3-acre Distler Brickyard site is located on a 70-acre abandoned brick manufacturing plant property that operated from the late 1800s until the mid-1970s. In 1976, the property was leased by Kentucky Liquid Recycling, Inc., which began transporting waste to the brickyard property. Waste disposal continued at the site until 1979, when the Kentucky Department of Natural Resources and Environmental Protection (KDNREP) ordered disposal operations to cease. A brick complex, associated buildings, and an open field covered with grasses and shrubs are located on the site. There were approximately 2,300 drums on the site, 1,550 of which contained various liquids, sludges, and solids. Spillage from the deteriorated drums killed grass, trees, and birds on the site. A contaminated groundwater plume is located beneath the site and could threaten the city drinking water wells and the Ohio River. Approximately 3,000 people live within a 4-mile radius of the site and 70,000 people depend on wells within a 3-mile radius of the site for drinking water. The site is partially fenced, and a railroad track runs through the site. Sparks from the railroad caused a fire in 1980. Runoff from the site flows to an unnamed tributary of Bee Branch, which flows through the site. Portions of the site are in the 50- and 100-year flood plains of the Ohio River.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Specific contaminants detected in groundwater and on-site soils include various volatile organic compounds (VOCs) and heavy metals including lead from waste disposal activities. Potential health threats include direct contact with or accidental ingestion of contaminated soils and groundwater.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on soil and groundwater cleanup.

Response Action Status

Initial Actions: As an initial action, the EPA and the State inspected the site and sampled 28 drums. In 1979, some drum wastes were removed and, in 1982, the EPA removed over 2,000 drums from the site. Patches of contaminated soil also were removed, and some contaminated materials were incinerated.

Soil and Groundwater: Cleanup technologies selected to address soil and groundwater contamination include: (1) excavating and disposing of contaminated soils; (2) backfilling with clean natural granular soils; (3) reshaping surface contours to manage water infiltration and runoff and planting grass to cover the site; (4) extracting and treating contaminated groundwater and reinjecting groundwater into the aquifer; and (5) maintaining vegetation and repairing any erosion for a period of 1 year. The EPA has completed the removal of contaminated soil and is planning to install a permanent groundwater treatment system. Additional geophysical and water flow data will have been collected and analyzed during the design of the permanent groundwater treatment system.

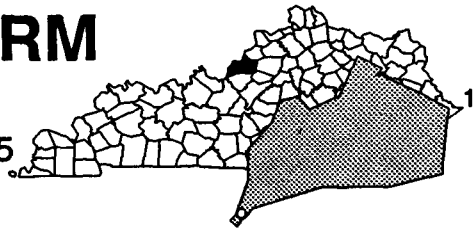
Environmental Progress

The removal of drums and contaminated soil described above has eliminated the sources of contamination and reduced the potential for exposure to hazardous materials at the Distler Brickyard site while long-term cleanup activities are underway.

Site Repository

West Point City Hall, 509 Elm Street, West Point, KY 40177

DISTLER FARM
KENTUCKY
EPA ID# KYD980601975



EPA REGION 4
Jefferson County
1 mile northwest of West Point

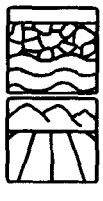
Site Description

The 3-acre Distler Farm site was discovered in 1977, when the EPA launched a search for sites previously used to store industrial wastes. In 1978, flood waters scattered drums of industrial waste stored at the site along the flood plain of Stump Gap Creek. In an emergency cleanup action, the EPA recovered and repacked more than 800 drums containing chemicals characteristic of the paint and varnish industry and then moved them to higher ground. Later, the State sent the drums to an approved disposal facility. During the cleanup effort, four drum burial sites were discovered. Approximately 3,000 people reside within 4 miles of the site. The site is bordered by cultivated farmland and is located 1,000 feet from the Ohio River.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY
Proposed Date: 07/23/82
Final Date: 09/08/83

Threats and Contaminants



Groundwater and soil were contaminated with volatile organic compounds (VOCs) including toluene and benzene, as well as heavy metals, from former drum storage practices. Former health threats included drinking the contaminated groundwater and coming in direct contact with the contaminated soil.

Cleanup Approach

This site is being addressed in two stages: emergency actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Emergency Actions: In 1978, the EPA monitored the recovery and on-site storage of the drums containing chemicals from paints and varnishes. The State later disposed of the drums at a federally approved facility. The EPA conducted various studies from 1979 through 1984, confirming evidence of soil and groundwater contamination. Investigations were temporarily suspended in 1984 as workers removed waste-containing drums and contaminated soil from the site.

Groundwater and Soil: The final site cleanup actions began in 1988. Cleanup activities included: excavating and removing all contaminated soils and off-site disposal in a hazardous waste landfill; backfilling with natural granular soils; extracting contaminated groundwater, temporarily accumulating it, and on-site storage; transporting contaminated groundwater to an off-site commercial facility for treatment; and maintaining vegetation, erosion repair, and groundwater monitoring for a 1-year period. Contaminated soil with concentrations above acceptable levels have been excavated and removed to a hazardous waste landfill. After the soil was removed, the waste pits were backfilled, and the entire area was graded, cultivated, and covered with grass to control erosion. The groundwater treatment system has been installed. Construction of the entire system and site restoration were completed in 1989. Long-term operations and maintenance of the groundwater treatment system began in 1990 and will continue until established cleanup goals for the site are met, which could last up to 30 years.

Environmental Progress

Cleanup of contaminated soil has been completed at the Distler Farm site. The site is now safe for nearby residents and the environment while long-term operation and maintenance activities are continuing to ensure that residual contaminants in the groundwater remain within safety levels.

Site Repository

West Point City Hall, 509 Elm Street, West Point, KY 40177

FORT HARTFORD COAL CO. STONE QUARRY

KENTUCKY

EPA ID# KYD980844625

EPA REGION 4

Ohio County

1 mile northeast of Olaton

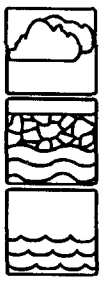
Site Description

The Fort Hartford Coal Co. Stone Quarry is 645 acres in size and includes an additional 120 acres of underground tunnels. The site originally was mined for railway ballasts and road bases from the late 1950's to the late 1970's. In 1981, Barmet Aluminum Corporation contracted with the Fort Hartford Coal Company to store salt cake fines, a by-product of Barmet's aluminum recycling operation, in the underground portion of the site. Salt cake fines are a fine, dust-like material containing various contaminants that react with water to form several gases, including ammonia, acetylene, methane, hydrogen, and hydrogen sulfide. Salt cake fines were delivered to the site from a Barmet plant in Livia, Kentucky at a rate of approximately 500 tons per day from July 1981 to June 1991. Barmet closed the Livia plant in June 1991. An estimated 1 1/2 million tons of salt cake fines have been placed at the site. The mine is in a rural area; approximately 15 people live within 1/2 mile of the site, and the nearest residence is 1,500 feet away. Approximately 1,400 people live within 4 miles of the site. The portion of the site's 120 acres not affected by mining operations is forested, as is most of the surrounding land. Portions of the property have been logged, and several of the logging roads remain above the mine. A few pieces of land beyond the Rough River and Caney Creek, both of which border on the site, are used for agriculture. Many residents near the site rely on groundwater for their drinking water supplies. Approximately 25 private wells are within 1 1/2 miles of the property, and about 700 people obtain drinking water from wells and springs within 3 miles of the site. The Rough River, about 30 miles downstream of the site, is the water source for the Town of Hartford and also is used for fishing and other recreation.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 08/30/90

Threats and Contaminants



The EPA detected ammonia from the storage of salt cake fines in the air around the storage areas during a 1986 inspection. Wastes were deposited below the water table, threatening the groundwater. Ammonia and lead have been detected in low levels in private wells near the site, posing a potential risk from ingestion. The subsurface gases found in the mine include ammonia, methane, acetylene, hydrogen, and hydrogen sulfide. High levels of ammonia have been detected in an unnamed stream that originates in the waste area. Runoff from the quarry flows into the Rough River. Workers at the site may be at risk if they accidentally ingest or come in direct contact with contaminated surface water or groundwater or inhale ammonia vapors in ambient air from the site. There also is the potential for explosion if methane gas is generated from a reaction of the waste with water.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a single long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: In response to the Administrative Order on Consent, Barmet identified areas where water was entering the mine and then isolated waste in these areas to prevent contact. These activities specifically included: an investigation to trace the flow of groundwater; an inventory of salt cakes fines stored in the mine; closure of collapsed areas and sinkholes to prevent water from entering the mine; diversion of surface water runoff to prevent entry into the mine; removal of water within the mine by pumping; discharge of this water to the Rough River; and storage of the salt cake fines in the dry areas of the mine.

Entire Site: Barmet Aluminum Corporation began a study in 1991 to determine the type and extent of contamination at the site, and to identify alternative technologies for the cleanup. The site investigation is expected to be completed in 1993. Once the studies are completed, the EPA will select final cleanup remedies.

Site Facts: Barmet Aluminum Corporation, one of the potentially responsible parties, entered into an Administrative Order on Consent with the EPA in 1989. Under this agreement, Barmet has completed immediate actions and is conducting site investigations.

Environmental Progress

Immediate actions such as the diversion of surface water runoff and the removal of water in the mine to prevent contact with wastes have reduced threats posed to the health and safety of the nearby population. Once site investigations are complete, the EPA will select a permanent cleanup remedy for the site.

