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Agency

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National Priorities List Sites:

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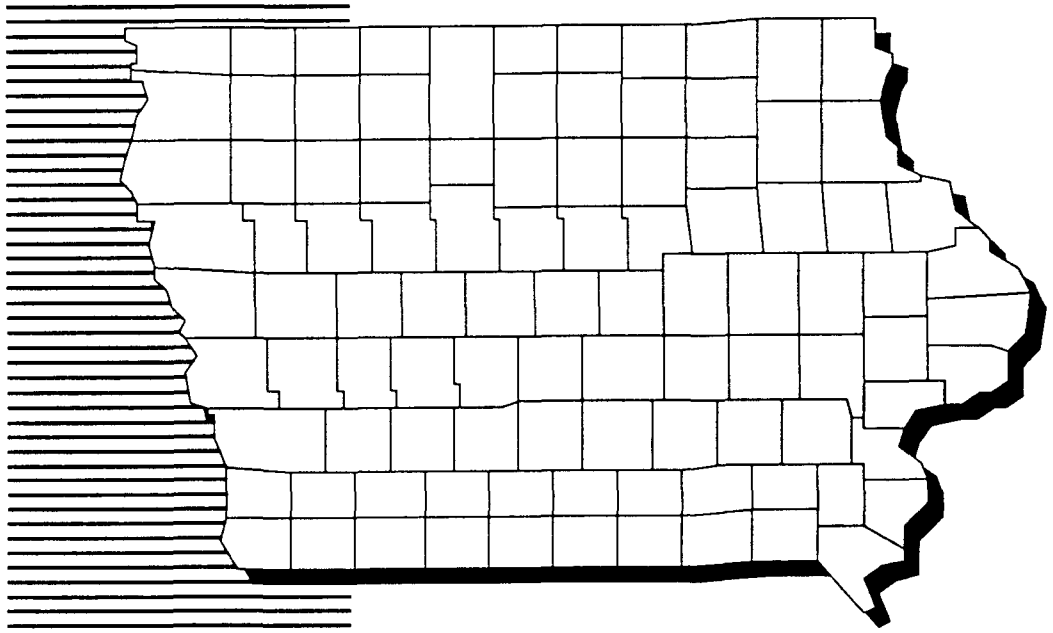

1991

Publication #9200.5-716A
September 1991

NATIONAL PRIORITIES LIST SITES:
Iowa

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

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

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

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

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

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A Brief Overview

WHY THE SUPERFUND PROGRAM?

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

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

After Discovery, the Problem Intensified

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

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

The EPA Identified More than 1,200 Serious Sites

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

THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

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

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

THE EPA IS MAKING PROGRESS ON SITE CLEANUP

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

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

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

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

THE EPA MAKES SURE CLEANUP WORKS

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

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

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

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

CITIZENS HELP SHAPE DECISIONS

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

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

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

USING THE STATE AND NATIONAL VOLUMES TOGETHER

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

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

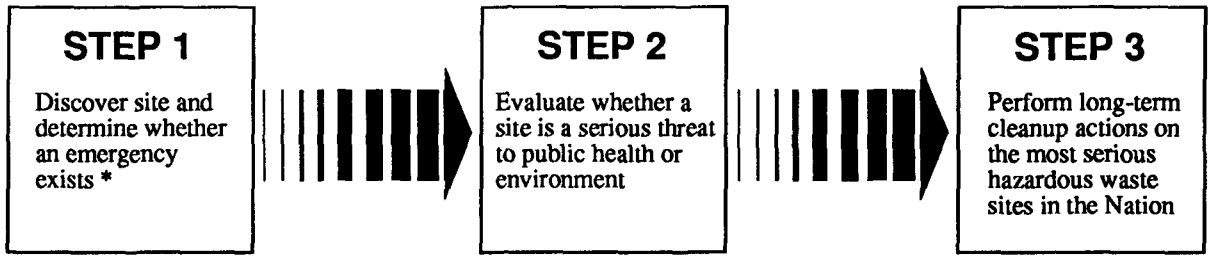
This volume compiles site summary fact sheets on each State or Territorial site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation and require the most complicated and costly site solutions yet encountered. Each book gives a "snapshot"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

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

How Does the Program Work to Clean Up Sites?

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

THREE-STEP SUPERFUND PROCESS



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

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

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

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

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

How does the EPA learn about potential hazardous waste sites?

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

What happens if there is an imminent danger?

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

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

STEP 2: SITE THREAT EVALUATION

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

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

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

- Are hazardous substances likely to be present?

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

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

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

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

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

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

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

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

Why are sites proposed to the NPL?

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

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

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

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

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

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

STEP 3: LONG-TERM CLEANUP ACTIONS

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

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

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

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

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

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

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

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

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

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

How are cleanup alternatives identified and evaluated?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Can the EPA make parties responsible for the contamination pay?

