United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(OS-240)

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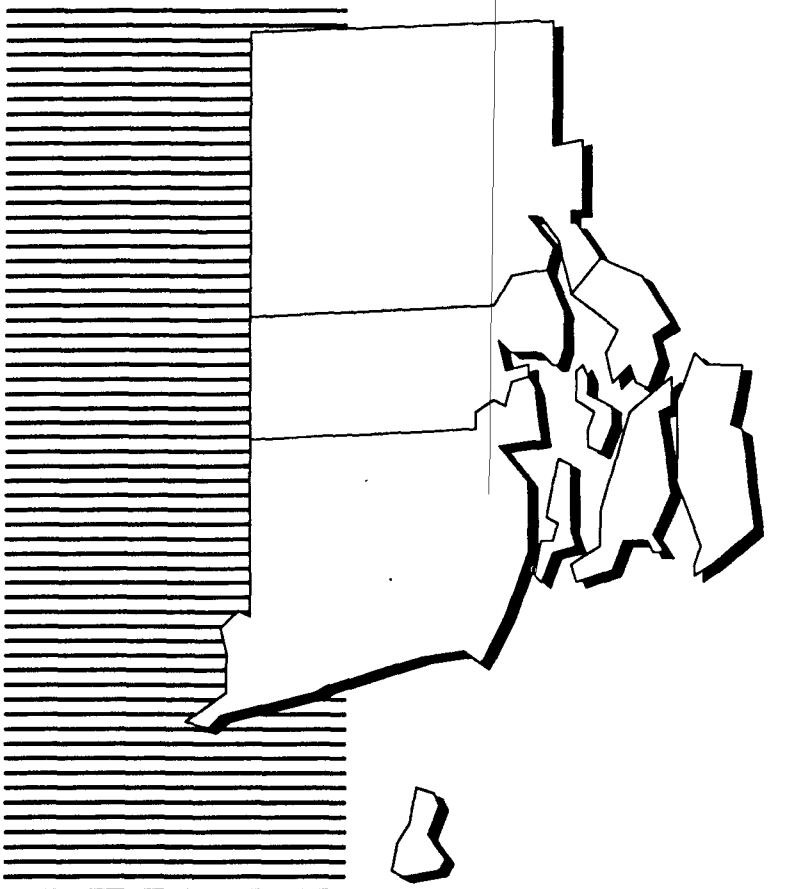
EPA

National Priorities List Sites:

RHODE ISLAND



1991

Publication #9200.5-739A
September 1991

NATIONAL PRIORITIES LIST SITES:
Rhode Island

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

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

National Technical Information Service (NTIS)
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650

The National Overview volume, **Superfund: Focusing on the Nation at Large (1991),** may be ordered as PB92-963253.

The complete set of the overview documents, plus the 49 state reports may be ordered as PB92-963253.

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A Brief Overview

WHY THE SUPERFUND PROGRAM?

As the 1970s came to a close, a series of headline stories gave Americans a look at the dangers of dumping industrial and urban wastes on the land. First there was New York's Love Canal. Hazardous waste buried there over a 25-year period contaminated streams and soil, and endangered the health of nearby residents. The result: evacuation of several hundred people. Then the leaking barrels at the Valley of the Drums in Kentucky attracted public attention, as did the dioxin-tainted land and water in Times Beach, Missouri.

In all these cases, human health and the environment were threatened, lives were disrupted, and property values were reduced. It became increasingly clear that there were large numbers of serious hazardous waste problems that were falling through the cracks of existing environmental laws. The magnitude of these emerging problems moved Congress to enact the Comprehensive Environmental Response, Compensation, and Liability Act in 1980. CERCLA — commonly known as Superfund — was the first Federal law established to deal with the dangers posed by the Nation's hazardous waste sites.

After Discovery, the Problem Intensified

Few realized the size of the problem until the Environmental Protection Agency (EPA) began the process of site discovery and site evaluation. Not hundreds, but thousands of potential hazardous waste sites existed, and they presented the Nation with some of the most complex pollution problems it had ever faced.

Since the Superfund program began, hazardous waste has surfaced as a major environmental concern in every part of the United States. It wasn't just the land that was contaminated by past disposal practices. Chemicals in the soil were spreading into the groundwater (a source of drinking water for many) and into streams, lakes, bays, and wetlands. Toxic vapors contaminated the air at some sites, while improperly disposed or stored wastes threatened the health of the surrounding community and the environment at others.

The EPA Identified More than 1,200 Serious Sites

The EPA has identified 1,245 hazardous waste sites as the most serious in the Nation. These sites comprise the National Priorities List; sites targeted for cleanup under Super-fund. But site discoveries continue, and the EPA estimates that, while some will be deleted after lengthy cleanups, this list, commonly called the NPL, will continue to grow by approximately 50 to 100 sites per year, potentially reaching 2,100 sites by the year 2000.

THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

From the beginning of the program, Congress recognized that the Federal government could

not and should not address all environmental problems stemming from past disposal practices. Therefore, the EPA was directed to set priorities and establish a list of sites to target. Sites on the NPL (1,245) thus are a relatively small subset of a larger inventory of potential hazardous waste sites, but they do comprise the most complex and compelling cases. The EPA has logged more than 35,000 sites on its national inventory of potentially hazardous waste sites and assesses each site within one year of being logged.

THE EPA IS MAKING PROGRESS ON SITE CLEANUP

The goal of the Superfund program is to tackle immediate dangers first and then move through the progressive steps necessary to eliminate any long-term risks to public health and the environment.

Superfund responds immediately to sites posing imminent threats to human health and the environment at both NPL sites and sites not on the NPL. The purpose is to stabilize, prevent, or temper the effects of a release of hazardous substances, or the threat of one, into the environment. These might include tire fires or transportation accidents involving the spill of hazardous chemicals. Because they reduce the threat a site poses to human health and the environment, immediate cleanup actions are an integral part of the Superfund program.

Immediate response to imminent threats is one of Superfund's most noted achievements. Where imminent threats to the public or environment were evident, the EPA has initiated or completed emergency actions that attacked the most serious threats of toxic exposure in more than 2,700 cases.

The ultimate goal for a hazardous waste site on the NPL is a permanent solution to an environmental problem that presents a serious threat to the public or the environment. This often requires a long-term effort. The EPA has aggressively accelerated its efforts to perform these long-term cleanups of NPL sites. More cleanups were started in 1987, when the Superfund law was amended, than in any previous year. By 1991, construction had started at more than four times as many sites as in 1986! Of the sites currently on the NPL, more than 500 — nearly half — have had construction cleanup activity. In addition, more than 400 more sites presently are in the investigation stage to determine the extent of site contamination and to identify appropriate cleanup remedies. Many other sites with cleanup remedies selected are poised for the start of cleanup construction activity. In measuring success by "progress through the cleanup pipeline," the EPA clearly is gaining momentum.

THE EPA MAKES SURE CLEANUP WORKS

The EPA has gained enough experience in cleanup construction to understand that environmental protection does not end when the remedy is in place. Many complex technologies — like those designed to clean up groundwater — must operate for many years in order to accomplish their objectives.

The EPA's hazardous waste site managers are committed to proper operation and maintenance of every remedy constructed. No matter who has been delegated responsibility for monitoring the cleanup work, the EPA will assure that the remedy is carefully followed and that it continues to do its job.

Likewise, the EPA does not abandon a site even after the cleanup work is done. Every five years, the Agency reviews each site where residues from hazardous waste cleanup still remain to ensure that public and environmental

health are being safeguarded. The EPA will correct any deficiencies discovered and will report to the public annually on all five-year reviews conducted that year.

CITIZENS HELP SHAPE DECISIONS

Superfund activities also depend upon local citizen participation. The EPA's job is to analyze the hazards and to deploy the experts, but the Agency needs citizen input as it makes choices for affected communities.

Because the people in a community where a Superfund site is located will be those most directly affected by hazardous waste problems and cleanup processes, the EPA encourages citizens to get involved in cleanup decisions. Public involvement and comment does influence EPA cleanup plans by providing valuable information about site conditions, community concerns, and preferences.

The State and U.S. Territories volumes and the companion National overview volume provide general Superfund background information and descriptions of activities at each NPL site. These volumes clearly describe what the problems are, what the EPA and others participating in site cleanups are doing, and how we, as a Nation, can move ahead in solving these serious problems.

USING THE STATE AND NATIONAL VOLUMES TOGETHER

To understand the big picture on hazardous waste cleanup, citizens need to hear about both environmental progress across the country and the cleanup accomplishments closer to home. Citizens also should understand the challenges involved in hazardous waste cleanup and the decisions we must make, as a Nation, in finding the best solutions.

The National overview, *Superfund: Focusing on the Nation at Large (1991)*, contains important information to help you understand the magnitude and challenges facing the Superfund program, as well as an overview of the National cleanup effort. The sections describe the nature of the hazardous waste problem nationwide, threats and contaminants at NPL sites and their potential effects on human health and the environment, vital roles of the various participants in the cleanup process, the Superfund program's successes in cleaning up the Nation's serious hazardous waste sites, and the current status of the NPL. If you did not receive this overview volume, ordering information is provided in the front of this book.

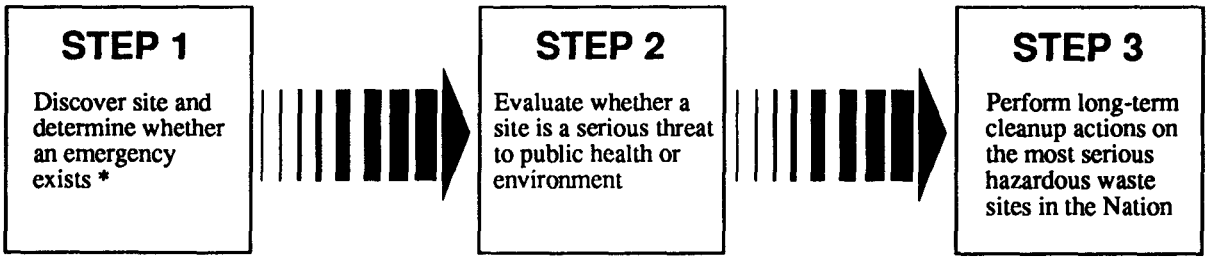
This volume compiles site summary fact sheets on each State or Territorial site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation and require the most complicated and costly site solutions yet encountered. Each book gives a "snapshot" of the conditions and cleanup progress that has been made at each NPL site. Information presented for each site is current as of April 1991. Conditions change as our cleanup efforts continue, so these site summaries will be updated annually to include information on new progress being made.

To help you understand the cleanup accomplishments made at these sites, this volume includes a description of the process for site discovery, threat evaluation, and long-term cleanup of Superfund sites. This description, *How Does the Program Work to Clean Up Sites?*, will serve as a reference point from which to review the cleanup status at specific sites. A glossary defining key terms as they apply to hazardous waste management and site cleanup is included as Appendix A in the back of this book.

How Does the Program Work to Clean Up Sites?

The diverse problems posed by hazardous waste sites have provided the EPA with the challenge to establish a consistent approach for evaluating and cleaning up the Nation's most serious sites. To do this, the EPA has had to step beyond its traditional role as a regulatory agency to develop processes and guidelines for each step in these technically complex site cleanups. The EPA has established procedures to coordinate the efforts of its Washington, D.C. Headquarters program offices and its front-line staff in ten Regional Offices, with the State and local governments, contractors, and private parties who are participating in site cleanup. An important part of the process is that any time during cleanup, work can be led by the EPA or the State or, under their monitoring, by private parties who are potentially responsible for site contamination.

