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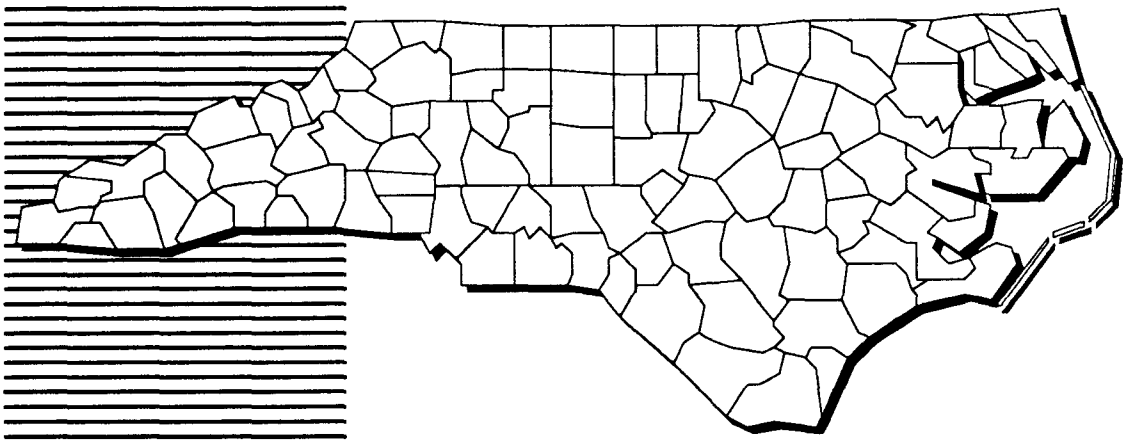

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The National Overview volume, **Superfund: Focusing on the Nation at Large (1991)**, may be ordered as PB92-963253.

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.

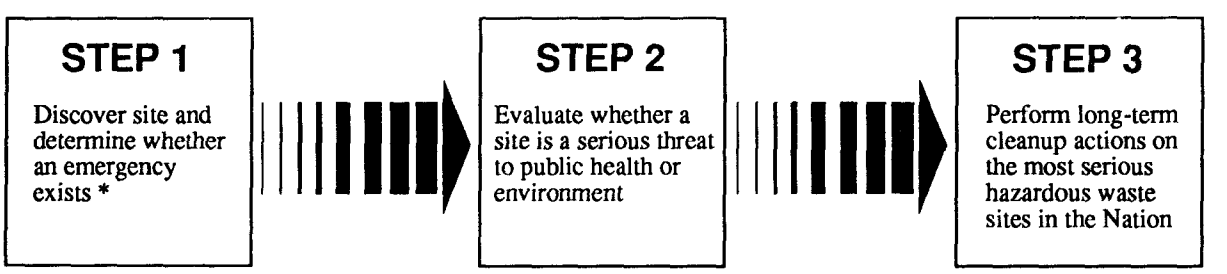
This volume compiles site summary fact sheets on each State or Territorial site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation and require the most complicated and costly site solutions yet encountered. Each book gives a "snapshot" 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.

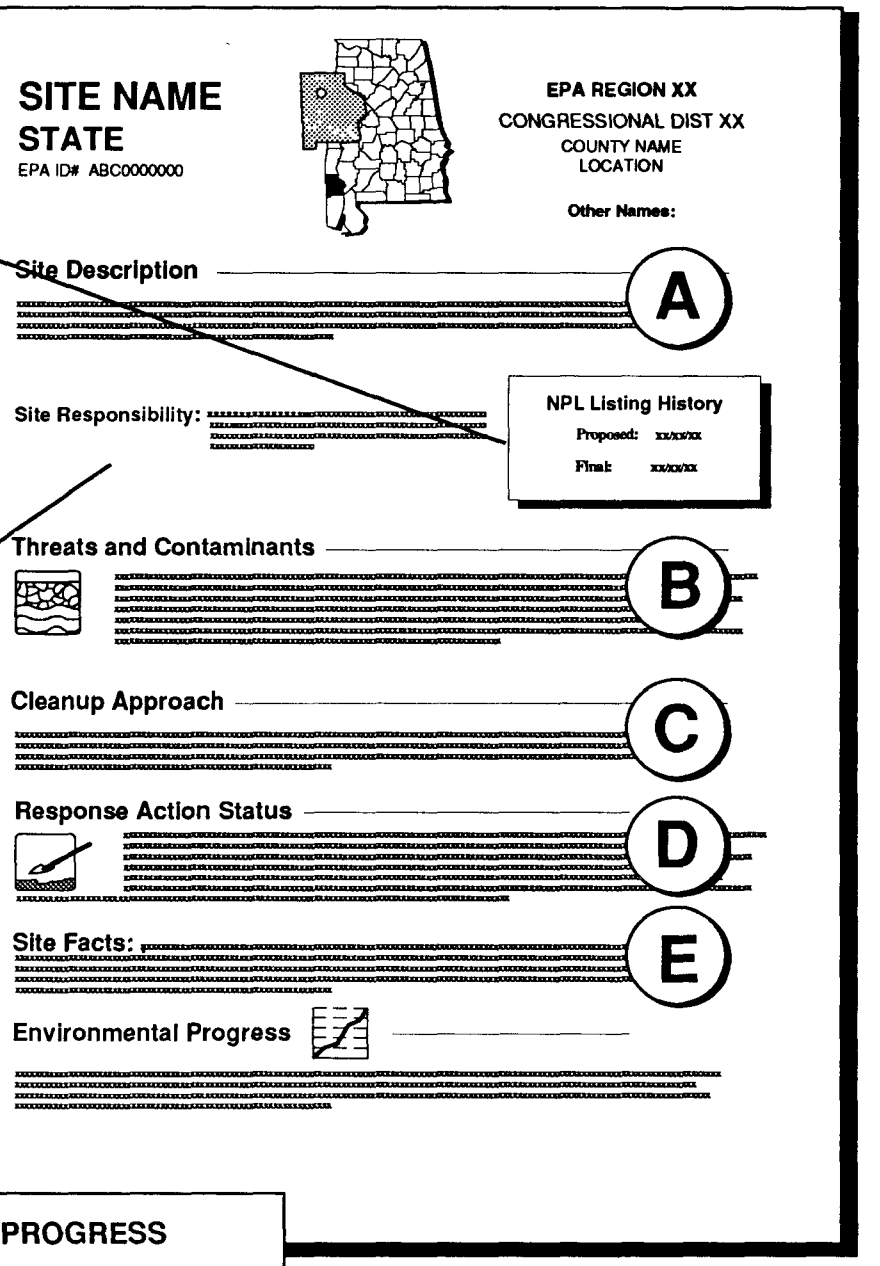
THE VOLUME

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

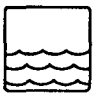
Additional information on activities and events at the site are included in this section. Often details on legal or administrative actions taken by the EPA to achieve site cleanup or other facts pertaining to community involvement with the site cleanup process are reported here.

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.)

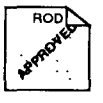
Contaminated *Soil and Sludges* on or near the site. (This contamination category may include bulk or other surface hazardous wastes found on the site.)

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.



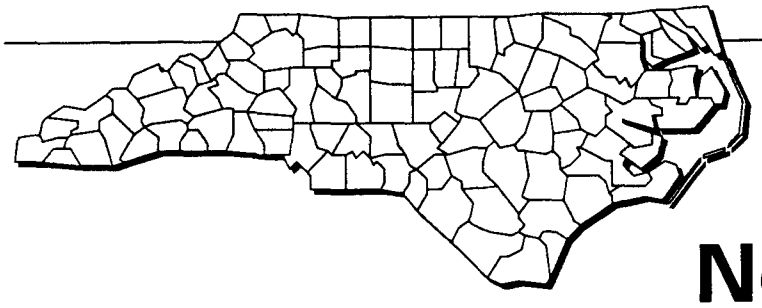
Remedy Selected indicates that site investigations have been concluded, and the EPA has selected a final cleanup remedy for the site or part of the site.

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 North Carolina

The State of North Carolina is located on the Eastern Seaboard within EPA Region 4, which includes eight southeastern states. The state covers 52,669 square miles and consists of Atlantic coastal plains and tidewater, piedmont plateau, rugged hills, and the Appalachian Mountains. The State experienced a 13% increase in population between 1980 and 1990, according to the 1990 Census, and has approximately 6,629,000 residents, ranking 10th in U.S. populations. Principal State industries are agriculture, tourism, and the manufacture of textiles, food products, electronic and electrical equipment, chemicals, furniture, and machinery.

How Many NPL Sites Are in the State of North Carolina?

Proposed	0
Final	22
Deleted	1
	23

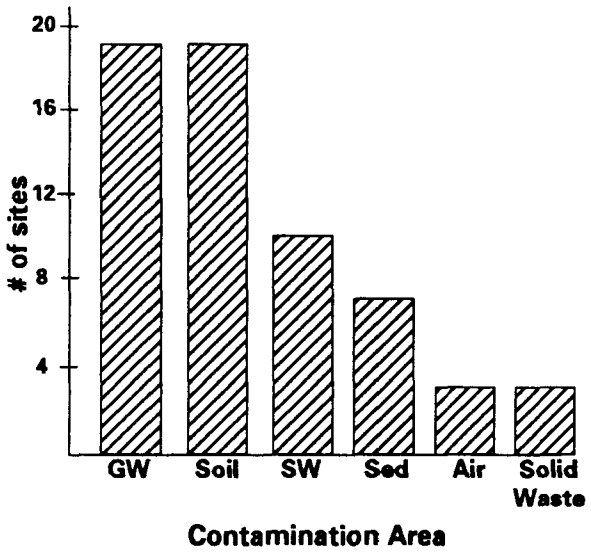
Where Are the NPL Sites Located?

Congressional Districts 1, 4, 5, 9	1 site
Congressional Districts 10, 11	2 sites
Congressional Districts 7, 2	3 sites
Congressional District 3	4 sites
Congressional District 8	5 sites

What Type of Sites Are on the NPL in the State of North Carolina?

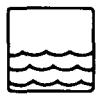
# of sites	type of sites
7	Chemical & Allied Products
4	Disposal Facilities
2	Textiles
2	Electronics & Electrical Equipment
2	Lumber & Wood
2	Recyclers
2	Storage Facilities
2	Others (Dry cleaner, federal facility)

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



Soil and Solid Waste: Heavy metals (inorganics), volatile organic compounds (VOCs), pesticides, polychlorinated biphenyls (PCBs), and petrochemicals.

Groundwater: Volatile organic compounds (VOCs), heavy metals (inorganics), creosote (organics), pesticides, and polychlorinated biphenyls.

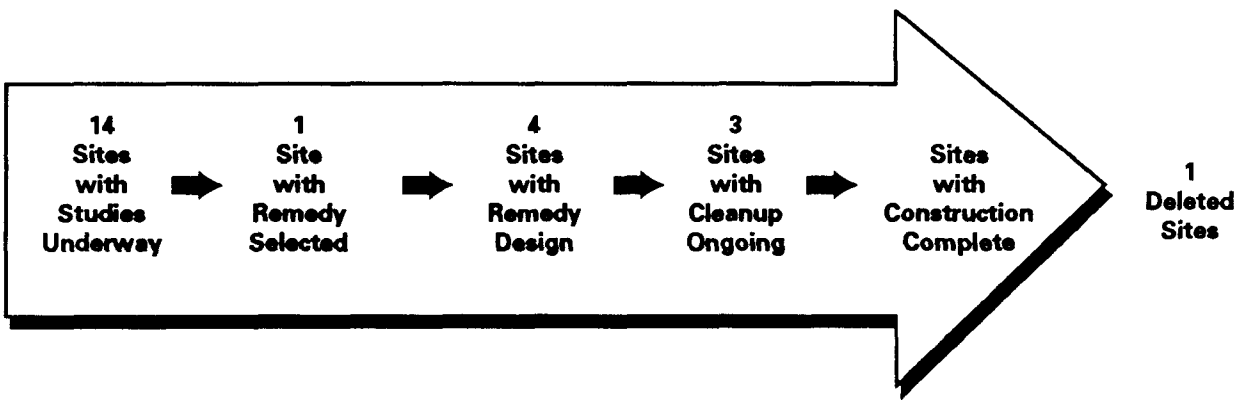


Surface Water and Sediments: Heavy metals (inorganics), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and creosotes (organics).