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

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

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

How to Use the State Book

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

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

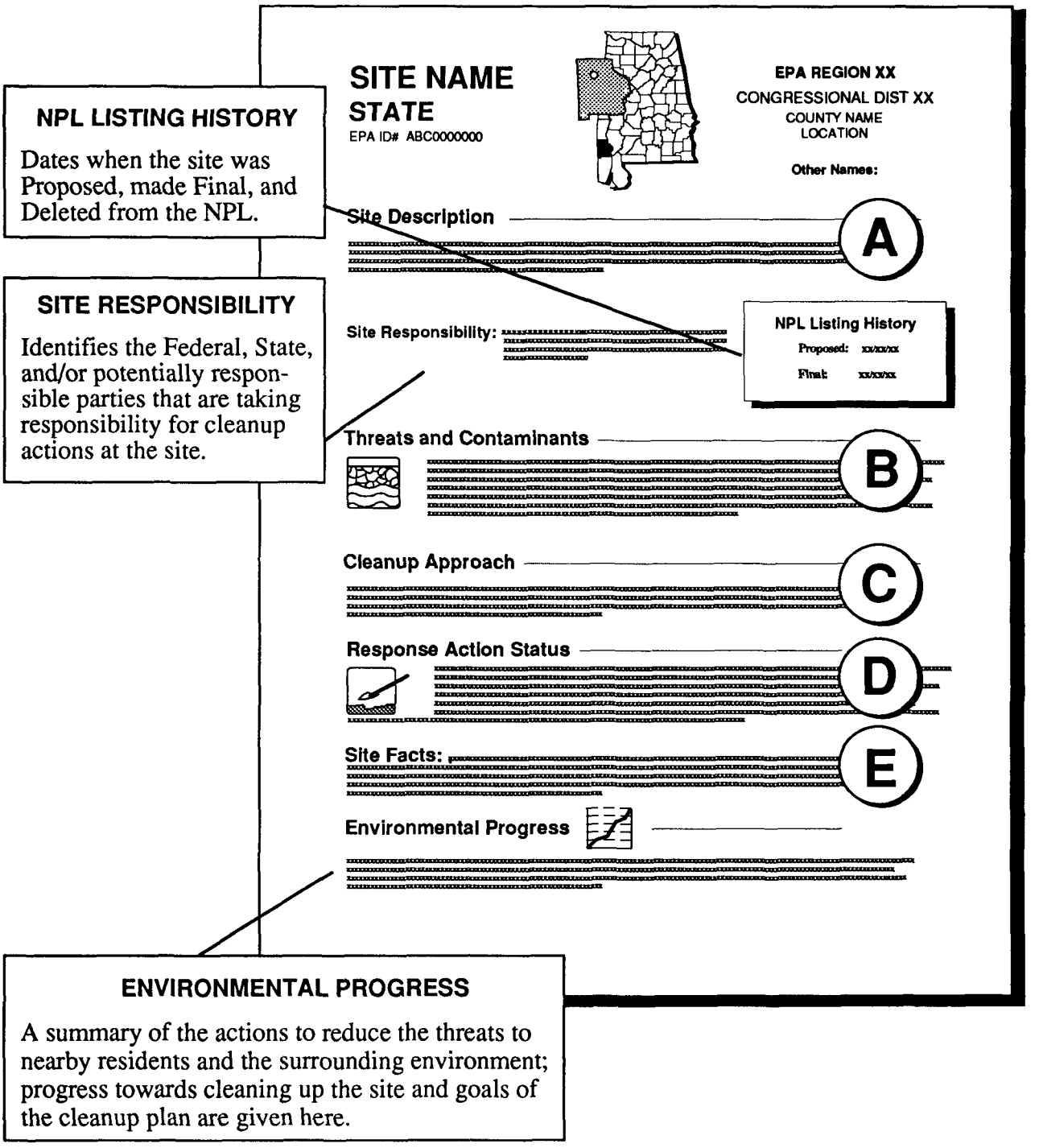
HOW CAN YOU USE THIS STATE BOOK?

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

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

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

THE VOLUME



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.)

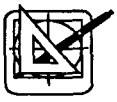
Threatened or contaminated *Environmentally Sensitive Areas* in the vicinity of the site. (Examples include wetlands and coastal areas or critical habitats.)

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.

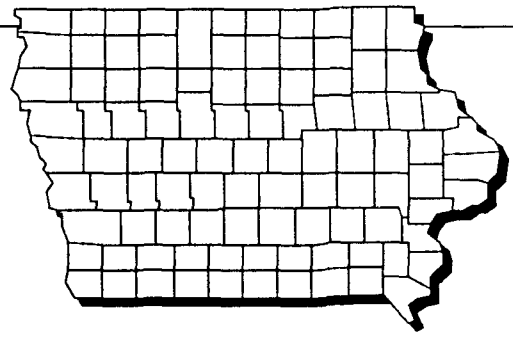


Remedy Design means that engineers are preparing specifications and drawings for the selected cleanup technologies.

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 Iowa

Iowa lies between the Mississippi and Missouri Rivers, within EPA Region 7, which includes four states in the central United States. The state covers 56,275 square miles and the state's topography consists of watershed from northwest to the southeast and especially rich soil in the north. The state experienced a 5% decrease in population and currently has approximately 2,476,800 residents, ranking 30th in U.S. populations, according to the 1990 U.S. Census. Manufacturing, agriculture, and insurance comprise the principal state industries. Iowa manufacturing produces tires, appliances, fertilizers, auto accessories, electronic products, chemicals, office furniture, and farm machinery.

How Many NPL Sites Are in the State of Iowa?