THREE-STEP SUPERFUND PROCESS



** Emergency actions are performed whenever needed in this three-step process.*

The process for discovery of the site, evaluation of threat, and the long-term cleanup of Superfund sites is summarized in the following pages. The phases of each of these steps are highlighted within the description. The flow diagram above provides a summary of the three-step process.

Although this book provides a current "snapshot" of site progress made only by emergency actions and long-term cleanup actions at Superfund sites, it is important to understand the discovery and evaluation process that leads to identifying and cleaning up these most serious uncontrolled or abandoned hazardous

waste sites in the Nation. The discovery and evaluation process is the starting point for this summary description of Superfund involvement at hazardous waste sites.

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

How does the EPA learn about potential hazardous waste sites?

Site discovery occurs in a number of ways. Information comes from concerned citizens. People may notice an odd taste or foul odor in their drinking water or see half-buried leaking barrels; a hunter may come across a field where waste was dumped illegally. There may be an explosion or fire, which alerts the State or local authorities to a problem. Routine investigations by State and local governments and required reporting and inspection of facilities that generate, treat, store, or dispose of hazardous waste also help keep the EPA informed about actual or potential threats of hazardous substance releases. All reported sites or spills are recorded in the Superfund inventory (CERCLIS) for further investigation to determine whether they will require cleanup.

What happens if there is an imminent danger?

As soon as a potential hazardous waste site is reported, the EPA determines whether there is an emergency requiring an immediate cleanup action. If there is, they act as quickly as possible to remove or stabilize the imminent threat. These short-term emergency actions range from building a fence around the contaminated area to keep people away, or temporarily relocating residents until the danger is addressed, to providing bottled water to residents while their local drinking water supply is being cleaned up or physically removing wastes for safe disposal.

However, emergency actions can happen at any time an imminent threat or emergency warrants them. For example, if leaking barrels are found when cleanup crews start digging in the ground or if samples of contaminated soils or air show that there may be a threat of fire or explosion, an immediate action is taken.

STEP 2: SITE THREAT EVALUATION

If there isn't an imminent danger, how does the EPA determine what, if any, cleanup actions should be taken?

Even after any imminent dangers are taken care of, in most cases, contamination may remain at the site. For example, residents may have been supplied with bottled water to take care of their immediate problem of contaminated well water, but now it's time to determine what is contaminating the drinking water supply and the best way to clean it up. The EPA may determine that there is no imminent danger from a site, so any long-term threats need to be evaluated. In either case, a more comprehensive investigation is needed to determine if a site poses a serious, but not imminent, danger and whether it requires a long-term cleanup action.

Once a site is discovered and any needed emergency actions are taken, the EPA or the State collects all available background information not only from their own files, but also from local records and U.S. Geological Survey maps. This information is used to identify the site and to perform a preliminary assessment of its potential hazards. This is a quick review of readily available information to answer the questions:

- Are hazardous substances likely to be present?

- How are they contained?
- How might contaminants spread?
- How close is the nearest well, home, or natural resource area such as a wetland or animal sanctuary?
- What may be harmed — the land, water, air, people, plants, or animals?

Some sites do not require further action because the preliminary assessment shows that they do not threaten public health or the environment. But even in these cases, the sites remain listed in the Superfund inventory for record-keeping purposes and future reference. Currently, there are more than 35,000 sites maintained in this inventory.

If the preliminary assessment shows a serious threat may exist, what's the next step?

Inspectors go to the site to collect additional information to evaluate its hazard potential. During this *site inspection*, they look for evidence of hazardous waste, such as leaking drums and dead or discolored vegetation. They may take some samples of soil, well water, river water, and air. Inspectors analyze the ways hazardous materials could be polluting the environment, such as runoff into nearby streams. They also check to see if people (especially children) have access to the site.

How does the EPA use the results of the site inspection?

Information collected during the site inspection is used to identify the sites posing the most serious threats to human health and the environment. This way, the EPA can meet the requirement that Congress gave them to use Superfund monies only on the worst hazardous waste sites in the Nation.

To identify the most serious sites, the EPA developed the Hazard Ranking System (HRS). The HRS is the scoring system the EPA uses to assess the relative threat from a release or a potential release of hazardous substances from a site to surrounding groundwater, surface water, air, and soil. A site score is based on the likelihood that a hazardous substance will be released from the site, the toxicity and amount of hazardous substances at the site, and the people and sensitive environments potentially affected by contamination at the site.

Only sites with high enough health and environmental risk scores are proposed to be added to the NPL. That's why 1,245 sites are on the NPL, but there are more than 35,000 sites in the Superfund inventory. Only NPL sites can have a long-term cleanup paid for from Superfund, the national hazardous waste trust fund. Superfund can, and does, pay for emergency actions performed at any site, whether or not it's on the NPL.

Why are sites proposed to the NPL?

Sites proposed to the NPL have been evaluated through the scoring process as the most serious problems among uncontrolled or abandoned hazardous waste sites in the U.S. In addition, a site will be proposed to the NPL if the Agency for Toxic Substances and Disease Registry issues a health advisory recommending that people be moved away from the site. The NPL is updated at least once a year, and it's only after public comments are considered that these proposed worst sites officially are added to the list.

Listing on the NPL does not set the order in which sites will be cleaned up. The order is influenced by the relative priority of the site's health and environmental threats compared to other sites, and such factors as State priorities, engineering capabilities, and available tech-

nologies. Many States also have their own list of sites that require cleanup; these often contain sites that are not on the NPL and are scheduled to be cleaned up with State money. And, it should be noted again that any emergency action needed at a site can be performed by the Superfund, whether or not a site is on the NPL.

A detailed description of the current progress in cleaning up NPL sites is found in the section of the 1991 National overview volume entitled *Cleanup Successes: Measuring Progress.*

How do people find out whether the EPA considers a site a national priority for cleanup under the Superfund Program?

All NPL sites, where Superfund is responsible for cleanup, are described in the State and Territorial volumes. The public also can find out whether other sites, not on the NPL, are being addressed by the Superfund program by calling their Regional EPA office or the Superfund Hotline at the numbers listed in this book.

STEP 3: LONG-TERM CLEANUP ACTIONS

After a site is added to the NPL, what are the steps to cleanup?

The ultimate goal for a hazardous waste site on the NPL is a permanent, long-term cleanup. Since every site presents a unique set of challenges, there is no single all-purpose solution. A five-phase "remedial response" process is used to develop consistent and workable solutions to hazardous waste problems across the Nation:

1. *Remedial Investigation*: investigate in detail the extent of the site contamination
2. *Feasibility Study*: study the range of possible cleanup remedies
3. *Record of Decision or ROD*: decide which remedy to use
4. *Remedial Design*: plan the remedy
5. *Remedial Action*: carry out the remedy

This remedial response process is a long-term effort to provide a permanent solution to an environmental problem that presents a serious threat to the public or environment.

The first two phases of a long-term cleanup are a combined *remedial investigation and feasibility study* (RI/FS) that determine the nature and extent of contamination at the site and identify and evaluate cleanup alternatives. These studies may be conducted by the EPA or the State or, under their monitoring, by private parties.

Like the initial site inspection described earlier, a remedial investigation involves an examination of site data in order to better define the problem. However, the remedial investigation is much more detailed and comprehensive than the initial site inspection.

A remedial investigation can best be described as a carefully designed field study. It includes extensive sampling and laboratory analyses to generate more precise data on the types and quantities of wastes present at the site, the type of soil and water drainage patterns, and specific human health and environmental risks.

The result of the remedial investigation is information that allows the EPA to select the cleanup strategy that is best suited to a particular site or to determine that no cleanup is needed.

Placing a site on the NPL does not necessarily mean that cleanup is needed. It is possible for

a site to receive an HRS score high enough to be added to the NPL, but not ultimately require cleanup actions. Keep in mind that the purpose of the scoring process is to provide a preliminary and conservative assessment of *potential* risk. During subsequent site investigations, the EPA may find either that there is no real threat or that the site does not pose significant human health or environmental risks.

How are cleanup alternatives identified and evaluated?

The EPA or the State or, under their monitoring, private parties identify and analyze specific site cleanup needs based on the extensive information collected during the remedial investigation. This analysis of cleanup alternatives is called a *feasibility study*.

Since cleanup actions must be tailored exactly to the needs of each individual site, more than one possible cleanup alternative is always considered. After making sure that all potential cleanup remedies fully protect human health and the environment and comply with Federal and State laws, the advantages and disadvantages of each cleanup alternative are compared carefully. These comparisons are made to determine their effectiveness in the short and long term, their use of permanent treatment solutions, and their technical feasibility and cost.

To the maximum extent practicable, the remedy must be a permanent solution and must use treatment technologies to destroy principal site contaminants. Remedies such as containing the waste on site or removing the source of the problem (like leaking barrels) often are considered effective. Often, special pilot studies are conducted to determine the effectiveness and feasibility of using a particular technology to clean up a site. Therefore, the combined remedial investigation and feasibility study can take between 10 and 30 months to complete, depending on the size and complexity of the problem.

Does the public have a say in the final cleanup decision?

Yes. The Superfund law requires that the public be given the opportunity to comment on the proposed cleanup plan. Their concerns are considered carefully before a final decision is made.

The results of the remedial investigation and feasibility study, which also point out the recommended cleanup choice, are published in a report for public review and comment. The EPA or the State encourages the public to review the information and take an active role in the final cleanup decision. Fact sheets and announcements in local papers let the community know where they can get copies of the study and other reference documents concerning the site. Local information repositories, such as libraries or other public buildings, are established in cities and towns near each NPL site to ensure that the public has an opportunity to review all relevant information and the proposed cleanup plans. Locations of information repositories for each NPL site described in this volume are given in Appendix B.

The public has a minimum of 30 days to comment on the proposed cleanup plan after it is published. These comments can be written or given verbally at public meetings that the EPA or the State are required to hold. Neither the EPA nor the State can select the final cleanup remedy without evaluating and providing written answers to specific community comments and concerns. This "responsiveness summary" is part of the EPA's write-up of the final remedy decision, called the Record of Decision, or ROD.

The ROD is a public document that explains the cleanup remedy chosen and the reason it

was selected. Since sites frequently are large and must be cleaned up in stages, a ROD may be necessary for each contaminated resource or area of the site. This may be necessary when contaminants have spread into the soil, water, and air and affect such sensitive areas as wetlands, or when the site is large and cleaned up in stages. This often means that a number of remedies, using different cleanup technologies, are needed to clean up a single site.

If every cleanup action needs to be tailored to a site, does the design ofthe remedy need to be tailored, too?

Yes. Before a specific cleanup action is carried out, it must be designed in detail to meet specific site needs. This stage of the cleanup is called the *remedial design.* The design phase provides the details on how the selected remedy will be engineered and constructed.

Projects to clean up a hazardous waste site may appear to be like any other major construction project but, in fact, the likely presence of combinations of dangerous chemicals demands special construction planning and procedures. Therefore, the design of the remedy can take anywhere from six months to two years to complete. This blueprint for site cleanup includes not only the details on every aspect of the construction work, but a description of the types of hazardous wastes expected at the site, special plans for environmental protection, worker safety, regulatory compliance, and equipment decontamination.

Once the design is completed, how long does it take to actually clean up the site, and how much does it cost?

The time and cost for performing the site cleanup, called the *remedial action,* are as varied as the remedies themselves. In a few cases, the only action needed may be to remove drums of hazardous waste and to decontaminate them, an action that takes limited time and money. In most cases, however, a remedial action may involve different and expensive cleanup measures that can take a long time.