Air: Polychlorinated biphenyls (PCBs), heavy metals (inorganics), and pesticides.

*Appear at 15% 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 16 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 North Carolina

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
23	ABC ONE HOUR CLEANERS	ONSLOW	Final	03/31/89		⇨					
25	ABERDEEN PESTICIDE DUMPS	MOORE	Final	03/31/89	⇨	⇨	⇨	⇨			
27	BENFIELD INDUSTRIES, INC.	HAYWOOD	Final	10/04/89		⇨					
29	BYPASS 601 GROUND WATER CONT.	CABARRUS	Final	06/01/86	⇨	⇨	⇨	⇨			
31	CAMP LEJEUNE MILITARY RESERV.	ONSLOW	Final	10/04/89		⇨					
33	CAPE FEAR WOOD PRESERVING	CUMBERLAND	Final	07/01/87	⇨	⇨	⇨	⇨			
35	CAROLINA TRANSFORMER CO.	CUMBERLAND	Final	07/01/87	⇨	⇨					
37	CELANESE CORP. (SHELBY FIBER)	CLEVELAND	Final	06/10/86		⇨	⇨	⇨	⇨		
39	CHARLES MACON LAGOON & DRUM	RICHMOND	Final	07/22/87	⇨	⇨					
41	CHEMTRONICS, INC.	BUNCOMBE	Final	09/01/83	⇨	⇨	⇨	⇨			
43	F C X, INC. (STATESVILLE PLANT)	IREDELL	Final	02/16/90	⇨	⇨					
45	F C X, INC. (WASHINGTON PLANT)	BEAUFORT	Final	03/31/89	⇨	⇨					
47	GEIGY CHEMICAL CORPORATION	MOORE	Final	10/04/89	⇨	⇨					
49	HEVI-DUTY ELECTRIC COMPANY	WAYNE	Final	08/30/90	⇨	⇨					
51	JADCO-HUGHES	GASTON	Final	06/01/86	⇨	⇨	⇨				
53	JFD ELECTRONICS/CHANNEL MASTER	GRANVILLE	Final	10/04/89	⇨	⇨					
55	KOPPERS CO, INC. (MORRISVILLE PLNT)	WAKE	Final	03/31/89	⇨	⇨					
57	MARTIN-MARIETTA, SODYECO, INC.	MECKLENBURG	Final	09/01/83	⇨	⇨	⇨	⇨	⇨		
59	NATIONAL STARCH & CHEMICAL CORP	ROWAN	Final	10/04/89		⇨	⇨	⇨	⇨		
61	N.C. STATE U (LOT 86 FARM UNIT #1)	WAKE	Final	06/10/86		⇨					
63	NEW HANOVER COUNTY AIRPORT	NEW HANOVER	Final	03/31/89	⇨	⇨					
65	PCB SPILLS	HALIFAX	Deleted	03/07/86					⇨	⇨	✔
67	POTTER'S SEPTIC TANK SERVICES PITS	BRUNSWICK	Final	03/31/89	⇨	⇨					

Summary of Site Activities

EPA REGION 4

Who Do I Call with Questions?

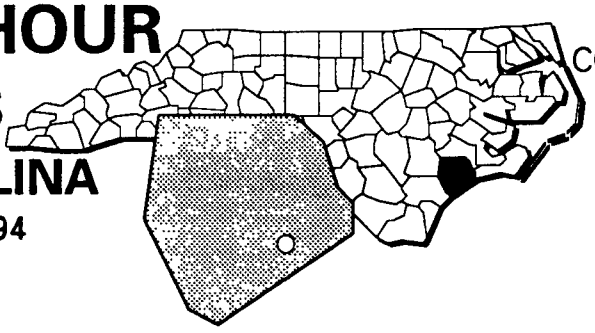
The following pages describe each NPL site in North Carolina, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call the EPA's Region 4 Office in Atlanta, Georgia or one of the other offices listed below:

EPA Region 4 Superfund Community Relations Office	(404) 347-3454
EPA Region 4 Superfund Office	(404) 347-5065
EPA Superfund Hotline	(800) 424-9346
EPA Headquarters Public Information Center	(202) 260-2080
North Carolina Superfund Office	(919) 733-2801

ABC ONE HOUR CLEANERS

NORTH CAROLINA

EPA ID# NCD024644494



EPA REGION 4

CONGRESSIONAL DIST. 03

Onslow County

Jacksonville

Site Description

The 1-acre ABC One Hour Cleaners site has operated as a dry cleaning operation since 1954. Facilities previously consisted of three buildings, but two of the buildings were joined to form one complex. Workers stored tetrachloroethylene (PCE), a dry-cleaning solvent, in a 250-gallon aboveground tank. The only hazardous wastes known to be generated at the site were from the recycling wastes still that was used to reclaim spent solvents. Until about 1985, wastes were buried on the site, although operators now send them to an EPA-approved hazardous waste facility. A septic tank-soil absorption system, consisting of an underground concrete tank and lid, has always been used to store wastewater. All these processes are housed in the rear building. In 1984, the nearby Camp Lejeune Marine Corps Base, also proposed for the NPL in 1988, sampled 40 community drinking water supply wells. Analysts found organic compounds in three wells near two off-base dry cleaners. Investigations by the North Carolina Department of Natural Resources and Community Development narrowed the source of the contamination to ABC Cleaners. After inspecting the site, the State found that the stored solvent was entering the septic tank-soil absorption system and was polluting groundwater. This system since has been taken out of service. State analysts also identified PCE in a monitoring well at ABC Cleaners and in two community wells near the site. Approximately 41,000 people obtain drinking water from three public well systems within 3 miles of the site.

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

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants

The groundwater is contaminated with volatile organic compounds (VOCs), mainly PCE. Nearby residents' health may be threatened if they drink or come in direct contact with contaminated groundwater.

Cleanup Approach

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

Response Action Status

Entire Site: The EPA began an intensive study of site conditions in 1989. This investigation will explore the nature and extent of groundwater contamination and will recommend the best strategies for final cleanup. It is slated for completion in 1992, with cleanup activities scheduled to start soon thereafter.

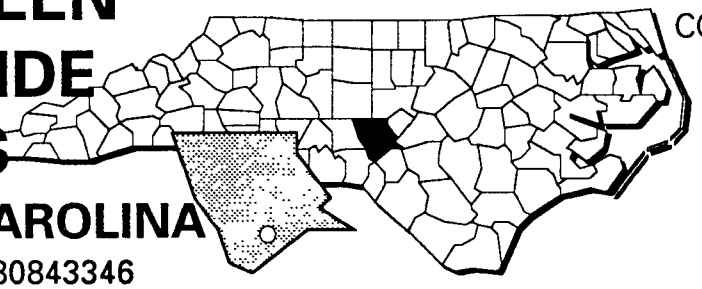
Environmental Progress

After adding this site to the NPL, the EPA performed preliminary site investigations and determined that the ABC One Hour Cleaners site was safe to the surrounding community and the environment while the investigation leading to the selection of final cleanup remedies is taking place.

ABERDEEN PESTICIDE DUMPS

NORTH CAROLINA

EPA ID# NCD980843346



EPA REGION 4

CONGRESSIONAL DIST. 08

Moore County
Aberdeen

Other Names:
Fairway Six Dump
Twin Dumps
McIver Pesticide Dump
Route 211 Dump
Farm Chemicals, Inc. Dump

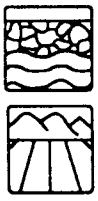
Site Description

The Aberdeen Pesticide Dumps are a cluster of five pesticide dumps ranging in size from 1/2 to 1 1/2 acres within 2 miles of one another; all but one are privately owned. They were discovered in 1984 during construction of a golf course. That same year, the North Carolina Solid and Hazardous Waste Management Branch found several bags of pesticides and noted a strong chemical odor at the site. State analysis revealed soil contamination with various pesticides. Soils at two other properties also were found to be contaminated with pesticides. One property is owned by the town of Aberdeen, and the other, 350 feet away, is privately owned. Both are 500 feet from the Farm Chemicals operation, where a string of owners has manufactured pesticides since the 1930s. A citizen tip led the State to the McIver dump in 1984, where officials found 200 to 300 55-gallon pesticide drums in a leased rubble landfill. Further investigations disclosed another area where pesticides had been dumped. Under a State order, Farm Chemicals and the lessee of the property removed the drums in 1985. After the EPA began emergency cleanup at three of the dumps, the owner of another dump reported site contamination to authorities. The State found a pile of cardboard containers, pesticide bags, powders, and tarry residues. The last discovered dump is located on the site of the long-standing pesticide manufacturer. Soils at all five areas contain pesticide residues and are permeable, facilitating movement of contaminants into groundwater. Nearby Page's Lake also is threatened. Four of Aberdeen's 12 municipal wells are contaminated with forms of lindane; one well was shut down in 1986 because levels were sufficiently elevated to present a health risk. Approximately 15 other off-site wells contained various forms of lindane. The surrounding area is rural, but residential growth is expected soon. The population within a 3-mile radius of the sites is approximately 5,700, and 5,100 people actually draw drinking water from public and private wells located within 3 miles of the sites.

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

NPL LISTING HISTORY
Proposed Date: 01/22/87
Final Date: 03/31/89

Threats and Contaminants



Fifteen off-site wells contained various pesticides, as did soil in many unlined trenches. On-site soils contain DDT, DDE, and toxaphene. People may be exposed to health risks through direct contact with pure pesticide products in surface and subsurface soil or by ingesting or coming into direct contact with contaminated groundwater.

Cleanup Approach

This site is being addressed in four stages: emergency actions and three long-term remedial phases focusing on the cleanup of the Fairway Six dump, assessing environmental risks and groundwater contamination, and cleanup of the entire site.

Response Action Status

Emergency Actions: In 1985, EPA emergency workers removing surface contamination at the Fairway Six area uncovered three large trenches of buried, concentrated pesticide wastes. Wastes, pure product, and packing material were excavated, stockpiled, and removed, along with contaminated soils. Wastes and contaminated soil were removed from the Twin sites and the McIver site; workers shipped more than 450 truckloads to an EPA-approved facility for disposal. In 1985, under State order, two parties potentially responsible for contamination at the McIver dump steam-cleaned, triple-rinsed, and crushed nearly 700 drums and sent them to the Moore County landfill. Another emergency action occurred in 1986 at the Route 211 site. Five truckloads (100 tons) of pesticide-contaminated soil were shipped off site for disposal. After pesticides were revealed in Aberdeen's drinking water in 1986, EPA emergency workers returned to discover four more trenches containing about 12 million pounds of pesticide wastes at the Fairway Six area. An on-site mobile incinerator burned 12,000 pounds of contaminated soil and debris. Incinerator ash was stored in 27 on-site 55-gallon drums. In 1988, EPA workers excavated, shredded, screened, and stockpiled about 22,000 cubic yards of pesticide-contaminated materials, which now await further long-term treatment through the remedial program.

Fairway Six Disposal Area: The EPA selected a cleanup remedy for this portion of the site in 1989. It features: (1) excavating and blending stockpiled pesticide-contaminated wastes; (2) burning them in a mobile incinerator on site; (3) recycling wastes from this process back into the incinerator; (4) monitoring air emissions; and (5) disposing of residual ash on the site. The EPA began designing this remedy in 1989. Union Carbide Corporation has agreed to complete the design and to conduct the cleanup activities, scheduled to begin in mid-1991.

Environmental Risks and Groundwater: The EPA is undertaking a study of environmental risks associated with the site and of the nature and extent of groundwater contamination. This study is expected to be completed in 1992.

Entire Site: The EPA began an intensive study of contamination at this cluster of dumps in 1987. The investigation will characterize the nature and extent of soil and groundwater pollution and will recommend the best strategies for final cleanup. It is slated for completion in mid-1991.

Site Facts: Unilateral Administrative Orders were issued to four of the potentially responsible parties, compelling them to implement the cleanup activities at the Fairway Six Disposal Area. One party agreed to comply with the Order. Residential development is awaiting the disposal of 22,000 cubic yards of contaminated soil and debris presently sitting next to the golf course.

