



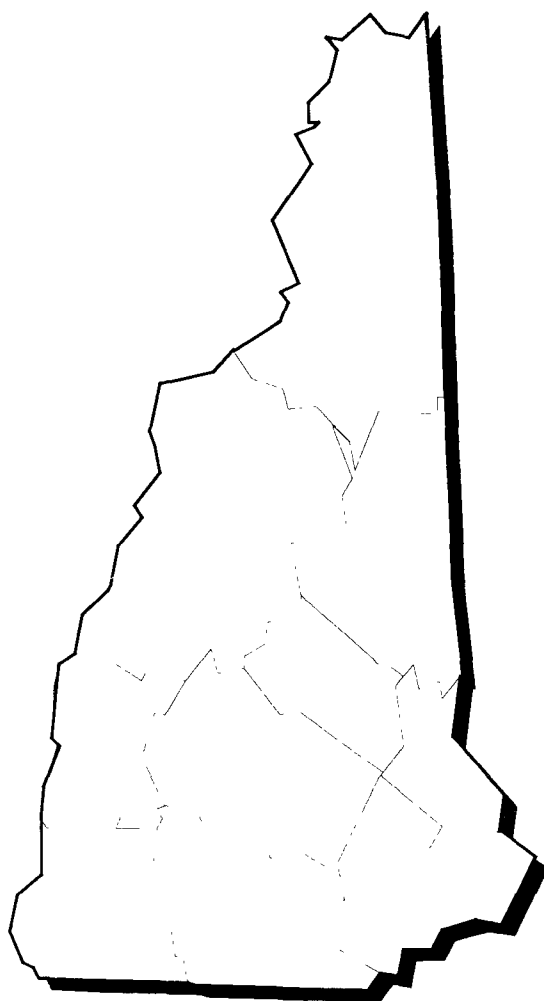
United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(5102 G)

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December 1992
PB93-963228

SUPERFUND:

**Progress at
National
Priority
List Sites**



NEW HAMPSHIRE 1992 UPDATE



Printed on Recycled Paper

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

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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-

INTRODUCTION

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.

INTRODUCTION

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



Superfund employee removing drums from a Superfund site.

Program had logged more than 2,300 removal completions since Superfund was established.

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.

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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.

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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.

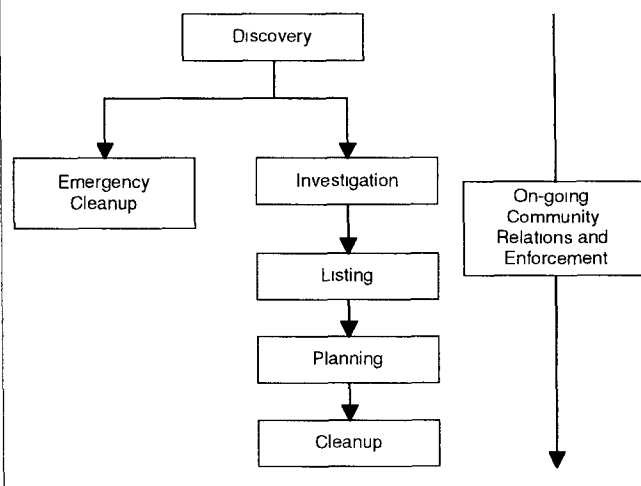
Superfund's cleanup process is arduous and exacting. It requires the best efforts of hundreds of experts in science and engineering, public health, administration and management, law, and many other fields.

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:

- 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.
- 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;

The Superfund Process



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

SITE NAME STATE EPA ID# ABC0000000		EPA REGION XX COUNTY NAME LOCATION Other Names:
NPL LISTING HISTORY Provides the dates when the site was Proposed, made Final, and Deleted from the NPL.	Site Description	A
	Site Responsibility:	NPL Listing History Proposed XX/XX/XX Final XX/XX/XX
SITE RESPONSIBILITY Identifies the Federal, State, and/or potentially responsible parties taking responsibility for cleanup actions at the site.	Threats and Contaminants	B
	Cleanup Approach	C
ENVIRONMENTAL PROGRESS Summarizes the actions to reduce the threats to nearby residents and the surrounding environment and the progress towards cleaning up the site.	Response Action Status	D
	Site Facts:	E
	Environmental Progress	
Site Repository		

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.



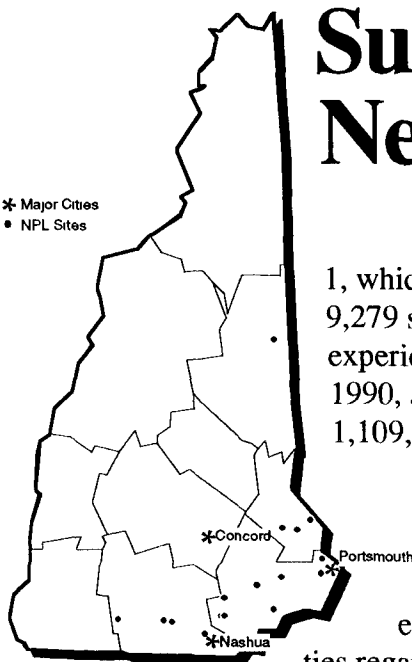
Cleanup Ongoing indicates that the selected cleanup remedies for the contaminated site, or part of the site, currently are underway.



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

* Major Cities
• NPL Sites



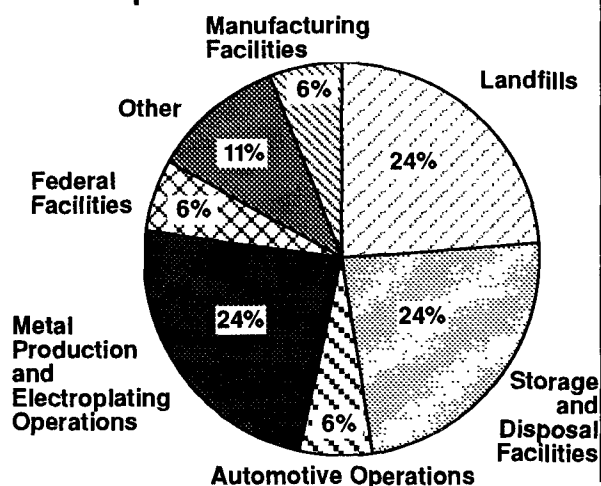
Superfund Activities in New Hampshire

The State of New Hampshire is located within EPA Region 1, which includes the six States of New England. The State covers 9,279 square miles. According to the 1990 Census, New Hampshire experienced a 21 percent increase in population between 1980 and 1990, and is ranked fortieth in U.S. population with approximately 1,109,000 residents.

The New Hampshire Hazardous Waste Laws, enacted in 1981 and most recently amended in 1990, establish the Hazardous Waste Cleanup Fund and provide enforcement authority for site cleanup. The statute authorizes the State to compel polluters responsible for site contamination to perform cleanup activities regardless of fault. The State also may issue subpoenas and criminal penalties; require site access and information; recover State costs for response activities; and place a first priority lien on real property, on business revenues generated from the real property, and on all personal property where the hazardous waste and materials are located. In addition to the required 10 percent contribution from the State under the Federal Superfund program, the Fund is used for emergency response, removals, long-term cleanup actions, and other actions that constitute adequate, safe containment and cleanup, as well as grants to local governments. Currently, 16 sites in the State of New Hampshire have been listed as final on the NPL. One new site was proposed for listing in 1992.

The Department of Environmental Services implements the Superfund Program in the State of New Hampshire

Activities responsible for hazardous waste contamination in the State of New Hampshire include:



Facts about the 17 NPL sites in New Hampshire:



Immediate Actions (such as removing hazardous substances or restricting site access) were performed at 13 sites.



Five sites endanger sensitive environments.

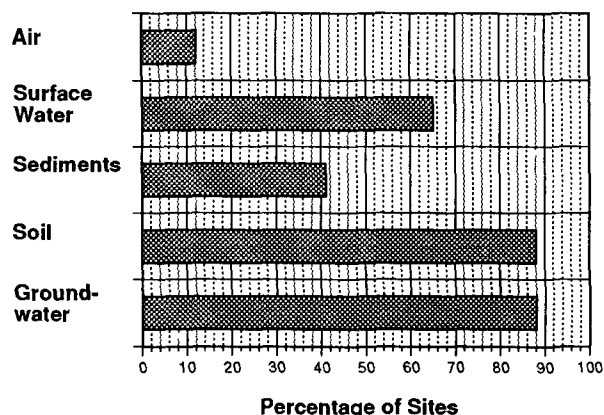


Sixteen sites are located near residential areas.

NEW HAMPSHIRE

Most Sites Have Multiple Contaminants and Contaminated Media:

Media Contaminated at Sites



Contaminants Found at Sites

Percentage of Sites	
VOCs	100%
Heavy Metals	71%
PCBs	24%
Acids	18%
Creosotes	12%
Petrochemicals/Explosives	6%

The Potentially Responsible Party Pays...

In the State of New Hampshire, potentially responsible parties are paying for or conducting cleanup activities at nine sites.