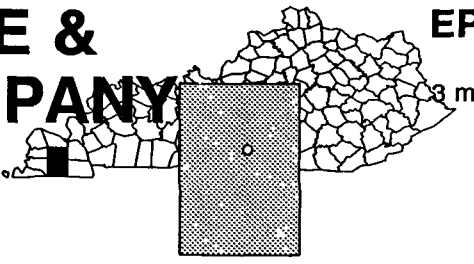
Site Repository

County Clerk, Court House Square, Main Street, Hartford, KY 42347

GENERAL TIRE & RUBBER COMPANY (MAYFIELD LANDFILL)

KENTUCKY

EPA ID# KYD006371074



EPA REGION 4

Graves County

3 miles north of Mayfield

Other Names:
Mayfield Landfill

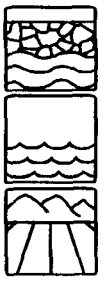
Site Description

The General Tire & Rubber Company (Mayfield Landfill) site is a 58-acre landfill located to the northeast of the company's tire manufacturing plant. The company began disposing of wastes in the landfill in 1970, shortly after the State approved the operation. Between 1970 and 1979, when disposal of hazardous wastes ceased, an estimated 152 tons of hazardous waste were deposited in trenches on the site. Some wastes were deposited below the water table, creating the potential for movement of contaminants through the groundwater. In 1981, to comply with a State request, General Tire began a groundwater monitoring program. In 1984, the site was covered and revegetated. Approximately 1,500 people obtain drinking water from five municipal wells within 3 miles of the site. The eastern edge of the landfill roughly follows Mayfield Creek, approximately 150 yards from the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 02/21/90

Threats and Contaminants



Groundwater, surface water, sediments, and soils are contaminated with heavy metals including cadmium and lead, as well as volatile organic compounds (VOCs) including toluene from the former waste disposal practices. People who accidentally come in direct contact with or ingest contaminated groundwater, surface water, soil, or sediments may be at risk.

Cleanup Approach

The site is being addressed in a single long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Entire Site: The General Tire & Rubber Company is studying the type and extent of the contamination at the site. Once the study is completed, expected in 1992, the EPA will review the recommended alternatives for the cleanup and will select a final strategy to address site contamination.

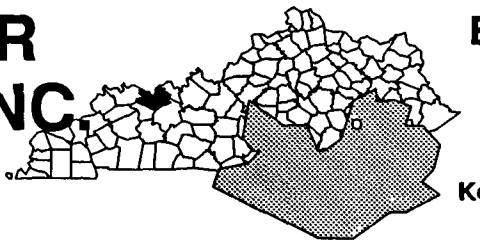
Environmental Progress

After adding the General Tire & Rubber Co. (Mayfield Landfill) site to the NPL, the EPA determined that the site does not pose an immediate threat to public health or the environment while investigations into the final cleanup strategies are taking place.

Site Repository

Graves County Library, Sixth & College Streets, Mayfield, KY 42066

GREEN RIVER DISPOSAL, INC.
KENTUCKY
EPA ID# KYD980501076



EPA REGION 4
Davies County
Near Maceo

Other Names:
Kelly Cemetery Road Site

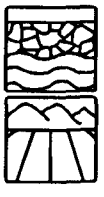
Site Description

The Green River Disposal site is a 14-acre landfill and surface disposal area. From 1970 to 1984, wastes from various industries, along with sanitary municipal wastes, were buried at the facility. In 1985, an investigation by the Kentucky Department of Natural Resources and Environmental Protection (KDNREP) found that on-site private wells were contaminated. Two of the nearly 1,000 drums discovered on the site were found to contain heavy metals, polychlorinated biphenyls (PCBs), and cyanide. Wastes at the site are adequately covered and, therefore, runoff is controlled. The facility has a history of leachate outbreaks, underground fires, and has been known to accept unauthorized wastes. The site held a State permit from 1975 until 1988, but became inactive in 1984. Approximately 500 people obtain drinking water from private wells within 3 miles of the site. Blackford Creek, which is used for irrigation and recreational activities, is 3 miles downstream of the landfill.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 08/30/90

Threats and Contaminants



Groundwater from on-site private wells is contaminated with heavy metals including arsenic and barium from the former waste disposal activities. Leachate from the landfill is contaminated with benzene and heavy metals such as arsenic, mercury, lead, and chromium. People who come in direct contact with or drink contaminated groundwater may be at risk.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Initial Actions: In 1990, samples were taken of site soils, surface water, leachate, and residential wells. Test results prompted installation of a leachate collection system and a fence around the site. Removal of contaminated materials is expected to be completed in 1991.

Entire Site: The potentially responsible parties are studying the type and extent of contamination at the site. Samples will be taken from the landfill waste, leachate, groundwater, surface water, soil, and air to characterize the site and to evaluate potential risks. The study is expected to be completed in 1993. Alternatives for the cleanup will be recommended at the conclusion of the investigation.

Site Facts: In 1983, the State ordered Green River Disposal to bring the facility into compliance with existing laws. In 1986, the company filed for bankruptcy. The EPA prepared an Administrative Order on Consent for the parties potentially responsible for the site contamination to conduct a study to determine the nature and extent of contamination and to identify alternatives for cleanup.

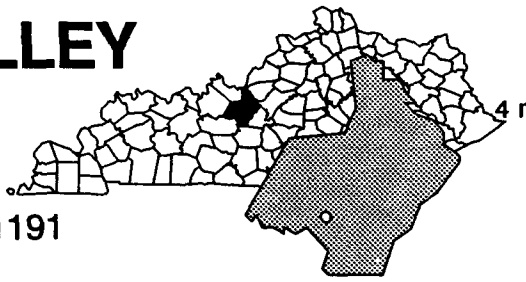
Environmental Progress

Initial actions of sampling the contaminated materials, installing a leachate collection system, and constructing a fence have reduced potential risks of exposure and contaminant migration while further investigations and long-term cleanup activities take place at the Green River Disposal, Inc. site.

Site Repository

Owensboro Public Library, 450 Griffith Avenue, Owensboro, KY 42301

HOWE VALLEY LANDFILL
KENTUCKY
EPA ID# KYD980501191



EPA REGION 4
Hardin County
4 miles southwest of Howe Valley

Site Description

The Howe Valley Landfill site consists of 11 acres and includes a sinkhole. Approximately 2 1/2 acres of the site had been cleared for the landfilling of wastes. The site was an industrial waste landfill, operated by Kentucky Industrial Services, Inc. from 1967 through 1976 when a State permit expired. During that time, drums of sludges and bulk wastes associated with various manufacturing and insulation operations were disposed of on site. Waste insulation material and drums were exposed on the surface of the landfill. In 1979, groundwater samples collected by the Kentucky Division of Water Quality indicated that the site might have been contaminating the local groundwater. There are approximately 25 people living within a 1-mile radius of the site who depend on private wells for drinking water. Approximately 35,000 people use Pirtle Spring, 2 miles from the site, as a source of drinking water.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/10/86
Final Date: 07/22/87

Threats and Contaminants

On-site surface soil is contaminated with low levels of volatile organic compounds (VOCs) and heavy metals. Because access to the site is unrestricted, potential threats to local residents include direct contact with the contaminants in the surface soil. Site studies have indicated that groundwater is not contaminated.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Initial Actions: In 1988, the parties potentially responsible for site contamination removed bulk wastes and 9,150 full or partially full drums, excavated approximately 1,600 empty drums, and removed about 6,000 smaller containers. These initial actions eliminated the immediate threats to the public and removed much of the site's contamination.

Entire Site: The parties potentially responsible for site contamination completed studies determining the extent of contamination in 1990. The EPA selected a cleanup remedy, which includes excavation and off-site disposal of soil contaminated with metals, and replacement with clean soil; further aeration of on-site soil contaminated with VOCs; and continued monitoring of groundwater for the next five years. The parties potentially responsible for contamination at the site began designing the selected cleanup remedy in 1991, which is expected to be completed in late 1992.

Site Facts: In 1988, an Administrative Order was signed by the EPA. This document directs the potentially responsible parties' investigation of site contamination and their recommendations for methods to clean up the site. In 1991, the EPA and the potentially responsible parties entered into a Consent Decree. This Decree requires the potentially responsible parties to conduct cleanup operations at the site.

Environmental Progress

The removal and disposal of bulk waste and drums described above have eliminated the surface contamination sources and have reduced the potential for exposure to hazardous substances at the Howe Valley Landfill site while design of the remedy and long-term cleanup activities are being completed.

Site Repository

Hardin County Public Library, 201 West Dixie Highway, Elizabethtown, KY 42701

LEE'S LANE LANDFILL
KENTUCKY
EPA ID# KYD980557052

EPA REGION 4
Jefferson County
4 1/2 miles southwest of Louisville

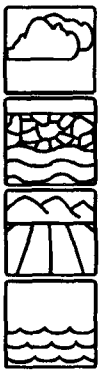
Site Description

Lee's Lane Landfill is a 112-acre landfill and junkyard that lies in the flood plain along the Ohio River. This operation received over 2 million cubic yards of domestic, commercial, and industrial wastes between the 1940s and 1975. Approximately 212,000 tons of these were various chemical wastes. Sand and gravel quarrying occurred on the site before and during the property's use as a landfill. Portions of the landfill flood almost every year. In 1975, residents living next to the site reported flash fires around their water heaters. After explosive levels of methane gas were detected, seven nearby homes were evacuated and purchased by local authorities. The State closed the landfill that same year. County, State, and Federal agencies documented the presence of methane and other toxic gases in the area east of the site. The majority of the 1,100 residents of a subdivision located adjacent to the landfill are connected to a public water supply system, which draws from an underlying aquifer. In 1980, State personnel discovered 400 exposed drums of hazardous materials, some highly flammable, on the Ohio River bank next to the landfill. They identified more than 50 chemicals including phenolic resins, benzene, and a variety of heavy metals.

Site Responsibility: This site is being addressed through Federal, State, local, and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 07/23/82
Final Date: 09/08/83

Threats and Contaminants



The air was polluted with methane gas vented from the landfill. Groundwater, soil, and surface water were contaminated with benzene, heavy metals including lead and arsenic, and inorganic chemicals. Groundwater flow is toward the Ohio River and away from neighborhood wells.

Cleanup Approach

This site is being addressed in two stages: emergency actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Emergency Actions: Seven homes were purchased by local authorities in 1975 after explosive levels of methane gas were detected. In 1980, after methane was discovered in other homes nearby, the Kentucky Department of Hazardous Materials and Waste Materials (KDHMWM) installed a gas venting system at the landfill. In 1981, the site owners pumped liquid wastes from the exposed drums found near the Ohio River. They shipped hazardous wastes to an approved disposal facility, removed the drums and other wastes from the river bank, and buried them on the site. In 1987 and 1988, EPA emergency staff performed cleanup activities at the landfill, including site security and migration control. Workers also regraded and reseeded the backfill that floods had washed out.