For example, cleaning polluted groundwater or dredging contaminated river bottoms can take several years of complex engineering work before contamination is reduced to safe levels. Sometimes the selected cleanup remedy described in the ROD may need to be modified because of new contaminant information discovered or difficulties that were faced during the early cleanup activities. Taking into account these differences, each remedial cleanup action takes an average of 18 months to complete and ultimately costs an average of $26 million to complete all necessary cleanup actions at a site .

Once the cleanup action is completed, is the site automatically "deleted" from the NPL?

No. The deletion of a site from the NPL is anything but automatic. For example, cleanup of contaminated groundwater may take up to 20 years or longer. Also, in some cases, *long-term monitoring* of the remedy is required to ensure that it is effective. After construction of certain remedies, operation and maintenance (e.g., maintenance of ground cover, groundwater monitoring, etc.), or continued pumping and treating of groundwater may be required to ensure that the remedy continues to prevent future health hazards or environmental damage and ultimately meets the cleanup goals specified in the ROD. Sites in this final monitoring or operational stage of the cleanup process are designated as "construction complete."

It's not until a site cleanup meets all the goals and monitoring requirements of the selected

remedy that the EPA can officially propose the site for *deletion* from the NPL, and it's not until public comments are taken into consideration that a site actually can be deleted from the NPL. All sites deleted from the NPL and sites with completed construction are included in the progress report found later in this book.

Can a site be taken off the NPL if no cleanup has taken place?

Yes. But only if further site investigation reveals that there are no threats present at the site and that cleanup activities are not necessary. In these cases, the EPA will select a "no action" remedy and may move to delete the site when monitoring confirms that the site does not pose a threat to human health or the environment.

In other cases, sites may be "removed" from the NPL if new information concerning site cleanup or threats show that the site does not warrant Superfund activities.

A site may be removed if a revised HRS scoring, based on updated information, results in a score below the minimum for NPL sites. A site also may be removed from the NPL by transferring it to other appropriate Federal cleanup authorities, such as RCRA, for further cleanup actions.

Removing sites for technical reasons or transferring sites to other cleanup programs preserves Superfund monies for the Nation's most pressing hazardous waste problems where no other cleanup authority is applicable.

Can the EPA make parties responsible for the contamination pay?

Yes. Based on the belief that "the polluters should pay," after a site is placed on the NPL, the EPA makes a thorough effort to identify and find those responsible for causing contamination problems at a site. Although the EPA is willing to negotiate with these private parties and encourages voluntary cleanup, it has the authority under the Superfund law to legally force those potentially responsible for site hazards to take specific cleanup actions. All work performed by these parties is closely guided and monitored by the EPA and must meet the same standards required for actions financed through the Superfund.

Because these enforcement actions can be lengthy, the EPA may decide to use Superfund monies to make sure a site is cleaned up without unnecessary delay. For example, if a site presents an imminent threat to public health and the environment or if conditions at a site may worsen, it could be necessary to start the cleanup right away. Those responsible for causing site contamination are liable under the law (CERCLA) for repaying the money the EPA spends in cleaning up the site.

Whenever possible, the EPA and the Department of Justice use their legal enforcement authorities to require responsible parties to pay for site cleanups, thereby preserving Superfund resources for emergency actions and for sites where no responsible parties can be identified.

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.

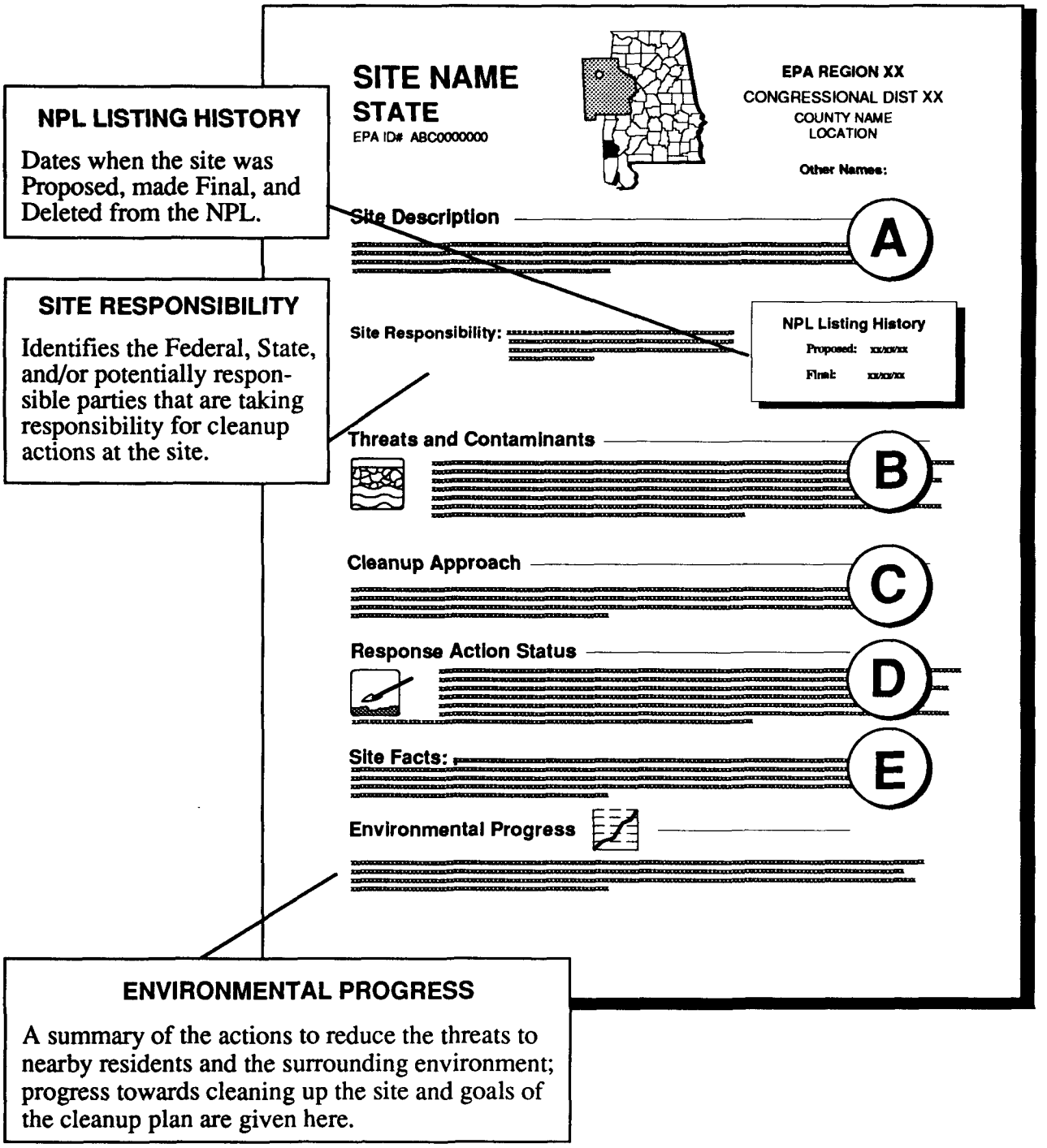
HOW CAN YOU USE THIS STATE BOOK?

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
CONGRESSIONAL DIST XX
COUNTY NAME
LOCATION
Other Names:
Site Description
A
Site Responsibility:
NPL Listing History
Proposed: xx/xx/xx
Final: xx/xx/xx
Threats and Contaminants
B
Cleanup Approach
C
Response Action Status
D
Site Facts:
E
Environmental Progress
NPL LISTING HISTORY
Dates when the site was Proposed, made Final, and Deleted from the NPL.
SITE RESPONSIBILITY
Identifies the Federal, State, and/or potentially responsible parties that are taking responsibility for cleanup actions at the site.
ENVIRONMENTAL PROGRESS
A summary of the actions to reduce the threats to nearby residents and the surrounding environment; progress towards cleaning up the site and goals of the cleanup plan are given here.

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 Contaminated *Groundwater* 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 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.

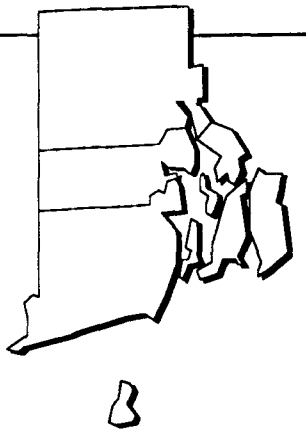
Remedy Selected indicates that site investigations have been concluded, and the EPA has selected a final cleanup remedy for the site or part of the site.

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.

Environmental Progress summarizes the activities taken to date to protect human health and to clean up site contamination.



The State of Rhode Island

The State of Rhode Island is the smallest state in the United States, covering 1,212 square miles. Located in EPA's northeastern Region 1, which includes six states in the northeastern United States, Rhode Island's topography changes from the eastern lowlands of the Narrangansett Basin to the western uplands of flat and rolling hills. According to the 1990 Census, the state experienced a 6% increase in population between 1980 and 1990. Rhode Island has approximately 1,007,000 residents and currently ranks 43rd in U.S. populations. Rhode Island's principal industries are service industries and the manufacture of costume jewelry, machinery, textiles, electronics, and silverware.

How Many NPL Sites Are in the State of Rhode Island?

Proposed	0
Final	11
Deleted	0
	11

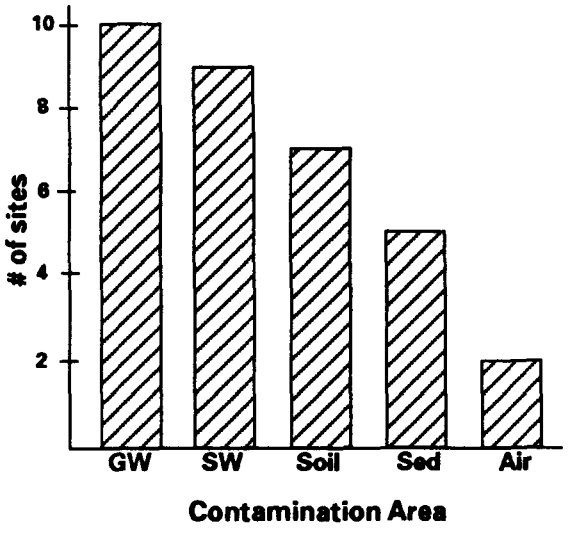
Where Are the NPL Sites Located?

Congressional District 1	6 sites
Congressional District 2	5 sites

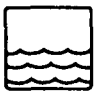
What Type of Sites Are on the NPL in the State of Rhode Island?

# of sites	type of sites
4	Municipal & Industrial Landfills
3	Disposal Facilities
2	Federal Facilities
1	Chemical & Allied Products
1	Textile Mill Products

How Are Sites Contaminated and What Are the Principal* Chemicals?



Groundwater: Volatile organic compounds (VOCs), heavy metals (inorganics), and gases.