For Further Information on NPL Sites and Hazardous Waste Programs in the State of New Hampshire Please Contact:

☎ EPA Region 1 Superfund Community Relations Section	For information concerning community involvement	(617) 565-2713
☎ National Response Center	To report a hazardous waste emergency	(800) 424-8802
☎ Department of Environmental Sciences: Waste Management Division	For information about the State's responsibility in the Superfund Program	(603) 271-2908
☎ EPA Region 1 Superfund Office: Waste Management Division	For information about the Regional Superfund Program	(617) 573-5707
☎ 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

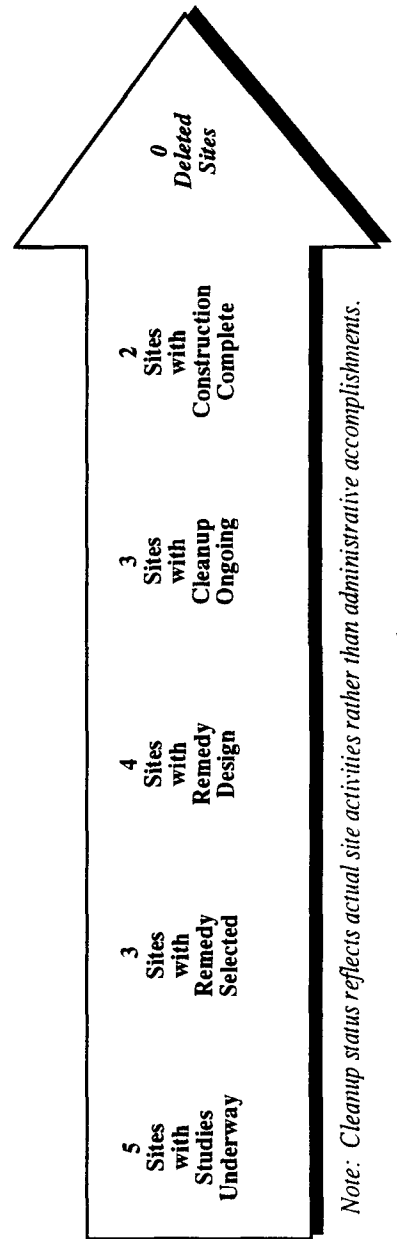
determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No Action" remedy has been selected. In these cases, the arrows are discontinued at the "Remedy Selection" step and resume 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 New Hampshire

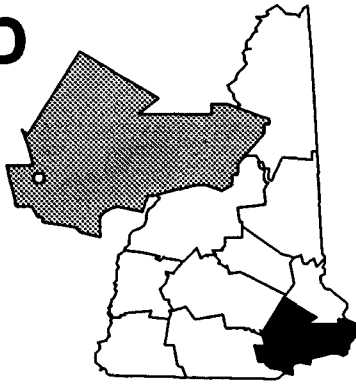
Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
AUBURN ROAD LANDFILL	ROCKINGHAM	Final	09/01/83	⇨	⇨	⇨	⇨	⇨		
COAKLEY LANDFILL	ROCKINGHAM	Final	06/01/86	⇨	⇨	⇨				
DOVER MUNICIPAL LANDFILL	STRAFFORD	Final	09/01/83		⇨	⇨				
FLETCHER'S PAINT WORKS & STORAGE	HILLSBOROUGH	Final	03/31/89	⇨	⇨					
KEARSARGE METALLURGICAL CORP.	CARROLL	Final	09/01/84	⇨	⇨	⇨	⇨			
KEEFE ENVIRONMENTAL SERVICES	ROCKINGHAM	Final	09/08/83	⇨	⇨	⇨	⇨	⇨		
MOTTOLO PIG FARM	ROCKINGHAM	Final	07/01/87	⇨	⇨	⇨	⇨			
NEW HAMPSHIRE PLATING COMPANY	HILLSBOROUGH	Proposed	07/29/91	⇨	⇨					
OTTATI & GOSS/KINGSTON STEEL DRUM	ROCKINGHAM	Final	09/01/83	⇨	⇨	⇨	⇨	⇨		
PEASE AIR FORCE BASE	ROCKINGHAM	Final	02/21/90	⇨	⇨					
SAVAGE MUNICIPAL WATER SUPPLY	HILLSBOROUGH	Final	09/01/84	⇨	⇨	⇨				
SOMERSWORTH SANITARY LANDFILL	STRAFFORD	Final	09/08/83		⇨					
SOUTH MUNICIPAL WATER SUPPLY WELL	HILLSBOROUGH	Final	09/01/84		⇨	⇨	⇨			
SYLVESTER	HILLSBOROUGH	Final	09/08/83	⇨	⇨	⇨	⇨	⇨	⇨	
TIBBETTS ROAD	STRAFFORD	Final	06/01/86	⇨	⇨					
TINKHAM GARAGE	ROCKINGHAM	Final	09/01/83	⇨	⇨	⇨	⇨			
TOWN GARAGE/RADIO BEACON	ROCKINGHAM	Final	03/31/89	⇨	⇨	⇨			⇨	



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

AUBURN ROAD LANDFILL NEW HAMPSHIRE

EPA ID# NHD980524086



EPA REGION 1
Rockingham County
Londonderry
2 miles north of Route 28
on Auburn Road

Site Description

The Auburn Road Landfill in Londonderry is a 200-acre site that consists of four separate disposal areas: the former Londonderry Town Dump, which operated during the 1960s and was the disposal site for over 1,000 drums of chemical waste; a tire disposal area, where tires and demolition debris and several hundred drums of chemical waste were dumped; a solid waste landfill, the largest disposal area, active until the entire site was closed in early 1980; and a septage lagoon, which is next to a mound of overflow waste from the tire dump. Most of the residents in the area depend on bedrock wells for their water supply. The State ordered the landfill closed early in 1980, after hazardous wastes were identified in soil, and toxic organics were found in surface water and groundwater. In 1986, the EPA determined that contaminated groundwater flowed off site toward the drinking water supply wells at the Whispering Pines Mobile Home Park, and potentially to other private residential wells. The area surrounding the landfill is residential and commercial, and the 300 homes and 270 mobile homes within a 1-mile radius use groundwater as a primary source of drinking water. Approximately 1,000 people live within 3 miles of the site. Two unnamed streams drain from the site and flow into Cohas Brook, which in turn empties into the Merrimack River.

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

NPL LISTING HISTORY
Proposed Date: 12/01/82
Final Date: 09/01/83

Threats and Contaminants



The groundwater is contaminated with volatile organic compounds (VOCs) and inorganic chemicals. The soil also is contaminated with VOCs and inorganics, as well as polychlorinated biphenyls (PCBs) and pesticides. The fencing of the town dump, the tire dump, and solid waste areas decreases the likelihood of exposure to contaminated soils, although the areas adjacent to the fences are used for riding dirt bikes and horses. Exposure to contaminated groundwater has been eliminated at the present time because the municipal water supply was extended to local residents; however, bedrock fractures may promote migration of contaminants into off-site groundwater and present a potential threat to private wells outside the area. The site includes large areas of wetlands which are environmentally sensitive.

Cleanup Approach

The site is being addressed in four stages: initial actions and three long-term remedial phases focusing on providing a water supply, cleaning up the groundwater contamination, and capping the site.

Response Action Status



Initial Actions: The Federal Emergency Management Agency (FEMA) temporarily relocated 17 families beginning in early 1986. At that time, the EPA excavated 1,666 drums in three locations and then restored two of the excavated areas. Drums were consolidated, covered, and sampled prior to their disposal off site. A 24-hour security guard was on duty prior to disposal. The owner fenced the four disposal areas from 1987 to 1988 and posted warning signs. In 1988, the EPA excavated 360 drums from the tire dump.



Water Supply Line: In late 1987, the Town of Londonderry extended the current water service provided by the Manchester Water Works to 17 homes along Auburn Road and to 260 mobile homes in the Whispering Pines mobile home village. Nine thousand linear feet of water line were installed. Londonderry constructed and paid for the water supply line under an agreement with the EPA.



Groundwater: In 1989, the EPA selected cleanup technologies that specified the collection of contaminated groundwater through a series of shallow and deep bedrock wells and the use of groundwater collection trenches. Inorganic contamination is to be removed using chemical precipitation. Groundwater then will be treated for removal of organic contaminants using a combination of air stripping and, if necessary, carbon treatment. An engineering design for this remedy currently is underway and is planned for completion in 1993.



Cap: The EPA specified that a multi-layer cap be placed over the solid waste area, the town dump area, and the tire dump area to prevent the further spread of contaminants to the groundwater. A design for the cap currently is underway and is planned for completion in 1993.

Environmental Progress



The EPA, the FEMA, and the Town of Londonderry have acted to protect area residents from site contamination by relocating affected populations, erecting a fence to restrict site access, providing a safe water supply, and removing a large number of drums containing contaminants. The planned capping will prevent any further spread of contamination as the groundwater is cleaned up at the Auburn Road Landfill site.

Site Repository

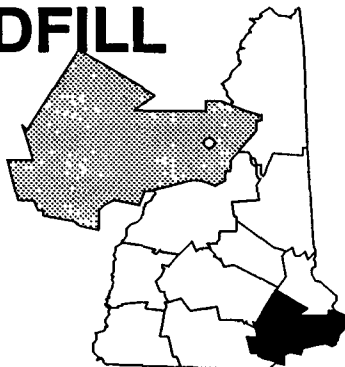


Leach Library, 276 Mamouth Road, Londonderry, NH 03053

COAKLEY LANDFILL

NEW HAMPSHIRE

EPA ID# NHD064424153



EPA REGION 1
Rockingham County
Greenland and North Hampton

Site Description

The Coakley Landfill site is a 92-acre parcel of land within the towns of Greenland and North Hampton, and is owned and operated by several municipalities. The landfill area encompasses 27 acres in the southern portion of the site. The site accepted municipal and industrial wastes from the Portsmouth area between 1972 and 1982 and incinerator residue from the Incineration Recovery Plant Refuse to Energy Project between 1982 and 1985. The primary source of contamination is the landfill itself. Volatile organic compounds (VOCs) and metals are the predominant contaminants found. On- and off-site surface water and groundwater are contaminated. The site is located on a groundwater/surface water divide, and residential wells to the south, southeast, and northeast of the landfill are contaminated with low levels of VOCs. Public water service has been extended to the areas with contaminated wells by local communities. Approximately 79,300 people are served by wells within 3 miles of the site. There also are several small commercial facilities, motels, and restaurants nearby.

Site Responsibility: The site is being addressed through a combination of Federal, State and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 10/01/84
Final Date: 06/01/86

Threats and Contaminants



On-site groundwater is contaminated with arsenic, phenol, and methyl ethyl ketones; off-site groundwater is contaminated with heavy metals including arsenic, chromium, and lead and VOCs including benzene and methyl ethyl ketones. On-site sediments are contaminated with arsenic and lead. Stream sediments contain contamination from arsenic and VOCs. Leachate contamination at the site includes VOCs, tetrahydrofuran, and ketones. Potential use of groundwater as a water supply is the main threat to human health.