Proposed	0
Final	20
Deleted	0
	20

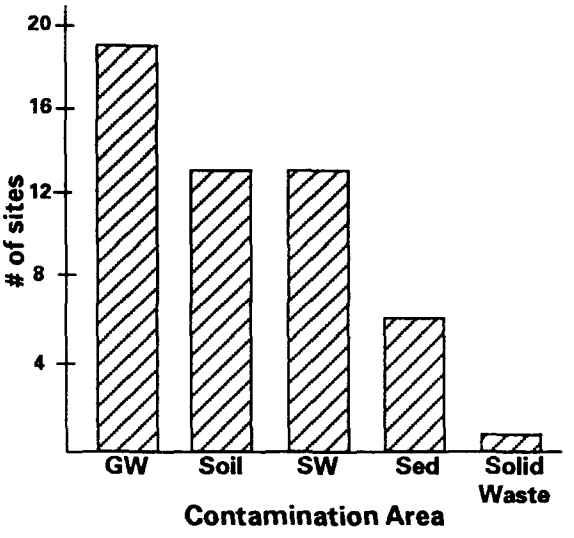
Where Are the NPL Sites Located?

Congressional District 6, 1	5 sites
Congressional District 3, 2	2 sites
Congressional District 5, 4	2 sites

What Type of Sites are on the NPL in the State of Iowa?

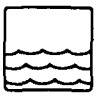
# of sites	type of sites
3	Chemicals & Allied Product
3	Municipal & Industrial Landfills
2	Electroplating
2	Agriculture
2	Coal Gasification Plants
2	Disposal Facilities/Quarry
1	Federal Facilities
5	Others (Storage Facility, Rubber & Plastics, Construction, Textile & Mill Products)

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



Groundwater: Heavy metals (inorganics), volatile organic compounds (VOCs), creosotes (organics), and radiation.

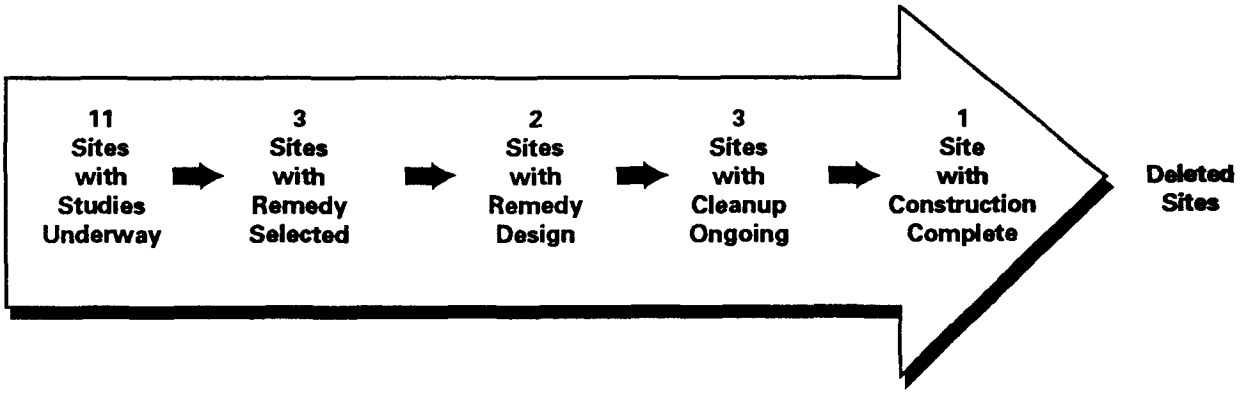
Soil and Solid Waste: Heavy metals (inorganics), and volatile organic compounds (VOCs).



Surface Water and Sediments: Heavy metals (inorganics), volatile organic compounds (VOCs), and radiation.

*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 8 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.