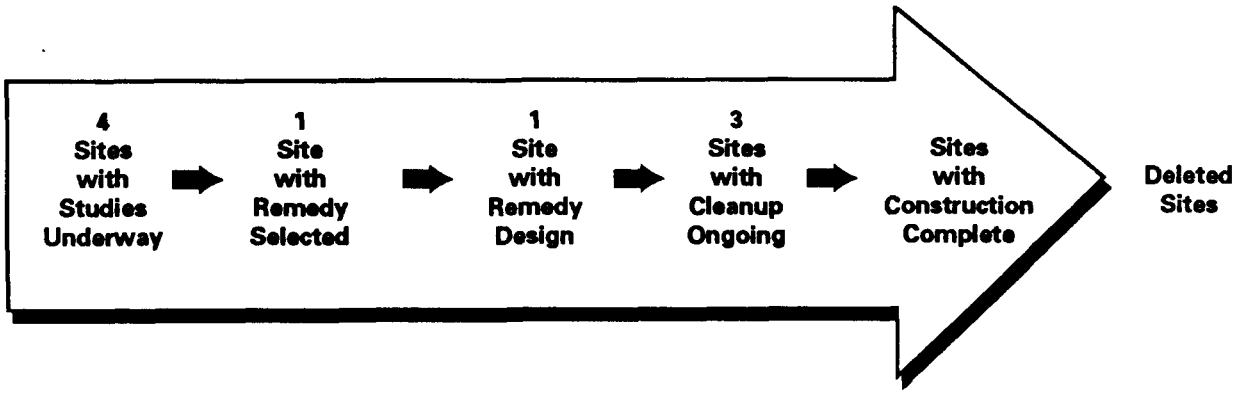
Surface Water and Sediments: Volatile organic compounds (VOCs), heavy metals (inorganics), polychlorinated biphenyls (PCBs), and creosotes (organics).

Soil: Volatile organic compounds (VOCs), heavy metals (inorganics), polychlorinated biphenyls (PCBs), and creosotes (organics).

Air: Volatile organic compounds (VOCs), pesticides, and gases.

*Appear at 25% or more sites

Where Are the Sites in the Superfund Cleanup Process?†



In addition to the activities described above, initial actions have been taken at 6 sites as interim cleanup measures.

†Cleanup status reflects phases of site activities rather than administrative accomplishments.

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 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.

- 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 is 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.

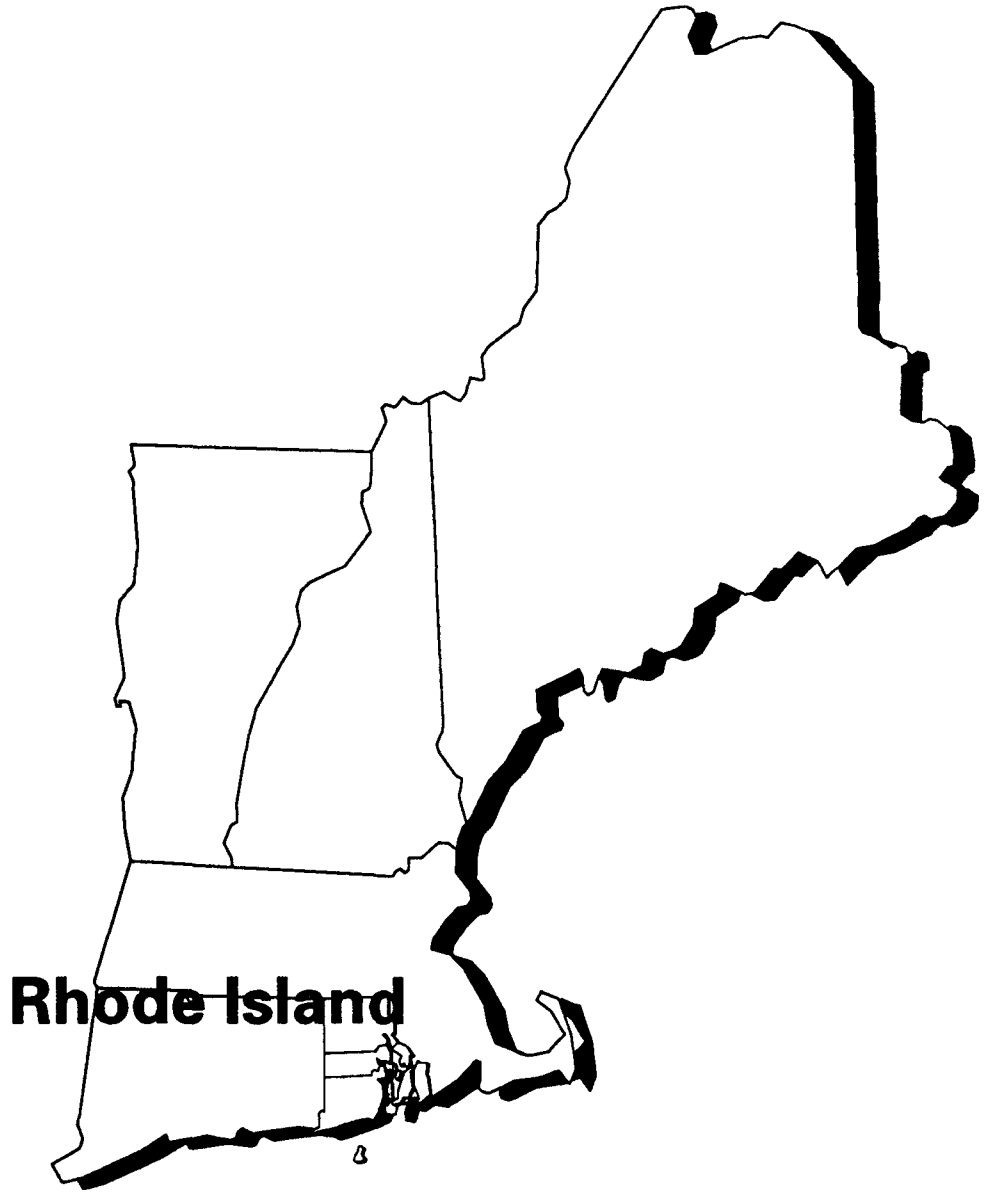
- A check in the "Deleted" category indicates that the site cleanup has met all human health and environmental goals and that the EPA has deleted the site from the NPL.

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 Rhode Island

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
23	CENTRAL LANDFILL	PROVIDENCE	Final	06/01/86		⇨					
25	DAVIS (GSR) LANDFILL	PROVIDENCE	Final	06/01/86		⇨					
27	DAVIS LIQUID WASTE	PROVIDENCE	Final	09/08/83	⇨	⇨	⇨	⇨	⇨		
29	DAVISVILLE NAVAL CONST. BATTALION CENTER	WASHINGTON	Final	11/15/89	⇨	⇨					
33	LANDFILL & RESOURCE RECOVERY, INC.	PROVIDENCE	Final	09/01/83		⇨	⇨	⇨			
35	NEWPORT NAVAL EDUC. & TRAINING CENTER	NEWPORT	Final	11/15/89							
37	PETERSON/PURITAN, INC.	PROVIDENCE	Final	09/08/83		⇨					
39	PICILLO FARM	KENT	Final	09/01/83	⇨	⇨	⇨	⇨	⇨		
41	ROSE HILL REGIONAL LANDFILL	WASHINGTON	Final	10/04/89	⇨						
43	STAMINA MILLS, INC.	PROVIDENCE	Final	09/01/83	⇨	⇨	⇨				
45	WESTERN SAND & GRAVEL	PROVIDENCE	Final	09/01/83	⇨	⇨	⇨	⇨	⇨		

Summary of Site Activities



Rhode Island

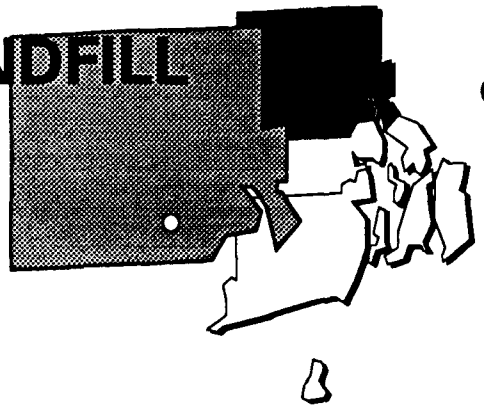
EPA REGION 1

Who Do I Call with Questions?

The following pages describe each NPL site in Rhode Island, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call the EPA's Region 1 Office in Boston, Massachusetts or one of the other offices listed below:

EPA Region 1 Superfund Community Relations Office	(617) 565-3425
EPA Region 1 Superfund Office	(617) 573-9645
EPA Superfund Hotline	(800) 424-9346
EPA Headquarters Public Information Center	(202) 260-2080
Rhode Island Superfund Office	(401) 277-2797

CENTRAL LANDFILL
RHODE ISLAND
EPA ID# RID980520183



EPA REGION 1
CONGRESSIONAL DIST. 02
Providence County
Johnston

Other Names:
Rhode Island Central Landfill
Silvestri Bros. Landfill
Johnston Site

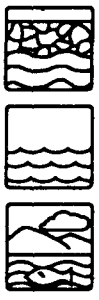
Site Description

The Central Landfill site covers approximately 155 acres of a 600-acre tract in Johnston. Licensed by Rhode Island and supported by State funds, this active municipal landfill receives approximately 85% of Rhode Island's solid waste. State records indicate that 1 1/2 million gallons of hazardous wastes generated within the State were disposed of at the site in 1978 and 1979. In 1982, the owner complied with a State order to close the areas that had received hazardous wastes. These areas have been excavated, backfilled, and capped to prevent further contamination of the groundwater and surface water and revegetated as part of the closure plan. Approximately 4,000 people live within 3 miles of the site. The nearest home is 1/2 mile away. Nearby private wells downgradient from the site are contaminated with solvents. The bedrock aquifer may be contaminated, and the adjacent wetlands also may be affected. Cedar Swamp Brook, used for recreational boating, flows southeast along the southwest perimeter of the site.

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

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

Threats and Contaminants



The groundwater and surface water are contaminated with volatile organic compounds (VOCs), including toluene and methylene chloride from disposal of solvents. People who come in direct contact with or drink water from nearby wells are under potential health risk, because the groundwater is reported to contain elevated lead levels. Cedar Swamp Brook and adjacent wetlands also may contain contamination.

Cleanup Approach

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

Response Action Status

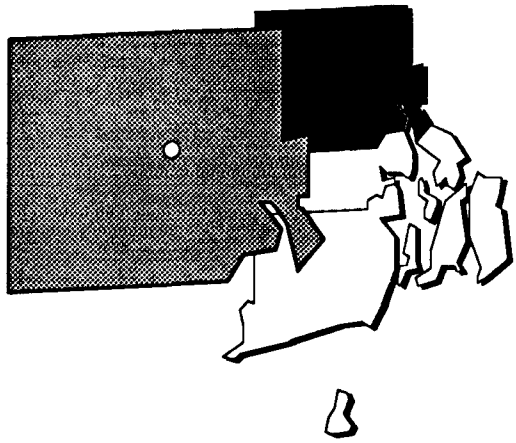
Entire Site: In 1987, the owner began a study to determine the extent and nature of groundwater, soil, and sediment contamination on the site and to evaluate alternatives for cleanup. Groundwater monitoring and sampling wells have been completed. The EPA expects to evaluate study findings and select a cleanup remedy in 1992. At that point, the EPA will outline the owner's responsibilities for cleaning up the site.

Site Facts: The owner of the landfill entered into a Consent Order with the EPA, signed in 1987, to conduct a study of the contamination conditions at the site.

Environmental Progress

Following the listing of this site on the NPL, the EPA has determined that the public and environment are not at immediate risk from site contamination. The site is safe while studies at the Central Landfill are being conducted and the final cleanup alternatives are being addressed.