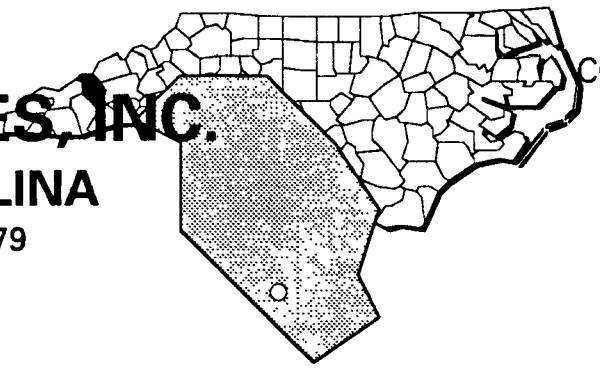
Environmental Progress

The emergency treatment and/or removal of solid and liquid wastes and soil, as well as the installation of fences, have reduced the potential for exposure to hazardous materials at the Aberdeen Pesticide Dumps site while further cleanup activities are taking place.

BENFIELD INDUSTRIES, INC.

NORTH CAROLINA

EPA ID# NCD981026479



EPA REGION 4
CONGRESSIONAL DIST. 11
Haywood County
Hazelwood

Site Description

Benfield Industries, Inc. began mixing and packaging bulk chemicals on this 5-acre site in 1976. The company listed a wide range of organic and inorganic chemicals for sale. In 1982, a fire destroyed most of the plant; except for minor mixing operations and cleanup of debris from the fire, operations ceased. In 1986, the owner removed other debris and usable chemicals from the site in preparation for selling the land. The site lies in the flood plain of Richland Creek, next to Browning Branch. Local surface water is used for recreational activities. As of 1985, approximately 1,800 people used drinking water from private wells within a 3-mile radius of the site.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 10/04/89

Threats and Contaminants

In 1985, the North Carolina Division of Health Services found high concentrations of polycyclic aromatic hydrocarbons (PAHs) in the soil on the western portion of the site and in other places, produced from chemical packaging activities. Because the site is unfenced, people and animals could come into contact with wastes on site. If contaminants enter groundwater, people who drink such water would be threatened.

Cleanup Approach

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

Response Action Status

Entire Site: The potentially responsible parties, under EPA monitoring, initiated an intensive study to evaluate site contamination. This investigation will examine the nature and extent of pollution problems on the site and will recommend the best strategies for final cleanup. It began in early 1991 and is scheduled to conclude in 1992, at which time EPA will select the most effective cleanup methods.

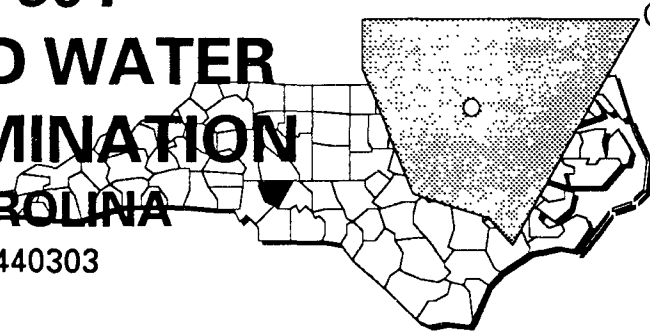
Environmental Progress

After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were needed at the Benfield Industries site while further investigations and cleanup activities are taking place.

BYPASS 601 GROUND WATER CONTAMINATION

NORTH CAROLINA

EPA ID# NCD044440303



EPA REGION 4

CONGRESSIONAL DIST. 08

Cabarrus County
Concord

Other Names:
Martin's Scrap Recycling, Inc.

Site Description

The ByPass 601 Ground Water Contamination site is an area in Concord where the groundwater is contaminated by multiple sources. The best known source is the Martin Scrap Recycling Facility (MSR), which occupies approximately 13 acres. Past practices included disposing of waste acid on site or selling it for reclamation and using spent battery casings for fill material on site. In 1982, the Department of Health Services for North Carolina notified the site owner that waste materials must be cleaned up or the facility must be closed. In response, the owner removed 2 to 6 inches of soil in the operations area and sold it for reclamation, along with process waste by-products. A permit for hazardous waste disposal was granted to the facility in 1983; groundwater contamination was discovered that same year. Six other potential sources have been identified and are under investigation. Approximately 3,000 people live in this rural community. Private wells are near the site, and the closest home is within 500 feet.

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

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

Threats and Contaminants

The groundwater, soil, and surface water are contaminated with heavy metals including lead and chromium. Human health could be threatened if people come in direct contact with contaminated sediments or waters or ingest contaminated groundwater. Public access to the site is restricted by a fence and difficult terrain.

Cleanup Approach

This site is being addressed in three stages: initial actions and two long-term remedial phases focusing on cleanup of the Martin Scrap Recycling area and of the additional sources of contaminaton.

Response Action Status

Initial Actions: The EPA sampled battery casings off site and is expected to remove batteries dumped on the site in 1991.

Martin Scrap Recycling Area: The EPA selected a remedy that entails excavation, consolidation, and capping of contaminated soils. The engineering design of the remedy is underway and is expected to be completed by mid-1991.

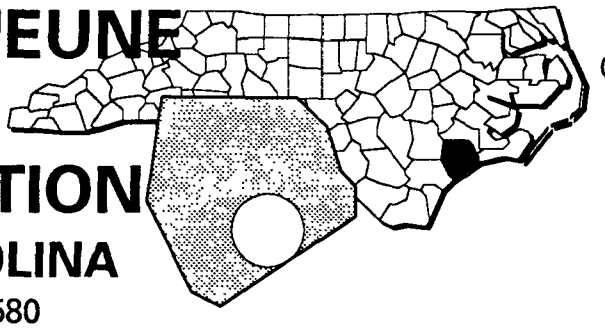
Additional Sources: In 1990, the EPA began a study to determine the nature and extent of groundwater contamination. Additionally, the EPA is attempting to identify sources of the groundwater contamination. To date, six sources have been identified. This study is scheduled for completion in 1992.

Environmental Progress

By performing site sampling and the expected removal of batteries, the EPA will make the ByPass 601 Ground Water Contamination site safer while investigations are being completed and cleanup activities begin.

CAMP LEJEUNE MILITARY RESERVATION
NORTH CAROLINA

EPA ID# NC6170022580



EPA REGION 4
CONGRESSIONAL DIST. 03
Onslow County
Jacksonville

Other Names:
USMC Camp LeJeune Marine Corps Base
USMC New River Marine Corps Air Station

Site Description

Camp LeJeune Military Reservation, a U.S. Marine Corps Base established in 1941, covers 170 square miles in Onslow County. The complex has a number of facilities, including the Marine Corps Air Station New River, which adjoins the base. The main functions of the base are to provide housing, training, logistical, and administrative support for Fleet Marine Force Units. The Navy has identified 77 potential waste disposal areas in Camp LeJeune and has designated 23 as posing a potential threat to public health and the environment. The Navy has detected pesticides in the soil and various contaminants in the groundwater. Several on-base drinking water wells have been closed. Approximately 13,800 people obtain drinking water from wells within 3 miles of the contamination on the site, with the nearest well being 3,500 feet away from one of the areas of contamination. Groundwater is the sole source of drinking water for the base and the surrounding communities. Surface water from the base drains into the Atlantic Ocean via the New River. Both bodies of water are used for fishing and recreational activities.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 10/04/89

Threats and Contaminants

The groundwater is contaminated with volatile organic compounds (VOCs), such as fuels and chlorinated solvents, from the former disposal activities. Soils are contaminated with pesticides, including DDT, DDE, and aldrin. Because the soil at the site is permeable, conditions are favorable for contaminants to move into the groundwater. Although several drinking water wells on the base have been shut down, the contaminant plume may affect other wells. People who drink the contaminated water may be at risk.

Cleanup Approach

The site is being addressed in five long-term remedial phases focusing on cleanup of the groundwater at two areas of the site, the mercury dumpsite, the chemical rifle range dump, and the remaining areas of the site.

Response Action Status

Groundwater Zone 1, Shallow Aquifer: The U.S. Marine Corps began studying the nature and extent of contamination in the shallow aquifer in 1989. This study will determine the best alternatives for cleaning up the shallow aquifer and is expected to be completed in 1992.

Groundwater Zone 1, Site 6: Studies on the nature and extent of contamination in the groundwater at site 6 began in 1990. Once the study is completed in 1992, several alternatives for cleaning up the site will be recommended.

Mercury Dumpsite: Contamination at the mercury dumpsite has been the subject of studies conducted by the U.S. Marine Corps since 1990. Alternative remedies for cleaning up the site will be selected based on the results of the studies.

Chemical Rifle Range Dump: Investigations into the nature and extent of contamination at the Chemical Rifle Range dump began in 1990 and are expected to be completed in 1994.

Remaining Areas: Studies on the nature and extent of contamination at the remaining areas of the site are scheduled to begin as early as 1991. Cleanup alternatives will be selected upon completion of these studies conducted by the U.S. Marine Corps.

Site Facts: Camp LeJeune 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.

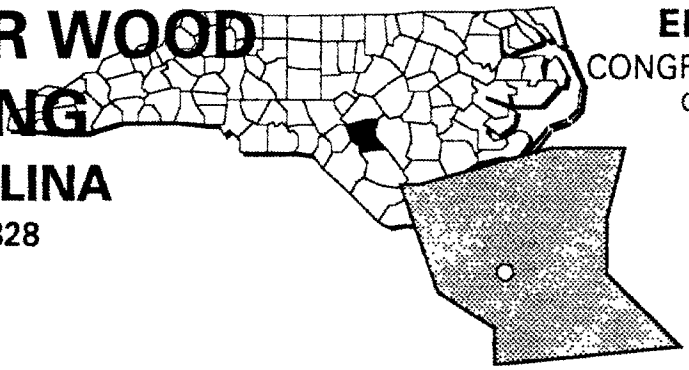
Environmental Progress

Presently, the DoD is monitoring drinking water supplies, and subsequently is closing wells when contaminant levels exceed health standards. These practices have reduced risks from contamination at this site. After placing the Camp LeJeune Military Reservation site on the NPL, the EPA conducted an initial investigation and determined that the site does not presently pose an immediate threat to the surrounding communities or the environment while studies leading to a final cleanup remedy selection are being conducted by the U.S. Marine Corps.

CAPE FEAR WOOD PRESERVING

NORTH CAROLINA

EPA ID# NCD003188828



EPA REGION 4
CONGRESSIONAL DIST. 07
Cumberland County
Fayetteville

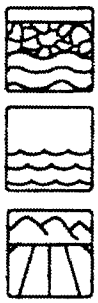
Site Description

The 41-acre Cape Fear Wood Preserving site contains a 10-acre wood preserving facility. From 1953 until 1983, wood was treated, using both the creosote and the chromated-copper-arsenate (CCA) process. Process wastes were deposited in an unlined treatment lagoon and a surface impoundment. Wastes also were allowed to discharge from a sump into a drainage ditch. Contaminants have been found in groundwater, a drainage ditch, and a diked pond on the site. Buildings contain asbestos, and CCA crystals were spilled under the process building. The site is vacant, and access is unrestricted. Approximately 1,000 people live within 1/4 mile of the site. About 16,000 people living within 3 miles of the site depend on public wells as a source of drinking water. Land across the road from the site is used for agricultural purposes, and an unnamed creek is nearby.

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

NPL LISTING HISTORY
Proposed Date: 06/01/86
Final Date: 07/01/87

Threats and Contaminants



The groundwater is contaminated with heavy metals including arsenic and chromium, as well as benzene and polycyclic aromatic hydrocarbons (PAHs). The sediments from the pond and surface water from the drainage ditch also are contaminated with PAHs. The soil is contaminated with PAHs and arsenic. People who accidentally come in direct contact with or ingest contaminated soil, sediments, groundwater, or surface water may be exposed to hazardous materials.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1985, the EPA pumped water out of the pond and added fly ash to solidify the sludge. The mixture was removed down to the water table, which was about 7 feet below the surface. The pond then was filled in with soil from the site. A portion of sediment from an unnamed creek also was removed. In addition, sludge was removed from a septic tank. Soils from an unlined lagoon used for disposing CCA-related waste also were removed, backfilled, and regraded. In 1986, the EPA removed creosote from a tank, solidified the creosote with fly ash, and stored these residues on site, under a covered shed. In 1987, the EPA repaired pipes from the tanks, pumped liquids from the pond into on-site tanks, and backfilled the pit. In 1988, the owner dug up the drainage ditch, installed several new drainage ditches, and removed the dike.