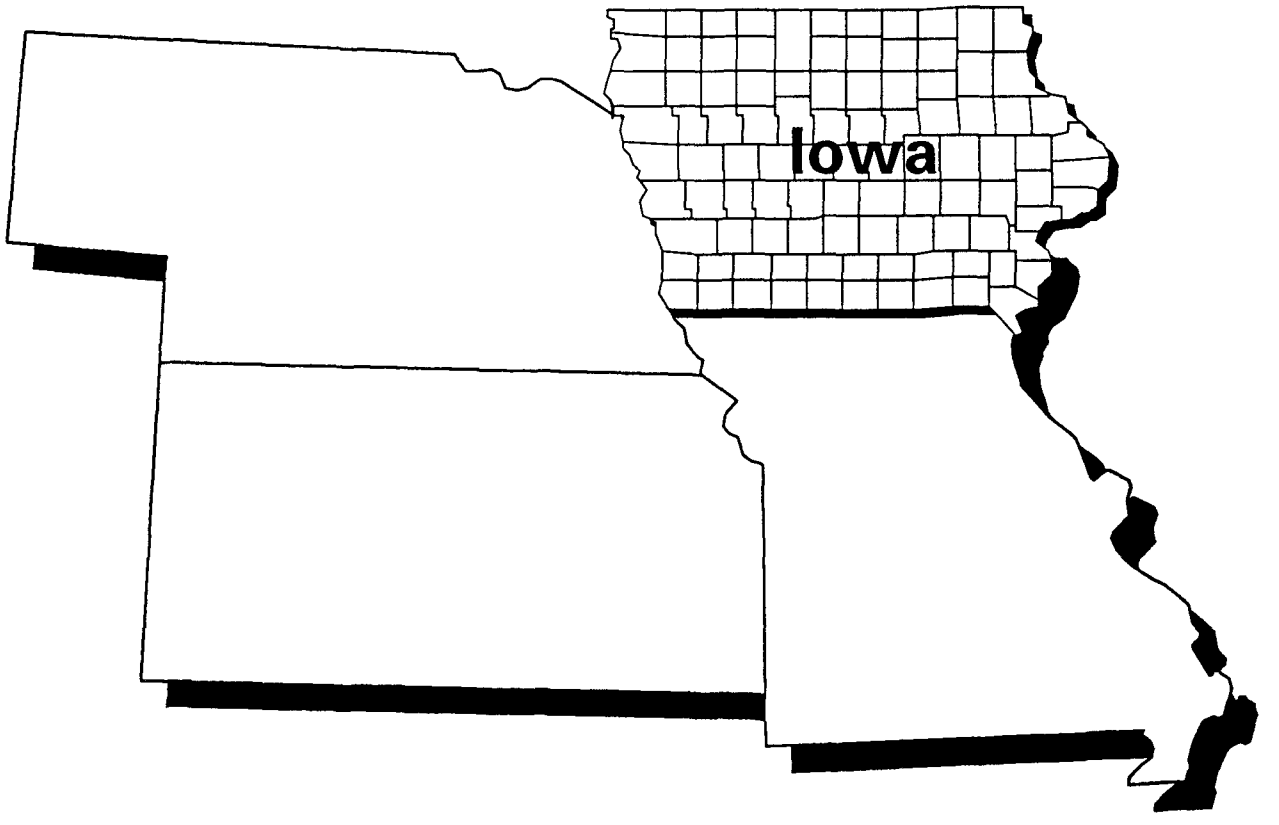
Further information on the activities and progress at each site is given in the site "Fact Sheets" published in this volume.

Progress Toward Cleanup at NPL Sites in the State of Iowa

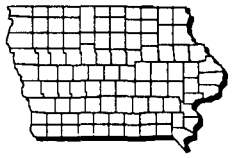
Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
23	AIDEX CORPORATION	POTTAWATTAMIE	Final	09/08/83	⇨	⇨	⇨	⇨	⇨		
25	DES MOINES TCE	POLK	Final	09/08/83		⇨	⇨	⇨	⇨		
27	E.I. DUPONT DE NEMOURS & CO, INC. (COUNTY ROAD X23)	LEE	Final	08/30/90		⇨					
29	ELECTRO-COATINGS, INC.	LINN	Final	10/04/89	⇨	⇨					
31	FAIRFIELD COAL GASIFICATION PLANT	JEFFERSON	Final	08/30/90	⇨	⇨	⇨	⇨			
33	FARMERS MUTUAL COOPERATIVE	SIOUX	Final	08/30/90		⇨					
35	IOWA ARMY AMMUNITION PLANT	DES MOINES	Final	08/30/90		⇨					
37	JOHN DEERE (OTTUMWA WORKS LDFL 5)	WAPELLO	Final	02/21/90		⇨					
39	LABOUNTY SITE	FLOYD	Final	09/08/83		⇨	⇨	⇨	⇨	⇨	
41	LAWRENCE TODTZ FARM	CLINTON	Final	06/10/86		⇨	⇨	⇨	⇨		
43	LEHIGH PORTLAND CEMENT CO.	CERRO GORDO	Final	08/30/90	⇨	⇨					
45	MID-AMERICA TANNING CO.	WOODBURY	Final	03/30/89	⇨	⇨					
47	MIDWEST MFG/NORTH FARM	JASPER	Final	06/10/86		⇨	⇨				
49	NORTHWESTERN STATES PORTLAND	CERRO GORDO	Final	08/30/90	⇨	⇨	⇨				
51	PEOPLES NATURAL GAS CO.	DUBUQUE	Final	08/30/90	⇨	⇨					
53	RED OAK CITY LANDFILL	MONTGOMERY	Final	03/13/89		⇨					
55	SHAW AVENUE DUMP	FLOYD	Final	07/22/87		⇨					
57	SHELLER-GLOBE CORP. DISPOSAL	LEE	Final	08/30/90		⇨					
59	VOGEL PAINT AND WAX COMPANY	SIOUX	Final	06/10/86	⇨	⇨	⇨	⇨			
61	WHITE FARM EQUIPMENT CO. DUMP	FLOYD	Final	08/30/90		⇨	⇨				
†	CHEMPLEX COMPANY	CLINTON	(Referred to RCRA program)								

†This site has been removed from the NPL, and will not appear in this or future volumes. Additional information is available in the 1991 National Volume.

Summary of Site Activities



EPA REGION 7



Who Do I Call with Questions?