DAVIS (GSR) LANDFILL
RHODE ISLAND
EPA ID# RID980731459



EPA REGION 1
CONGRESSIONAL DIST. 01
Providence County
Glocester/Smithfield

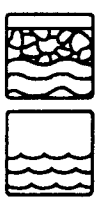
Site Description

The Davis (GSR) Landfill is a 58-acre inactive landfill located in Glocester and is opposite the Davis Liquid Waste Site in Smithfield, which was placed on the NPL in 1983. Between 1974 and 1976, the landfill, which was privately owned and licensed by the State to accept municipal wastes, accepted such wastes from Glocester, Smithfield, Warwick, and Providence. In 1978, the State declined to renew the permit because the facility, during the previous year, had violated numerous rules and regulations for operating solid waste management facilities. Numerous legal actions to close the site ensued, and the State Supreme Court ruled in favor of the State in 1982, at which time the site was closed, but it was not properly capped or stabilized. The State found both surface water and groundwater contamination on site, and the EPA confirmed off-site contamination. No municipal water supplies are readily available. Fifteen people live within 1,000 feet of the site. Approximately 200 residents who utilize private water wells live within a 1-mile radius, and within a 3-mile radius there are approximately 4,700 people using private wells. The State believes that contaminated groundwater is moving toward Waterman Reservoir, which is used for recreation and drinking water.

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

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

Threats and Contaminants



The groundwater, surface water, and sediments are contaminated with volatile organic compounds (VOCs), such as toluene and benzene and heavy metals including lead. Access to the site is limited only by a locked gate on the access road. Direct contact with or accidental ingestion of contaminated surface water, sediment, or groundwater threaten the health of people, as does inhaling airborne contaminants.

Cleanup Approach

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

Response Action Status

Entire Site: In 1990, the EPA began an investigation into the nature and extent of contamination at the site, the results of which will led to the identification of cleanup alternatives. Study completion is planned for 1992, at which time the EPA will select a final cleanup remedy.

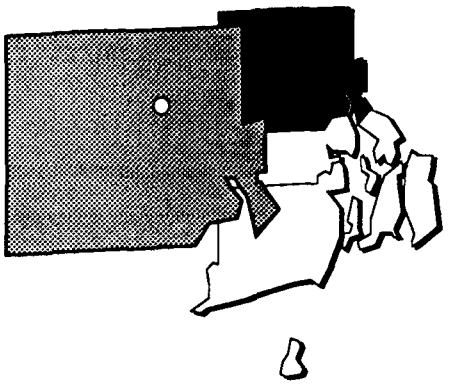
Environmental Progress

In 1990, the EPA conducted tests of the site conditions and determined that the Davis Landfill poses no immediate threat to the public or the environment while the investigation leading to final cleanup activities is taking place.

DAVIS LIQUID WASTE

RHODE ISLAND

EPA ID# RID980523070



EPA REGION 1
CONGRESSIONAL DIST. 01
Providence County
Smithfield

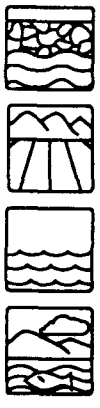
Site Description

The Davis Liquid Waste site is a disposal facility for hazardous wastes that covers approximately 10 acres and is located in a rural section of Smithfield. Throughout the 1970s, the site accepted liquid and chemical wastes such as paint and metal sludges, oily wastes, solvents, acids, caustics, pesticides, phenols, halogens, metals, fly ash, and laboratory pharmaceuticals. Liquid wastes were transported in drums and bulk tank trucks and were dumped directly into unlined lagoons and seepage pits. The operator periodically excavated the semi-solid lagoon materials, dumped them at several locations on the site, and covered them with soil. Other operations included the collection of junked vehicles and machine parts, metal recycling, and tire shredding. These activities resulted in soil, surface water, sediment, and groundwater contamination, both on and off the site. In 1978, discovery of off-site well contamination prompted the State Superior Court to prohibit further dumping of hazardous substances on the Davis property. The owner still is using sections of the disposal area and adjacent property (20 acres) as a staging and storage area for 10 to 15 million tires. The area is residential; the nearest homes are within 1,500 feet of the site. There are 240 people living within 1 mile and 4,700 people within 3 miles of the site; the nearest well is 300 feet away. The property is bordered on the north and south by wetlands and swamp areas.

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

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

Threats and Contaminants



Groundwater contamination consists of volatile organic compounds (VOCs) and heavy metals including arsenic and lead from the lagoons and seepage pit areas. The soil, lagoon sediments, and surface water also are contaminated with VOCs and heavy metals. Residential wells to the north and northeast of the site are contaminated with VOCs. People could be exposed to contaminants by ingesting or using contaminated groundwater, coming in direct contact with contaminated soils on site, or by inhaling chemicals that evaporate from the soil or surface water. Because the bordering wetlands have been filled with tires and waste material, water elevations have increased, resulting in a large area of stressed wetland vegetation.

Cleanup Approach

The site is being addressed in three stages: initial actions and two long-term remedial phases focusing on provision of a new water supply line and cleanup of the entire site.

Response Action Status

Initial Actions: In 1985 to 1986, the EPA sampled, packed, and staged approximately 600 intact and crushed drums and shipped them off site for approved disposal. At the same time, bottled water for drinking and cooking was supplied by the Rhode Island Department of Environmental Management to residences with contaminated wells. This temporary action provided a safe water supply while a permanent remedy was being investigated.

Water Supply Line: Residents with contaminated wells are being provided a permanent source of clean water. This water distribution system will serve 120 lots along Forge Road, Log Road, Burlingame Road, and Bayberry Road. The new system includes construction of a 300,000-gallon water storage tank, a water main, pumping stations, and connections to existing residences. For undeveloped lots, the EPA will bring a service connection up to the property line so that future connection may take place at the owner's expense. Installation is expected to be completed in 1993.

Entire Site: The EPA has obtained a court order for access to the site to clean it up. Features of the remedy include: (1) excavation of 25,000 cubic yards of raw waste and contaminated soils for on-site incineration; (2) testing of treated soil—clean soil will be used as backfill and the rest will be placed in an EPA-approved landfill on the site; and (3) on-site groundwater treatment using air stripping followed by carbon filtering to remove the contaminants from the air, with cleaned water being recirculated into the aquifer. The remedy selected in 1987 for cleaning up the site now is being designed by an environmental engineering design firm under U.S. Army Corps of Engineers oversight and EPA monitoring. Design activities are expected to be completed in 1993.

Site Facts: Discovery of off-site well contamination in 1978 resulted in the State Superior Court banning dumping on the site. The EPA obtained a Court Order to gain temporary access to the site. The Department of Justice is preparing a motion for a "conditional" site access to be entered in the Rhode Island Federal Court. The site owner has resisted attempts by Federal officials to investigate the site for cleanup and has continued to conduct business operations within 100 feet of the hazardous dumping site.

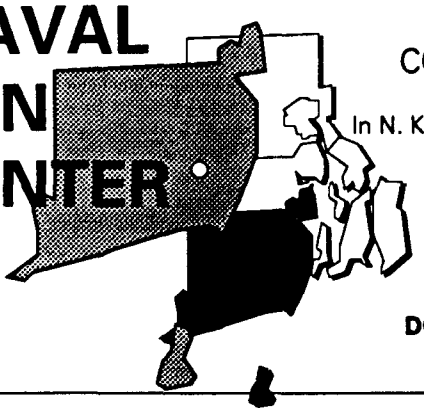
Environmental Progress

The initial cleanup actions at the Davis Liquid Waste site to remove drums and provide an alternative water supply have reduced the potential for exposure to hazardous substances in the drinking water and on the site while it awaits the completion of planned cleanup activities.

DAVISVILLE NAVAL CONSTRUCTION BATTALION CENTER

RHODE ISLAND

EPA ID# RI6170022036



EPA REGION 1
CONGRESSIONAL DIST. 02
Washington County
In N. Kingstown, 18 miles south of Providence

Other Names:
Camp Fogarty
Calf Pasture Point Landfill
NCBC Davisville
Allen Harbor Estuary
DOD/NCBC/Allens Harbor Landfill

Site Description

Covering approximately 1,500 acres, the Davisville Naval Construction Battalion Center (NCBC) is 18 miles south of Providence in North Kingstown. A military installation since 1951, its primary mission is to provide mobilization support to Naval construction forces. Much of the NCBC-Davisville site is contiguous with Narragansett Bay and consists of three areas, including the Main Center, the West Davisville storage area, and Camp Fogarty, a training facility 4 miles west of the Main Center in the town of East Greenwich. Adjoining NCBC's South Boundary is the decommissioned Naval Air Station Quonset Point, which was given to the Rhode Island Port Authority in 1973. The Navy disposed of wastes in all four areas. The Navy has identified at least 24 areas with potential hazardous contamination, but the Department no longer owns several of them. These areas are being investigated by the Army Corps of Engineers; chief among them is the Camp Avenue Landfill at the decommissioned Naval Air Station. The Navy's current studies focus on ten areas: the Allen Harbor Landfill (the largest of the areas) received solvents, paint thinners, degreasers, polychlorinated biphenyls (PCBs) from transformers, sewage sludge, and contaminated fuel oil from 1946 to 1972; the Calf Pasture Landfill, which received "decontamination agents" and various other contaminants; the Construction Equipment Department (CED) Battery Acid Disposal Area; the CED Solvent Disposal Area; the Transformer Oil Disposal Area (near Building 37); the Solvent Disposal Area; the Defense Property Disposal Office (DPDO) Film Processing Disposal Area; the Camp Fogarty Disposal Area; the Fire Fighting Training Area; and the Disposal Areas Northwest of Buildings W-3, W-4 and T-1. About twenty 5-gallon cans of calcium hypochlorite were disposed of in a drainage ditch on the site between 1960 and 1971. In 1973, thirty to forty 35-gallon cardboard containers of chloride were stored at the site and deteriorated over time. From 1968 to 1974, about 2,500 3-gallon cans also were disposed of. From 1968 to 1974, the Transformer Oil Disposal Area received 30 gallons of PCB-containing oil, which was drained from transformers and poured on the ground east of Building 37. The surrounding area is single-family residential. Approximately 27,000 people get their drinking water from public wells within 3 miles of the site.

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

NPL LISTING HISTORY
Proposed Date: 07/14/89
Final Date: 11/15/89

Threats and Contaminants

Heavy metals including lead, cadmium, silver, mercury, and chromium were found in the sediments and shoreline of Allen Harbor. Other contaminants in Allen Harbor include polycyclic aromatic hydrocarbons (PAHs), polynuclear aromatic hydrocarbons (PNAs), solvents, and PCBs. Soil contamination is not specified, but dumping practices involved organic solvents, PCBs, sewage sludge, contaminated fuel oil, and halogens. Some public wells are located upgradient between 1 and 3 miles from disposal sites. The potential for contamination of these wells is small. Groundwater is shallow (2-4 feet in some areas), and the soil is permeable, conditions that facilitate movement of contaminants into the groundwater. In addition, it has been shown that Allen Harbor is polluted. A number of salt marshes that could be affected by contamination from the site have been identified in the Allen Harbor, Calf Pasture Point, and Narragansett Bay areas.

Cleanup Approach

The Navy has separated its cleanup efforts into four stages: initial actions and three long-term remedial phases that correspond to the main areas of contamination it is investigating.

Response Action Status

Initial Actions: In 1991, the Navy removed materials from two on-site buildings that were contaminated by PCB spills. Planning activities have entered a second phase to arrange for the removal of more PCB-contaminated materials in on-site buildings that were not addressed before.

Allen Harbor Landfill: The water, sediment, and organisms in Allen Harbor were sampled as part of the confirmation studies and found to be contaminated. Given the landfill's location adjacent to the Harbor, it is quite likely that leachate will migrate into the Harbor. A study of the nature and extent of site contamination and assessment of possible cleanup choices is underway and is scheduled for completion in 1992.