Entire Site: In 1989, the EPA selected a remedy for the site that includes: excavating the soil, washing the soil to reduce the volume of contaminated soils, treating contaminated soils either by bioremediation or heat to remove the organics, leaching or solidification to contain inorganics, and then placing it back in the excavated area; and extracting the groundwater for treatment. The EPA is preparing the technical specifications and design for the selected cleanup.

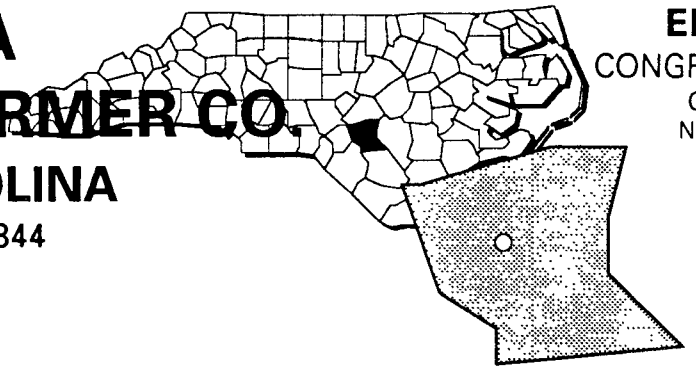
Environmental Progress

Initial actions, including pumping and treating contaminated pond water, removing contaminated sediments from a creek, and repairing pipes and drainage ditches, have made the Cape Fear Wood Preserving site safe while further cleanup activities are being planned.

CAROLINA TRANSFORMER CO.

NORTH CAROLINA

EPA ID# NCD003188844



EPA REGION 4
CONGRESSIONAL DIST. 01
Cumberland County
Near East Fayetteville

Site Description

The Carolina Transformer Co. site is on an approximately 5-acre parcel located in a rural area near East Fayetteville. The site formerly was used as an electrical transformer recycling facility. In response to citizen concerns in 1978, the EPA conducted sampling, which revealed contamination of the soil, a shallow residential drinking water well near the site, and trace contamination in Carolina Transformer's deep industrial well. The house with the contaminated shallow well was connected to the public water system in 1979. In 1989, the North Carolina Environmental Services Division inspected the abandoned site and found 98 capacitors, 18 of which were ruptured and leaking onto the soil. The nearest residence is located approximately 250 feet from the site. An estimated 3,000 people reside within a 3-mile radius of the site. A food processing facility also is located next to the site.

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

NPL LISTING HISTORY
Proposed Date: 01/22/87
Final Date: 07/01/87

Threats and Contaminants

Private wells near the site were sampled and contained volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs)-carrier compounds from the former transformer recycling operations were found in a shallow residential drinking water well about 250 feet west of the site. Soil on the site and nearby surface waters are contaminated with PCBs and PCB-carrier compounds (chlorobenzenes). Removal of contaminated soils and filling in the excavated areas with clean fill have reduced potential risks on site, but exposure to off-site contaminated soils, sediments, and surface waters still may exist. Potential risks exist to individuals who come in direct contact with or accidentally ingest contaminated surface water or groundwater, soils, and sediments; inhale contaminated dusts; or consume agricultural crops that contain bioaccumulated contaminants.

Cleanup Approach

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

Response Action Status

Immediate Actions: In 1984, the EPA removed 975 tons of contaminated soil and transported it to a federally approved facility, and fenced the area. Residences with contaminated groundwater were connected to the public water supply. In early 1990, the EPA completed a removal of 98 leaking capacitors that had been disposed of at the site after the 1984 removal activities were completed.

Entire Site: A study is being conducted by the EPA to determine the extent of the contamination and to identify alternative technologies for the cleanup. Once the results of the study have been reviewed, a final cleanup remedy selection will be made, planned for mid-1991.

Site Facts: The EPA has sued Carolina Transformer for cost recovery and treble damages for not complying with an Administrative Order to clean up the site.

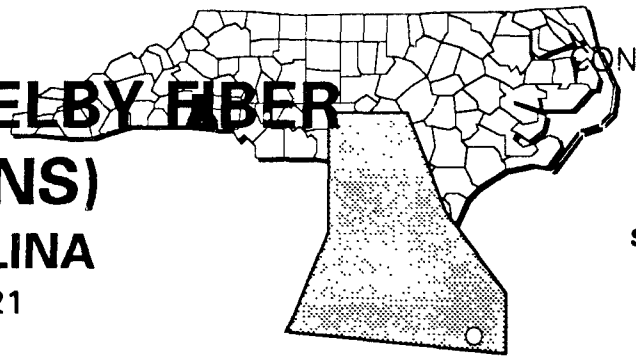
Environmental Progress

The removal of contaminated soils from the site, the provision of a safe drinking water source, and the construction of a fence have reduced the potential for exposure to hazardous materials at the Carolina Transformer site while further studies leading to a final remedy selection are taking place.

CELANESE CORP. (SHELBY FIBER OPERATIONS)

NORTH CAROLINA

EPA ID# NCD003446721



EPA REGION 4

CONGRESSIONAL DIST. 10

Cleveland County
Shelby

Other Names:
Fiber Industries, Inc.
Shelby Fiber Operations

Site Description

The Celanese Corporation began operations in 1983 on 450 acres of this site near Shelby. The plant, a polyester raw material production facility, consists of a manufacturing area, a wastewater treatment area, a waste disposal area, and a recreational and tree farming area. Operations at the site began in 1960 by Fibers Industries, Inc., a manufacturer of polyester polymer chips and filament yarn. Chemical wastes were disposed of directly into a drainage ditch during the early years of operation, prior to completion of the wastewater treatment plant. Treated effluent has been discharged to Buffalo Creek since the mid-1960s, when the treatment plant was completed. In addition, there are several areas that have been used for waste disposal, including a buried waste area and a drum landfill. Oils and solvents were burned in a small open area during the 1960s. When the storage of waste chemicals and solvents ceased in the mid-1970s, drums were removed, properly disposed of, and the landfill was covered. Approximately 21 acres of open area were used for landfarming of non-hazardous sludge during the late 1970s for a project authorized by the State and monitored by North Carolina State University. Monitoring wells on the site are contaminated with organic chemicals. Approximately 500 people live within a mile of the site. The closest well is about 1,500 feet away, and 47 wells are within 1/4 mile of the site. Buffalo Creek is 3,500 feet away and is the source of the plant's drinking water. Land within 1/2 mile is used for forestry and agricultural activities.

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

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

Threats and Contaminants

Groundwater, soils, and sediments are contaminated with volatile organic compounds (VOCs) including benzene and trichloroethene, and heavy metals including chromium and arsenic. Surface water is contaminated with chromium and phthalates. If nearby residents drink contaminated groundwater from private wells, they may be at risk. People who trespass on the site and come into direct contact with or accidentally ingest contaminated groundwater, surface water, soil, or sediments may be at risk.

Cleanup Approach

The site is being addressed in two long-term remedial phases focusing on cleanup of the groundwater and controlling the source of contamination.

Response Action Status

Groundwater: In 1988, the EPA selected a remedy to clean up the groundwater that includes pumping the groundwater, removing contaminants with an air stripper, and treating the air before releasing it into the atmosphere. In addition, the water is subjected to treatment by microorganisms. It also is being treated by forcing the groundwater through tanks containing activated carbon, a specially treated material that attracts the contaminants. This is followed by discharging the water to the on-site wastewater treatment plant. If the effluent contains metals, it is treated further by adding chemicals that will cause the metals to collect at the bottom of the treatment container. The selected remedy is treating contaminated groundwater successfully and controlling off-site migration.

Source Control: The remedy selected by the EPA in 1989 to clean up the source of contamination includes excavating the contaminated soils, sludges, and stream sediments and incinerating them on site; mixing the incinerator ash and sediments with a hardening agent, such as lime or cement, to form a solid and disposing of it on site; filling the excavated areas with clean soil; and monitoring the site for contamination. Construction of the incinerators is completed, and excavation of the source waste began in early 1991. Cleanup activities are expected to be completed by late 1991.

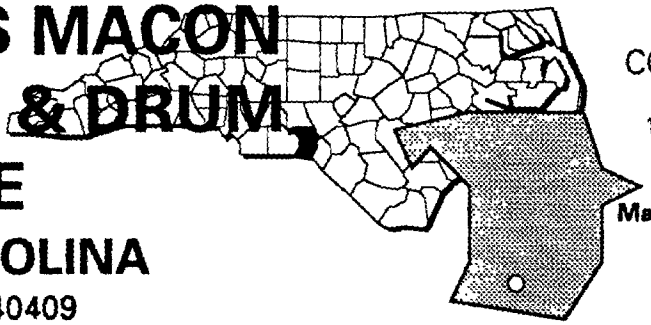
Environmental Progress

The groundwater treatment system construction is completed, and groundwater is being treated, thus controlling contaminant migration. An incinerator has been built and cleanup of the source of contamination is underway at the Celanese Corp. (Shelby Fiber Operations) site.

CHARLES MACON LAGOON & DRUM STORAGE

NORTH CAROLINA

EPA ID# NCD980840409



EPA REGION 4
CONGRESSIONAL DIST. 08
Richmond County
1 1/2 miles southwest of Cordova

Other Names:
Macon Site 1 Mile South of Cordova

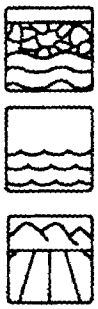
Site Description

The Charles Macon Lagoon & Drum Storage site is an abandoned, 16-acre hazardous waste storage facility. According to a 1980 inspection by the State of North Carolina, there were 11 lagoons on the site containing waste oil and sludges and 2,175 drums containing various chemicals. Eight of these lagoons were unlined and overflowing. Operations at the site ceased in 1981. In 1982, the State ordered the owner's estate to clean up the site. The estate removed 300 drums and installed two on-site monitoring wells. In 1985, the EPA detected chemicals in monitoring wells downgradient of the site. Approximately 1,100 people draw drinking water from private wells within 3 miles of the site, most of which are upgradient. There are four residences within 100 yards of the facility. The Pee Dee River is a mile away; and two ponds, two streams, and a swamp are located between the river and the site.

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

NPL LISTING HISTORY
Proposed Date: 01/22/87
Final Date: 07/22/87

Threats and Contaminants



Groundwater downstream from the site is contaminated with trichloroethylene (TCE) and heavy metals including barium and chromium. Sediments from the pond are contaminated with toluene. Sludge is contaminated with heavy metals and creosote. People who accidentally come in direct contact with or ingest contaminated groundwater, sediments, sludge, or soil may be at risk.

Cleanup Approach

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

Response Action Status

Immediate Actions: In 1983, the EPA removed all the remaining drums on the site and excavated and filled in 10 lagoons. The remaining lagoon contains solidified waste sludge, crushed empty drums, and contaminated soil and is covered with 3 feet of clay.

Entire site: The parties potentially responsible for the contamination on the site are studying the type and extent of the contamination. Once the study is completed, expected in 1991, alternatives for site cleanup will be recommended.

Site Facts: In 1982, the State issued an order to the owner to clean up the site. In 1987, the EPA filed an action against several parties potentially responsible for contamination at the site.

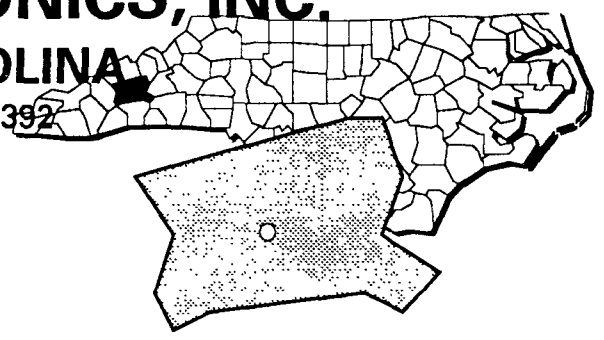
Environmental Progress

Removing the 55-gallon drums and filling in 10 of the 11 lagoons reduced the potential for exposure to hazardous materials at the Charles Macon Lagoon and Drum Storage site while investigations leading to selection of a final cleanup remedy are taking place.