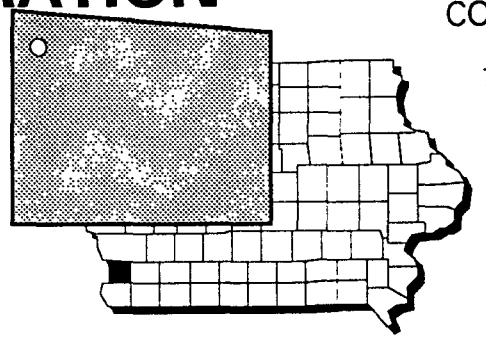
The following pages describe each NPL site in Iowa, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call the EPA's Region 7 Office in Kansas City, KS or one of the other offices listed below:

EPA Region 7 Superfund Community Relations Office	(913) 551-7003
EPA Region 7 Superfund Office	(913) 551-7052
EPA Superfund Hotline	(800) 424-9346
EPA Headquarters Public Information Center	(202) 260-2080
Iowa Superfund Office	(515) 281-4968

AIDEX CORPORATION

IOWA

EPA ID# IAD042581256



EPA REGION 7
CONGRESSIONAL DIST. 05
Pottawattamie County
7 miles south of Council Bluffs

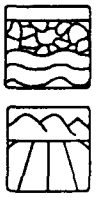
Site Description

The 15-acre Aidex Corporation site is a former pesticide formulation facility located approximately 7 miles south of Council Bluffs. In 1976, a building used to formulate the herbicide atrazine and other pesticides was destroyed by a fire. The surrounding soil was contaminated by water used to extinguish the blaze. In 1980, Aidex filed for bankruptcy. Cleanup operations were undertaken at the site in 1981. When cleanup began, approximately 3,400 drums containing pesticides were stored in open areas on the site. A concrete pit in the destroyed building contained about 2 feet of contaminated water, and a large underground storage tank also held contaminated materials. Soil, groundwater, and surface water were contaminated by pesticides spills. Approximately 600 people live within 3 miles of the rural site. An alluvial aquifer underlies the site and is contaminated. Within a 2-mile radius of the site are 42 shallow domestic water wells.

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

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

Threats and Contaminants



The groundwater is contaminated with atrazine, a pesticide produced at the site. The soil is contaminated with other pesticides including aldrin and chlordane from wastes stored at the site and as a result of the 1976 fire. The potential exists for pesticides to migrate off the Aidex site in either the soil or the groundwater. Flooding occurring in the area could facilitate migration of contaminants into the Missouri River flood plain. Direct contact with or ingestion of contaminated soil and groundwater could pose a potential health threat.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases directed at cleanup of surface contamination and the soil and groundwater at the entire site.

Response Action Status

Immediate Actions: In late 1981, the EPA constructed a security fence around the site. Decontamination of the interior building surfaces is planned to be completed in 1991.

Surface Cleanup: The EPA and the Army Corps of Engineers supervised cleanup work consisting of gathering and placing wastes in approved containers, storing wastes that were spread throughout the yard, draining and decontaminating a buried tank and waste pit, and constructing a drainage ditch around the site to prevent excessive water from entering. This work was performed in 1983, and off-site disposal of the collected materials followed in a second phase.

Soil and Groundwater: Cleanup technologies selected to address contamination by pesticides in the soil and groundwater include: (1) excavating buried wastes that lie within the perimeter of the disposal trench and transporting the wastes off site for disposal in a secure landfill; (2) grading, when necessary, and seeding the remaining soils; (3) expanding the monitoring well network by adding two wells to monitor mid-range and deep water quality downgradient of the site; (4) vacuuming the buildings to remove loose dust from all accessible interior surfaces and washing floors and walls; and (5) testing all monitoring wells biannually for 30 years or until a determination is made that the site no longer poses a threat to nearby drinking water supplies. The EPA and the Army Corps of Engineers have removed 20,608 cubic yards of contaminated soil and buried wastes. The wastes were transported off site, and the site was backfilled and graded. The State followed by collecting biannual groundwater samples from on- and off-site monitoring wells, beginning in 1987. The EPA collected additional samples from the interior of the on-site buildings in 1987 and 1988. The cleanup is expected to be completed in late 1991.

Site Facts: The Department of Justice, on behalf of the EPA, brought a Federal civil action, seeking monetary relief, against parties potentially responsible for wastes at the site.

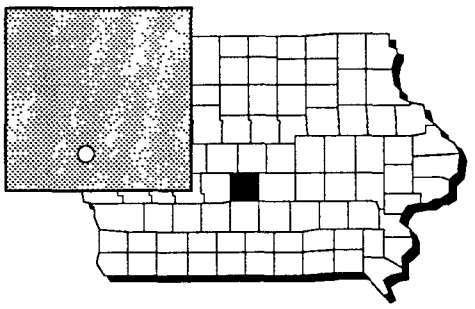
Environmental Progress

The removal of wastes to a secure landfill and the security measures at the Aidex Corporation site have greatly reduced the potential for exposure to hazardous materials while the final cleanup actions are taking place. The ongoing groundwater monitoring program is assessing the long-term effectiveness of the site's remedy.

DES MOINES TCE

IOWA

EPA ID# IAD980687933



EPA REGION 7
CONGRESSIONAL DIST. 04
Polk County
Southwest of downtown Des Moines

Other Names:
Tuttle Street Landfill
Des Moines Vocational School
Dychem
Dico Company

Site Description

This site is an area or plume of contaminated groundwater that spreads southwest of downtown Des Moines, in the flood plain of the Raccoon River. The surrounding area is industrial and commercial, with some recreational parklands. The city's public water supply was discovered to be contaminated with trichloroethylene (TCE) in 1976. By 1978, the EPA had traced the problem to the city's groundwater extraction gallery, with the Dico Company as the potential source of contamination. Dico disposed of oily wastes from the degreasing of metal parts by dumping them into a drainage ditch on company property and spreading them as a means of dust control. Early in 1979, the company voluntarily stopped this activity. In 1984, the Des Moines Water Works stopped using the groundwater gallery. The EPA recommended a return to underground water usage and ordered Dico to clean up the groundwater. During cleanup activities, workers discovered that another plume of contaminated groundwater was being drawn into the extraction system. An investigation was initiated to address contamination stemming from the north and west of the Dico property. The public water system serves approximately 258,300 people.