DPO/FPD: The Navy took 16 soil samples from the transformer oil disposal area in 1985 and 6 samples in 1986 and analyzed them for PCBs. A study of the nature and extent of site contamination and assessment of possible cleanup choices is underway. The migration potential of contaminants off site is moderate to high. Groundwater flow is assumed to be toward Hall Creek, which is 600 feet from the site.

Other Areas: A magnetometer study was conducted at the Calf Pasture Point area to locate the cans containing contaminants. Soil borings were taken in 1985 to determine the depth of contamination. The mobility of contaminants is moderate to high; however, the effect on the groundwater to date is minimal. A study of the nature and extent of site contamination and assessment of possible cleanup choices is underway.

Site Facts: NCBC is participating in the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities. In 1988, the EPA and the Naval Ocean Systems Center began conducting a study at the Allen Harbor landfill, under a Memorandum of Agreement. An Interagency Agreement to cover current site studies is expected to be signed in 1991.

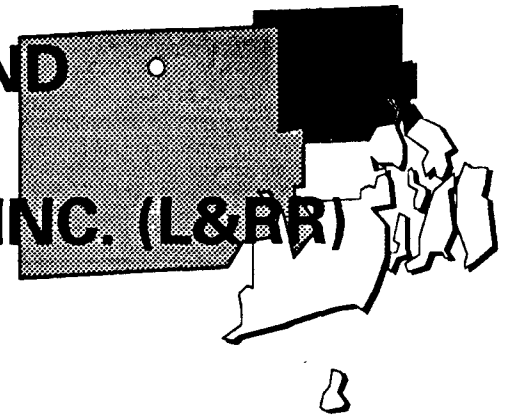
Environmental Progress 

Following the listing of this site on the NPL, the EPA determined that the contamination at NCBC Davisville does not pose an immediate threat to surrounding residents or the environment at the present time. The site is safe while it awaits further cleanup actions.

LANDFILL AND RESOURCE RECOVERY, INC. (L&RR)

RHODE ISLAND

EPA ID# RID093212439



EPA REGION 1
CONGRESSIONAL DIST. 01
Providence County
1/2 mile east of Slatersville Reservoir
in North Smithfield

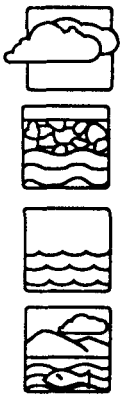
Site Description

The Landfill and Resource Recovery, Inc. (L&RR) site is a 28-acre landfill on a 36-acre parcel of land. The site originally was a sand and gravel pit and was used for small-scale refuse disposal from 1927 to 1974. In 1974, the site was sold and developed into a large-scale disposal facility accepting commercial, municipal, and industrial wastes. Until 1979, an estimated 1 1/2 million gallons of hazardous wastes were accepted and disposed with other wastes in the central portion of the landfill. The hazardous wastes included many types of bulk and drummed organic and inorganic materials in liquid, sludge, and solid forms. In 1979, the operator placed a polyvinyl chloride cover over the area containing hazardous waste to prevent rainwater from entering. Landfilling of commercial and residential wastes continued until 1985, when the owners closed the landfill and placed another synthetic cover over nearly the entire landfill. Soil was placed over the synthetic cover, and it was partially planted with vegetation. Although the area still is rural, there are approximately 10,000 residents in a 25-square-mile area; the area appears to be undergoing a substantial growth in residential development. Within a 1/2-mile radius of the site, there are fewer than 50 residences and no multi-residential housing developments. More than 3,000 people live within 3 miles of the site. An industrial park is located approximately 3,000 feet to the north, and Air National Guard installations are approximately 1,000 feet to the east and 3,000 feet to the south of the site. Most, if not all, residences in the site vicinity obtain their drinking water from individual wells. Trout Brook, adjacent to the site, and the Slatersville Reservoir, into which it discharges, are used for fishing and other recreation, but are not public water supply sources.

Site Responsibility: This 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 air at the landfill vents is contaminated with volatile organic compounds (VOCs) including carbon tetrachloride, chloroform, and benzene. The groundwater on site is contaminated with arsenic, lead, and VOCs from waste liquids disposed of on site and from rainwater entering the landfilled wastes and causing contamination to move into the groundwater. The surface water on the site is contaminated with lead. The only health threat is from gaseous emissions from the landfill. The landfill is enclosed by a single-strand fence. The only significant environmental threat is to the wetlands surrounding the site. The wetlands are being affected by sand eroding from the landfill. The eroded sand is not contaminated; however, it is filling in the wetlands, destroying vegetation and decreasing the ability of the wetland area to support plant and animal life.

Cleanup Approach

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

Response Action Status

Entire Site: In 1977, the owner installed monitoring wells on site to ensure compliance with State regulations. The owner closed the landfill in 1985, and 3/4 of the site was covered with a synthetic cap to minimize infiltration of rain and melted snow. Soil also was used to establish a vegetative cover. The cap was designed and constructed with gas vents to prevent the buildup of gases under the cap. These vents currently are sealed. The selected long-term remedy for this site includes: (1) installation of more substantial fencing; (2) stabilization of the steep side slopes of the landfill and installation of a synthetic cap over the uncapped area of the landfill, with establishment of a vegetative cover over the entire landfill; (3) collection and thermal destruction of underlying gases; and (4) groundwater and air monitoring. Design of these cleanup actions by the potentially responsible parties began in 1990.

Site Facts: In 1985, the landfill was closed by the owner under a Consent Order with the State. In 1990, an Administrative Order was issued to the potentially responsible parties to conduct design and cleanup activities.

Environmental Progress

Closing the landfill, installing a cover, and constructing a fence to limit access to the site have reduced the potential for exposure to hazardous materials at the Landfill and Resource Recovery site while cleanup activities are being designed and implemented.

NEWPORT NAVAL EDUCATION AND TRAINING CENTER

RHODE ISLAND

EPA ID# RI6170085470

EPA REGION 1
CONGRESSIONAL DIST. 01
Newport County
Aquidneck Island

Other Names:
U.S. Navy McAllister
Melville North Landfill
DOD/NETC/McAllister Point Landfill

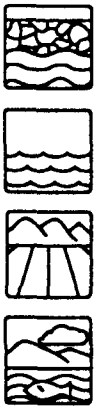
Site Description

The 1,064-acre Newport Naval Education and Training Center (NETC) site has been used by the Navy as a refueling depot since 1900. From 1955 to the mid-1970s, the 6-acre McAllister Point Landfill, along the shore of Narragansett Bay, accepted wastes consisting primarily of domestic refuse, acids, solvents, paint, waste oil, and oil contaminated with polychlorinated biphenyls (PCBs). Similar wastes were deposited at the 10-acre Melville North Landfill, located in a low-lying wetland area along the shore of the Bay. It was sold to Melville Marine Industries/Hood Enterprises in 1984. Three tank farms are located in the Melville area and one in Midway. Sludge from nearby tank farms was dumped on the ground or burned in chambers. Other contaminated areas on site are classified as Formerly Used Defense sites and are being addressed separately. Surface water and groundwater flow from the landfill into the bay, which is used for boating and fishing. One tank farm is 300 feet from a coastal wetland. An estimated 4,800 people obtain drinking water and 220 acres of land are irrigated from private wells within 3 miles of hazardous substances at the site. Approximately 10,000 people live within 3 miles of the site.

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

NPL LISTING HISTORY
Proposed Date: 07/14/89
Final Date: 11/15/89

Threats and Contaminants



Monitoring wells detected petroleum products and heavy metals, including lead and copper, in the groundwater. Sediments collected from Narragansett Bay contain lead, copper and nickel. Landfill soil and leachate contain heavy metals, petroleum hydrocarbons, and polychlorinated biphenyls (PCBs). Initial studies have shown that none of the areas within the site pose an immediate threat to human health. However, the site warrants a study to assess potential long-term impacts. Tidal action of the Narragansett Bay may spread contamination to nearby wetlands.

Cleanup Approach

The site is being addressed in three long-term remedial phases focusing on the McAllister Point Landfill, Tank Farms, and the remaining areas of the site.

Response Action Status

McAllister Point Landfill: Bay sediments, biota, landfill soil, and leachate samples were collected and analyzed as part of the confirmation studies. High levels of metals were detected, as well as elevated levels of PCBs and petroleum hydrocarbons. A more thorough investigation into the contamination in, and emanating from, the landfill will begin in 1991. The investigation will define the contaminants and will recommend final cleanup alternatives.

Tank Farms: Groundwater and soil samples taken in and around Tank Farm One during the confimation studies revealed the presence of high concentrations of gasoline or oil contaminants in the groundwater and oil, grease, and lead contamination in the soils. The study recommended that additional testing be conducted to determine the condition of the remaining tanks and other Tank Farms. Tank Farms Four and Five will be investigated beginning in 1991. Field investigations at Tank Farms One, Two, and Three will be designed, based on the sampling and analysis results of Tank Farms Four and Five.

Other Site Areas: Another investigation into the contamination remaining at other areas on the NETC will begin in 1991. The investigation will define the contaminants and will recommend cleanup alternatives. Once the site investigation for each of the contaminated areas has been completed, the EPA will evaluate the findings and will determine any additional action necessary to clean up these areas.

Site Facts: This site is being addressed under the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities.

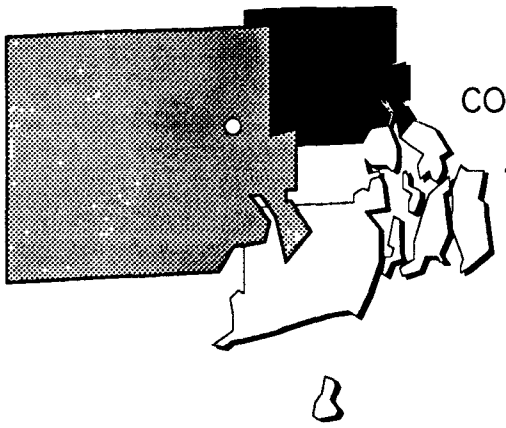
Environmental Progress

Following listing of this site on the NPL, the EPA completed a site assessment and determined that the Newport Naval Center does not pose an immediate threat to public health or the environment at the present time. The Newport Naval Center site is safe while it awaits the start of cleanup actions.

PETERSON/ PURITAN, INC.

RHODE ISLAND

EPA ID# RID055176283



EPA REGION 1

CONGRESSIONAL DIST. 01

Providence County

Along the Blackstone River in Cumberland and Lincoln

Other Names:
Blackstone Valley

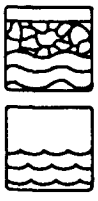
Site Description

The Peterson/Puritan Inc., plant was built in 1959 and began packaging aerosol consumer products. During the mid-1970s, a change was made in the product formula due to Federal restrictions on fluorocarbons. The plant began using carbon dioxide and several gaseous hydrocarbons. In 1976, following a major fire, the plant was rebuilt. The site "study area" comprises an industrial park, extraction areas, an inactive landfill, an inactive solid waste transfer station, the Dexter Quarry/ Dupaw Dump, and numerous interspersed areas of undeveloped land along the Blackstone River. Production wells for public water supplies are located within the site study area. The Martin Street well and Lenox Street well in the Town of Cumberland and the Quinnville well field in the Town of Lincoln were closed and remain out of service. Attempts to flush contaminants from the wells were abandoned after repeated efforts to remove the contaminants failed. With the expansion of the municipal water supply system, residential wells in Cumberland and Lincoln were abandoned. Lincoln residents currently obtain their water from the Providence water system. The Peterson/ Puritan Inc., site is located in a mixed industrial and residential area. There are approximately 12,000 people living within a 4-mile radius of the site; the nearest residence is less than 1/4 mile away. Approximately 17,000 people are affected by the contaminated groundwater.