Entire Site: The EPA selected a remedy for this site in 1986, which included: providing for a gas collection system; installing alternate water supplies; removing exposed drums; capping of soils in "hot spots" in an area of exposed trash, and disposing of exposed waste at an approved landfill; taking steps to prevent erosion and possible failure of the Ohio River embankment; establishing standards for groundwater at the site; imposing institutional controls; and monitoring groundwater, gas, and air. The EPA finished cleaning up this site in 1987 and now is conducting operation and maintenance activities, scheduled to last for 30 years, which include quarterly sampling of monitoring wells and inspections of the site and components of the gas collection system.

Environmental Progress

Construction activities have been completed at the Lee's Lane Landfill site. The site is now safe for nearby residents and the environment while operation and maintenance activities are continuing to ensure that residual contaminants remain within safety levels. The EPA has begun the process of deleting this site from the NPL.

Site Repository

Riverside Gardin Community Council, 4416 Wilmoth Road, Louisville, KY 40216

MAXEY FLATS NUCLEAR DISPOSAL
KENTUCKY
EPA ID# KYD980729107

EPA REGION 4
Fleming County
Near Hillsboro

Site Description

The 279-acre Maxey Flats Nuclear Disposal site is a disposal facility for low-level radioactive wastes. From 1963 to 1977, the State licensed private operators to dispose of low-level radioactive wastes, and an estimated 5 to 8 million cubic feet were accepted. Most was solid waste, however, other types of waste also were accepted, some of them highly radioactive. Approximately 533,000 pounds of source material (consisting of uranium and thorium or ores containing them), 2 1/2 megacuries of by-product materials, and 950 pounds of special nuclear material (plutonium or enriched uranium) were buried in an area known as the Restricted Area. Workers capped each trench with a layer of soil after it was filled, but the dirt eventually collapsed into the trenches. Water collected in the trenches, leaching radionuclides into the environment. The Restricted Area is situated entirely on the flats and encompasses the disposal trenches, "hot wells" (sealed concrete pipes containing plutonium and uranium), waste storage buildings, and an evaporator facility. The area surrounding the site is rural and agricultural. Approximately 300 people live within a 5-mile radius of the disposal facility, and the closest home is within 1/4 mile. About 120 wells and 25 springs are situated within 5 miles. However, nearby residents receive water from a municipal water system. The site is located on a spur of Maxey Flats, a ridge 300 feet above surrounding stream valleys. The plateau of the spur drops steeply on three sides, and rainwater runoff is channeled to nearby Rock Lick Creek, which feeds the Licking River.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 10/15/84
Final Date: 06/10/86

Threats and Contaminants

The groundwater, soil, surface water, and leachate are contaminated with various radioactive materials, volatile organic compounds (VOCs), petrochemicals, and heavy metals from the former waste disposal activities. There is no evidence that local residents have been exposed to the site contaminants. However, they have been advised to reduce the use of stream water for agricultural irrigation, as this water exceeds EPA standards for both tritium and radium.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the radioactive contamination at the site.

Response Action Status

Immediate Actions: Solidification of 286,000 gallons of tank leachate was completed in 1989. This cleanup activity which was necessary to prevent a potential release of radioactive water off site, due to the poor structural integrity of the holding tanks. In 1991, the EPA disposed of the solidified leachate blocks in an underground on-site trench.

Radioactive Contamination: Under EPA monitoring, the parties potentially responsible for site contamination conducted an intensive study of the contamination problems. This study was completed and a remedy was selected in 1991. The site will be cleaned up by extracting and solidifying approximately 3 million gallons of radioactive trench leachate and disposing of the solidified leachate in newly-constructed trenches on site; installing an initial cap consisting of clay and a synthetic liner; maintaining and periodically replacing the synthetic liner of the initial cap; re-contouring the capped disposal area to control surface water runoff; improving the existing site drainage; installing a groundwater flow barrier, if necessary; installing an infiltration monitoring system to verify the cleanup performance; designating a buffer zone adjacent to the site; installing a final cap over the disposal area; and establishing institutional controls to restrict the use of the site. The site will be evaluated every five years to ensure that the remedy continues to be effective.

Site Facts: Negotiations with the parties potentially responsible for the site contamination concluded with an agreement, signed in 1987, to perform an investigation of the site. The local community has an active interest in the cleanup of this site, and a technical assistance grant has been awarded to a community group to follow site progress.

Environmental Progress

The immediate actions described above to solidify leachate have reduced the potential for exposure to radioactive wastes at the Maxey Flats Nuclear Disposal site while activities for permanent cleanup of the site are being planned.

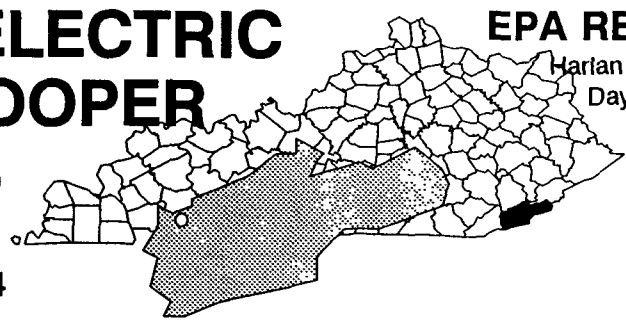
Site Repository

Rowan County Public Library, 129 Trumbo Street, Morehead, KY 40351

NATIONAL ELECTRIC COIL CO./COOPER INDUSTRIES

KENTUCKY

EPA ID# KYD985069954



Site Description

The National Electric Coil Co./Cooper Industries site is approximately 3 1/2 acres in size. In 1951, the National Electric Coil Co., owned by McGraw-Edison Co., rebuilt electric motors and transformers used in the coal mining industry. From 1951-1987, equipment used in these production processes was cleaned on site in a 4,000-gallon vat of trichloroethylene (TCE). Activities performed to clean equipment and the vat itself resulted in on-site and off-site contamination. Liquid solvent and oils were allowed to flow overland and through a drainage system to the Cumberland River; sludge from the vat was disposed of along the Cumberland River bank; polychlorinated biphenyl (PCB)-laden oil drained from transformers on site was allowed to flow through the piping system to the Cumberland River; and waste generated by an unvented lead furnace on site was disposed of in unregulated landfills in the area. In 1985, as a result of a takeover, Cooper Industries of Houston, Texas acquired the property and facility. Treen Land Co. bought the site from Cooper Industries in 1987. The Kentucky Department of Environmental Protection (KDEP) first discovered contamination in nearby residential and community wells in 1989. Subsequent investigations by EPA, Cooper Industries, and Treen Land Co. led to the detection of contaminants in groundwater and soil both on and off site. Today, both the property and the facility are leased to National Electric Services, Incorporated. Public and private wells within 4 miles of the site are sources of drinking water for an estimated 1,750 people. The nearest contaminated private well is within 300 feet of the site. Several residences are in close proximity to the site and 20 people work at the plant.

Site Responsibility: This site is being addressed through Federal, State and potentially responsible parties' actions.

NPL Listing History
Proposed Date: 07/29/91

Threats and Contaminants

Nearby residential and community wells are contaminated with the volatile organic chemicals (VOCs) dichloroethylene and vinyl chloride. These same two chemicals, TCE, methylene chloride, and PCBs were later detected in on-site groundwater and soil. Off-site soil is contaminated with VOCs and PCBs. Dichloroethylene and vinyl chloride also were detected in off-site groundwater.

Cleanup Approach

This site is being addressed in two phases: immediate actions and one long-term phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: In 1989, users of contaminated wells were connected to municipal water supplies. In 1991, the potentially responsible parties removed contaminated soils to an off-site location.

Entire Site: In mid-1992, the potentially responsible parties began an investigation into the nature and extent of contamination at the site.

Site Facts: The EPA and Cooper Industries, Inc. signed a Unilateral Administrative Order in 1991. Under this order, Cooper Industries removed contaminated soils from the site.

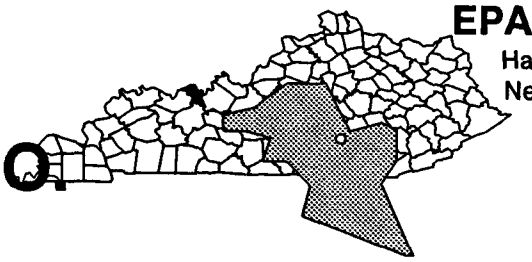
Environmental Progress

Connecting residential and community wells to municipal water supplies and removing site contaminants has significantly reduced health and safety risks to the nearby population while EPA considers further actions for permanent cleanup of the site.

Site Repository

Not established.

NATIONAL SOUTHWIRE ALUMINUM CO.
KENTUCKY
EPA ID# KYD049062375



EPA REGION 4
Hancock County
Near Hawesville

Site Description

The National Southwire Aluminum Co. (NSA), a division of Southwire of Carrollton, Georgia, is a 1,100-acre facility located in rural Hancock County. This site consists of four clay-lined ponds, each 5 to 7 acres in size. The first of these ponds, called the North Pond, was constructed for the disposal of spent pot linings from the aluminum reduction process. Calcium fluoride slurry from the air quality control system also was disposed of in the North Pond as well as in the second of these ponds, the South Pond. The East Pond received calcium fluoride slurry from the South Pond, which was subsequently dewatered and closed without any covering or lining. A new synthetically-line pond, called the New Pond, is now used for disposal of the calcium fluoride slurry. In 1979, cyanide and fluoride were found to be leaching into groundwater beneath the North Pond and also in the vicinity of the dump pad where spent pot linings contaminated the soil. NSA also detected cyanide in one of its three production wells, which were used as a drinking water source for more than 1,000 NSA employees. The production wells have been taken out of service. In 1986, the North Pond was closed and covered with a synthetic cap as ordered by the Kentucky Division of Waste Management. Today, the North Pond is densely covered with vegetation. The EPA detected significant levels of heavy metals in on-site groundwater and sediments in the facility's effluent ditch. This effluent ditch flows along the west border of the facility, alongside the disposal ponds, and into the Ohio River. Wells within 4 miles of the site draw water from the Ohio River and serve approximately 16,000 people.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL Listing History
Proposed Date: 07/29/91

Threats and Contaminants

The groundwater beneath the disposal ponds, as well as in the soil around the dump pad, is contaminated with cyanide and fluoride. Cyanide also was discovered in one of NSA's production wells in 1985. Significant concentrations of cyanide, arsenic, lead, and nickel were discovered in on-site groundwater and sediments of the effluent ditch. The effluent ditch flows along the west border of the plant, alongside the disposal ponds, and into the Ohio River.