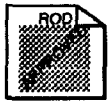
Cleanup Approach

The site is being addressed in three stages: initial actions and two long-term remedial phases focusing on source control and cleanup of off-site groundwater.

Response Action Status



Initial Actions: In 1989, North Hampton extended a municipal water line to residents who had been supplied by 13 private wells that were contaminated with VOCs. The State set up an early warning system to detect well contamination in the entire area. Most area residents now have uncontaminated water.



Source Control: An investigation was conducted by the State from 1986 to 1987. The goals of the field work were to characterize the hydrogeologic conditions at the site, including an estimate of the total area of the landfill and soil deposits, hydraulic properties of bedrock and selected surface streams, and to identify pathways for contaminant migration from the site. The State completed the study in 1990. Based on the results of the study, a cleanup remedy was selected, which includes consolidating approximately 2,000 cubic yards of wetland sediments; consolidating approximately 30,000 cubic yards of on-site solid waste; fencing and capping the landfill; collecting and treating landfill gases by thermal destruction; extracting groundwater and treating it with a combination of chemical, biological, and physical processes; and long-term monitoring and institutional controls. Design of these remedies is expected to begin in late 1992.



Off-site Groundwater: The EPA began a study in 1990 on the migration of contaminants into off-site groundwater and the ecological effects of the site contamination. This study is scheduled for completion in early 1994.

Site Facts: The State issued a Consent Order requiring the owner to accept only incinerator ash from the Refuse to Energy Project in 1983. As of February 1990, notices have been sent to 60 parties potentially responsible for the site contamination.

Environmental Progress



The provision of an alternate drinking water source has reduced the potential for exposure to contamination, making the Coakley Landfill safer while it awaits further cleanup activity.

Site Repository

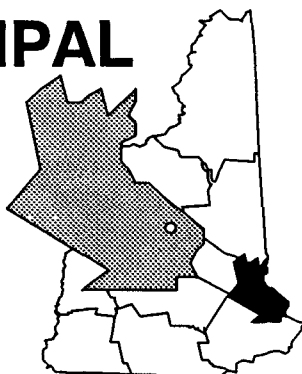


North Hampton Public Library, 235 Atlantic Avenue, North Hampton, NH 03862

DOVER MUNICIPAL LANDFILL

NEW HAMPSHIRE

EPA ID# NHD980520191



EPA REGION 1

Strafford County
In Mallego Plains section of Dover

Site Description

The Dover Municipal Landfill is a 55-acre inactive landfill located on Tolend Road in the Mallego Plains section, in the western corner of Dover. Owned and operated by the City since 1960, the landfill initially accepted domestic refuse from Dover, but by the 1960s, it took in drums and loose trash from both Dover and Madbury. Buried materials include leather-tanning wastes, organic solvents, municipal trash, and sludge from the Dover wastewater plant. It is believed that drums were no longer accepted after 1975. In 1977, the State installed monitoring wells around the area and found that organic solvents were entering groundwater, posing a potential threat to public water supplies for Dover and Portsmouth. The State and the Dover City Council closed the landfill in 1980. The site is in a residential area; the nearest home is 100 yards to the southeast. A nursing home is 2,500 feet away, and a prison and work farm are located nearby. There are 50 homes within 1 mile of the landfill, and the surrounding area is used for hunting and berry picking. Two water supplies are at risk, but currently are not contaminated: the Calderwood municipal well, 1/2 mile north, which supplies 20 percent of Dover's water; and Bellamy Reservoir, 1/3 mile south, which supplies Portsmouth, Newington, New Castle, Greenland, and portions of Rye, Madbury, and Durham. Leachate from the landfill is entering the Cocheco River, 400 feet away from the site at the closest point. Wetlands also exist near the site.

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

NPL LISTING HISTORY

Proposed Date: 12/01/82

Final Date: 09/01/83

Threats and Contaminants



Air is polluted with volatile organic compounds (VOCs), which have been detected above background levels near leachate streams on the site. The groundwater is contaminated with VOCs, acid and base/neutral extractable organic compounds, and heavy metals. Two residential wells have been contaminated with organics from the site; however, water currently is not being consumed from them. Sediments are contaminated with heavy metals including arsenic, chromium, and lead. Soil contamination includes polyaromatic hydrocarbons (PAHs) off site and heavy metals, including arsenic, chromium, and lead both on and off site. The Cocheco River receives leachate; VOCs have also been detected in the surface water. People on or near the site could be exposed to contaminants that have evaporated into the air. People using the site for recreational purposes could come in direct contact with, accidentally ingest, or inhale contaminated dust. Drinking contaminated groundwater and swimming or wading in the contaminated Cocheco River also could expose people to harmful chemicals. Nearby wetlands are potentially threatened by site contamination.

Cleanup Approach

The site is being addressed in a single long-term remedial phase aimed at cleanup of contamination at the entire site.

Response Action Status



Entire Site: In 1984, the State began a study of the site to assess the nature and extent of contamination. The parties potentially responsible for the site contamination assumed responsibility for the study and strategies, the EPA selected a final cleanup remedy for the site in 1991. Remedies include recontouring, capping, treating leachate, extracting and treating the southern plume of contaminated groundwater, and allowing natural attenuation of the eastern plume. Design activities are scheduled to begin in mid-1992.

Site Facts: The State and City Council closed the landfill in 1980. The EPA and the potentially responsible parties entered into an Administrative Agreement to complete a feasibility study of site cleanup strategies.

Environmental Progress



Following the listing of this site on the NPL, the EPA determined that the Dover Municipal Landfill site currently poses no immediate threat to public health or the environment while final remedies are being planned.

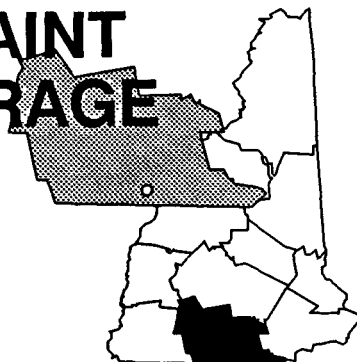
Site Repository



Dover Public Library, Carnegie Building, 73 Locust Street, Dover, NH, 03820

FLETCHER'S PAINT WORKS & STORAGE NEW HAMPSHIRE

EPA ID# NHD001079649



EPA REGION 1

Hillsborough County
21 Elm Street in Milford

Other Names:
Fletcher Paint on Elm Street
Fletcher Storage Facility
on Mill Street

Site Description

This 2-acre site consists of two neighboring lots owned by Fletcher's Paint Works: a manufacturing plant/retail outlet on Elm Street and a storage area 700 feet south on Mill Street. Fletcher's Paint Works has manufactured and sold paints and stains for residential use at its plant since 1949. Bulk paint pigments are stored at the warehouse. The owner stored several hundred drums behind the plant, and naphtha and mineral spirits are stored in unlined underground tanks. Contaminants from the storage facility were found in a drainage ditch on the adjoining Hampshire Paper Co. property; this ditch was made a part of the site. The State inspected the facility in 1982 in response to a complaint and found 800 drums of alkyd resins and 21 drums of solvent. Leaking and open drums, as well as stained soil, were observed. An EPA investigation of the site was prompted by discovery of contamination of the adjacent Keyes municipal water supply well. Drums were removed from the Elm Street facility, and a synthetic liner and clean fill have been placed over the high levels of polychlorinated biphenyls (PCBs) at the Mill Street and Elm Street locations. The site is situated in a densely populated residential/commercial area approximately 1/4 mile from the downtown area. Approximately 11,400 people within 3 miles obtain drinking water from public and private wells. There are three schools within 1/2 mile of the site. The site is adjacent to and upgradient from the Souhegan River, which is used for recreational activities.

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

NPL LISTING HISTORY

Proposed Date: 06/21/88
Final Date: 03/31/89

Threats and Contaminants



Air contaminants consist of volatile organic compounds (VOCs). Bagged asbestos is being stored on the site and the drummed wastes are contaminated with VOCs, base/neutral solids and liquids, and PCB liquids. Sediments from the Souhegan River, upgradient and adjacent to the site, and surface waters contain VOC contaminants, including benzene and toluene, as well as heavy metals including nickel and lead, and PCBs. Soil contamination consists of VOCs, heavy metals such as barium, lead, and nickel and PCBs in on-site soils, as well as organic solvents. The plant is easily accessible and is adjacent to a road leading to a popular recreation area. People on or near the site could risk exposure to contaminants by accidentally ingesting, coming into direct contact with, or inhaling chemicals in the air, water, soil, or sediments.

Cleanup Approach

The site is being addressed in two stages: initial actions and a single long-term remedial phase, with major attention being given to the soil and groundwater cleanup.

Response Action Status



Initial Actions: The EPA mounted an emergency removal effort at the site in 1988. Twelve bags of asbestos were contained and sent to an EPA approved landfill. Soil and air samples were taken. Air monitoring was conducted regularly during the cleanup activities. The EPA lined the surface of the PCB-contaminated lot with a synthetic liner, covered it with 6 to 8 inches of gravel, and topped it with 1 1/2 inches of stone dust. Safe drummed materials were left on site, but hazardous ones were numbered and consolidated, packed in new containers, and sent to a federally approved landfill. In 1991, a large portion of the Elm Street facility was made secure by fencing while inside the facility containers of lab chemicals were retrieved.



Soil and Groundwater: The EPA is conducting an intensive study of soil and groundwater contamination at the site and will recommend cleanup strategies. The investigation is expected to be completed in 1993, and a final remedy selection will be made at that time.

Environmental Progress



With the cleanup actions described above, the EPA has greatly reduced the potential for accidental soil and dust exposure at both Fletcher Paint Works & Storage locations. Upon completion of the soil and groundwater cleanup, contamination levels will be reduced to meet established health and ecological standards for the site.