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

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

Threats and Contaminants

The groundwater is contaminated with volatile organic compounds (VOCs), including tetrachloroethylene, TCE, and vinyl chloride from former industrial waste disposal practices. The extraction system has eliminated the threat of contaminated drinking water. Most of the area to the east of the Raccoon River has been filled to raise the land above flood level. Contaminants may have been disposed in those areas along with fill material.

Cleanup Approach

The site is being addressed in three long-term remedial phases focusing on groundwater cleanup, source control, and cleanup of the "north plume."

Response Action Status

Groundwater: The remedy for cleanup of groundwater features: (1) collecting contaminated groundwater with extraction wells, (2) isolating the northernmost section of the public groundwater supply system; (3) treating the groundwater by exposing it to air to evaporate 96% of the TCE; (4) discharging the treated water to the Raccoon River; and (5) operating the extraction wells until water collected from all monitoring wells reveals less than 5 micrograms per liter of TCE for four consecutive months. Dico, under EPA monitoring, designed and built the groundwater extraction and treatment system, which features seven extraction wells and an air stripping system. Cleanup operations have been underway since 1987. Pesticide-contaminated soil was discovered during construction of the air stripping system. Temporary delays occurred while the soil was sampled and stockpiled on site. Dico has prepared a plan for soil remediation.

Source Control: In 1989, Dico, Inc. began an intensive study of the sources of the pollution on its property. This investigation will identify sources as well as potential remedies. It is slated for completion in 1992. Another potentially responsible party is conducting a study of a paved parking lot north of Dico to determine whether it may be a source of contamination.

North Plume: In 1988, the EPA began investigating the new area of contaminated groundwater that was being drawn into the treatment system. The EPA installed additional monitoring wells to the north and west of the Raccoon River near the Fleur Drive Bridge and north to about 25th and High Street. The wells are being monitored to determine the extent of contamination and its source(s) and to warn of any approaching danger to the public water supply. This investigation is slated for completion in 1992.

Site Facts: In 1986, the EPA issued an Administrative Order requiring Dico to design, build, and operate a groundwater extraction system. Dico signed an Administrative Order on Consent with the EPA in August 1989 to conduct a study of how to control the potential sources of contamination at their property.

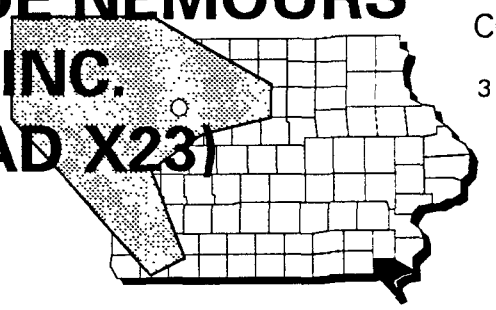
Environmental Progress

Groundwater cleanup and monitoring activities at the Des Moines TCE site currently are underway, reducing the potential for exposure to hazardous materials through drinking water while further investigations are completed and additional cleanup actions are selected.

E.I. DUPONT DE NEMOURS & COMPANY, INC. (COUNTY ROAD X23)

IOWA

EPA ID# IAD980685804



EPA REGION 7
CONGRESSIONAL DIST. 01
Lee County
3 1/2 miles southwest of West Point

Other Names:
Baier, James Farm
McCarl Farm

Site Description

The E.I. DuPont de Nemours & Company, Inc. (County Road X23) site, an industrial waste dump in a rural area of Lee County, consists of two areas off County Road X23, about 3 1/2 miles southeast of West Point. In the early 1950s, DuPont sent wastes from its nearby Fort Madison paint plant to the two disposal sites, which are about a mile apart and cover 4 acres. One is known as the Baier farm subsite and the other as the DuPont/McCarl subsite. DuPont estimates that between 1949 and 1953, a contractor disposed of 48,000 to 72,000 drums of paint waste at the two subsites. These wastes were placed in shallow trenches and burned, then the soil was graded flat. The properties drop off to ravines on the northwestern sides. The company estimates that from 4,500 to 7,000 tons of ash and unburned sludges still may exist on the areas. Approximately 1,200 people depend on private wells within 3 miles of the site as their sole source of drinking water. Two creeks about a mile from the site are used for limited recreational activities. Approximately 160 people live within a mile of the site; 1,250 live within 3 miles, with the closest population being 500 feet from the site. There are 40 private wells within a mile, and 330 private wells within 3 miles; the nearest is 500 feet from the site. Water is used both for human and livestock consumption.

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

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

Threats and Contaminants

Groundwater and soils are contaminated with heavy metals including cadmium and lead and volatile organic compounds (VOCs) from former disposal activities. Potential human health threats consist of ingesting contaminated groundwater and direct contact with both groundwater and soil. Contaminants also could accumulate in plants that are consumed by cattle.