Cleanup Approach

This site is being addressed in two phases: immediate actions and one long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: After the Kentucky Division of Waste Management conducted a preliminary assessment in 1986, NSA closed the North Pond and capped it with a synthetic cap and a layer of soil. The South Pond was closed in 1989. Production wells were taken out of service once contaminants were detected in the drinking water supply of NSA employees.

Entire Site: The EPA is planning to undertake a study of the nature and extent of contamination at the site. This study, expected to begin in mid-1992, will help determine the best alternatives for cleanup at the site.

Site Facts: NSA currently operates under a permit issued through the EPA's National Pollutant Discharge Elimination System. NSA has been cited twice by the EPA for exceeding permit limits since 1987.

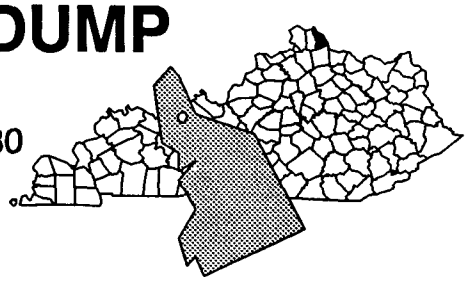
Environmental Progress

Immediate actions such as capping the North Pond and closing contaminated wells have significantly reduced risks posed to the nearby population while EPA conducts additional studies and plans cleanup activities.

Site Repository

Not established.

NEWPORT DUMP
KENTUCKY
EPA ID# KYD985066380



EPA REGION 4
Campbell County
Wilder

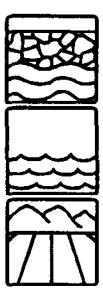
Site Description

The 40-acre Newport Dump site was originally purchased by the City of Newport in the late 1940s and was used for disposal of residential and commercial wastes until its closure in 1979. Trenching and area filling were the most common methods used to dispose of wastes at the site. The Commonwealth of Kentucky started to require permits for landfills in 1968. The City received a permit in 1969 to operate the site as a municipal sanitary landfill. During its operation, the City was cited on numerous occasions for operational violations at the landfill and for handling hazardous waste without a permit. Ownership of the site changed in 1979 from the City of Newport to the Northern Kentucky Port Authority (NKPA). Approximately 1,200 people reside within a 1-mile radius of the site. The nearby Licking River, which flows into the Ohio River, is used for recreational activities. Use of groundwater in the vicinity of the site is minimal, but approximately 250 feet downstream of the site, the Kenton County water district maintains a raw water intake from the Licking River for the Taylor Mill Water Treatment Plant. The water district serves residents of Kenton and Boone Counties with a combined population of approximately 75,000 people.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/23/83

Threats and Contaminants



Contaminants in groundwater and surface water included heavy metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) from former waste disposal activities. Soils on site were contaminated with heavy metals, polycyclic aromatic hydrocarbons (PAHs), solvents, and PCBs from leachate and runoff. Site closure activities completed to date have prevented the public from coming in contact with landfill contaminants, although access to the site is not restricted.

Cleanup Approach

This site was addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: In efforts to comply with a 1980 Agreed Order, the NKPA installed a leachate collection system, regraded portions of the site, constructed a clay cap over the waste, and covered the area with vegetation. In response to another Agreed Order, the NKPA completed a permanent vegetative cover of the site and began designing a groundwater monitoring system. Operation and maintenance of the leachate collection system continues.

Entire Site: The EPA implemented a monitoring program of surface water, groundwater, and soil; restored and extended the leachate collection system; and restored, regraded, and revegetated the existing clay cover. The site currently is undergoing operation and maintenance activities, and the contamination concentrations are below the standards set for the site. The EPA has initiated the process of deleting this site from the NPL and will turn the operation and maintenance responsibilities over to the State. A five-year review of the effectiveness of the remedy is currently underway.

Site Facts: In 1978, the City of Newport and the Kentucky Department of Natural Resources and Environmental Protection (KDNREP) entered into an Agreed Order to bring about closure of the site as a landfill. When ownership transferred from the City to the NKPA in 1979, the NKPA was required to prepare the final closure plan for the site. In 1980, the NKPA and the KDNREP reached an Agreed Order requiring proper closure of the site. A third Agreed Order superseding the previous orders was entered into by the NKPA and the KDNREP in 1984.

Environmental Progress

All cleanup activities have been completed at the Newport Dump site. The area is now safe to nearby residents and the environment while the EPA completes the final processes to delete the site from the NPL and to transfer operation and maintenance responsibilities to the State.

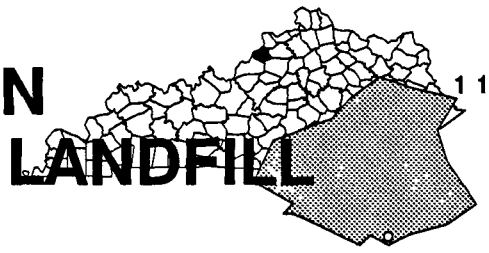
Site Repository

Kenton County Public Library, 3130 Dixie Highway, Erlanger, KY 41018

RED PENN SANITATION COMPANY LANDFILL

KENTUCKY

EPA ID# KYD981469794



EPA REGION 4

Oldham County

1 1/2 miles southeast of Pewee Valley

Site Description

The Red Penn Sanitation Company Landfill site covers approximately 150 acres. From 1954 to 1986, 85 acres of the site were used for waste disposal and the remaining 66 acres were used as a borrow area. The site was licensed by the Commonwealth of Kentucky as a 40-acre sanitary landfill in 1968 and operated until 1986, when the permit expired. The landfill was first licensed by the Oldham County Health Department in 1959. From 1967 to 1974, 2,000 to 3,000 drums of "drawing solution" from a manufacturing facility were disposed of in the permitted area of the landfill. The electromagnetic wire manufacturing process used by the manufacturer generated wastes containing phenol, acids, xylene, and xylenol. An estimated 7,800 drums of paint waste and sludge from a truck plant were disposed of at Red Penn Sanitation Company in a 5-year period beginning in 1968. In 1986, the Kentucky Division of Waste Management was notified by one of the owners of Red Penn Sanitation Company that suspected hazardous wastes, including drums, had been found at the site. Recent studies have concluded that site contamination is localized and not likely to migrate beyond the immediate landfill boundaries. Approximately 850 people obtain drinking water from wells within 3 miles of the site. A public water intake is located about 250 feet downstream in Floyd's Fork, a major stream bordering the landfill. The Peewee Balley Women's Reformatory originally drew water from this intake though currently it draws from the municipal water system. Creeks that border the site currently are used for fishing, swimming, and livestock watering.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 03/31/89

Threats and Contaminants

The groundwater is contaminated with low levels of the pesticides, aldrin and chlordane. Soil is contaminated with heavy metals such as lead and chromium, and volatile organic compounds (VOCs) such as toluene and xylene from the drums found on the site. A drainage ditch on the site is contaminated with polychlorinated biphenyls (PCBs) and selenium. Trespassers and future cleanup workers, if not adequately protected, may be exposed to contaminants in the waste and surface soils through inhalation or accidental ingestion. People swimming, wading, or fishing in the creeks might be exposed to contaminants through direct contact. People who eat fish taken from the creeks, or consume milk or meat products from nearby livestock, crops, or garden produce may be exposed to contaminants. Recent studies have concluded that site contamination is localized and not likely to migrate beyond the immediate landfill boundaries.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Immediate Actions: Approximately 220 tons of drums and soil were removed from two areas on the property in 1986 during an immediate action financed by the owners of the landfill.

Entire Site: A study is being conducted at the site to determine the extent and types of any contamination present and to identify alternative actions for cleanup. The study is scheduled to be completed in 1993, at which time the EPA will select cleanup activities, expected to begin soon thereafter.

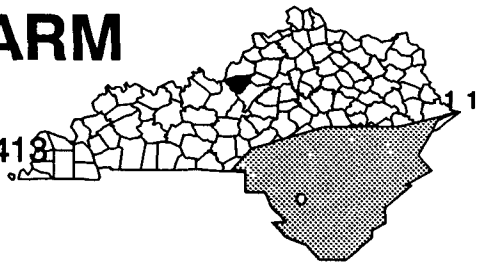
Environmental Progress

The immediate drum removal action described above has greatly reduced surface contamination and limited the potential for exposure to contaminated materials at the Red Penn Sanitation Company Landfill site while further investigations leading to the selection of a final remedy are taking place. Site contamination is localized and not likely to migrate beyond immediate landfill boundaries.

Site Repository

Not established.

SMITH'S FARM
KENTUCKY
EPA ID# KYD097267413



EPA REGION 4
Bullitt County
1 1/2 miles southwest of Shepherdsville

Site Description

The Smith's Farm site is a 460-acre area that includes a 37 1/2-acre landfill and over 30 acres where unpermitted dumping occurred over a 30-year period. These two areas contain over 100,000 drums, many of which are buried or partly buried. Several leachate streams at the site drain into an unnamed tributary and then into Bluelick Creek. More than 500 people live within a 1-mile radius of the site. The nearest residence is less than 1/4 mile away, and a trailer park is located south of the site. Area residents obtain drinking water from a public water supply, private wells, and cisterns.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 10/15/84
Final Date: 06/10/86

Threats and Contaminants

Sediments and soil are contaminated with volatile organic compounds (VOCs), plastics, polychlorinated biphenyls (PCBs), and heavy metals including arsenic, chromium, lead, and nickel. Landfill leachate on site is contaminated with VOCs, phenols, creosote compounds, and heavy metals. Shallow groundwater on site is contaminated with VOCs and heavy metals, including barium, chromium, lead, nickel, iron, magnesium, and zinc. Drinking or otherwise coming into contact with contaminated surface water may present health hazards.