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

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

Threats and Contaminants



Groundwater is contaminated with chlorinated solvents, volatile organic compounds (VOCs) including acetone and benzene; phthalates; and heavy metals such as chromium, lead, and mercury. Certain sediment sample locations are contaminated with polychlorinated biphenyls (PCBs). Surface water is contaminated with low concentrations of VOCs. People are at risk if they come in direct contact with or accidentally ingest contaminated groundwater, surface water, sediment, leachate or potentially contaminated soil. The site is located in a flood plain, which may cause water, sediments, plants, and animals to become contaminated.

Cleanup Approach

The site is being addressed in two long-term remedial phases directed at cleanup of the entire site and the J.M. Mills Landfill.

Response Action Status

Entire Site: The party potentially responsible for contamination at the site is studying the nature and extent of the contamination. The investigation will define the contaminants of concern and will recommend alternatives for site cleanup. Based on the initial findings of the investigation, the EPA determined that a more detailed study will be required. The study currently is scheduled to begin in 1991. Once the study is completed in 1993, the EPA will evaluate the recommended alternatives and will select the final cleanup remedy.

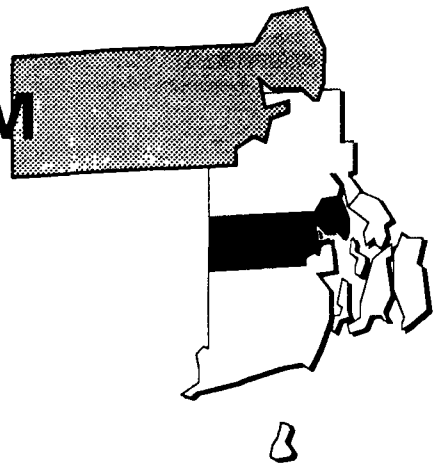
J.M. Mills Landfill: In 1992, the potentially responsible party is scheduled to begin an investigation. The investigation will characterize the nature and extent of contamination that may be attributable to the landfill.

Site Facts: After a preliminary investigation in 1982, the EPA identified the Peterson/Puritan facility as the major source of the contamination in the Quinnville well field. The Town of Lincoln filed a lawsuit against Peterson/Puritan, Inc. based on these findings. In 1984, the company reached a settlement with Lincoln and assisted with the cost of the town's new water supply. The company also installed a recovery well on its property for the purpose of capturing contaminated groundwater underlying its property. In 1987, an Administrative Order was issued to Peterson/Puritan, Inc. to take over from the EPA and conduct the site investigation.

Environmental Progress

The initial actions have provided a safe drinking water supply to affected area residents, and preliminary cleanup of contaminated groundwater has commenced. The EPA continues to assess the conditions at the Peterson/Puritan, Inc. site and has determined that there currently are no immediate actions required to make the site safe while it awaits the results of the investigation into cleanup alternatives.

PICILLO FARM
RHODE ISLAND
EPA ID# RID980579056



EPA REGION 1
CONGRESSIONAL DIST. 02
Kent County
Piggy Hill Lane in Coventry

Other Names:
Candy Box Farm

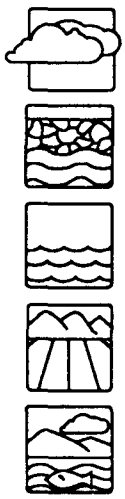
Site Description

The Picillo Farm site is a portion of a former 100-acre pig farm. More than 10,000 drums of hazardous waste and an undetermined bulk volume of liquid chemicals were disposed of into several unlined trenches on an 8-acre area of the farm. The site was discovered in 1977, when a fire and explosion occurred. After requiring the property owners to halt the illegal disposal operations, the State of Rhode Island conducted an emergency removal of drums containing sodium aluminum hydride. From 1980 through 1982, the Rhode Island Department of Environmental Management and the EPA excavated the trenches and removed the majority of the wastes. The contaminated soil was stored on site in three piles. These piles were moved off site in 1988. More than 2,000 people live within 3 miles of the site. There are 50 residences located within a mile of the site; two are within 1/4 mile. All residences rely on private wells for their water; these wells are sampled once a year by the Rhode Island Department of Health. The site lies near the upper Roaring Brook watershed, which is a tributary to the Moosup River. Groundwater and surface water runoff flows away from the disposal site toward an unnamed swamp, Great Cedar Swamp, and Whitford Pond, which is used to irrigate a cranberry bog.

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

NPL LISTING HISTORY
Proposed Date: 10/01/81
Final Date: 09/01/83

Threats and Contaminants



Air on the site contains volatile organic compounds (VOCs) and pesticides. On-site groundwater is contaminated with polychlorinated biphenyls (PCBs) and VOCs including toluene and xylene. Off-site groundwater and surface water in the swamp are contaminated with VOCs. On-site soil is contaminated with phenols, PCBs, and VOCs. Potential threats include direct contact with contaminated soil, surface water, or sediments; drinking of groundwater; and inhalation of VOCs. Contaminated surface water and sediments may pose ecological risks, especially to the nearby wetlands.

Cleanup Approach

The site is being addressed in three stages: emergency actions and two long-term remedial phases focusing on controlling the source of the contamination and cleanup of groundwater and surface water.

Response Action Status

Emergency Actions: From 1980 to 1982, the EPA and the State conducted emergency actions by removing 10,000 buried drums from five trenches on the site. Bulk wastes also were removed. Contaminated soils were dug from trenches and were stockpiled on site.

Source Control: The remedy selected by the EPA and performed by the parties potentially responsible for the site contamination included: (1) disposal of 3,500 cubic yards of PCB-contaminated soils and 3,000 cubic yards of phenol-contaminated soils off site in an approved landfill; (2) installation of a fence; (3) installation of a surface drainage control system; and (4) closure of the site. These remedies were completed in 1988. The Rhode Island Department of Health samples private wells in the vicinity once a year. The Rhode Island Department of Environmental Management is responsible for operation and maintenance activities for the cleanup remedies.

Groundwater and Surface Water: The EPA is studying the on- and off-site groundwater and surface water contamination. The investigation will define the contaminants and will recommend alternatives for the final cleanup. The study is expected to be completed in 1992.

Site Facts: In 1988, the EPA entered into an agreement with 12 potentially responsible parties. Four of these companies removed contaminants and closed down the site under close monitoring by the EPA in 1988.

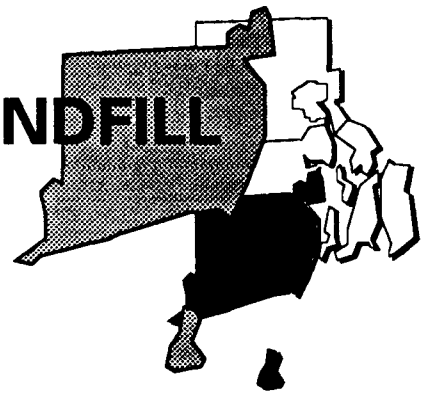
Environmental Progress

With the cleanup actions described above, the EPA has greatly reduced the potential for accidental contact or exposure to contaminated soil and dust. Removing the contaminated soil from the trenches also removed the source of contamination to groundwater, which will be cleaned up in future actions at the Picillo Farm site.

ROSE HILL REGIONAL LANDFILL

RHODE ISLAND

EPA ID# RID980521025



EPA REGION 1
CONGRESSIONAL DIST. 02
Washington County
Rose Hill Road

Site Description

The Rose Hill Regional Landfill site is a former municipal landfill located in the Town of South Kingstown. The Town leased the land for a domestic and industrial waste disposal facility, which operated from 1967 to 1983. In 1983, the site was closed, and the operator reportedly graded and seeded the disposal areas. A transfer station for municipal waste, currently owned and operated by the Town, is located on a portion of the site. Three separate areas on the site received waste: a solid waste landfill, a bulky waste disposal area, and a sewage sludge landfill. An estimated 17,300 people obtain water from wells within 3 miles of the site. The area is rural to residential, with forested areas, fields, small farms and sand/gravel extraction activities nearby. It is bordered by the Saugatucket Riverto the east, and Mitchell Brook flows through the site.

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

NPL LISTING HISTORY
Proposed Date: 06/21/88
Final Date: 10/04/89

Threats and Contaminants

On-site monitoring wells contain several volatile organic compounds (VOCs) including chloroform, benzene, and xylenes, as well as some heavy metals. Observations indicate that Mitchell Brook, an unnamed brook, and the Saugatucket River could be affected by contaminated runoff from the site. Three private wells adjacent to the site are contaminated with low levels of organic compounds, as is on-site soil. The site is not completely fenced, making it possible for people to come into direct contact with hazardous substances. Saugatucket Pond, 2,000 feet downstream, is used for fishing and swimming. A freshwater wetland is 500 feet downstream and also could be subject to contamination.

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: In 1985, the Town of South Kingstown Utilities Department extended the municipal water line to residences adjacent to the site with contaminated wells, with the exception of one resident who refused hookup.

Entire Site: An investigation into the nature and extent of contamination in three separate disposal areas within the site and recommendations for alternative cleanup strategies is scheduled to begin in 1991. Once completed, the EPA will evaluate the recommended cleanup alternatives and will select final remedies for groundwater, surface water, soils and other contamination areas identified in the study.

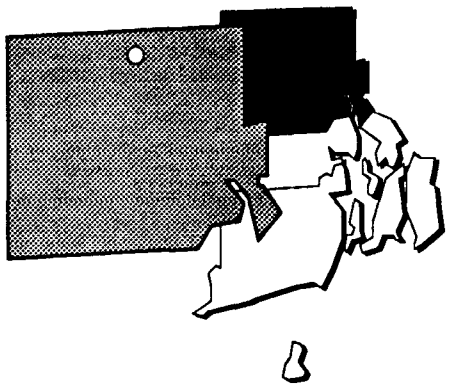
Environmental Progress

With the provision of a safe drinking water supply to the affected residents, the EPA has determined that the site does not currently pose an imminent threat to the public or the surrounding environment. The EPA will continue to assess conditions at the Rose Hill Regional Landfill site as studies leading to the selection of cleanup alternatives are continued.

STAMINA MILLS, INC.

RHODE ISLAND

EPA ID# RID980731442



EPA REGION 1
CONGRESSIONAL DIST. 01
Providence County
North Smithfield

Other Names:
Forestdale-Stamina Mills, Inc.

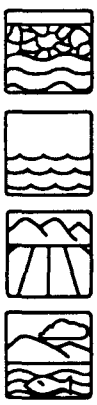
Site Description

Stamina Mills is on a 5-acre parcel of land and began operating as a textile mill in the early 1900s. It was closed for an undetermined period of time during the Depression and changed ownership in the 1940s. In 1969, a solvent scouring system for removing oil and dirt from newly woven fabric was installed. Some time during that year, a trichloroethylene (TCE) spill occurred and never was cleaned up. In 1975, the mill was closed. In 1977, a fire destroyed the manufacturing complex; the site has been vacant and unused since then. In 1981, in response to the discovery of private well contamination, the Rhode Island Water Resources Board and the Town of North Smithfield installed a public water line to area residences. However, not all residences connected to the service; the EPA provided resources to extend the water system and complete connections to those residences in 1984. By 1987, all residences were on the public water supply. The Village of Forestdale, with a population of approximately 1,000, is within a 1/2-mile radius of the site. A school and private residences with nearly 300 people are within 1/4 mile of the site. Industrial and commercial facilities with about 1,200 people are within 1/2 mile of the site. The site is bordered by wetlands and the Branch River to the south.