Site Repository



Wadleigh Memorial Library, 49 Nashua Street, Milford, NH 03055

KEARSARGE METALLURGICAL CORP.

NEW HAMPSHIRE

EPA ID# NHD062002001



EPA REGION 1

Carroll County

Conway

Site Description

Precision stainless castings were manufactured on this 9-acre site from 1964 until Kearsarge Metallurgical Corporation went out of business in 1982. Of the 9 acres, Kearsarge owned 5; the 4 remaining acres have different ownership but are included within the site boundaries. The wastes produced from the processes of making the casts (casting, cleaning, finishing, and pickling) initially were disposed of on site. During the 1970s and 1980s some of these wastes were drummed and stored on site. A large, 8-foot-high pile of approximately 4,250 cubic yards of solid wastes is located behind a foundry building is surrounded by a chain link fence. This waste pile contains ceramic sand, scrap metal, rusted drums, and various other refuse from foundry operations and extends across the Kearsarge property line. The waste pile is surrounded by a chain link fence. A smaller pile of approximately 400 cubic yards of solid wastes is also located on the site. The closest drinking water wells are two wells that supply water for the municipality and a water supply well for the residential area across the Pequawket Pond. The municipal wells are approximately 3,000 feet north of the site and supply most of the water to the area. Pequawket Pond marks the southern boundary of the site and is used for recreational purposes. Approximately 8,100 people live within 3 miles of the site, and 2,700 people within 3 miles of the site use groundwater in the area for drinking purposes.

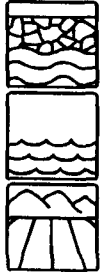
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 09/01/83

Final Date: 09/01/84

Threats and Contaminants



The groundwater is contaminated with volatile organic compounds (VOCs) including trichloroethane. Sediment samples taken from Pequawket Pond indicated the presence of some heavy metals. The soils in the woodlands area east of the site and in the drainage way area are contaminated with low levels of VOCs, primarily trichloroethane. Samples taken from Pequawket Pond indicate the presence of heavy metals including chromium, copper, and nickel. VOCs were detected in off-site surface water, primarily in the swampy area to the east of the site and the catch basins. There is a potential for exposure to VOCs by inhalation and ingestion of the dusts and dirt from the site. The potential exists for exposure to contaminants from the sediments and surface water in the swamp and drainage area, soils, the waste pile, and contaminated groundwater. The town's drinking water supply has not been shown to be contaminated; however, the possibility exists that the site may contribute groundwater to the municipal wells during periods of low recharge and high pumping rates. Residents have the potential for exposure through contact with the contaminated soils and surface water in the swamp areas east of the site and with the soils in the waste pile.

Cleanup Approach

The site is being cleaned up in three stages: initial actions and two long-term remedial phases focusing on cleanup of the waste pile and the entire site.

Response Action Status



Initial Actions: The site owner arranged for the removal of 300 drums from the site. In addition, 23 monitoring and observation wells were installed. The wells supplemented the eight monitoring wells previously installed by the State of New Hampshire. Seventeen test pits were excavated and solid waste samples were collected from drums. Three rounds of groundwater samples were also collected. Surface water and sediment samples were collected from the Pequawket Pond. In 1991, six additional drums and two pails of hazardous materials were removed from the site.



Waste Pile: Based on investigations by the state completed in 1990, the waste pile was surrounded by a chain link fence to secure the area. The site is undergoing further sampling of the contaminated waste prior to the start of cleanup. Cleanup actions are expected to begin in late 1992.



Entire Site: Based on investigations performed by the State of New Hampshire, the following remedy was selected: the removal of a septic tank and contents to an off-site incinerator for thermal destruction, excavation of approximately 250 cubic yards of contaminated leaching field soils, and excavation and off-site disposal of materials in the two waste piles. To control migration of contaminated groundwater, groundwater will be extracted and treated in a clarifier to remove heavy metals, then by air stripping to remove VOCs, followed by carbon adsorption of the airborne contaminants. Long-term monitoring of groundwater, soil, sediments, and surface water will be implemented to ensure the effectiveness of the remedy. The design for this remedy started in late 1991.

Site Facts: The State of New Hampshire filed a Civil Action in the Superior Court of Carroll County in 1983, asking for civil penalties for disposal of hazardous waste and ordering the owner to conduct a hydrogeological study.

Environmental Progress



The initial cleanup actions to remove contaminated drums and soil have greatly reduced the potential of exposure to hazardous substances, making the Kearsarge Metallurgical Corp. site safer while it awaits final cleanup activities.

Site Repository

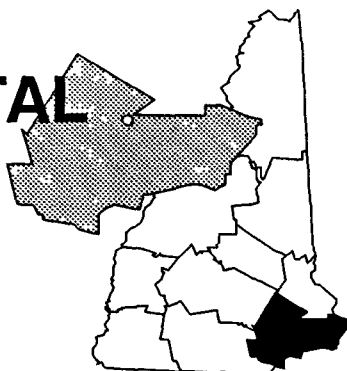


Conway Public Library, Main Street, Conway, NH 03813

KEEFE ENVIRONMENTAL SERVICES

NEW HAMPSHIRE

EPA ID# NHD092059112



EPA REGION 1

Rockingham County

Epping

Other Names:

KES

Site Description

The Keefe Environmental Services site, covering 7 acres in Rockingham County, was operated as a chemical waste storage facility from 1978 until 1981, when the company filed for bankruptcy. Waste storage containers that were present on site at that time included 4,100 drums, four 5,000-gallon and four 10,000-gallon aboveground storage tanks, and a 700,000-gallon synthetically lined lagoon. Solvents, acids, caustics, heavy metals, paint sludges, waste oils, and organic chemicals were disposed at the site. Soil and groundwater on and off site have been contaminated. The site is located in a State-protected watershed with wetland areas draining to the Piscassic River. The site is located in a semi-rural area. There are approximately 12 houses, with a population of 30 people, located along Exeter Road, south of the site. The groundwater aquifer is used as a water supply for ten residences located nearby and is the major source of drinking water for approximately 2,000 people within a 3-mile radius of the site. The Town of New Market has a water supply intake on the Piscassic River 7 miles downstream from the site.

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

NPL LISTING HISTORY

Proposed Date: 10/01/81

Final Date: 09/08/83

Threats and Contaminants



The groundwater at the site and off-site surface water are contaminated with volatile organic compounds (VOCs) including trichloroethane and benzene. Soils adjacent to the lagoon also were contaminated. The health threats to workers or others nearby consist of drinking the contaminated water or coming in direct contact with hazardous wastes left on the site.

Cleanup Approach

The site is being addressed up in three stages: initial actions to control site contamination and two long-term remedial phases focusing on cleanup of the lagoon and the groundwater.

Response Action Status



Initial Actions: In 1981, when the site operations ceased, the EPA declared an emergency at the site after determining that the waste lagoon was about to overflow. The EPA and the State initiated emergency actions that included drawing down the lagoon to lessen the threat of a spill. In continuing emergency actions during 1983 and 1984, the EPA and the State removed more than 4,000 drums, four 5,000-gallon aboveground tanks, and four 10,000-gallon aboveground tanks of hazardous waste.



Lagoon: The actions for cleanup of the lagoon included removal of the contents of the lagoon, lagoon liner, and the highly contaminated soil adjacent to the lagoon for disposal at a regulated facility. These cleanup activities were completed in 1984.



Groundwater: The cleanup activities chosen by the EPA for the groundwater include treatment by pumping the contaminated groundwater, filtering volatile contaminants by exposing the groundwater to air, and containing the airborne chemicals by carbon adsorption. Treated groundwater will be discharged to a groundwater recharge area adjacent to the wetland along the site border. The State completed the technical specifications and design for the selected remedy. Construction of the groundwater treatment facility began in 1990. Construction and operation and maintenance will be accomplished by the State. The cleanup action is scheduled to be complete in late 1993.

Site Facts: A Consent Agreement was entered into with 119 settling potentially responsible parties in 1986. The EPA filed suit against the non-settling parties in 1989. A Unilateral Administrative Order (UAO) was issued in 1990. In late 1991, the State took over the cleanup of the site from the potentially responsible parties.

Environmental Progress



The health risks and environmental threats posed by the hazardous materials at the Keefe Environmental Services site are being reduced as the cleanup work progresses. All direct contact threats from contaminated soil have been eliminated.

Site Repository

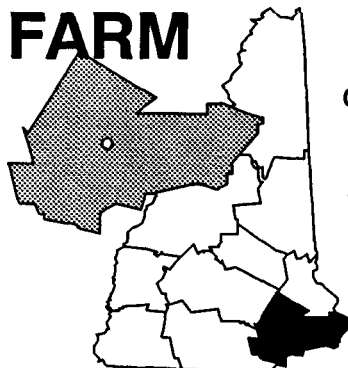


Harvey-Mitchell Memorial Library, 52 Main Street, Epping, NH 03042

MOTTOLO PIG FARM

NEW HAMPSHIRE

EPA ID# NHD980503361



EPA REGION 1
Rockingham County
Off Blueberry Hill Road in Raymond

Other Names:
Raymond Hazardous Waste Site

Site Description

The 50-acre Mottolo Pig Farm site is an abandoned pig farm located in an undeveloped wooded area. From 1975 to 1979, Richard Mottolo, the owner of the property, disposed of chemical manufacturing wastes from two companies in a 1/4-acre fill area adjacent to the piggery buildings. During this 4-year period, over 1,600 drums and pails of wastes, including organic compounds such as toluene, xylene, and methyl ethyl ketone, were disposed of at the site. State studies showed that groundwater beneath the site was contaminated and that contaminants were seeping into a brook that empties into the Exeter River. The Exeter River is a drinking water supply for the nearby communities of Exeter, Hampton, and Stratham. An estimated 1,600 people depend on groundwater within 3 miles of the site as a source of drinking water. There are approximately 200 single family residences within 1 mile of the site, with the nearest residence located approximately 150 yards from the source area. Residential areas border the site property on three sides.