CHEMTRONICS, INC.

NORTH CAROLINA

EPA ID# NCD095459392



EPA REGION 4

CONGRESSIONAL DIST. 11

Buncombe County
Swannanoa Township

Other Names:
Amcel Production, Inc.
Amcel Propulsion, Inc.

Site Description

Disposal activities at the Chemtronics, Inc. site involve 10 acres of a 1,027-acre parcel of land. The active industrial plant has had several owners/operators since it was first developed in 1952. A variety of products were manufactured at the site, including explosives, rocket fuel, and pharmaceuticals. By-products of these manufacturing activities were deposited in 23 areas on site and three areas off site. Two areas were particularly involved: one area consisted of eight abandoned acid and organic waste pits; the other contained two lined basins used for the neutralization and equalization of waste before it was discharged it into local wastewater facilities. Solid wastes and solvents were burned on site before 1971. From 1971 to 1975, liquid waste was disposed of in on-site pits and trenches, while solid and explosive wastes were burned. Acid and organic wastes also were disposed of in pits and trenches starting in 1975. In 1979, the disposal pits were closed. Two monitoring wells near the pits were found to be contaminated. There are several residences within several hundred feet of the off-site disposal areas. The site is adjacent to Bee Tree Creek, and the Pisgah National Forest is to the north of the site. One of the reported waste disposal areas, a municipal landfill, has been proposed for development as a mobile home park.

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

Groundwater and soils are contaminated with volatile organic compounds (VOCs), explosives such as TNT, heavy metals including chromium, and benzylic acid. Surface water is contaminated with VOCs, explosives, and bromoform. People who come in direct contact with or accidentally ingest contaminated groundwater, surface water, or soil may be at risk.

Cleanup Approach

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

Response Action Status

Immediate Actions: In 1985, the EPA removed two drums of hazardous materials and disposed of them in a federally approved facility.

Entire Site: The remedy selected by the EPA to clean up the site includes: (1) covering the waste disposal areas with a cap, which includes a high-density polyethylene membrane, clean soil, and planting vegetation; (2) installing a gas collection and ventilation system, if necessary; (3) pumping and treating groundwater by using air stripping, carbon adsorption, or bioremediation and sedimentation; (4) sampling of the pond water and sediments, and, if necessary, cleanup; and (5) sediment, groundwater, and surface water monitoring. Treated groundwater will be discharged to a local treatment facility. The parties potentially responsible for the site contamination are preparing the technical specifications and design for cleaning up the site. The design phase is expected to be completed in 1991. A number of extraction wells were installed in 1990, and the construction of a groundwater treatment system will begin in mid-1991.

Site Facts: The EPA and two of the potentially responsible parties signed an Administrative Order on Consent on September 30, 1985 to perform a study of the nature and extent of contamination on the site. The EPA issued an order on March 22, 1989 to all three of the potentially responsible parties (Celanese, Chemtronics, and Northrop) to conduct the engineering design and actual cleanup for the site. Each potentially responsible party is in compliance with the Administrative Order.

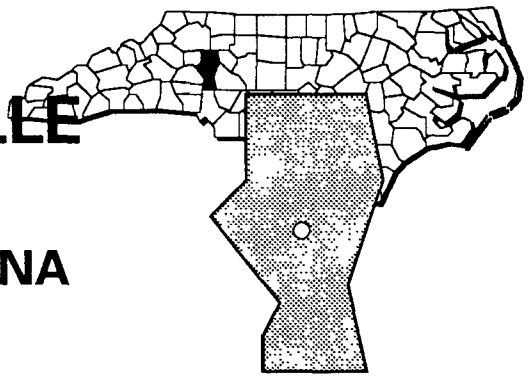
Environmental Progress

By removing the drums of hazardous materials, the EPA eliminated any immediate threats posed by the Chemtronics, Inc. site while the design of final cleanup strategies is taking place and cleanup activities are started.

FCX, INC. (STATESVILLE PLANT)

NORTH CAROLINA

EPA ID# NCD095458527



EPA REGION 4
CONGRESSIONAL DIST. 05
Iredell County
Statesville

Site Description

From 1940 through 1985, FCX, Inc. (Statesville Plant) repackaged and distributed agricultural chemicals at this 5-acre site. Liquid and powdered pesticides were repackaged at the site until 1969. Over 5 tons of pesticides were buried under a concrete warehouse floor some time before 1969. Also, spills occurred in areas where pesticides were handled. Soil and groundwater collected at the site in 1986 are contaminated. The company filed for bankruptcy in September of 1985 and began liquidating its assets. Private and public wells within 3 miles of the site provide drinking water to an estimated 12,000 people. The site is bordered on its northern and western sides by Burlington Textile Mill and Carnation Milk Company.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 02/16/90

Threats and Contaminants

The soil is contaminated with pesticides such as chlordane and DDT, as well as with coal tar distillates and halogenated organic solvents. The groundwater contains pesticides including lindane, chlordane and DDT, and halogenated organic solvents. Human health would be threatened through direct contact with contaminants or if contaminated groundwater were to enter private wells. A private well upgradient of the site contains volatile organic compounds (VOCs) including tetrachloroethylene.

Cleanup Approach

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

Response Action Status

Immediate Actions: The EPA installed four new monitoring wells through the warehouse floor and fenced the site. Results of sampling showed groundwater contamination. Soil sampling outside the building detected low levels of pesticides, but suspected buried pesticides were not found.

Entire Site: The EPA has begun a study of the nature and extent of groundwater and soil contamination remaining at the site and the alternative technologies available for cleanup. Field work for these studies is expected to begin in 1991 and end in 1992, with cleanup actions scheduled to start in 1993.

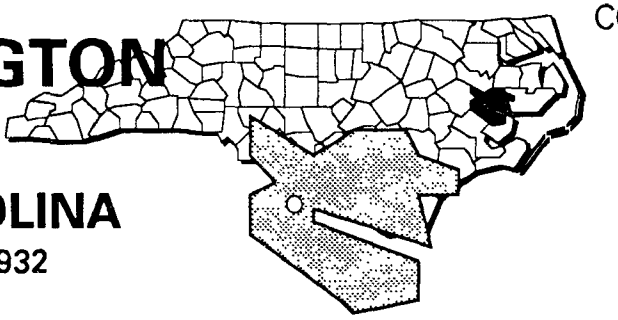
Environmental Progress

Initial assessments indicate that the site does not pose an immediate hazard to human health or the environment while it awaits FCX, Inc. (Statesville Plant) studies and cleanup actions are being planned.

FCX, INC. (WASHINGTON PLANT)

NORTH CAROLINA

EPA ID# NCD981475932



EPA REGION 4

CONGRESSIONAL DIST. 02

Beaufort County
Washington

Other Names:
Washington Plant

Site Description

FCX, Inc. (Washington Plant) began repackaging and selling agricultural chemicals in 1945 on this 6-acre site. During these operations, a large trench was filled with pesticide wastes and other agricultural chemicals in the early 1970s. The company filed for bankruptcy and began liquidating its assets in 1985. The chemicals from the trench may move into shallow groundwater connected to the underlying aquifer. This deeper aquifer is the major source of drinking water in the area. Approximately 2,850 people draw drinking water from wells within 3 miles of the site. The area is mainly agricultural. The site is bordered by a railroad and a wetland.

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

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants

The soil of the disposal trench contains pesticides, such as DDT and chlordane, as well as mercury. Direct contact with the contaminated soil would be a threat to human health, but is unlikely since the area is fenced. If contamination spreads from soils into the deeper aquifer, individuals may ingest contaminants in drinking water.

Response Action Status

Initial Actions: In 1988, the EPA began to excavate the contaminated soil and analyzed it on site. The site also was fenced. The EPA is storing and covering all contaminated soil on site and is backfilling the excavated area with clean soil.

Entire Site: FCX, Inc. is conducting a study into the extent and nature of contamination at the trench and main warehouse and will study the alternative technologies for cleanup. The study began in 1990 and is scheduled to end in 1992, with the design of the remedies selected by the EPA scheduled for completion in 1994.

Site Facts: The EPA filed an Administrative Order to compel FCX, Inc. and Fred Webb, Inc. to remove pesticides from the trench area.

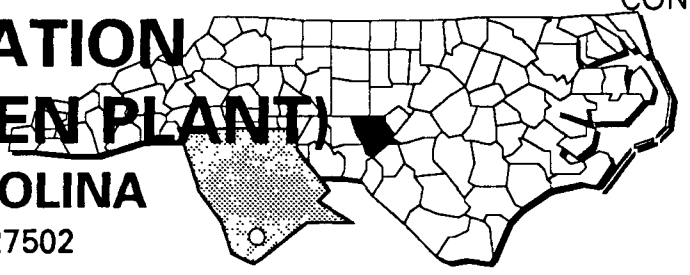
Environmental Progress

The initial actions, including excavating and storing contaminated soil and fencing the site, have made the FCX, Inc. (Washington Plant) site safer while investigations leading to cleanup activities are taking place.

GEIGY CHEMICAL CORPORATION (ABERDEEN PLANT)

NORTH CAROLINA

EPA ID# NCD981927502



EPA REGION 4
CONGRESSIONAL DIST. 08
Moore County
Aberdeen

Site Description

The Geigy Chemical Corporation (Aberdeen Plant) site covers 1 acre and has been occupied by various chemical companies since 1947. From 1949 to 1955, Geigy produced solid and liquid pesticides on the site. The facility includes four aboveground storage tanks, an office building, and two warehouses. In 1985, the State detected pesticides in private and municipal wells. In 1987, the EPA detected pesticides in the surface and subsurface soils on the site. The aboveground storage tanks were removed in 1989, and two warehouses were removed in 1991. The Aberdeen Public Water Supply System and numerous private wells within 3 miles of the site serve approximately 7,400 people. The Sandhill Aquifer underneath the site supplies all the drinking water for Moore County. Drainage from the site collects in several unnamed tributaries of Aberdeen Creek. The creek is used for recreational activities.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 10/04/89

Threats and Contaminants

The groundwater is contaminated with lindane. The soil is contaminated with pesticides including toxaphene, DDT, and lindane. Trespassers on this site who come in direct contact with or accidentally ingest contaminated groundwater and soil may be at risk. Individuals frequenting Aberdeen may be exposed to contaminants through direct contact with surface water.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1989, the parties potentially responsible for the site contamination removed approximately 460 tons of pesticide-contaminated soil and debris to an approved facility. A second action was conducted, involving the removal of 227 tons of pesticide-contaminated soil to an approved facility for disposal. Six 30-gallon drums containing concentrated surface debris were sent to an approved incinerator facility for thermal treatment. The site also has been fenced.

Entire Site: The potentially responsible parties are studying the type and extent of contamination at the site. Various alternatives for the cleanup will be recommended once the study is completed in 1992. After the EPA selects the most appropriate remedies, design and construction of the final site cleanup will begin.

Site Facts: In 1988, the EPA and Ciba-Geigy Corp., Olin Corp., and Kaiser Aluminum and Chemical Corp. signed an Administrative Order. This agreement specified how these parties would conduct the study into the type and extent of contamination at the site.

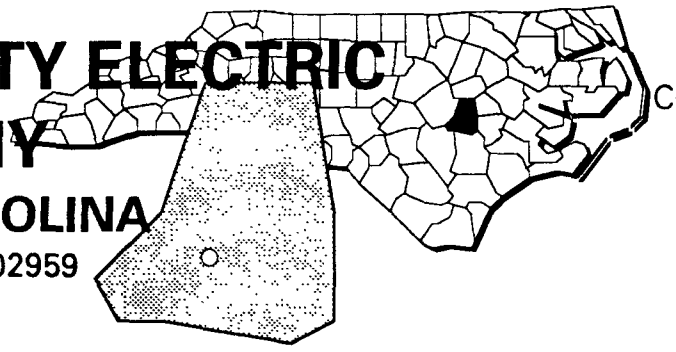
Environmental Progress

The initial actions to remove contaminated soils and debris, in addition to fencing the site, have reduced the potential for exposure to hazardous materials at the Geigy Chemical Corporation site while investigations and cleanup activities are taking place.