Cleanup Approach

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

Response Action Status

Entire Site: In 1985, three groundwater monitoring wells were installed by the EPA at the Baier subsite. Sampling in 1986 showed elevated concentrations of metals. Downstream water samples showed similar findings. When the McCarl subsite was studied in 1986, groundwater and soil samples again revealed metals. In 1989, the EPA ordered DuPont to perform a study of contamination at the site. DuPont completed the study in early 1991. Based on the results of this study, the EPA is recommending stabilization and solidification of contaminated soil and monitoring of the groundwater as cleanup remedies. A decision on the selected final remedies is expected later in 1991.

Site Facts: On July 5, 1989, the EPA issued a Unilateral Order to DuPont requiring DuPont to undertake a study of site contamination and cleanup options at the Baier subsite.

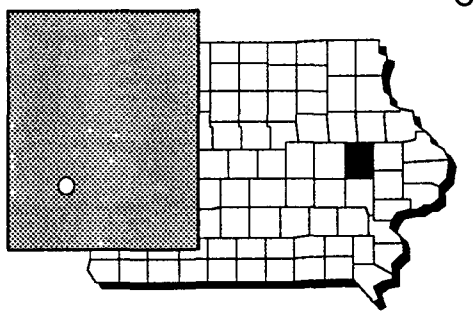
Environmental Progress

After adding this site to the NPL, the EPA determined that it did not currently pose an immediate threat to public health or the environment while investigations into final remedies are being completed.

ELECTRO-COATINGS, INC.

IOWA

EPA ID# IAD005279039



EPA REGION 7
CONGRESSIONAL DIST. 02
Linn County
Cedar Rapids

Site Description

The 1-acre Electro-Coatings, Inc. site is a chromium-plating shop in Cedar Rapids that has been operational since 1947. It lies at the northern edge of Cedar Lake and on the eastern edge of the Cedar River. In 1976, an unknown amount of chromic acid leaked from a deep pit into the groundwater. The owners then began a long series of monitoring and cleanup actions in response to State investigations and requirements. In 1982, the Iowa Department of Natural Resources (IDNR) found high levels of hexavalent chromium in a neighboring company's well. The State required that Electro-Coatings, Inc. determine the extent of contamination. Electro-Coatings monitored the neighboring wells, installed on- and off-site monitoring wells, and conducted monthly sampling. Cedar Rapids municipal wells serving nearly 10,000 people lie within 3 miles of the site. The nearest people live 10 feet from the site, and the nearest well is 2,000 feet away. Approximately 12,100 residents live within 1 mile of the site; 109,100 are within a 3-mile radius of the site. Groundwater underlying the Electro-Coatings site is used for the public drinking water supply and for industrial processes.

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

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

Threats and Contaminants

Groundwater is contaminated with hexavalent chromium, a heavy metal, from wastewater spills. The chief threat to public health would be drinking polluted groundwater. Analysts have not yet determined the total area of groundwater pollution; however, groundwater resources supplying municipal drinking wells have not shown signs of chromium contamination. Nearby water bodies, including lakes and streams, potentially are threatened by site contamination.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1977, after the wastewater spill, the owners installed new monitoring wells to define the area of groundwater contamination and undertook some cleanup actions at the site. In 1976, the leaking deep pit tank was removed, and 18,000 pounds of ferrous sulfate and 6,600 pounds of sulfuric acid were added to the area to chemically change the remaining hexavalent chromium to the less hazardous form of the chemical. A new pit tank and floor were installed. Other actions consisted of monitoring and sampling.

Entire Site: After discovering chromium in the neighboring well in 1982, the State required the installation of five more monitoring wells to track the extent and migration of the contaminant plume. An intensive study to determine the full extent and nature of the contamination currently is underway and is planned to be completed in 1991. The EPA then will select the most appropriate remedies for site cleanup.

Site Facts: In June 1977, the State issued an Executive Order requiring Electro-Coatings to install monitoring wells to define the extent of the contaminated plume. Public concern has been targeted on the contamination of Cedar Lake by Electro-Coatings and other sources.

Environmental Progress

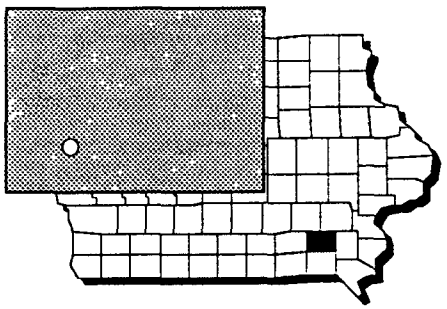
After the initial actions taken to remove a leaking tank and to break down the hexavalent chromium to a less hazardous form at the Electro-Coatings site, the EPA determined that the site does not currently pose an immediate threat to public health or the environment while investigations into final remedies are being completed.