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

NPL LISTING HISTORY Proposed Date: 04/01/85 Final Date: 07/01/87

Threats and Contaminants



Specific contaminants detected in groundwater include volatile organic compounds (VOCs) and heavy metals such as iron, manganese, arsenic, and zinc. Contaminated leachate from the site seeps into an adjacent brook. A small area of on-site soils contains VOCs. Threats to public health include drinking contaminated groundwater, coming in direct contact with or accidentally ingesting contaminated surface water or soils, and inhaling contaminated dusts.

Cleanup Approach

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

Response Action Status



Initial Actions: In 1980, under authority of the Clean Water Act, the EPA used emergency funds to excavate and store drums on site. From 1981 to 1982, the EPA removed drums and pails from the site along with 160 tons of contaminated soil, preventing further contamination of the soil and groundwater. EPA actions also included limiting site access, sampling and analyzing, strengthening berms, overpacking containers, and removing and disposing of materials. The EPA excavated observation pits to determine if surface water diversion was feasible.



Entire Site: Based on studies performed by the parties potentially responsible for contamination at the site, the EPA selected groundwater, surface water, and soil cleanup alternatives. The remedy selected includes installing a groundwater interceptor trench, sealing the ground surface in both the former drum disposal area and the southern boundary area with temporary caps, and installing and operating a vacuum extraction system to remove air and vapor phase VOCs from the soil gas. Groundwater will clean itself naturally after the sources of contamination are removed. Additional measures include installation of a security fence to limit access to contaminated areas, continued monitoring of groundwater and surface water, and institutional controls, which will restrict the use of contaminated groundwater and prevent disturbance of cleanup activities. Design of the cleanup remedies began in early 1992.

Site Facts: In 1988, the EPA and the K.J. Quinn Company signed an Administrative Consent Order, in which the company agreed to perform an investigation of the site under EPA monitoring. K.J. Quinn is one of several parties potentially responsible for contamination problems originating at the site.

Environmental Progress



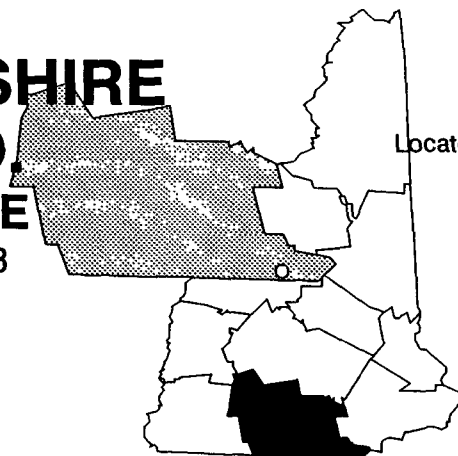
Initial actions to limit access to the site and to remove contaminated drums and soil have reduced all direct contact threats from contaminated soil while the Mottolo Pig Farm site awaits final cleanup actions.

Site Repository



Dudley-Tucker Library, 6 Epping Street, Raymond, NH 03077

**NEW HAMPSHIRE
PLATING CO.
NEW HAMPSHIRE**
EPA ID# NHD001091453



EPA REGION 1

Hillsborough County
Located on Wright Avenue in Merrimack

Site Description

From 1962 to 1985 the New Hampshire Plating Co. (NHPC), more than 13 acres in size, conducted electroplating operations. Four natural lagoons located on site were used for disposal of wastes and waste waters resulting from the electroplating operations. These lagoons were unlined and had no leachate detection or collection system. Because of the nature of operations on site, NHPC declared itself a hazardous waste disposal facility under Subtitle C of the Resource Conservation and Recovery Act (RCRA) in 1980. In 1982, the EPA and the New Hampshire Division of Environmental Services (NH DES) cited NHPC as having violated several RCRA requirements. A Notice of Violations and Order of Abatement were issued to NHPC by NH DES as a result. In 1983, a suit was filed against NHPC and decided in favor of NH DES. Operations at NHPC ceased in 1985 due to NHPC's financial inability to meet compliance standards and continue hydrogeologic investigations at the site. In 1987, the lagoon system underwent treatment, contaminated debris on site was removed, and the NHPC building was given a superficial cleaning. In 1990, contaminated sludge and soil at the property were solidified by EPA workers. These cleanup activities were performed by a contractor brought in by NH DES. Wells within 4 miles of the site are a drinking water source for an estimated 39,000 people; the closest of these wells is within a mile of the site. Groundwater below the site is shallow, flowing eastward to the Merrimack River and southward to Horseshoe Pond, both of which are within 1,000 feet of the site.

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

NPL LISTING HISTORY
Proposed Date: 07/29/91

Threats and Contaminants



Various volatile organic compounds (VOCs) were detected in the lagoon system through on-site monitoring wells. On-site soil, sludge, debris, drums, and plating tank liquids also were contaminated with VOCs and heavy metals.

Cleanup Approach

The site is being addressed in two stages: initial actions and one long-term remedial phase focusing on cleanup of contamination at the entire site.

Response Action Status



Immediate Actions: Cleanup activities that took place in 1987 included treatment of the lagoon system with lime and a sodium hypochlorite solution; removal of debris, drums, and plating tank liquids; and, a superficial cleaning of the NHPC building. From 1990 to 1991, the EPA removed, solidified, and consolidated sludges and soils from the three lagoons. To secure and restrict access to the site, a fence was built.



Entire Site: The EPA plans to conduct an investigation into the nature and extent of contamination at the site. Following the investigation, scheduled to start in late 1992, alternatives for final cleanup will be recommended.

Site Facts: This site is being proposed for listing on the NPL because the owner, NHPC, is unable to pay for cleanup activities. CERCLA/RCRA policy states that a site can be placed on the NPL if the owner demonstrates the inability to finance site cleanup activities.

Environmental Progress



Immediate actions such as treating the lagoon system, and removing contaminated debris, and fencing in the New Hampshire Plating Co. site have reduced the risk posed to the safety and health of nearby residents and workers while final cleanup remedies are being investigated.

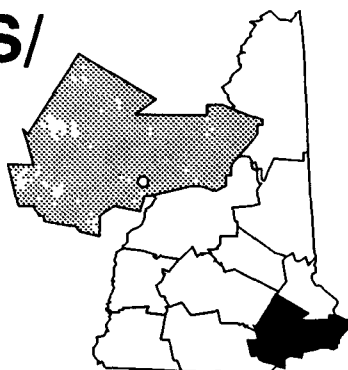
Site Repository



Not established.

OTTATI & GOSS/ KINGSTON STEEL DRUM NEW HAMPSHIRE

EPA ID# NHD990717647



EPA REGION 1

Rockingham County
Kingston

Other Names:
Kingston Steel Drum/
GRT Lakes Container

Site Description

The Ottati & Goss/Kingston Steel Drum site, situated on 35 acres, contains a 1-acre parcel in the southwestern portion that was leased and known as the Ottati & Goss (O&G) site and a 6-acre Great Lakes Container Corporation (GLCC) site consisting of a rectangular parcel bordered on the east by Route 125. From the late 1950s through 1967, Conway Barrel & Drum Company (CBD) owned the site and performed drum reconditioning operations on the parcel of land later owned by the Great Lakes Container Corporation. The reconditioning operations included caustic rinsing of drums and disposal of the rinse water in a dry well near South Brook. Kingston Steel Drum, the operator of the facility from 1967, continued the same operations as GLCC through 1973. South Brook and Country Pond became polluted, so CBD established leaching pits in an area removed from South Brook. The State's Water Supply and Pollution Control Commission reported on-site runoff and seepage from the leaching pits draining into South Brook and eventually into Country Pond, where fish kills occurred. Vegetation along South Brook died and swimmers experienced skin irritation. In 1973, International Mineral & Chemical Corporation (IMC), purchased the drum and reconditioning plant and operated it until 1976. In 1978, heavy sludges from the wash tank and from drainings, as well as residues from incinerator operations, were brought to the O&G site for processing. After O&G operations ceased in 1979, the New Hampshire Bureau of Solid Waste Management ordered the owners and operators not to restart operations and to remove approximately 4,400 drums that were at various stages of deterioration and were spilling organic compounds onto the ground. Approximately 450 people live within a 1-mile radius of the site. Most of these residents rely on bedrock wells for their water supply. An estimated 4,500 people live within 3 miles of the site. A marshy area lies downgradient of the site. The Powwow River and Country Pond, located nearby, are used for swimming and fishing.

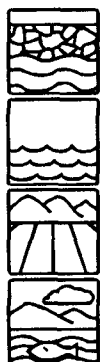
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/01/81

Final Date: 09/01/83

Threats and Contaminants



The groundwater, surface water, and soils are contaminated with volatile organic compounds (VOCs). The on-site soil also contains polychlorinated biphenyls (PCBs), metals, and acids and base/neutral compounds. Sampling conducted in 1989 indicated no current public threat was likely at the site; however, there is a potential for future threat due to contaminated groundwater off site. The overburden and bedrock aquifers are contaminated, but residential water supply wells show no contamination. Some PCBs have migrated into South Brook; however, no PCBs have been detected in the marsh or Country Pond water or sediments. Adjacent marshland is considered an environmentally sensitive area and could become contaminated.

Cleanup Approach

The site is being addressed in five stages: initial actions and four long-term remedial phases concentrating on soil excavation, groundwater cleanup at two separate areas, and soil cleanup.

Response Action Status



Initial Actions: Beginning in 1980, several actions were taken: the site was secured by fencing, leaking drums were packed and removed, and contaminated soils and debris were removed. About 12,800 tons of soil, drums, and metals were removed, plus 101,700 tons of flammable sludge, 6,000 cubic yards of flammable liquid, and other materials.



Soil Excavation: Based on the results of the site investigation conducted by the EPA, the selected remedy was to excavate and treat the contaminated soil on the O&G portion of the site. The parties potentially responsible for the site contamination excavated approximately 4,700 cubic yards of contaminated soil and sediments, which were treated by low temperature thermal aeration. The remedial action was completed in 1989.