HEVI-DUTY ELECTRIC COMPANY

NORTH CAROLINA

EPA ID# NCD039102959



EPA REGION 4
CONGRESSIONAL DIST. 03
Wayne County
2 miles south of Goldsboro

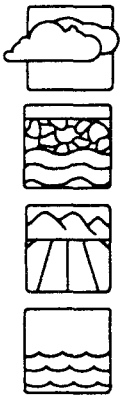
Site Description

Beginning in 1968, Hevi-Duty Electric Company manufactured dry and liquid power transformers on a portion of a 125-acre parcel of land. In 1979, 1,000 gallons of transformer oil containing polychlorinated biphenyls (PCBs) were spilled from an underground storage tank. The company removed the soil from the spill area and buried it in an unlined pit on the northern end of the property. In 1976, PCB-contaminated soil from an underground storage tank area was removed and buried in a plastic-lined pit, under supervision of the State. In 1986, a spill from a cracked pipeline on a tanker truck resulted in 1,400 gallons of oil running into culverts and an open drainage ditch. The majority of the oil was recovered. Another spill of 1,500 gallons occurred when an underground oil line cracked. The State conducted tests in 1986 and found contaminants in the groundwater. Approximately 7,600 people obtain drinking water from public wells within 3 miles of the site; the nearest well is 2,000 feet away. Approximately 15,000 people live within 4 miles of the site. The site drains into the Neuse River, which is nearly 4,700 feet from the plant. This river is used for recreational fishing.

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

NPL LISTING HISTORY
Proposed Date: 05/05/89
Final Date: 08/30/90

Threats and Contaminants



The air, groundwater, soil, and surface water are contaminated with PCBs. People who come in direct contact with or accidentally ingest contaminated groundwater or soils may be at risk. Contaminated air on the site may pose a health threat to those who breathe it. Because the site drains into the Neuse River, people who eat fish from it may suffer adverse health effects.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1976, contaminated soil was removed from an underground storage tank area. In 1986, Hevi-Duty cleaned up an oil spill by pumping groundwater to flush oil out of the ground.

Entire Site: Hevi-Duty is studying the environmental condition of the site. After this study is completed, planned for 1992, the EPA will select the most effective remedies, and cleanup activities will begin soon thereafter.

Site Facts: In 1985, the EPA and Hevi-Duty signed a Consent Agreement, under which the company paid a civil penalty for a PCB spill from an underground storage tank.

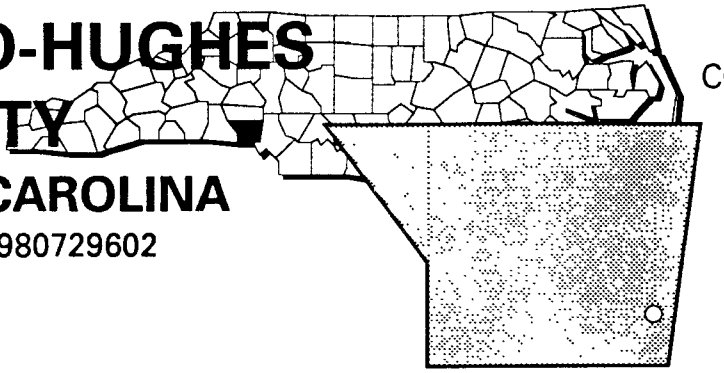
Environmental Progress

After proposing this site to the NPL, the EPA performed preliminary investigations and determined that no additional immediate actions were needed at the Hevi-Duty Electric Company site while further studies are being conducted.

JADCO-HUGHES FACILITY

NORTH CAROLINA

EPA ID# NCD980729602



EPA REGION 4
CONGRESSIONAL DIST. 10
Gaston County
Belmont

Site Description

From 1971 to 1975, C.A. Hughes operated a solvent reclamation and storage facility at this 6-acre site in Belmont. Workers reprocessed chemical waste from industries to recover whatever could be resold and stored the residues on the site. In 1975, Jadco, another firm, leased the site, equipment, and operation. A large quantity of drums had accumulated by 1975, when operations ceased. The drums, in various stages of decay, were stacked at several locations. The site also held several large storage tanks. By 1978, up to 18,000 drums were removed. Contaminated soil and debris were placed in an unlined landfill on site, and the site was regraded. In 1983, bulk storage tanks and other drums were removed; however, spillage and leakage resulted in contamination of the soil with heavy metals and organic solvents. In 1984, an estimated 4,700 people used wells within 3 miles of the site as a source of drinking water. Roughly 40 to 50 residences lie within a 1,000-foot radius of the site, with the closest being 50 feet away. All homes have access to a public water supply, although some residents may still be using water from private wells. Migration of contaminants into groundwater is likely, because the landfill is unlined and only 6 feet above the water table. A ditch that drains the site flows into the Catawba River, and Belmont's drinking water intake is 2 1/2 miles downstream from the confluence of the river and ditch. Trace amounts of site-related contaminants have been detected in a private well that is no longer in use.

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

On-site sediments contain heavy metals including chromium, lead, and nickel. Polychlorinated biphenyls (PCBs) were a concern at the site, but cleanup of the PCB-contaminated sediments and soils is completed. PCBs and nickel have been found in sediments off site. The soil contains heavy metals and volatile organic compounds (VOCs) including methylene chloride and toluene. On- and off-site surface water has been shown to be contaminated with metals such as barium and dichloroethane. People may be harmed by direct contact with contaminated surface water and sediment or by drinking contaminated water. Migration of contaminants to the groundwater is a priority concern.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1990, PCB-contaminated soils and sediments were removed from the southeastern swale area of the site.

Entire Site: Under the EPA's monitoring, the parties potentially responsible for contamination at the site began a study of its pollution problems in 1986. This investigation was completed in 1990. The EPA selected a remedy entailing treatment of soils using soil vacuum extraction and soil flushing techniques. Groundwater will be pumped and treated and disposed of either in local wastewater treatment plant or in a tributary, in accordance with national discharge permits. The design of the remedy is schedued to begin in 1992.

Site Facts: The North Carolina Department of Justice issued a complaint requiring Jadco-Hughes to remove waste from the site some time in or after 1975. The potentially responsible parties conducted a study to determine the type and extent of contamination under a Consent Order.

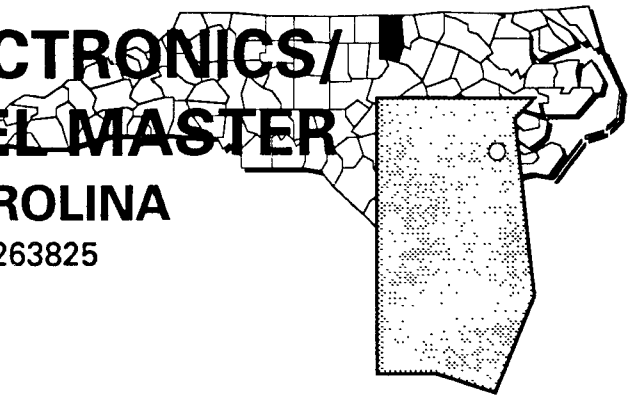
Environmental Progress

Excavation and disposal of the PCB-contaminated soil and sediments reduced the potential of direct contact while engineering designs for the cleanup of the site are being planned.

JFD ELECTRONICS/ CHANNEL MASTER

NORTH CAROLINA

EPA ID# NCD122263825



EPA REGION 4
CONGRESSIONAL DIST. 02
Granville County
Oxford

Site Description

From 1962 to 1979, JFD Electronics manufactured television antennas at this 13-acre site on Industrial Drive in Oxford. The owners built a 1/2-acre lagoon in 1964 to 1965 to dispose of sludge generated by wastewater treatment. A chromate conversion process and copper/nickel electroplating generated most of this wastewater. When Channel Master bought the property in 1980, the company filled half the lagoon and used it as a truck parking lot. A local department store rents a building on the property as a warehouse. Channel Master believes that 25 percent of the site is contaminated. The problem appears to be associated with leaking underground tanks of waste oil used by the former owner and with an area where trucks carrying waste oil had been rinsed. Approximately 2,500 people get their drinking water from private wells within 3 miles of the site; the closest is about 2,000 feet to the southeast. The site also drains to an unnamed tributary of Fishing Creek, which is used for recreational fishing.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 10/04/89

Threats and Contaminants

Volatile organic compounds (VOCs) were detected in on-site shallow monitoring wells. The current owner contracted for several studies of the site, and chromium, lead, and other heavy metals were found in the sludge and soils. VOCs are contaminating the surface water, sediments, and groundwater. People could be at risk if they accidentally ingest or come in direct contact with the contaminated groundwater, soil, and sludges.

Cleanup Approach

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

Response Action Status

Immediate Actions: Channel Master has contracted for several studies of the site. One study developed a plan for cleaning up the lagoon and contaminated soil. Cleanup work was started in 1987 and is nearing completion.

Entire Site: In 1989, the EPA began an intensive study of groundwater contamination at the site, exploring the nature and extent of its pollution problems. This investigation, which also will recommend the best strategies for final cleanup, is scheduled for completion in 1992.

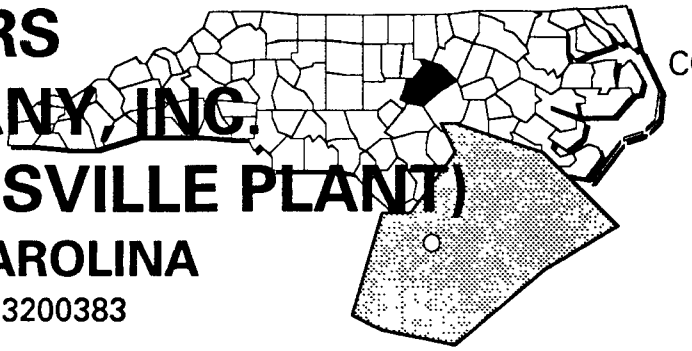
Environmental Progress

The ongoing cleanup of the lagoon and contaminated soil has reduced the threat of continued contamination of the groundwater. After adding the JFD Electronics site to the NPL, the EPA performed preliminary evaluations of the site conditions and determined that the site does not currently pose an immediate threat to the surrounding community or the environment while cleanup activities continue and further studies into the final groundwater remedy are taking place.

KOPPERS COMPANY, INC. (MORRISVILLE PLANT)

NORTH CAROLINA

EPA ID# NCD003200383



EPA REGION 4
CONGRESSIONAL DIST. 04
Wake County
1 mile northwest of
Morrisville

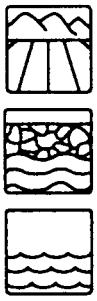
Site Description

The Koppers Company, Inc. (Morrisville Plant) site covers 52 acres and was used as a saw mill until 1959 when it was sold to Unit Structures, Inc., which produced glue-laminated wood products. Koppers Company purchased the site in 1962 and continued the glue-laminated process. From 1968 to 1975, Koppers treated wood with pentachlorophenol (PCP) at the site. Wastewater from the PCP process was discharged to an on-site pond for the first 6 months of operation and then to two unlined lagoons nearby. The owners closed the lagoons in 1977 and sprayed the liquids that remained in them over a field on the northeastern corner of the property. They mixed the sludge with soil and spread it over the lagoon area. In 1982, the owners found PCP in on-site soil, wells, pond water, and sediment. Koppers sold the plant back to Unit Structures, Inc., but kept 10 acres of the original site where PCP was used. Unit Structures, Inc. still is an active facility. Groundwater within 3 miles of the site is a source of drinking water for 2,200 people. The North Carolina Solid and Hazardous Waste Branch detected trace contaminants in some off-site wells. Koppers installed over 3 miles of public water lines to residences where PCP or isopropyl ether was detected in the drinking water. Water from the northeastern corner of the site drains toward Crabtree Creek, 2 miles away. Water from the southeastern corner drains to Koppers Pond, which was used for fire protection. Occasional overflow from Koppers Pond reaches Medlin's Pond, which is used for fishing and irrigating garden crops.