Cleanup Approach

This site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the drum disposal site and cleanup of the landfill and deeper groundwater.

Response Action Status

Immediate Actions: In 1984, the EPA constructed access roads to make it possible to retrieve drums and then staged and transported 2,000 drums off site. Certain non-flammable hazardous materials were loaded into trucks and shipped for off-site disposal. PCB-laden liquid was analyzed and properly disposed of. The EPA also transported empty drums from the site. In 1988, the EPA sampled nearby water wells and provided a temporary water supply to nearby residences. The EPA also installed fencing, gates, and warning signs at all site entrances.

Drum Disposal Site: In 1989, the EPA selected incineration of wastes, soils, and sediments for cleanup of the drum disposal site. However, the design investigation in 1990 indicated that the volume of soil to be treated was much smaller than previously determined. In 1991, the EPA modified the 1989 remedy to substitute chemical treatment for incineration. The parties potentially responsible for the site contamination completed the design of the modified remedy in early 1992. Cleanup activities began in 1992. Groundwater in the unpermitted drum disposal area will continue to be monitored every 5 years.

Landfill and Deeper Groundwater: A study conducted by the potentially responsible parties currently is underway to determine the type and extent of contamination at the permitted landfill, in the deeper groundwater, and in additional suspected areas along the largest stream on site. The study will evaluate the alternative technologies for cleanup and is scheduled to be completed in 1992.

Site Facts: The landfill's permit application was allowed to expire by the Commonwealth of Kentucky in 1989. One potentially responsible party signed a Consent Order in 1989 to conduct a study of the contamination at the permitted landfill and in the groundwater. A Unilateral Administrative Order was issued by the EPA March 15, 1990, governing design and cleanup actions at the drum disposal site by the potentially responsible parties.

Environmental Progress

The immediate drum removal actions and the provision of a temporary safe water supply to affected residents have greatly reduced the potential for exposure to hazardous substances while further investigations and long-term cleanup activities take place at the Smith's Farm site.

Site Repository

Bullitt County Public Library, Ridgeway Memorial Library, Second and Walnut Streets, Shepherdsville, KY 40165

TRI-CITY INDUSTRIAL DISPOSAL CO.
KENTUCKY
EPA ID# KYD981028350

EPA REGION 4
Bullitt County
Shepherdsville

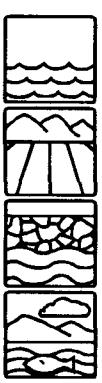
Site Description

The Tri-City Industrial Disposal Company operated a 57-acre industrial landfill at this 349-acre site. From 1964 to late 1967, wastes from industries in the Louisville area were accepted including scrap lumber, fiberglass insulation materials, and liquid wastes. In 1968, State officials reported that highly volatile liquid wastes resembling paint thinners were disposed of on site. A 1968 aerial photograph suggests that several hundred drums were on the surface and several others were buried. During the landfill's operation, no State or Federal permit was required. In 1987, the Kentucky Division of Waste Management (KDWM) detected organic contaminants in groundwater and soil samples taken from the site. Several residences are located on and adjacent to the former disposal areas; a portion of the site is used for agricultural purposes such as pastures and small gardens. Approximately 1,600 people obtain drinking water from springs and wells within 3 miles of the site. All surface drainage flows south where it enters Brushy Fork of Knob Creek. This creek is 2,200 feet downslope of the site and is used for livestock watering and recreational activities.

Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 03/31/89

Threats and Contaminants



Volatile organic compounds (VOCs) were found in groundwater and two springs. One sediment sample from a tributary to Knob Creek was contaminated with heavy metals such as lead, chromium, and mercury. These contaminants pose a threat to the aquatic biota of Knob Creek. Polychlorinated biphenyls (PCBs), heavy metals, various organic compounds, and creosotes have been found in site soils. Drinking or coming into contact with contaminated water threatens the health of the nearby population. However, the water from the springs is no longer used as a drinking water source. The EPA has supplied three residences with an alternate water supply.

Cleanup Approach

This site is being addressed in two stages: emergency actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status

Emergency Actions: The EPA provided an alternate water source to three area families and transported all excavated drums and contaminated soil off site in 1988.

Entire Site: The EPA selected a final cleanup strategy in 1991 which includes: sampling of additional areas and treatment of groundwater. The EPA will select additional cleanup activities if sampling indicates contamination in areas not currently being addressed. The potentially responsible parties began designing the selected remedy in early 1992.

Environmental Progress

The provision of an alternate water supply and excavation of contaminated drums and soil have reduced the potential for exposure to hazardous materials at the Tri-City Industrial Disposal Co. site while further studies and long-term cleanup activities are being planned.

Site Repository

Bullitt County Public Library, Ridgeway Memorial Library, Second and Walnut Streets, Shepherdsville, KY 40165

GLOSSARY

Terms Used in the NPL Book

This glossary defines terms used throughout the NPL Volumes. The terms and abbreviations contained in this glossary apply specifically to work performed under the Superfund program in the context of hazardous waste management. These terms may have other meanings when used in a different context. A table of common toxic chemicals found at NPL sites, their sources, and their potential threats is located on page G-15

Acids: Substances, characterized by low pH (less than 7.0), that are used in chemical manufacturing. Acids in high concentration can be very corrosive and react with many inorganic and organic substances. These reactions possibly may create toxic compounds or release heavy metal contaminants that remain in the environment long after the acid is neutralized.

Administrative Order On Consent: A legal and enforceable agreement between the EPA and the parties potentially responsible for site contamination. Under the terms of the Order, the potentially responsible parties (PRPs) agree to perform or pay for site studies or cleanups. It also describes the oversight rules, responsibilities, and enforcement options that the government may exercise in the event of non-compliance by potentially responsible parties. This Order is signed by PRPs and the government; it does not require approval by a judge.

Administrative Order [Unilateral]: A legally binding document issued by the EPA, directing the parties potentially responsible to perform site cleanups or studies (generally, the EPA does not issue Unilateral Orders for site studies). This type of Order is not signed by the PRPs and does not require approval by a judge.

Aeration: A process that promotes breakdown of contaminants in soil or water by exposing them to air.

Agency for Toxic Substances and Disease Registry (ATSDR): The Federal agency within the U.S. Public Health Service charged with carrying out the health-related responsibilities of CERCLA.

Air Stripping: A process whereby volatile organic chemicals (VOCs) are removed from contaminated material by forcing a stream of air through the contaminated material in a pressurized vessel. The contaminants are evaporated into the air stream. The air may be further treated before it is released into the atmosphere.

Ambient Air: Any unconfined part of the atmosphere. Refers to the air that may be inhaled by workers or residents in the vicinity of contaminated air sources.

Applicable or Relevant and Appropriate Requirements (ARARs): Federal, State, or local laws which apply to Superfund activities at NPL sites. Both emergency and long-term actions must comply with these laws or provide sound reasons for allowing a waiver. ARARs must be identified for each site relative to the characteristics of the site, the substances found at the site, or the cleanup alternatives being considered for the site.

GLOSSARY

Aquifer: An underground layer of rock, sand, or gravel capable of storing water within cracks and pore spaces, or between grains. When water contained within an aquifer is of sufficient quantity and quality, it can be tapped and used for drinking or other purposes. The water contained in the aquifer is called groundwater. A "sole source aquifer" supplies 50 percent or more of the drinking water of an area.

Artesian (Well): A well made by drilling into the earth until water is reached, which, due to internal pressure, flows up like a fountain.

Asbestos: A mineral fiber that can pollute air or water and is known to cause cancer or asbestosis when inhaled.

Attenuation: The naturally occurring process by which a compound is reduced in concentration over time through adsorption, degradation, dilution, or transformation.

Background Level: The amount of a substance typically found in the air, water, or soil from natural, as opposed to human, sources.

Baghouse Dust: Dust accumulated in removing particulates from the air by passing it through cloth bags in an enclosure.

Bases: Substances characterized by high pH (greater than 7.0), which tend to be corrosive in chemical reactions. When bases are mixed with acids, they neutralize each other, forming salts.

Berm: A ledge, wall, or a mound of earth used to prevent the migration of contaminants.

Bioaccumulate: The process by which some contaminants or toxic chemicals gradually collect and increase in concentration in living tissue, such as in plants, fish, or people, as they breathe contaminated air, drink contaminated water, or eat contaminated food.

Biological Treatment: The use of bacteria or other microbial organisms to break down toxic organic materials into carbon dioxide and water.

Bioremediation: A cleanup process using naturally occurring or specially cultivated microorganisms to digest contaminants and break them down into non-hazardous components.

Bog: A type of wetland that is covered with peat moss deposits. Bogs depend primarily on moisture from the air for their water source, are usually acidic, and are rich in plant residue [see Wetland].

Boom: A floating device used to contain oil floating on a body of water or to restrict the potential overflow of waste liquids from containment structures.

Borehole: A hole that is drilled into the ground and used to sample soil or ground-water.

Borrow Pit: An excavated area where soil, sand, or gravel has been dug up for use elsewhere.

Cap: A layer of material, such as clay or a synthetic material, used to prevent rainwater from penetrating and spreading contaminated materials. The surface of the cap generally is mounded or sloped so water will drain off.

Carbon Adsorption: A treatment system in which contaminants are removed from groundwater and surface water by forcing water through tanks containing activated carbon, a specially treated material that attracts and holds or retains contaminants.

Carbon Disulfide: A degreasing agent formerly used extensively for parts washing. This compound has both inorganic and organic

properties, which increase cleaning efficiency. However, these properties also cause chemical reactions that increase the hazard to human health and the environment.