Kingston Steel Groundwater Treatment: Extraction and treatment of contaminated groundwater, with eventual discharge of treated groundwater, is planned for the cleanup of the Kingston Steel groundwater. One of the potentially responsible parties is designing the groundwater extraction and treatment system. Design of this system is expected to be completed in 1994, with cleanup work to commence shortly thereafter.



Ottati & Goss Groundwater Remediation: Based on the results of the site investigation, the EPA has selected extraction and treatment of contaminated O&G groundwater with the eventual discharge of treated groundwater on the site. Design of the cleanup remedy is expected to be completed in early 1994.



Kingston Steel Soil Remediation: The EPA-selected cleanup at the Kingston Steel area and the remainder of the site is similar to soil excavations and cleanups previously performed at the site and also includes cleanup of adjacent stream sediment. Cleanup actions are scheduled to begin in early 1993.

Site Facts: The Justice Department, on behalf of the EPA, brought a civil action suit against several potentially responsible parties in 1980. The court found the defendants liable for contamination on and off site. The EPA settled with a group of potentially responsible parties during the trial and they, under a Consent Decree, have completed the soil remedy on the O&G portion of the site.

Environmental Progress



Although some direct contact threats remain, the EPA has determined that the removal of contaminated soils and sediments has greatly reduced the potential for exposure to contamination at the Ottati & Goss/Kingston Steel Drum site. These completed actions and other site cleanup activities will continue to reduce site contamination levels, making the site safer as it approaches final cleanup.

Site Repository

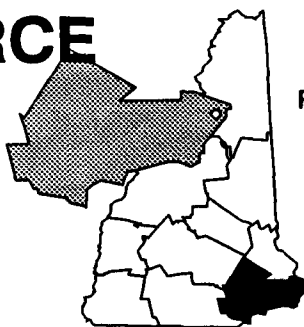


Kingston Public Library, Main Street, Kingston, NH 03848

PEASE AIR FORCE BASE

NEW HAMPSHIRE

EPA ID# NH7570024847



EPA REGION 1

Rockingham County
Portsmouth, Newington, and Greenland

Site Description

The Pease Air Force Base site maintained aircraft from the 1950s on a 4,365-acre parcel of land until 1991 when the base closed. A 1990 document identified 22 waste disposal areas on the base, 13 of which received hazardous wastes including organic solvents, pesticides, paint strippers, and other industrial wastes. Of these disposal areas, six were used as landfills, two were areas where waste oil and solvents were burned for firefighting exercises, and four were areas where solvents and other liquid wastes were discharged. All hazardous wastes generated on the base now are disposed of off site at EPA-regulated facilities. In 1977, a well supplying drinking water to 8,700 people on the base was found to be contaminated and was closed. In 1984, the Air Force installed an aeration system to remove contaminants from all water supply wells. Surface water and sediments are contaminated by runoff from one of the landfills. An estimated 30,000 people obtain drinking water from public and private wells that are within 3 miles of hazardous substances on the base. Shellfish are harvested from Great Bay and Little Bay, which are within 3 miles downstream of the base. The bays also are used for recreational activities. Because the bays and Piscataqua River are connected to the Atlantic Ocean, tides may move any contamination into the ocean. The base abuts Great Bay, which is a tidal estuary. Both coastal and freshwater wetlands are along surface water migration pathways from the disposal areas.

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

NPL LISTING HISTORY

Proposed Date: 07/14/89

Final Date: 02/21/90

Threats and Contaminants



The groundwater is contaminated with trichloroethylene (TCE). Sediments of three drainage ditches are contaminated with fuel oils and heavy metals including lead and zinc. The soil is contaminated with organic solvents and fuel oils. People who live on the base may be threatened by accidentally ingesting contaminated groundwater, sediments, or soil. Some disposal areas on the base are not fenced, making it possible for people and animals to come into direct contact with hazardous substances. In addition, eating contaminated fish or waterfowl poses a potential health threat. A nearby estuary and coastal freshwater wetlands could be affected by contamination. Potential threats also exist for the bald eagles that nest in the area.

Cleanup Approach

This site is being addressed in five stages: initial actions and four long-term remedial phases focusing on cleanup of the landfill, fire training area; Buildings 113, 119, and 222; and the remaining locations categorized by zones.

Response Action Status



Initial Actions: Since beginning site studies, the Air Force has removed 50 drums from the landfill 5 area and has removed contaminated soil and installed a groundwater pre-treatment system in five training areas to begin reducing levels of contamination. Similar soil removals and treatment systems are reducing contamination at Buildings 113, 119, and 122.



Landfill 5: The Air Force is conducting an investigation into the contamination of several landfills at the site. The investigation, which is expected to be completed in 1993, will recommend alternatives for the final cleanup.



Fire Training Area: The Air Force has also started an investigation into the contamination of the main fire training area. The investigation, expected to be completed in 1993, will define the contaminants at this area and will recommend alternatives for the final cleanup.



Buildings 113, 119, and 222: The Air Force began conducting an investigation into contamination from TCE and petroleum product releases at several buildings on site. The investigation, scheduled to be completed in 1992, will define the contaminants at the site and will recommend alternatives for the final cleanup.



Remaining Areas: The Air Force is conducting an investigation to identify any remaining areas of contamination at the site. These remaining locations, categorized by zones, are undergoing final stages of investigation prior to finalizing cleanup remedies.

Site Facts: The EPA issued a Special Notice Letter to the Air Force in 1989 to initiate an Interagency Agreement (IAG) negotiation among the EPA, the Air Force, and the State of New Hampshire. In 1990, the Air Force signed an IAG with the EPA and the State outlining cleanup responsibilities at the site. The Pease Air Force Base is participating in the Installation Restoration Program, a specially funded program by the Department of Defense (DOD). The Pease Air Force Base closed in early 1991 and is now in the process of being transferred by the Air Force to the State. The Air Force will continue its program to clean up the entire Base.

Environmental Progress



The removal of drums and contaminated soils is making the Pease Air Force Base site safer while investigations leading to cleanup actions are underway.

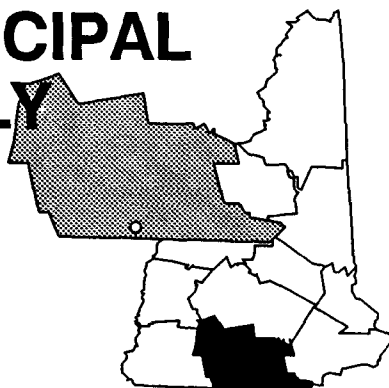
Site Repository



Portsmouth Public Library, 8 Islington Street, Portsmouth, NH 03801

SAVAGE MUNICIPAL WATER SUPPLY NEW HAMPSHIRE

EPA ID# NHD980671002



EPA REGION 1

Hillsborough County
2 miles west of Milford

Other Names:
Milford Well and Trailer Park

Site Description

The Savage Municipal Water Supply site covers about 30 acres west of the center of Milford and consists of a municipal well and the underlying aquifer, a water-bearing layer of rock and gravel from which the Town of Milford gets its water. The Savage Municipal Well operated from 1960 to 1983, during which time it supplied 40 percent to 45 percent of Milford's water. The remainder of the water came from the Keyes and Kokko Wells. During Savage's years of operation, several metal industries opened plants near the well, along the Souhegan River. Investigations at the site began in 1983, as part of a State-wide water sampling program. Sampling detected contamination, and the well was closed. Following the closing of the well, the State began investigations to locate the source of contaminants, which also were present in water samples taken at nearby industries. The land surrounding the Savage Municipal Well is planted with feed corn intended for silage. A stream that receives discharge from two industries, Hendrix Wire and Cable and Hitchner Manufacturing, flows through the farmland prior to discharging to the Souhegan River. Hitchner Manufacturing has purchased the well from the Town of Milford.

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

NPL LISTING HISTORY

Proposed Date: 09/01/83

Final Date: 09/01/84

Threats and Contaminants



The groundwater is contaminated with volatile organic compounds (VOCs), including tetrachloroethylene (PCE), trichloroethylene (TCE), and vinyl chloride, and heavy metals, including lead, chromium, and mercury. The soil is contaminated with VOCs. The stream on site is contaminated with VOCs and lead. Trespassers who come in direct contact with or accidentally ingest contaminated groundwater are potentially at risk.

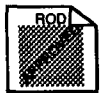
Cleanup Approach

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: In 1983, the EPA provided bottled water to the 75 residents of the Milford Mobile Home Park affected by contaminated well water and then connected the park to the municipal water supply



Entire Site: The parties potentially responsible for the site contamination conducted an investigation into the nature and extent of the contamination at the site. The cleanup remedy was selected in 1991 and entails the construction and installation of a pump and treatment facility for groundwater. Treated water will be discharged on site into the Souhegan River and its tributaries. The design of the facility is expected to begin in mid-1994.

Site Facts: In 1987, the EPA and the parties potentially responsible for the contamination of the site signed a Consent Order to conduct an investigation at the site.

Environmental Progress



The provision of an alternate drinking water source has reduced the potential for exposure to hazardous materials at the Savage Municipal Water supply site while design of the groundwater pump and treatment facility is underway.