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

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

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs), primarily TCE and its constituents. Sediments are contaminated with TCE, dieldrin, and polycyclic aromatic hydrocarbons (PAHs). The soil is contaminated with TCE, the pesticide dieldrin, and heavy metals including lead, arsenic, and cadmium, as well as PAHs. Surface water is contaminated primarily with VOCs. People who trespass on the site potentially are at risk from direct contact with contaminated soils, surface water, or groundwater. In 1986, a security fence was erected to prevent entry to the site.

Cleanup Approach

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

Response Action Status

Immediate Actions: In 1981, the Rhode Island Water Resources Board and the Town of North Smithfield installed a public water line to area residences and provided bottled water to those residences that were not connected to the services. In 1984, the EPA provided resources for extending the public water system and connecting additional residences to the system. By 1987, all residences were on the public water supply. In 1986, the EPA also installed a fence to prevent entry to the site. In 1988, the EPA removed two tanks from the site, pumped the waste from the tanks, and sent it to an approved hazardous waste facility. In 1990, the EPA removed the contents of an aboveground storage tank, decontaminated the tank shell, and disposed of the tank contents at an approved hazardous waste facility.

Entire Site: Based on its investigation, the EPA selected the following remedy to clean up the site: in-situ vacuum extraction of soil contaminated with trichloroethylene (TCE) in the spill area, which involves installation of a number of shallow wells to withdraw air containing TCE and other VOCs for carbon treatment, and excavation of approximately 550 cubic yards of landfill waste and sediments to be redeposited into a landfill under the new multi-layer cap to be installed. Groundwater will be extracted and treated with ultraviolet light and hydrogen peroxide, an innovative technology, to remove VOCs. Mill raceways will be sealed, and on-site buildings will be demolished. Deed restrictions will be used at the site to regulate land use and preserve the integrity of the remedy's components. The septic tank location will be confirmed and its contents tested and removed. The contents of the tank and the tank itself will be disposed of. A monitoring program for the groundwater, soil, surface water, and sediments will be implemented to ensure the effectiveness of the remedy selected. The design of the remedy is scheduled to begin in late 1991.

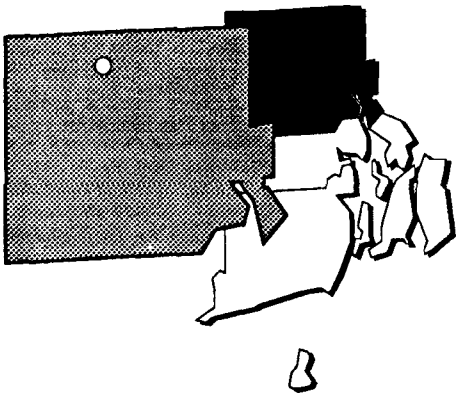
Environmental Progress

The initial actions of providing a public water supply and fencing of the site have reduced the potential of people to be exposed to the contamination at the Stamina Mills site. A deteriorating tank containing low pH hazardous substances was removed and properly disposed of. Some drums of hazardous substances will be addressed in the near future, further reducing the potential for exposure to contamination while the site awaits final cleanup activities.

WESTERN SAND & GRAVEL

RHODE ISLAND

EPA ID# RID009764929



EPA REGION 1
CONGRESSIONAL DIST. 02
Providence County
Burrillville, adjacent to Douglas Pike

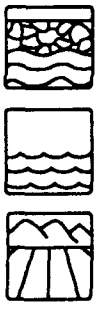
Site Description

Western Sand & Gravel, a 20-acre site located in a rural residential area of Burrillville, was a sand and gravel quarry operation from 1953 until 1975. The quarrying operation is continuing. From 1975 to April 1979, approximately 12 acres of the 20-acre site were used for the disposal of liquid wastes, including chemicals and septic waste. Over time, the wastes penetrated into the porous soil and contaminated the groundwater. Contents of tank trucks were emptied directly into 12 open lagoons and pits, none of which were lined with protective materials. The pits were concentrated on a hill that slopes to Tarkiln Brook, which is used for recreational purposes and drains into the Slaterville Reservoir. The State closed the disposal operation because nearby residents complained of odors. Approximately 600 people within a 1-mile radius of the site depend on groundwater. Eight homes were found to have contaminated wells.

Site Responsibility: The 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 on-site groundwater is contaminated with volatile organic compounds (VOCs) including toluene, trichloroethylene (TCE), trichloroethane, benzene, chlorobenzene, and dichloroethane. The water of Tarkiln Brook contains similar contaminants. The soil also is contaminated with VOCs. Prior to the capping of the soil and sludge and the installation of carbon filters, potential exposure to VOCs may have occurred by inhalation, ingestion, or direct contact with contaminated soil or groundwater.

Cleanup Approach

The site is being addressed in four stages: initial actions to limit the spread of contamination and three long-term remedial phases concentrating on installation of a permanent water supply, capping of the contaminated soil and sludge, and investigating the extent of groundwater contamination and cleanup alternatives.

Response Action Status

Initial Actions: Early in 1980, the State began to pump one lagoon dry to halt leachate movement. Approximately 60,000 gallons of liquid chemical and septic waste were removed for off-site disposal. A groundwater recirculation system was installed.

Water Line: The EPA will install a permanent alternate water supply to service approximately 56 parcels of land, and the potentially responsible parties installed carbon canister filters as a temporary protective measure in all the homes in the affected area until the permanent water supply is functional. Construction of the water line was completed in 1990. A schedule for operation of the water line currently is being negotiated between the State and the EPA.

Soil Capping: The parties potentially responsible for the contamination have installed a 2 1/2-acre cap over the areas of contaminated soil and sludge and graded the site to promote runoff and drainage. Also included are fencing, fence maintenance, and posting of the site and cap.

Groundwater: The potentially responsible parties conducted an investigation to determine the extent of contamination and to evaluate alternatives for cleanup of the groundwater. The investigation was completed in early 1991. Based on the investigation, the EPA selected a remedy of natural attenuation. If monitoring shows that natural cleanup is not occurring as predicted, a system to pump and treat the groundwater will be installed. The potentially responsible parties will monitor groundwater and conduct evaluations every three years, with EPA oversight.

Site Facts: Approximately 45 potentially responsible parties entered into a Consent Decree with the EPA and agreed to pay for past costs, to construct a cap, to conduct an investigation to determine the nature and extent of contamination, and to identify alternatives for cleanup of contaminated groundwater. The parties also will pay the EPA to construct the permanent alternate water supply.

Environmental Progress

The initial actions including fencing, capping, and grading the contaminated areas of the Western Sand & Gravel site and installing the carbon canister filters have met the goals for cleanup of the land, thereby protecting human health and the environment while the site awaits final cleanup activities.

Glossary: Terms Used in the Fact Sheets

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.

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).

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 it 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.

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% or more of the drinking water of an area.

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

GLOSSARY

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

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

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

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

Carbon Disulfide: A degreasing agent formerly used extensively for parts washing. This compound has both inorganic and organic properties, which increase cleaning efficiency. However, these properties also cause chemical reactions that increase the hazard to human health and the environment.

Carbon Treatment: [see Carbon Adsorption].

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

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

Characterization: The sampling, monitoring, and analysis of a site to determine the

extent and nature of toxic releases. Characterization provides the basis for acquiring the necessary technical information to develop, screen, analyze, and select appropriate cleanup techniques.

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

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

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

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

Comment Period: A specific interval during which the public can review and comment on various documents and EPA actions related to site cleanup. For example, a comment period is provided when the EPA proposes to add sites to the NPL. 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. 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.

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 and/or the costs incurred by the government that the parties will reimburse, as well as 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.

GLOSSARY

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.

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

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

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

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.

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; and/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; together, they are commonly referred to as the RI/FS [see Remedial Investigation].

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

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

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

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

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

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

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: Underground 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. It possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists.

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

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 and/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].

Leachate [n]: The liquid that trickles through or drains from waste, carrying soluble components from the waste. **Leach, Leaching [v.t.]:** The process by which soluble chemical components are dissolved and carried through soil by water or some other percolating liquid.

Leachate 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.

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.

Neutrals: Organic compounds that have a relatively neutral pH, complex structure and, due to their organic bases, are easily absorbed into the environment. Naphthalene, pyrene, and trichlorobenzene 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 within that period.

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 is 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.

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

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

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

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

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

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

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

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

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

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

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

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

Potentially Responsible Parties (PRPs): Parties, including owners, who may have contributed to the contamination at a Superfund site and may be liable for costs of response actions. Parties are considered PRPs until they admit liability or a court makes a determination of liability. PRPs may sign a Consent Decree or Administrative Order on Consent to participate in site cleanup activity 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 stones.

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. Together they are customarily referred to as the RI/FS [see Feasibility Study].

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

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

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

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

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 to store waste.

Riparian Habitat: Areas adjacent to rivers and streams that have a high density, diversity, and productivity of plant and animal species relative to nearby uplands.

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

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

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

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

Seepage Pits: A hole, shaft, or cavity in the ground used for 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.

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

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

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

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

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

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

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

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

Trichloroethylene (TCE): A stable, colorless liquid with a low boiling point. TCE has many industrial applications, including use as

a solvent and as a metal degreasing agent. TCE may be toxic to people when inhaled, ingested, or through skin contact and can damage vital organs, especially the liver [see Volatile Organic Compounds].

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

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

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

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

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

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

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

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

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

Water Table: The upper surface of the groundwater.

Weir: A barrier to divert water or other liquids.

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

Information Repositories for NPL Sites in Rhode Island

Information Repositories for NPL Sites in the State of Rhode Island

Repositories are established for all NPL sites so that the public can obtain additional information related to site activities. Some sites may have more than one repository location, however, the primary site repository is listed below. All public access information pertaining to the site will be on file at these repositories. The quantity and nature of the documentation found in the repositories depends on the extent of activity and cleanup progress for each site and may include some or all of the following: community relations plans, announcements for public meetings, minutes from public meetings, fact sheets detailing activities at sites, documents relating to the selection of cleanup remedies, press releases, locations of other public information centers, and any other documents pertaining to site activities.

Site Name	Site Repository
CENTRAL LANDFILL	Marion J. Mohr Memorial Library, 1 Memorial Drive, Johnston, RI 02919
DAVIS/GSR LANDFILL	East Smithfield Public Library, 50 Esmond Street, Esmond, RI 20917
DAVIS LIQUID WASTE	East Smithfield Public Library, 50 Esmond Street, Esmond, RI 02917
DAVISVILLE NAVAL CONSTRUCTION BATTALION	North Kingstown Free Library, 100 Boone Street, North Kingstown, RI 02852
LANDFILL RESOURCE & RECOVERY, INC.	Municipal Annex Building, 85 Smithfield Road, North Smithfield, RI 02895
NEWPORT NAVAL EDUCATION/TRAINING	Newport Public Library, Aquidneck Park, Newport, RI 02840
PETERSON/PURITAN, INC.	Cumberland Public Library, 1464 Diamond Hill Road, Cumberland, RI 02864
PICILLO FARM SITE	Greene Public Library, Hopkins Hollow Road, Greene, RI 02827
ROSE HILL REGIONAL LANDFILL	South Kingstown Public Library, 1057 Kingstown Road, Peace Dale, RI 02883
STAMINA MILLS, INC.	North Smithfield Public Library, 20 Main Street, Slatersville, RI 02876
WESTERN SAND & GRAVEL	Burrillville Town Hall, 105 Harrisville Main Street, Harrisville, RI 02830

* U.S. G.P.O.:1992-311-893:60643