Carbon Treatment: [see Carbon Adsorption].

Cell: In solid waste disposal, one of a series of holes in a landfill where waste is dumped, compacted, and covered with layers of dirt.

CERCLA: [see Comprehensive Environmental Response, Compensation, and Liability Act].

Characterization: The sampling, monitoring, and analysis of a site to determine the extent and nature of toxic releases. Characterization provides the basis for acquiring the necessary technical information to develop, screen, analyze, and select appropriate cleanup techniques.

Chemical Fixation: The use of chemicals to bind contaminants, thereby reducing the potential for leaching or other movement.

Chromated Copper Arsenate: An insecticide/herbicide formed from salts of three toxic metals: copper, chromium, and arsenic. This salt is used extensively as a wood preservative in pressure-treating operations. It is highly toxic and water-soluble, making it a relatively mobile contaminant in the environment.

Cleanup: Actions taken to eliminate a release or threat of release of a hazardous substance. The term "cleanup" sometimes is used interchangeably with the terms remedial action, removal action, response action, or corrective action.

Closure: The process by which a landfill stops accepting wastes and is shut down under Federal guidelines that ensure the protection of the public and the environment.

Comment Period: A specific interval during which the public can review and comment on various documents and EPA actions related to site cleanup. For example, a comment period is provided when the EPA proposes to add sites to the NPL. Also, there is minimum 3-week comment period for community members to review and comment on the remedy proposed to clean up a site.

Community Relations: The EPA effort to establish and maintain two-way communication with the public. The goals of community relations programs include creating an understanding of EPA programs and related actions, assuring public input into decision-making processes related to affected communities, and making certain that the Agency is aware of, and responsive to, public concerns. Specific community relations activities are required in relation to Superfund cleanup actions [see Comment Period].

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Congress enacted the CERCLA, known as Superfund, in 1980 to respond directly to hazardous waste problems that may pose a threat to the public health and the environment. The EPA administers the Superfund program.

Confluence: The place where two bodies of water, such as streams or rivers, come together.

Confined Aquifer: An aquifer in which groundwater is confined under pressure that is significantly greater than atmospheric pressure.

Consent Decree: A legal document, approved and issued by a judge, formalizing an agreement between the EPA and the parties potentially responsible for site contamination. The decree describes cleanup actions that the potentially responsible parties are required to perform, or the costs incurred by the government that the parties will reimburse, and the roles, responsibilities, and enforcement options that the government may exercise in the event of non-compliance by potentially responsible parties. If a settlement between the EPA and a potentially responsible party includes cleanup actions, it must be in the form of a Consent Decree. A Consent Decree is subject to a public comment period.

Consent Order: [see Administrative Order on Consent].

Containment: The process of enclosing or containing hazardous substances in a structure, typically in a pond or a lagoon, to prevent the migration of contaminants into the environment.

Contaminant: Any physical, chemical, biological, or radiological material or substance whose quantity, location, or nature produces undesirable health or environmental effects.

Contingency Plan: A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or other accident that releases toxic chemicals, hazardous wastes, or radioactive materials into the environment.

Cooperative Agreement: A contract between the EPA and the States, wherein a State agrees to manage or monitor certain site cleanup responsibilities and other activities on a cost-sharing basis.

Cost Recovery: A legal process by which potentially responsible parties can be required to pay back the Superfund program for money it spends on any cleanup actions [see Potentially Responsible Parties].

Cover: Vegetation or other material placed over a landfill or other waste material. It can be designed to reduce movement of water into the waste and to prevent erosion that could cause the movement of contaminants.

Creosotes: Chemicals used in wood preserving operations and produced by distillation of tar, including polycyclic aromatic hydrocarbons and polynuclear aromatic hydrocarbons [see PAHs and PNAs]. Contaminating sediments, soils, and surface water, creosotes may cause skin ulcerations and cancer through prolonged exposure.

Culvert: A pipe used for drainage under a road, railroad track, path, or through an embankment.

Decommission: To revoke a license to operate and take out of service.

Degradation: The process by which a chemical is reduced to a less complex form.

Degrease: To remove grease from wastes, soils, or chemicals, usually using solvents.

Deletion: A site is eligible for deletion from the NPL when Superfund response actions at the site are complete. A site is deleted from the NPL when a notice is published in the Federal Register.

De minimis: This legal phrase pertains to settlements with parties who contributed small amounts of hazardous waste to a site. This process allows the EPA to settle with small, or *de minimis* contributors, as a single group rather than as individuals, saving time, money, and effort.

Dewater: To remove water from wastes, soils, or chemicals.

Dike: A low wall that can act as a barrier to prevent a spill from spreading.

Dioxin: An organic chemical by-product of pesticide manufacture which is known to be one of the most toxic man-made chemicals.

Disposal: Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials. Disposal may be accomplished through the use of approved secure landfills, surface impoundments, land farming, deep well injection, or incineration.

Downgradient: A downward hydrologic slope that causes groundwater to move toward lower elevations. Therefore, wells *downgradient* of a contaminated groundwater source are prone to receiving pollutants.

Ecological Assessment: A study of the impact of man-made or natural activity on living creatures and their environment.

Effluent: Wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Emission: Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities.

Emulsifiers: Substances that help in mixing materials that do not normally mix; e.g., oil and water.

Endangerment Assessment: A study conducted to determine the risks posed to public health or the environment by contamination at NPL sites. The EPA or the State conducts the study when a legal action is to be taken to direct the potentially responsible parties to clean up a site or pay for the cleanup. An endangerment assessment supplements an investigation of the site hazards.

Enforcement: EPA, State, or local legal actions taken against parties to facilitate settlements; to compel compliance with laws, rules, regulations, or agreements; or to obtain penalties or criminal sanctions for violations. Enforcement procedures may vary, depending on the specific requirements of different environmental laws and related regulatory requirements. Under CERCLA, for example, the EPA will seek to require potentially responsible parties to clean up a Superfund site or pay for the cleanup [see Cost Recovery].

Erosion: The wearing away of land surface by wind or water. Erosion occurs naturally from weather or surface runoff, but can be intensified by such land-related practices as farming, residential or industrial development, road building, or timber-cutting. Erosion may spread surface contamination to off-site locations.

Estuary (estuarine): Areas where fresh water from rivers and salt water from nearshore ocean waters are mixed. These areas may include bays, mouths of rivers, salt marshes, and lagoons. These water ecosystems shelter and feed marine life, birds, and wildlife.

Evaporation Ponds: Areas where sewage sludge or other watery wastes are dumped and allowed to dry out.

Feasibility Study: The analysis of the potential cleanup alternatives for a site. The feasibility study usually starts as soon as the remedial investigation is underway. In this volume, the feasibility study is referred to as a site study [see also Remedial Investigation].

Filtration: A treatment process for removing solid (particulate) matter from water by passing the water through sand, activated carbon, or a man-made filter. The process is often used to remove particles that contain contaminants.

Flood Plain: An area along a river, formed from sediment deposited by floods. Flood plains periodically are innundated by natural floods, which can spread contamination.

Flue Gas: The air that is emitted from a chimney after combustion in the burner occurs. The gas can include nitrogen oxides, carbon oxides, water vapor, sulfur oxides, particles, and many chemical pollutants.

Fly Ash: Non-combustible residue that results from the combustion of flue gases. It can include nitrogen oxides, carbon oxides, water vapor, sulfur oxides, as well as many other chemical pollutants.

French Drain System: A crushed rock drain system constructed of perforated pipes, which is used to drain and disperse wastewater.

Gasification (coal): The conversion of soft coal into gas for use as a fuel.

General Notice Letter: [See Notice Letter].

Generator: A facility that emits pollutants into the air or releases hazardous wastes into water or soil.

Good Faith Offer: A voluntary offer, generally in response to a Special Notice letter, made by a potentially responsible party, consisting of a written proposal demonstrating a potentially responsible party's qualifications and willingness to perform a site study or cleanup.

Groundwater: Water that fills pores in soils or openings in rocks to the point of saturation. In aquifers, groundwater occurs in sufficient quantities for use as drinking and irrigation water and other purposes.

Groundwater Quality Assessment: The process of analyzing the chemical characteristics of groundwater to determine whether any hazardous materials exist.

Halogens: Reactive non-metals, such as chlorine and bromine. Halogens are very good oxidizing agents and, therefore, have many industrial uses. They are rarely found by themselves; however, many chemicals such as polychlorinated biphenyls (PCBs), some volatile organic compounds (VOCs), and dioxin are reactive because of the presence of halogens.

Hazard Ranking System (HRS): The principal screening tool used by the EPA to evaluate relative risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on the potential of hazardous substances spreading from the site through the air, surface water, or groundwater and on other factors such as nearby population. The HRS score is the primary factor in deciding if the site should be on the NPL.

Hazardous Waste: By-products of society that can pose a substantial present or potential hazard to human health and the environment when improperly managed. Hazardous waste possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists.

Heavy Metals: Metallic elements with high atomic weights, such as arsenic, lead, mercury, and cadmium. Heavy metals are very hazardous even at low concentrations and tend to accumulate in the food chain.

Herbicide: A chemical pesticide designed to control or destroy plants, weeds, or grasses.

Hot Spot: An area or vicinity of a site containing exceptionally high levels of contamination.

Hydrocarbons: Chemical compounds that consist entirely of hydrogen and carbon.

Hydrology: The properties, distribution, and circulation of water.

Hydrogeology: The geology of groundwater, with particular emphasis on the chemistry and movement of water.

Impoundment: A body of water or sludge confined by a dam, dike, floodgate, or other barrier.

Incineration: A group of treatment technologies involving destruction of waste by controlled burning at high temperatures, e.g., burning sludge to reduce the remaining residues to a non-burnable ash that can be disposed of safely on land, in some waters, or in underground locations.

Infiltration: The movement of water or other liquid down through soil from precipitation (rain or snow) or from application of wastewater to the land surface.

Influent: Water, wastewater, or other liquid flowing into a reservoir, basin, or treatment plant.