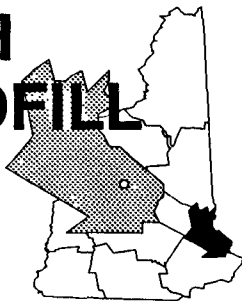
Site Repository



Wadleigh Memorial Library, 21 Nashua Street, Milford, NH 03055

SOMERSWORTH SANITARY LANDFILL NEW HAMPSHIRE

EPA ID# NHD980520225



EPA REGION 1
Strafford County
1 mile southwest of Somersworth

Site Description

The Somersworth Sanitary Landfill is located on 26 acres of land approximately 1 mile southwest of downtown Somersworth. The City operated a disposal site on the property from the mid-1930s until 1981. Originally, the City burned residential, commercial, and industrial wastes at the site. In 1958, the dump was converted to a landfill. Unknown quantities of sludges, solvents, acids, dyes, metals, laboratory or pharmaceutical wastes, and potash were disposed of at this site. In 1981, four groundwater monitoring wells installed as part of site closure plan activities indicated that volatile organic compounds (VOCs) and inorganic contaminants were present. The landfill is located in a predominantly residential area of Somersworth. Forest Glade Park, which was reclaimed as a recreational park in 1978, sits atop the easternmost 10 acres of the site. An apartment building for senior citizens, a fire station, and a National Guard Armory abut the property to the east, and an elementary school is located approximately 2,300 feet northeast. Approximately 11,000 people live in Somersworth. The former Somersworth Municipal Supply Well #3 was located approximately 2,300 feet from the landfill. This well was closed and dismantled because of historically high levels of iron and manganese. Previously, the well supplied approximately 10 percent of the City's total water supply and was used during peak periods. Most of the residences in the area obtain drinking water from the Somersworth municipal supply system; however, there are at least seven private wells in the area. Peter's Marsh Brook, located adjacent to the western edge of the landfill, is a tributary of Tate's Brook, which, in turn, is a tributary of the Salmon Falls River. Both the City of Somersworth and the City of Berwick, Maine, withdraw water from the river for their drinking water supplies. Water intakes are located approximately 1 1/2 miles from the landfill.

Site Responsibility: The 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



The groundwater is contaminated with VOCs. Sediments are contaminated with xylenes and heavy metals including arsenic, chromium, and lead. The on-site soil is contaminated with VOCs, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Peter's Marsh Brook and Tate's Brook have been shown to contain VOCs and heavy metals including arsenic and mercury. There is a short fence restricting access to the landfill from the park. Peter's Marsh Brook is considered to be the primary receptor of groundwater contamination. If private water supply wells were installed or reopened in this area or near Peter's Marsh Brook, long-term exposure to contaminated drinking water would pose health risks.

Cleanup Approach

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

Response Action Status



Entire Site: The parties potentially responsible for the site contamination currently are conducting an investigation into the nature and extent of contamination at the site. The investigation will define the contaminants of concern and will evaluate alternatives for the final cleanup. The investigation is planned to be completed in 1992.

Site Facts: The EPA entered into a Consent Agreement, requiring the parties potentially responsible for contamination at the site to conduct a study of site contamination. The settling parties also have agreed to pay past State and Federal costs for the site and future oversight costs, as well.

Environmental Progress



Following listing of the Somersworth Sanitary Landfill site on the NPL, the EPA determined that the site contamination does not pose an immediate threat to public health or the environment. Currently, no actions are needed to make the site safer while final cleanup actions are being investigated.

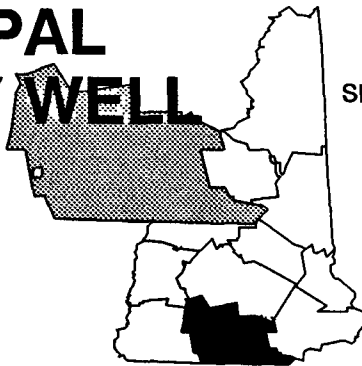
Site Repository



Somersworth Public Library, 27 Main Street, Somersworth, NH 03878

SOUTH MUNICIPAL WATER SUPPLY WELL NEW HAMPSHIRE

EPA ID# NHD980671069



EPA REGION 1
Hillsborough County
Sharon Road, 2 miles south of
Peterborough

Site Description

The South Municipal Water Supply Well site covers 250 acres in a rural portion of the Contoocook River Valley. The well was installed in 1952 and provided water to the Town of Peterborough for nearly 30 years. The well served approximately 4,600 people. In 1982, the State conducted a routine sampling of the water supply and found contaminants in the South Well, at which time it was shut down. The source of the contamination was thought to be the New Hampshire Ball Bearings (NHBB) facility, located 1,200 feet west of the well, which has manufactured precision ball bearings at the site since 1946. In 1955, the company purchased the 24 acres it now occupies. Major source areas include discharges from three drainage outfalls, an inactive leachfield, and drainage from a tank truck used to haul waste from the facility. A brook 200 feet from the plant drains into a wetland area and Noone Pond before emptying into the Contoocook River. Discharges to the leachfield and sump ceased in 1972 with the connection of the town sewer line. Periodic on-site dumping of a 275-gallon tank truck containing waste solvents ceased in the late 1970s. Floor drains in the plant were sealed in 1983. The population of the Town of Peterborough is over 5,000. Less than 100 single-family residences are located within a mile of NHBB, and the nearest private residence is located approximately 1,000 feet from the facility.

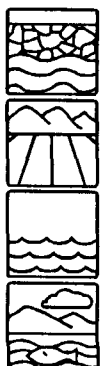
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 09/01/83

Final Date: 09/01/84

Threats and Contaminants

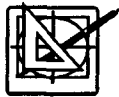


The groundwater, soils, and surface water are contaminated with volatile organic compounds (VOCs) including chloroform, benzene, and toluene. Sediments also are contaminated with VOCs and polychlorinated biphenyls (PCBs). People who accidentally ingest or come in direct contact with contaminated groundwater, surface water, soil, or sediments may be at risk. Included within the site area is the Contoocook River/ Noone Pond system and a wetlands area that could be at risk from contamination.

Cleanup Approach

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

Response Action Status



Entire Site: The investigation to determine the nature and extent of contamination and to identify alternatives for cleanup was completed by NHBB, and the final decision on the method to be used to clean up the site was reached in 1989. The methods of site cleanup selected by the EPA include: construction of a groundwater pump and treatment system, vacuum extraction for small areas of soils contaminated with VOCs, and excavation with off-site disposal for sediments contaminated with PCBs. NHBB currently is designing the cleanup remedies and is expected to complete the design in 1992.

Site Facts: The EPA and NHBB signed a Consent Order in 1989, in which the company agreed to conduct a study of the contamination at the site. The EPA issued a Unilateral Order to NHBB in 1990 for the performance of the cleanup design and action.

Environmental Progress



The EPA has conducted studies of the conditions at the South Municipal Water Supply Well site and has determined that *no immediate actions are needed to make the site safer while final cleanup actions are being designed.*

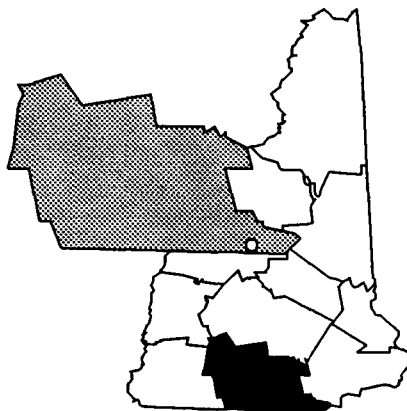
Site Repository



Peterborough Town Library, Maine and Concord Streets, Peterborough, NH 03458

SYLVESTER NEW HAMPSHIRE

EPA ID# NHD099363541



EPA REGION 1

Hillsborough County
Nashua

Other Names:
Gilson Road Site

Site Description

The 6-acre Sylvester hazardous waste dump site was used as a sand borrow pit for an undetermined number of years. During the late 1960s, after much of the sand had been removed from the property, the operator of the pit began an unapproved and illegal waste disposal operation, apparently intending to fill the excavation. Household refuse, demolition materials, chemical sludges, and hazardous liquid chemicals were dumped at the site. The household refuse and demolition materials usually were buried, while the hazardous liquids were allowed to percolate into the ground adjacent to the old sand pit or were stored in steel drums that were placed on the ground. The illegal solid waste activity at the site first was discovered in late 1970. The first indication that hazardous wastes also were being dumped occurred in 1978, when State personnel observed drums being stored at the site. A court order was issued in 1979 prohibiting all further disposal of hazardous wastes on the site. The site is in a residential area, with approximately 1,000 people living in an adjoining mobile home park, and there are five private water wells within 1/4 mile of the site. The site is about 680 feet from Lyle Reed Brook, which flows through the trailer park and enters the Nashua River, a source of drinking water. The Merrimack River is 11 miles downstream and also is a source of drinking water.

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

NPL LISTING HISTORY

Proposed Date: 10/01/81

Final Date: 09/08/83

Threats and Contaminants



Approximately 900,000 gallons of hazardous wastes were discharged to leachfields on site in 1979, contaminating the soil and hundreds of thousands of gallons of groundwater. The groundwater is contaminated with heavy metals and volatile organic compounds (VOCs). Lyle Reed Brook also is contaminated with VOCs and metals. The main health threat associated with the site is drinking or direct contact with contaminants in the groundwater and surface water. Groundwater currently is not used, since all residents are connected to a separate municipal supply. Contaminants may leach into the bedrock aquifer; however, capping the site has greatly reduced the likelihood of continued contamination of the surface water.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases to cap the site and to extract and treat the groundwater.

Response Action Status



Immediate Actions: In 1979, the State removed 1,000 drums from the site. In early 1980, the EPA constructed a fence around the dumping area and removed 1,314 accessible surface drums. The groundwater contaminant plume movement was monitored and an access road was built. Between 1981 and 1982, the EPA installed a groundwater interception and recirculation system to temporarily pump and recirculate the contaminated groundwater to prevent it from reaching Lyle Brook and from further contaminating the aquifer.



Capping: The State constructed a slurry wall surrounding a 20-acre area and built an impervious membrane cap to prevent any further migration of the contamination of on-site groundwater.



Groundwater Treatment: A 300-gallon-per-minute groundwater treatment facility was constructed to remove toxic substances in the groundwater. The treatment process consists of a combination of physical, chemical, and biological treatments. The process involves pumping the groundwater from within the slurry wall containment area and then exposing it to air to remove contaminants. In addition, a vacuum extraction system was installed to cleanup the large amounts of toluene in the groundwater and soils in the southern portion of the site. Finally, new extraction wells were installed and the recharge trenches were repaired. Groundwater treatment will continue until established cleanup goals for the site have been met.