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

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

Threats and Contaminants



The owner found soil, groundwater, surface water, and sediments contaminated with PCP in the early 1980s. Dioxins and furans also are found on site. The site is unfenced, making it possible for people and animals to come into direct contact with contaminated soils or water. Possible health threats include coming into direct contact with or accidentally ingesting any of these contaminated materials.

Cleanup Approach

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

Response Action Status

Emergency Actions: In 1980 and 1986, Koppers removed soil contaminated with PCP from the lagoon area and transported it to an EPA-approved hazardous waste facility, although contaminated soil remained on the site. Starting in 1989, and under EPA monitoring, about 3 miles of public water supply lines were extended by Koppers to affected homes near the site.

Entire Site: In 1989, under EPA monitoring, the parties potentially responsible for site contamination began a thorough study of the type and extent of soil and water pollution at the site. Field work is completed, and reports due in mid-1991 will present strategies to clean up the site.

Site Facts: An Administrative Order was issued to the potentially responsible party to install a water line. A second Administrative Order was issued to conduct site investigations.

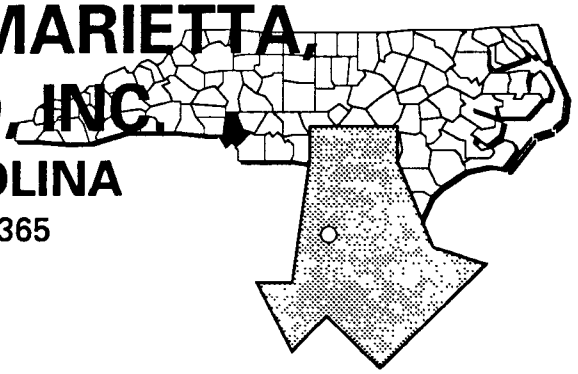
Environmental Progress

The emergency removal of soil and provision of an alternate water supply have reduced the potential for exposure to contaminants at the site or through the drinking water supply while investigations and cleanup activities are taking place.

MARTIN-MARIETTA, SODYECO, INC.

NORTH CAROLINA

EPA ID# NCD001810365



EPA REGION 4
CONGRESSIONAL DIST. 09
Mecklenburg County
10 miles west of Charlotte

Site Description

Chemical dyes have been made since 1936 on the 1,300-acre Martin-Marietta site. Opened by Sodyeco, the plant was taken over by American Martin-Marietta in 1958 and sold to Sandoz Chemicals Company in 1983. The plant has manufactured liquid sulfur and vat and disperse dyes, as well as other chemicals from various industries. The first indication of potential contamination at the site was the discovery in 1980 of organic solvents in the company's drinking water well and nearby private wells. On-site disposal of distillation tars and dye clarification cake resulted in extensive groundwater and soil pollution. Analysts traced the source of contamination to three trenches of buried wastes. The company excavated the wastes and disposed of them off site. It was later realized that five areas on the site are probable sources of soil and groundwater contamination. Area A operated as a landfill between the 1930s and 1974. It accepted sulfur residues and dyes, fiber clothes, empty metal and cardboard drums and cartons, non-acidic and non-flammable chemicals, chemical wastes, and construction debris. This area currently is covered with asphalt and buildings. Area B operated as a landfill from 1973 to 1978 and received wastes previously sent to Area A. Area B was being used as a parking lot covered with gravel. Area C, now a grassy area, once contained the remains of laboratory and production samples, distillation tars, and waste solvents. These are the trenches cleaned up in the early 1980s, but available analytical techniques allowed some soil contamination to go undetected. Area D contained two wastewater settling ponds that have been taken out of service. This area currently holds a lined freshwater pond and a fuel oil storage tank. Area E is a drainage basin receiving discharge from the old plant manufacturing area. No wastes are known to have been deposited there. Approximately 4,500 people in Mount Holly live directly across the river from the site, and the City of Belmont, with 4,600 people, is 3 1/2 miles downriver. Belmont's public water intake is downstream of the site. The residents of Mount Holly and Belmont depend upon local groundwater for drinking water.

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

On-site groundwater and soil are polluted with volatile organic compounds (VOCs). Groundwater contamination is worst at Areas C, D, and E. Soil contamination is highest in Areas C and D; the soil at Area E is uncontaminated. Area residents are not at risk of being exposed to site contamination, as a result of early excavation of dangerous wastes. However, the public drinking water supply may become polluted as groundwater contamination migration occurs. Groundwater discharges into the Catawba River, which is a source of drinking water for the plant and area residents.

Cleanup Approach

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

Response Action Status

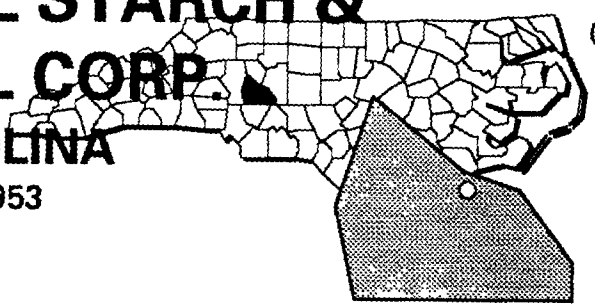
Initial Actions: Contaminated wastes and secondary soils were excavated and removed from the site.

Entire Site: The EPA selected a remedy for this site in 1987, which includes: (1) extracting contaminated groundwater and treating it on site; (2) discharging treated groundwater to an off-site stream; (3) continuing cleanup until contaminated water meets cleanliness goals; (4) capping Area B (the truck staging area) with asphalt to keep rainfall and runoff from spreading contaminants; and (5) treating contaminated soil in Area C (trench area) on site to remove organic contaminants. Cleanup actions began in 1989 and are being performed by the potentially responsible parties, under EPA monitoring. The asphalt cap has been completed in Area B. Extraction wells have been installed and are operating. The groundwater pump and treatment process may require operation until 1999. The next step is a vacuum extraction treatability study on the Area C soils. If the vacuum extraction is successful in Area C, Area D soils also will be excavated and treated by vacuum extraction.

Environmental Progress

The cleanup actions undertaken so far, including groundwater treatment, removal of highly contaminated wastes and secondary soils, and capping of contaminated areas have reduced the potential for exposure to hazardous substances at the Martin-Marietta Sodyeco site while final cleanup actions are underway.

NATIONAL STARCH & CHEMICAL CORP.
NORTH CAROLINA
EPA ID# NCD991278953



EPA REGION 4
CONGRESSIONAL DIST. 08
Rowan County
5 miles south of Salisbury

Other Names:
Proctor Chemical Co. Inc.

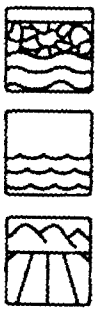
Site Description

The National Starch & Chemical Corporation (NSCC) site is located on a 500-acre parcel occupied by the NSCC-owned Cedar Springs Road Plant that currently manufactures textile finishing and specialty chemicals. From 1971 to 1978, NSCC disposed of approximately 350,000 gallons of reaction vessel wash waters in trenches constructed on a 5-acre tract of land located behind the plant. Trenches in this area also received liquid waste from the plant, and it was absorbed into the ground. After the absorption rate substantially declined, the trenches were backfilled and seeded. Site monitoring in 1976 and 1977 revealed shallow groundwater contamination adjacent to or within the trench area. Consequently, the North Carolina Department of Natural and Economic Resources requested that NSCC stop on-site waste disposal activities. Since 1978, production plant process waters have been pre-treated in a facility near the production area and discharged to the Salisbury publicly owned treatment works (POTW). The two main areas of contamination identified at the site are the trench area and the wastewater lagoon area. The plant is located in a rural area that depends heavily on wells for drinking water. Approximately 7,700 people use public and private wells within 3 miles of the site for drinking water and other domestic purposes. Since the site and the surrounding areas lie above a bedrock aquifer, residents drinking water from this source could become affected by site-related contaminants; however, no off-site contamination of groundwater has been detected.

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

NPL LISTING HISTORY
Proposed Date: 04/01/85
Final Date: 10/04/89

Threats and Contaminants



The groundwater, surface water, and sediments are contaminated with heavy metals and volatile organic compounds (VOCs). The soil is contaminated with VOCs and lead. People who come in direct contact with or accidentally ingest the contaminated groundwater may be exposed to a potential health threat. Recreational uses of Grants Creek or its tributaries also may cause a health threat due to possible contamination of the water. The northeastern tributary shows very low levels of contaminants at the site; however, these contaminants are removed prior to leaving the site property. No contaminants have been detected downstream of the property.

Cleanup Approach

The site is being addressed in two long-term remedial phases focusing on groundwater and soil cleanup.

Response Action Status

Groundwater: Design technologies were completed by the party potentially responsible for the site contamination, and cleanup action began in 1990. The actions selected by the EPA for the cleanup of groundwater include: (1) installation of a groundwater interception and extraction system downhill of the source areas, with pre-treatment, which could include removing the contaminants by air filtering them to a gas; (2) carbon adsorption filtration; and (3) metal removal or treatment through the exiting system at the lagoon and surface aeration prior to discharging the groundwater to the Salisbury POTW. Modifications were made to the pretreatment design to meet the POTW pretreatment standards. Extraction wells have been installed, and off-site monitoring wells are to be installed soon. Groundwater pumping and treatment continue over the long term.

Soil Contamination: The potentially responsible party conducted a study of the type and extent of on-site soil contamination and evaluated alternative cleanup actions. In 1990, a remedy was selected, which entails natural soil flushing, soil monitoring, and deed restrictions on the site. The engineering design of the selected remedy is planned to begin in 1991.

Site Facts: The State ordered a stop to on-site disposal activities after sampling in 1976 and 1977 showed shallow groundwater contamination.

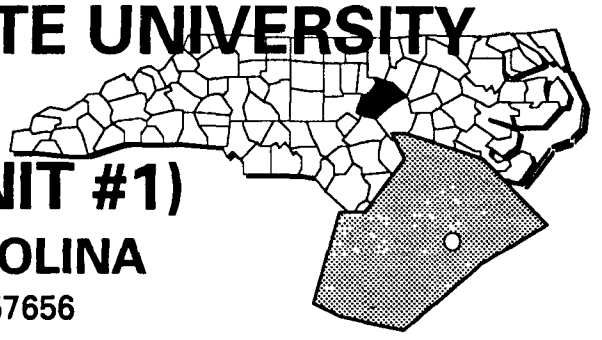
Environmental Progress

After adding the National Starch & Chemical Corp. site to the NPL, the EPA determined that the site does not pose an imminent threat to the surrounding community or the environment while the cleanup of groundwater and soil is taking place.

N.C. STATE UNIVERSITY (LOT 86, FARM UNIT #1)

NORTH CAROLINA

EPA ID# NCD980557656



EPA REGION 4
CONGRESSIONAL DIST. 03
Wake County
Raleigh

Site Description

The 1 1/2-acre North Carolina State University site is situated to the north of Carter-Finley Stadium in Raleigh. The site was used by the North Carolina State University science laboratories and agricultural research facilities as a waste disposal area. From 1969 to 1980, the University disposed of solvents, pesticides, heavy metals, acids, and some low-level radioactive laboratory wastes. The wastes are buried in containers that are placed in 10-foot trenches. Analysis of groundwater from the wells indicates the presence of high levels of organic contamination. The site is completely fenced and is located approximately 100 feet away from any public access point. The closest residence is approximately 2,000 feet away from the site. Approximately 150,000 people live within 4 1/2 miles of the site. Most of these residents use city-supplied water, which is not contaminated. However, there are a few residents who use groundwater from private wells.

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

NPL LISTING HISTORY
Proposed Date: 10/05/84
Final Date: 06/10/86

Threats and Contaminants

The groundwater is contaminated with various volatile organic compounds (VOCs) and heavy metals including lead. Ingesting and coming in direct contact with contaminated groundwater is a potential health hazard.

Cleanup Approach

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

Response Action Status

Entire Site: The University's Department of Marine, Earth, and Atmospheric Sciences has monitored the site extensively since 1981. One background and three downgradient wells were drilled to a depth of about 10 feet below the water table. The EPA currently is investigating the nature and extent of the contamination in the site. A report of the study is expected in 1991. The selection of the remedies to be used for site cleanup will be determined by the EPA that same year.