Injection Well: A well into which waste fluids are placed, under pressure, for purposes of disposal.

Inorganic Chemicals: Chemical substances of mineral origin, not of basic carbon structure.

Installation Restoration Program: The specially funded program established in 1978 under which the Department of Defense has been identifying and evaluating its hazardous waste sites and controlling the migration of hazardous contaminants from those sites.

Intake: The source from where a water supply is drawn, such as from a river or water body.

Interagency Agreement: A written agreement between the EPA and a Federal agency that has the lead for site cleanup activities, setting forth the roles and responsibilities of the agencies for performing and overseeing the activities. States often are parties to interagency agreements.

Interim (Permit) Status: Conditions under which hazardous waste treatment, storage, and disposal facilities, that were operating when regulations under the RCRA became final in 1980, are temporarily allowed by the EPA to continue to operate while awaiting denial or issuance of a permanent permit. The facility must comply with certain regulations to maintain interim status.

Lagoon: A shallow pond or liquid waste containment structure. Lagoons typically are used for the storage of wastewaters, sludges, liquid wastes, or spent nuclear fuel.

Landfarm: To apply waste to land or incorporate waste into the surface soil, such as fertilizer or soil conditioner. This practice commonly is used for disposal of composted wastes and sludges.

Landfill: A disposal facility where waste is placed in or on land. *Sanitary* landfills are disposal sites for non-hazardous solid wastes. The waste is spread in layers, compacted to the smallest practical volume, and covered with soil at the end of each operating day. Secure *chemical* landfills are disposal sites for hazardous waste. They are designed to minimize the chance of release of hazardous substances into the environment [see Resource Conservation and Recovery Act].

Leach, Leaching [v.t.]: The process by which soluble chemical components are dissolved and carried through soil by water or some other percolating liquid.

Leachate [n]: The liquid that trickles through or drains from waste, carrying soluble components from the waste.

Leachate Collection System: A system that gathers liquid that has leaked into a landfill or other waste disposal area and pumps it to the surface for treatment.

Liner: A relatively impermeable barrier designed to prevent leachate (waste residue) from leaking from a landfill. Liner materials include plastic and dense clay.

Long-term Remedial Phase: Distinct, often incremental, steps that are taken to solve site pollution problems. Depending on the complexity, site cleanup activities can be separated into several of these phases.

Long-term Response Action: An action which requires a continuous period of on-site activity before cleanup goals are achieved. These actions typically include the extraction and treatment of groundwater and monitoring actions.

Marsh: A type of wetland that does not contain peat moss deposits and is dominated by vegetation. Marshes may be either fresh or saltwater and tidal or non-tidal [see Wetland].

Migration: The movement of oil, gas, contaminants, water, or other liquids through porous and permeable soils or rock.

Mill Tailings: [See Mine Tailings].

Mine Tailings: A fine, sandy residue left from mining operations. Tailings often contain high concentrations of lead, uranium, and arsenic or other heavy metals.

Mitigation: Actions taken to improve site conditions by limiting, reducing, or controlling toxicity and contamination sources.

Modeling: A technique using a mathematical or physical representation of a system or theory that tests the effects that changes on system components have on the overall performance of the system.

Monitoring Wells: Special wells drilled at specific locations within, or surrounding, a hazardous waste site where groundwater can be sampled at selected depths and studied to obtain such information as the direction in which groundwater flows and the types and amounts of contaminates present.

National Priorities List (NPL): The EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term cleanup under Superfund. The EPA is required to update the NPL at least once a year.

Natural Attenuation: [See Attenuation].

Neutrals: Organic compounds that have a relatively neutral pH, complex structure and, due to their organic bases, are easily absorbed into the environment. Water is the most commonly known neutral, however, naphthalene, pyrene, and trichlorobenzene also are examples of neutrals.

Nitroaromatics: Common components of explosive materials, which will explode if activated by very high temperatures or pressures; 2,4,6-Trinitrotoluene (TNT) is a nitroaromatic.

Notice Letter: A General Notice Letter notifies the parties potentially responsible for site contamination of their possible liability. A Special Notice Letter begins a 60-day formal period of negotiation during which the EPA is not allowed to start work at a site or initiate enforcement actions against potentially responsible parties, although the EPA may undertake certain investigatory and planning activities.

The 60-day period may be extended if the EPA receives a good faith offer from the PRPs within that period. [See also Good Faith Offer].

On-Scene Coordinator (OSC): The predesignated EPA, Coast Guard, or Department of Defense official who coordinates and directs Superfund removal actions or Clean Water Act oil- or hazardous-spill corrective actions.

Operation and Maintenance: Activities conducted at a site after a cleanup action is completed to ensure that the cleanup or containment system is functioning properly.

Organic Chemicals/Compounds: Chemical substances containing mainly carbon, hydrogen, and oxygen.

Outfall: The place where wastewater is discharged into receiving waters.

Overpacking: Process used for isolating large volumes of waste by jacketing or encapsulating waste to prevent further spread or leakage of contaminating materials. Leaking drums may be contained within oversized barrels as an interim measure prior to removal and final disposal.

Pentachlorophenol (PCP): A synthetic, modified petrochemical that may be used as a wood preservative because of its toxicity to termites and fungi. It is a common component of creosotes and can cause cancer.

Perched (groundwater): Groundwater separated from another underlying body of groundwater by a confining layer, often clay or rock.

Percolation: The downward flow or filtering of water or other liquids through subsurface rock or soil layers, usually continuing downward to groundwater.

Pesticide: A substance or mixture of substances intended to prevent, destroy, or repel any pest. If misused, pesticides can accumulate in the foodchain and contaminate the environment.

Petrochemicals: Chemical substances produced from petroleum in refinery operations and as fuel oil residues. These include fluoranthene, chrysene, mineral spirits, and refined oils. Petrochemicals are the bases from which volatile organic compounds (VOCs), plastics, and many pesticides are made. These chemical substances often are toxic to humans and the environment.

Phenols: Organic compounds that are used in plastics manufacturing and are by-products of petroleum refining, tanning, textile, dye, and resin manufacturing. Phenols are highly poisonous.

Physical Chemical Separation: The treatment process of adding a chemical to a substance to separate the compounds for further treatment or disposal.

Pilot Testing: A small-scale test of a proposed treatment system in the field to determine its ability to clean up specific contaminants.

Plugging: The process of stopping the flow of water, oil, or gas into or out of the ground through a borehole or well penetrating the ground.

Plume: A body of contaminated groundwater flowing from a specific source. The movement of the groundwater is influenced by such factors as local groundwater flow patterns, the character of the aquifer in which groundwater is contained, and the density of contaminants [see Migration].

Pollution: Generally, the presence of matter or energy whose nature, location, or quantity produces undesired health or environmental effects.

Polycyclic Aromatic Hydrocarbons or Polyaromatic Hydrocarbons (PAHs): PAHs, such as pyrene, are a group of highly reactive organic compounds found in motor oil. They are a common component of creosotes and can cause cancer.

Polychlorinated Biphenyls (PCBs): A group of toxic chemicals used for a variety of purposes including electrical applications, carbonless copy paper, adhesives, hydraulic fluids, microscope immersion oils, and caulking compounds. PCBs also are produced in certain combustion processes. PCBs are extremely persistent in the environment because they are very stable, non-reactive, and highly heat resistant. Chronic exposure to PCBs is believed to cause liver damage. It also is known to bioaccumulate in fatty tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

Polynuclear Aromatic Hydrocarbons (PNAs): PNAs, such as naphthalene, and biphenyls, are a group of highly reactive organic compounds that are a common component of creosotes, which can be carcinogenic.

Polyvinyl Chloride (PVC): A plastic made from the gaseous substance vinyl chloride. PVC is used to make pipes, records, raincoats, and floor tiles. Health risks from high concentrations of vinyl chloride include liver cancer and lung cancer, as well as cancer of the lymphatic and nervous systems.

Potable Water: Water that is safe for drinking and cooking.

Potentially Responsible Parties (PRPs): Parties associated with a Superfund site who may be liable for the cost of remedying the release of hazardous substances. This may include owners or operators of the site or transporters who disposed of materials at the site. PRPs may admit liability, or liability may be determined by a court of law. PRPs may sign a Consent Decree or Administrative Order on Consent to participate in the site cleanup without admitting liability.

Precipitation: The removal of solids from liquid waste so that the solid and liquid portions can be disposed of safely; the removal of particles from airborne emissions. Electrochemical precipitation is the use of an anode or cathode to remove the hazardous chemicals. Chemical precipitation involves the addition of some substance to cause the solid portion to separate.

Preliminary Assessment: The process of collecting and reviewing available information about a known or suspected waste site or release to determine if a threat or potential threat exists.

Pump and Treat: A groundwater cleanup technique involving the extracting of contaminated groundwater from the subsurface and the removal of contaminants, using one of several treatment technologies.

Radionuclides: Elements, including radium and uranium-235 and -238, which break down and produce radioactive substances due to their unstable atomic structure. Some are man-made, and others are naturally occurring in the environment. Radon, the gaseous form of radium, decays to form alpha particle radiation, which cannot be absorbed through skin. However, it can be inhaled, which allows alpha particles to affect unprotected tissues directly and thus cause cancer. Radiation also occurs naturally through the breakdown of granite.

RCRA: [See Resource Conservation and Recovery Act].

Recharge Area: A land area where rainwater saturates the ground and soaks through the earth to reach an aquifer.

Record of Decision (ROD): A public document that explains which cleanup alternative(s) will be used to clean up sites listed on the NPL. It is based on information generated during the remedial investigation and feasibility study and consideration of public comments and community concerns.

Recovery Wells: Wells used to withdraw contaminants or contaminated groundwater.

Recycle: The process of minimizing waste generation by recovering usable products that might otherwise become waste.

Remedial Action (RA): The actual construction or implementation phase of a Superfund site cleanup following the remedial design [see Cleanup].

Remedial Design: A phase of site cleanup where engineers design the technical specifications for cleanup remedies and technologies.