Site Facts: Several Consent Decrees were entered into by the EPA, the State, and numerous potentially responsible parties to provide for reimbursement of past costs and the undertaking of cleanup designs and actions.

Environmental Progress



The removal, fencing, capping, and groundwater containment activities described above have reduced the risk of exposure to hazardous materials at the Sylvester site. The threat of direct contact with contaminants in soil has been eliminated. Groundwater cleanup actions at the Sylvester site have reduced contamination levels, and additional treatment will continue until established cleanup goals are met.

Site Repository

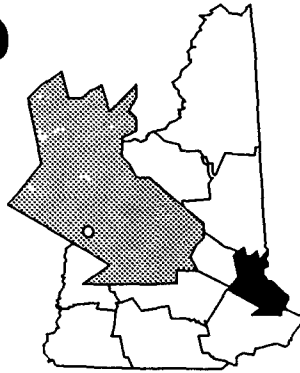


New Hampshire Department of Environmental Protection Office, 6 Hoyden Drive, Concord,
NH 03301

TIBBETS ROAD

NEW HAMPSHIRE

EPA ID# NHD989090469



EPA REGION 1
Strafford County
Barrington

Site Description

The Tibbets Road site occupies approximately 2 acres. The site was used for storing drums collected from 1944 to 1958. Many of the drums were leaking and rusted and contained thinners, solvents, antifreeze, kerosene, motor and transmission oil, polychlorinated biphenyls (PCBs), grease, and brake fluid. The EPA removed all the deteriorating drums in 1984. Approximately 2,100 people living within 3 miles of the site depend on groundwater for drinking water. The New Hampshire Water Supply and Pollution Control Commission found drinking water wells serving approximately 20 people to be contaminated. The site is situated in a residential area upgradient from a lake used for recreational purposes and a drinking water supply.

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

NPL LISTING HISTORY Proposed Date: 04/10/85 Final Date: 06/01/86

Threats and Contaminants



The groundwater is contaminated with volatile organic compounds (VOCs) including benzene, trichloroethylene (TCE), toluene, xylenes, and heavy metals, including arsenic and lead, according to tests conducted by the New Hampshire Water Supply and Pollution Control Commission. People who accidentally ingest or come in direct contact with contaminated groundwater are at potential risk.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on groundwater contamination.

Response Action Status



Immediate Actions: In 1984, the EPA removed approximately 337 deteriorated and leaking drums stored within 50 yards of private residences and disposed of them at an approved disposal site. Residents were temporarily relocated while the drums were being removed. During the summer of 1985, the EPA and the State conducted an investigation to determine whether any additional materials needed to be removed from the site. Low levels of dioxin were detected in the soil and VOCs were found in the drinking water. The EPA and the State began a joint soil removal effort. Between 1985 and the summer of 1988, PCB- and dioxin-contaminated soil was removed and incinerated, and the solvent-contaminated soil was excavated and disposed of off-site by the State. A water supply system, constructed to provide drinking water to the 45 homes with contaminated wells, became operational in 1987.



Groundwater: An investigation currently is being conducted by the EPA to determine the extent of groundwater contamination remaining at the site and alternative technologies for cleanup. Sampling conducted in 1990 and 1991 showed no current public threat likely at the site; however, there is a potential threat for future off-site contamination due to groundwater migrating off site. The bedrock aquifers are contaminated, although an alternate water supply system provides safe drinking water to those residents with contaminated wells. The investigation is scheduled to be completed in late 1992.

Environmental Progress



The removal of the drums and soil from the Tibbets Road site and the provision of a new water supply have reduced the potential for exposure to contamination. These actions have helped to protect the public health and the environment while the site awaits further cleanup action.

Site Repository

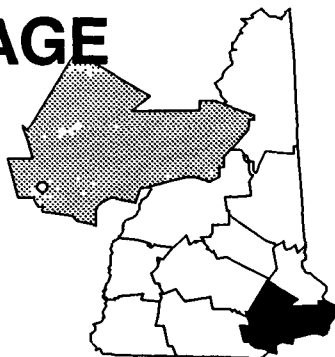


Barrington Public Library, Star Route, Barrington, NH 03825

TINKHAM GARAGE

NEW HAMPSHIRE

EPA ID# NHD062004569



EPA REGION 1
Rockingham County
Londonderry

Site Description

The Tinkham Garage site covers about 375 acres in Londonderry. During 1978 and 1979, oil, oily wastes, washings from septic tank trucks, and other substances were discharged at the site. In 1978, residents complained of foam and odors in a small unnamed brook, which then prompted an investigation revealing that improper waste disposal had occurred. The State ordered the site owner to prevent further degradation of surface water and groundwater. In early 1983, wells of the Londonderry Green Apartment complex and several other private wells were closed due to contamination, and residents were provided with municipal water. The open and wooded land that comprises the majority of the site is bordered by residential and agricultural land. Approximately 400 people reside within a condominium complex on the western boundary of the site. Additional residences include private, one-family homes within site boundaries to the north.

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

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/01/83

Threats and Contaminants



Volatile organic compounds (VOCs) were identified in the surface water and groundwater on site and in areas adjacent to the site. The soils located in the field behind Tinkham Garage and in some condominium complex leachfields also have been shown to contain VOC contamination. A potential threat to residential wells located on site may exist if the contaminated groundwater were to be used as drinking a water source. The contaminated area in the field behind the garage poses a threat if people accidentally ingest or come in direct contact with the soils, surface water, or groundwater.

Cleanup Approach

The 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 State issued a health order in early 1983, advising residents not to drink well water. Bottled water was provided, and a municipal water supply line was installed and operational by the fall of 1983.



Entire Site: In 1987, the EPA entered into an agreement with 23 of the parties potentially responsible for the site contamination to conduct a study before the cleanup technologies were designed. The following four areas of contamination were identified as needing attention: the soil in the garage area; the groundwater in the general area of the garage and the condominium complex; two leachfields located in the condominium complex; and a soil pile that contains soil removed during earlier excavations of leachfield soils. The remedies selected include: on-site treatment of contaminated soils by vacuum extraction; backfilling, regrading and revegetation of excavated source areas after contaminated soils have been excavated; extraction and off-site treatment of contaminated groundwater at the Town of Derry's wastewater treatment works, which will require off-site pretreatment; and groundwater monitoring on and off site. Activities to design the cleanup are underway. The soil cleanup is expected to begin in 1992 and is scheduled for completion in 1993. The groundwater cleanup is expected to begin once the sewer is connected between the site and the wastewater treatment plant.

Site Facts: The potentially responsible parties, under a Consent Decree, have agreed to undertake the cleanup design and activities at the site. This site is closely associated with the Sylvester's, Plymouth Harbor, and Cannon Engineering NPL sites.

Environmental Progress



The provision of an alternate drinking water source has reduced the potential for exposure to contamination at the Tinkham Garage site, and has protected the public health while the site awaits planned cleanup activities.

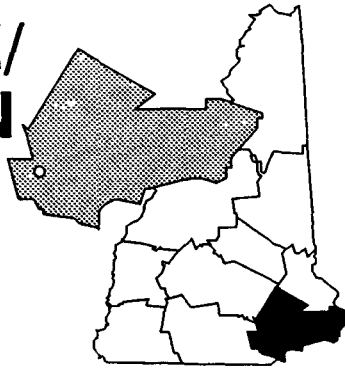
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TOWN GARAGE/ RADIO BEACON NEW HAMPSHIRE

EPA ID# NHD981063860



EPA REGION 1

Rockingham County
Londonderry

Other Names:
**Holton Circle Groundwater
Contamination**

Site Description

The Town Garage/Radio Beacon site is a development of about 25 homes called Holton Circle. The site has a series of residential wells and one commercial well, known as the Town Garage well. The State conducted tests in 1984 and found the wells to be contaminated. The EPA and the State have been investigating the area since 1985 and have not yet verified a source of the contamination. The Department of Defense owned the Town Garage well, located 1,000 feet west of the Holton Circle development, from the early 1940s to 1968 and operated a radio beacon there during World War II. The EPA also investigated a small auto repair shop about 1,000 feet south of Holton Circle. The shop uses 1 to 2 gallons of degreasing solvents annually. The area around the site consists of mixed rural and residential properties and is being actively developed. Approximately 7,400 people obtain drinking water from private wells within 3 miles of Holton Circle.

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

NPL LISTING HISTORY

Proposed Date: 06/21/88

Final Date: 03/31/89

Threats and Contaminants



The groundwater in the wells is contaminated with volatile organic compounds (VOCs) including dichloroethylene and dichloroethane. The six residences with contaminated drinking water wells have been connected to a public water supply because of the potential for exposure to contaminated water from private wells.

Cleanup Approach

The site is being addressed through initial actions; further investigations showed that no other cleanup actions are required.

Response Action Status



Initial Actions: In the late 1980s, six residences affected by well contamination were hooked up to the local public water supply.



Groundwater: The EPA completed an investigation into the groundwater contamination at the site in 1992. The final cleanup remedy selected at the site to address the contamination in the shallow and bedrock groundwater is to allow the natural attenuation of groundwater contamination with institutional controls to prevent the use of groundwater for domestic purposes. This cleanup process could take from seven to 25 years to be completed.

Environmental Progress



After adding this site to the NPL, the EPA assessed conditions and determined that, besides connecting six residences with contaminated wells to the public water supply and preventing the use of contaminated groundwater for domestic purposes, no further actions are required to make the Holton Circle Groundwater Contamination site safe while natural attenuation of the groundwater occurs.

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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 ground-water 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.

GLOSSARY

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.

GLOSSARY

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].

GLOSSARY

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 inundated 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.

GLOSSARY

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 contaminants 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.

GLOSSARY

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 con-

tamination 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.

GLOSSARY

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.

GLOSSARY

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, Dichloroethylene	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.