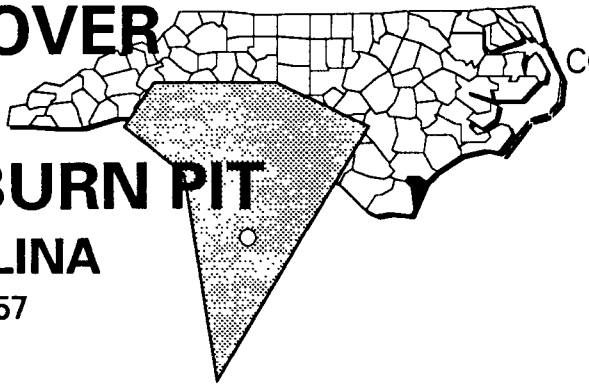
Environmental Progress

After adding this site to the NPL, the EPA performed preliminary investigations and determined that the North Carolina State University site posed no immediate threats while investigations are taking place.

NEW HANOVER COUNTY AIRPORT BURN PIT

NORTH CAROLINA

EPA ID# NCD981021157



EPA REGION 4
CONGRESSIONAL DIST. 07
New Hanover County
Wilmington

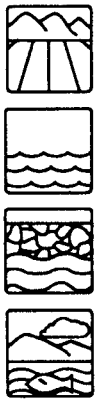
Site Description

The New Hanover County Airport Burn Pit was constructed by the County in 1968. From 1968 to 1979, the Cape Fear Technical Institute used the pit for fire-training purposes, burning jet fuel and gasoline in the burn pit, and extinguishing the fires with water. The Wilmington Fire Department used the burn pit for fire-training purposes from 1968 to 1976. Jet fuel and drainage from petroleum fuel storage tanks in the area were burned, and the fires were extinguished with water, carbon dioxide, and dry chemicals. Some time prior to 1982, materials used in river spill cleanups were dumped into the pit. In addition, fuel oil, kerosene, and oil from oil spill cleanups were burned in the pit. The pit held approximately 22,500 gallons, of which 85% is water. In 1986, the North Carolina Division of Health Services discovered heavy metals in the soil around the pit and numerous organics in other soil samples. Surface water within 3 miles downstream of the site is used for recreational activities, and there is an estuary wetland approximately 1 mile from the site at the probable point of runoff from the site. Approximately 6,300 people obtain drinking water from public and private wells within 3 miles of the site. A private well is approximately 1,500 feet to the northwest of the site.

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

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

Threats and Contaminants



The soil is contaminated with heavy metals, volatile organic compounds (VOCs), and petrochemicals. Sludges are contaminated with barium. There is a possible health threat from direct contact with the soil. Direct contact with contaminated water in a nearby creek may be a health threat as well. Based on preliminary investigations, groundwater contamination remains on site. An estuary wetland is located approximately 1 mile from the site.

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 1990, the potentially responsible parties, under EPA supervision, removed approximately 2,000 cubic yards of sludge and soils, piping, tanks, and training structures from the site.

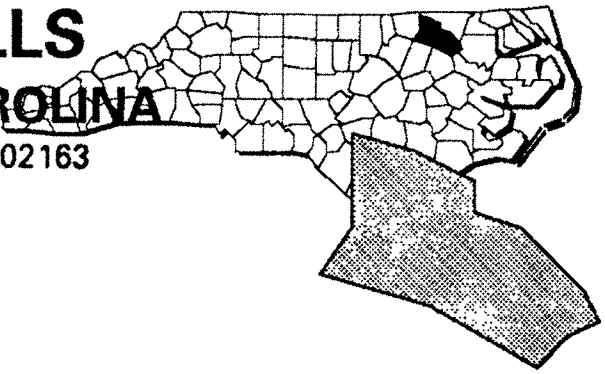
Entire Site: An investigation of the nature and extent of site contamination and a study of alternatives for cleaning up the site contaminants were started in 1990. The investigation is scheduled for completion in 1991, with a decision on a cleanup plan expected in 1992.

Site Facts: A Consent Order for removal of the contaminants by the potentially responsible parties was signed in June 1990.

Environmental Progress

Removal of sludge, soils, and debris from the New Hanover County Airport Burn Pit site has reduced the threat of exposure to contaminants while investigations leading to final cleanup activities are taking place.

PCB SPILLS
NORTH CAROLINA
EPA ID# NCD980602163



EPA REGION 4
CONGRESSIONAL DIST. 02
Halifax and 13 counties
243 miles of N.C. highway

Site Description

The PCB Spills site falls along 243 miles of highway where 30,000 gallons of waste transformer oil contaminated with polychlorinated biphenyls (PCBs) were deliberately discharged in several areas along the shoulders of the highway in 14 counties of North Carolina. The State conducted several studies and determined that contaminants did not travel from the discharge areas into surrounding areas, including rivers, lakes, or streams. Therefore, the populations surrounding these numerous locations and the plant and animal life have not been affected.

Site Responsibility: This site was addressed through Federal actions.

NPL LISTING HISTORY
Proposed Date: 12/30/82
Final Date: 09/08/83
Deleted: 03/07/86

Threats and Contaminants

The soil was contaminated with PCBs. After cleanup investigations were completed, it was determined that contamination did not move from the discharge areas into surface water, plant life or groundwater; therefore, there is no health threat associated with the spills.

Cleanup Approach

The site was addressed in a single long-term remedial phase focusing on cleanup of the entire spill area.

Response Action Status

Entire Site Area: In 1982, the EPA and the State of North Carolina initiated cleanup actions to construct a landfill for disposal of PCB waste, to remove, transport, and dispose of contaminated soils, and to reconstruct the highway shoulders. The disposal of contaminated soil was completed in 1982, and the landfill was capped, graded, and vegetated. Sampling was conducted during cleanup at the beginning and ending points of the contaminated strips to ensure that all contaminated soils were removed. Random samples were collected from the areas after soils were removed. No soils contaminated with PCBs above the accepted levels were left in place. These areas then were excavated and filled with clean soil. As a result of the completed cleanup actions and the elimination of site contamination, the EPA, in consultation with the State, deleted the site from the NPL on March 7, 1986.

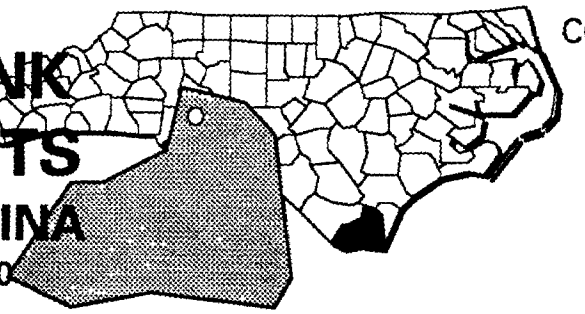
Environmental Progress

The contaminated soil from the spill area has been excavated and removed to a closely monitored landfill. Testing indicated no contamination was present in the groundwater, surface water, or plant or animal life in the area of the PCB spill. The site is once again safe for the public and the surrounding environment and has been deleted from the NPL.

POTTER'S SEPTIC TANK SERVICE PITS

NORTH CAROLINA

EPA ID# NCD981023260



EPA REGION 4
CONGRESSIONAL DIST. 07
Brunswick County
Sandy Creek, approximately
18 miles west of Wilmington

Site Description

The Potter's Septic Tank Service Pits site covers 5 acres of land. In 1976, the U.S. Coast Guard was notified of an oil spill in Rattlesnake Branch Creek. The Coast Guard and the North Carolina Department of Natural and Economic Resources traced the oil spill to one of the four disposal pits at the site. In 1983, the present owner informed the North Carolina Department of Human Resources that he had uncovered sludge in his front yard. The State found contaminants in his well and shut it down. The EPA found contaminants in the soil and groundwater on the site. Approximately 1,800 people obtain drinking water from private wells within 3 miles of the site.

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

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

Threats and Contaminants

The groundwater is contaminated with volatile organic compounds (VOCs) including benzene and xylene, phenols, and other petroleum compounds. The soil is contaminated with heavy metals, chloroform, phenols, VOCs, and other petroleum compounds. People who use contaminated well water may be at risk. Direct contact with contaminated soil was a health threat, especially to children playing in the area, before the removal of contaminated soil and sludge.

Cleanup Approach

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

Response Action Status

Initial Actions: The U.S. Coast Guard and the North Carolina Department of Natural and Economic Resources removed 40,000 gallons of oil from the stream and pits and 150 truckloads of oil sludge and oil-stained soil. Thick oil sludge that could not be removed was mixed with sand and buried on the site. In 1984, the EPA removed approximately 3 million pounds of contaminated soil from the site and transported it to a federally approved hazardous waste facility.

Entire Site: The EPA is studying the type and extent of contamination at the site. Strategies for the final cleanup will be determined once the study is completed, planned for 1991.

Environmental Progress

The initial soil and sludge removal actions described above have eliminated the possibility of contact threats from contaminated soil at the Potter's Septic Tank Service Pits site while investigations and cleanup activities are taking place.

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.

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.

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 non-tidal and freshwater. Coastal wetlands are an integral component of estuaries.

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

Information Repositories for NPL Sites in North Carolina

Information Repositories for NPL Sites in the State of North Carolina

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
ABC ONE HOUR CLEANERS	Onslow County Public Library, 58 Doris Avenue, East, Jacksonville, NC 28540
ABERDEEN PESTICIDES DUMP	Aberdeen Town Hall, 115 North Poplar Street, Aberdeen, NC 28315
BENFIELD INDUSTRIES, INC.	Hazelwood Town Hall, 101 West Georgia Avenue, Hazelwood, NC 28738
BYPASS 601 GROUNDWATER	Charles A. Cannon Memorial Library, 27 Union Street, North Concord, NC 28025
CAMP LEJEUNE MILITARY RESERVATION	Onslow County Library, 58 Dorris Avenue, East, Jacksonville, NC 28540
CAPE FEAR WOOD PRESERVING	Cumberland County Public Library, 300 Maiden Lane, Fayetteville, NC 28301
CAROLINA TRANSFORMER	Cumberland County Public Library, 300 Maiden Lane, Fayetteville, NC 28301
CELANESE CORP./SHELBY FIBER OPERATION	Cleveland County Library System, 104 Howie Drive, Shelby, NC 28151
CHARLES MACON LAGOON & DRUM STORAGE	Thomas H. Leath Memorial Library, 412 East Franklin Street, Rackingham, NC 28379
CHEMTRONICS, INC.	Martha Ellison Library, Warren Wilson College, 701 Warren Wilson Road, Swannanoa, NC 28778
FCX, INC., STATESVILLE	Not Established
FCX, INC., WASHINGTON	Not Established
GEIGY CHEMICAL CORPORATION	Aberdeen Town Hall, 115 North Poplar Street, Aberdeen, NC 28315
HEVI DUTY ELECTRIC/GENERAL SIGNAL CO.	Not Established
JADCO-HUGHES	Gaston County Public Library, Belmont Public Library Branch, 111 Central Avenue, Belmont, NC 28012
JFD ELECTRONICS/CHANNEL MASTER	Grandvillle County Library System, Richard H. Thorton Library, Main and Spring Streets, Oxford, NC 27565
KOPPERS COMPANY, INC., MORRISVILLE PLANT	Wake County Dept. of the Public Library, Cary Public Library Branch, 310 South Academy St., Cary, NC 27511
MARTIN MARIETTA SODYECO	Mt. Holly Public Library, 245 West Catawba Avenue, Mt. Holly, NC 28120
NATIONAL STARCH & CHEMICAL CORP.	Rowan Public Library, 201 West Fisher Street, Salisburg, NC 28144
NC STATE UNIVERSITY/LOT 86 FARM UNIT #1	Not Established
NEW HANOVER COUNTY AIRPORT BURN PIT	New Hanover County Public Library, 201 Chestnut Street, Wilmington, NC 28401
PCB SPILLS (DELISTED)	
POTTER'S SEPTIC TANK SERVICE PITS	Columbus County Library, Route 2, Highway 87, Riegelwood, NC 28456

* U.S. G.P.O.:1992-311-893:60640