Remedial Investigation: An in-depth study designed to gather the data necessary to determine the nature and extent of contamination at a Superfund site, establish the criteria for cleaning up the site, identify the preliminary alternatives for cleanup actions, and support the technical and cost analyses of the alternatives. The remedial investigation is usually done with the feasibility study. In this volume, the remedial investigation is referred to as a site study [see also Feasibility Study].

Remedial Project Manager (RPM): The EPA or State official responsible for overseeing cleanup actions at the site.

Remedy Selection: The selection of the final cleanup strategy for the site. At the few sites where the EPA has determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No Action" remedy is selected [see Record of Decision].

Removal Action: Short-term immediate actions taken to address releases of hazardous substances [see Cleanup].

Residual: The amount of a pollutant remaining in the environment after a natural or technological process has taken place, e.g., the sludge remaining after initial wastewater treatment, or the particulates remaining in air after the air passes through a scrubber.

Resource Conservation and Recovery Act (RCRA): A Federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

Retention Pond: A small body of liquid used for disposing of wastes and containing overflow from production facilities. Sometimes retention ponds are used to expand the capacity of such structures as lagoons the store waste.

Runoff: The discharge of water over land into surface water. It can carry pollutants from the air and land and spread contaminants from its source.

Scrubber: An air pollution control device that uses a spray of water or reactant or a dry process to trap pollutants in emissions.

Sediment: The layer of soil, sand, and minerals at the bottom of surface waters such as streams, lakes, and rivers, that absorbs contaminants.

Seeps: Specific points where releases of liquid, usually leachate, form from waste disposal areas, particularly along the lower edges of landfills.

Seepage Pits: A hole, shaft, or cavity in the ground used for the storage of liquids, usually in the form of leachate, from waste disposal areas. The liquid gradually leaves the pit by moving through the surrounding soil.

Septage: Residue remaining in a septic tank after the treatment process.

Sinkhole: A hollow depression in the land surface in which drainage collects; associated with underground caves and passages that facilitate the movement of liquids.

Site Characterization: The technical process used to evaluate the nature and extent of environmental contamination, which is necessary for choosing and designing cleanup measures and monitoring their effectiveness.

Site Inspection: The collection of information from a hazardous waste site to determine the extent and severity of hazards posed by the site. It follows, and is more extensive than, a preliminary assessment. The purpose is to gather information necessary to score the site, using the Hazard Ranking System, and to determine if the site presents an immediate threat that requires a prompt removal action.

Slag: The fused refuse or dross separated from a metal in the process of smelting.

Sludge: Semi-solid residues from industrial or water treatment processes that may be contaminated with hazardous materials.

Slurry Wall: Barriers used to contain the flow of contaminated groundwater or subsurface liquids. Slurry walls are constructed by digging a trench around a contaminated area and filling the trench with an impermeable material that prevents water from passing through it. The groundwater or contaminated liquids trapped within the area surrounded by the slurry wall can be extracted and treated.

Smelter: A facility that melts or fuses ore, often with an accompanying chemical change, to separate the metal. Emissions from smelters are known to cause pollution.

Soil Gas: Gaseous elements and compounds that occur in the small spaces between particles of soil. Such gases can move through or leave the soil or rock, depending on changes in pressure.

Soil Vapor Extraction: A treatment process that uses vacuum wells to remove hazardous gases from soil.

Soil Washing: A water-based process for mechanically scrubbing soils in-place to remove undesirable materials. There are two approaches: dissolving or suspending them in the wash solution for later treatment by conventional methods, and concentrating them into a smaller volume of soil through simple particle size separation techniques [see Solvent Extraction].

Stabilization: The process of changing an active substance into inert, harmless material, or physical activities at a site that act to limit the further spread of contamination without actual reduction of toxicity.

Solidification/Stabilization: A chemical or physical reduction of the mobility of hazardous constituents. Mobility is reduced through the binding of hazardous constituents into a solid mass with low permeability and resistance to leaching.

Solvent: A substance capable of dissolving another substance to form a solution. The primary uses of industrial solvents are as cleaners for degreasing, in paints, and in pharmaceuticals. Many solvents are flammable and toxic to varying degrees.

Solvent Extraction: A means of separating hazardous contaminants from soils, sludges, and sediment, thereby reducing the volume of the hazardous waste that must be treated. It generally is used as one in a series of unit operations. An organic chemical is used to dissolve contaminants as opposed to water-based compounds, which usually are used in soil washing.

Sorption: The action of soaking up or attracting substances. It is used in many pollution control systems.

Special Notice Letter: [See Notice Letter].

Stillbottom: Residues left over from the process of recovering spent solvents.

Stripping: A process used to remove volatile contaminants from a substance [see Air Stripping].

Sumps: A pit or tank that catches liquid runoff for drainage or disposal.

Superfund: The program operated under the legislative authority of the CERCLA and Superfund Amendments and Reauthorization Act (SARA) to update and improve environmental laws. The program has the authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health, welfare, or the environment. The "Superfund" is a trust fund that finances cleanup actions at hazardous waste sites.

Surge Tanks: A holding structure used to absorb irregularities in flow of liquids, including liquid waste materials.

Swamp: A type of wetland that is dominated by woody vegetation and does not accumulate peat moss deposits. Swamps may be fresh or saltwater and tidal or non-tidal [see Wetlands].

Thermal Treatment: The use of heat to remove or destroy contaminants from soil.

Treatability Studies: Testing a treatment method on contaminated groundwater, soil, etc., to determine whether and how well the method will work.

Trichloroethylene (TCE): A stable, colorless liquid with a low boiling point. TCE has many industrial applications, including use as a solvent and as a metal degreasing agent. TCE may be toxic to people when inhaled, ingested, or through skin contact and can damage vital organs, especially the liver [see Volatile Organic Compounds].

Unilateral [Administrative] Order: [see Administrative Order].

Upgradient: An upward hydrologic slope; demarks areas that are higher than contaminated areas and, therefore, are not prone to contamination by the movement of polluted groundwater.

Vacuum Extraction: A technology used to remove volatile organic compounds (VOCs) from soils. Vacuum pumps are connected to a series of wells drilled to just above the water table. The wells are sealed tightly at the soil surface, and the vacuum established in the soil draws VOC-contaminated air from the soil pores into the well, as fresh air is drawn down from the surface of the soil.

Vegetated Soil Cap: A cap constructed with graded soils and seed for vegetative growth, to prevent erosion [see Cap].

Vitrification: The process of electrically melting wastes and soils or sludges to bind the waste in a glassy, solid material more durable than granite or marble and resistant to leaching.

Volatile Organic Compounds (VOCs): VOCs are manufactured as secondary petrochemicals. They include light alcohols, acetone, trichloroethylene, perchloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and methylene chloride. These potentially toxic chemicals are used as solvents, degreasers, paints, thinners, and fuels. Because of their volatile nature, they readily evaporate into the air, increasing the potential exposure to humans. Due to their low water solubility, environmental persistence, and widespread industrial use, they are commonly found in soil and groundwater.

Waste Treatment Plant: A facility that uses a series of tanks, screens, filters, and other treatment processes to remove pollutants from water.

Wastewater: The spent or used water from individual homes or industries.

Watershed: The land area that drains into a stream or other water body.

Water Table: The upper surface of the groundwater.

Weir: A barrier to divert water or other liquids.

Wetland: An area that is regularly saturated by surface or groundwater and, under normal circumstances, is capable of supporting vegetation typically adapted for life in saturated soil conditions. Wetlands are critical to sustaining many species of fish and wildlife. Wetlands generally include swamps, marshes, and bogs. Wetlands may be either coastal or inland. Coastal wetlands have salt or brackish (a mixture of salt and fresh) water, and most have tides, while inland wetlands are non-tidal and freshwater. Coastal wetlands are an integral component of estuaries.

Wildlife Refuge: An area designated for the protection of wild animals, within which hunting and fishing are either prohibited or strictly controlled.

Some Common Contaminants at NPL Sites

Contaminant Category	Example Chemical Types	Sources	Potential Health Threats*
Heavy Metals	Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Chromium, Lead, Manganese, Mercury, Nickel, Silver, Selenium, Zinc	Electroplating, batteries, paint pigments, photography, smelting, thermometers, fluorescent lights, solvent recovery	Tumors, cancers, and kidney, brain, neurological, bone and liver damage
Volatile Organic Compounds (VOCs)	Trichloroethylene (TCE), Perchloroethylene (PCE), Acetone, Benzene, Ketone, Methyl chloride, Toluene, Vinyl Chloride, Dichlorethylene	Solvents and degreasers, gasoline octane enhancers, oils and paints, dry cleaning fluids, chemical manufacturing.	Cancers, kidney and liver damage, impairment of the nervous system resulting in sleepiness and headaches, leukemia
Pesticides/ Herbicides	Chlordane, DDT 4-4, DDE, Heptachlor, Aldrin, Endrin, Atrazine, Dieldrin, Toxaphene	Agricultural applications, pesticide and herbicide production	Various effects ranging from nausea to nervous disorders. Dioxin is a common by-product of the manufacture of pesticides and is both highly toxic and a suspected carcinogen.
Polychlorinated biphenyls (PCBs)	—	Electric transformers and capacitors, insulators and coolants, adhesives, caulking compounds, carbonless copy paper, hydraulic fluids.	Cancer and liver damage.
Creosotes	Polyaromatic hydrocarbons (PAHs), Polynuclear aromatics (PNAs), Phenolic Tars, Pentachlorophenol (PCP)	Wood preserving, fossil fuel combustion	Cancers and skin ulcerations with prolonged exposure
Radiation (Radionuclides)	Radium-226, Radon, Uranium-235, Uranium-238	Mine tailings, radium products, natural decay of granites	Cancer

Sources: *Toxic Chemicals—What They Are, How They Affect You (EPA, Region 5)*
Glossary of Environmental Terms (EPA, 1988)

**The potential for risk due to these contaminants is linked to a number of factors; for example, the length and level of exposure and environmental and health factors such as age.*

*U.S. G.P.O.:1993-341-835:81024