FAIRFIELD COAL GASIFICATION PLANT

IOWA

EPA ID# IAD981124167

EPA REGION 7
CONGRESSIONAL DIST. 01
Jefferson County
Fairfield



Site Description

The Fairfield Coal Gasification Plant site occupies one city block between West Burlington and West Washington Avenues in Fairfield. The plant produced a natural gas substitute from coal from 1878 until 1950. The plant has been owned and operated by Iowa Electric Light and Power since 1917. Since 1950, the utility has used the site as an operations facility. The main wastes from coal gasification are polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs), found in the coal tar left over from the gasification process, and cyanide salts left in the iron oxide waste produced when the gas is purified. Operators sold some of the coal tar and buried some in an earthen pit on the site or dumped it in a nearby ditch. Disposal methods for the iron-cyanide waste are unknown, but it also may have been dumped on site. In 1985, the utility found that groundwater near the site was contaminated. The utility began a monitoring program to assure that private wells were unaffected. The EPA became involved in 1987 by conducting an expanded site investigation at the site, installing and sampling on- and off-site monitoring wells, and conducting surface and subsurface soil sampling. In 1989, Iowa Electric found that the foundation for a gas holder was the main source of the pollution. This structure was removed and destroyed, and wastes were dumped or left in its place. An estimated 1,000 people live within 1 mile of the site; 9,000 live within 3 miles. The local drinking water supply depends on both surface water and groundwater and serves 11,000 people. There are 23 drinking water wells within a 3-mile radius of the site; the closest is 1,900 feet away. Shallow and deep groundwater wells are within 2 miles of the site. The closest well uses the shallow aquifer. Cedar Creek is less than 3 miles downslope of the site and is used for recreation.

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

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

Threats and Contaminants

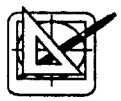
In 1985, the utility detected PAHs including anthracene and pyrene from the coal gasification processes in the groundwater near the site. On-site groundwater and soil contain VOCs such as benzene, toluene, and xylene and the metals lead and mercury. Contaminated soil and groundwater could pose a risk to human health. Private drinking water wells are not contaminated.

Cleanup Approach

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

Response Action Status

Immediate Actions: Under EPA monitoring, the utility undertook an emergency cleanup action featuring a groundwater extraction system. Currently operational, it is designed to contain the contaminated area of groundwater. The system will continue to operate throughout the remedy design stage and future cleanup activities, until the contamination levels set by the EPA and the State are achieved.



Groundwater and Soil: Also under the EPA's guidance, the utility completed an intensive study of groundwater and soil contamination at the site in 1990. The remedy selected includes excavating and incinerating contaminated soil and source areas, continuing the groundwater extraction and treatment system, and conducting a pilot study for possible in-place bioremediation of the contaminated groundwater. The potentially responsible parties began the technical design for the remedy in early 1991.

Site Facts: In 1989, Iowa Electric entered into an Administrative Order on Consent with the EPA to conduct additional investigations. The utility signed a Consent Decree with the EPA in March 1991 for performance of the technical design and cleanup activities.

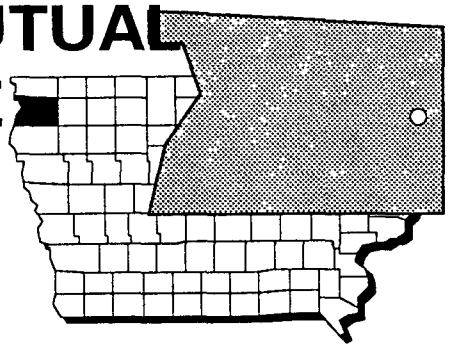
Environmental Progress

The groundwater extraction system currently in use at the Fairfield Coal site has reduced the level of contamination, and the design of the technical specifications for the site cleanup is underway.

FARMERS' MUTUAL COOPERATIVE

IOWA

EPA ID# IAD022193577



EPA REGION 7
CONGRESSIONAL DIST. 06
Sioux County
Hospers

Site Description

The Farmers' Mutual Cooperative is an agricultural supply and service business that has operated at this 6-acre site since 1908. The cooperative lies along the eastern side of the Floyd River and currently stores bulk grain, fertilizers, and pesticides. In 1984, the Iowa Department of Environmental Quality found volatile organic compounds (VOCs) and grain fumigant in two municipal wells in Hospers. The Iowa Department of Natural Resources prohibited the use of these two wells, in addition to a third well nearby. In 1985, the Cooperative found some of the same chemicals on its property and in the Floyd River downstream of the site. The Hospers municipal wells serve approximately 1,900 people and are within a 3-mile radius of the site. There are 109 deep and shallow wells and approximately 1,100 people within 3 miles of the Cooperative. The closest residence is approximately 100 feet away. Residents use the groundwater for drinking, irrigating crops, and watering stock.

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

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

Threats and Contaminants

The groundwater and soil are contaminated with VOCs and various herbicides such as atrazine and dual. Groundwater contaminants have polluted water under the Cooperative property and the closed public wells. A sample taken from the Floyd River indicated the presence of carbon tetrachloride and various pesticides. Human health could be harmed by drinking contaminated groundwater; however, Hospers' current public water supplies are not contaminated.

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: In 1987, the Cooperative, under State monitoring, began an intensive study of groundwater and soil pollution at and around the site. This investigation is intended to pinpoint the nature and extent of pollution problems and to recommend the best option for final cleanup. Field work and sampling at the site were completed in 1990. Initial plans for site cleanup include pumping contaminated groundwater and treatment with granular activated carbon. A final remedy selection is expected in 1991.

Site Facts: In 1986, the State issued an Administrative Order, requiring the Cooperative to conduct a study to determine the type and extent of the contamination and to identify cleanup alternatives. Partial results were submitted to the State in 1987, and negotiations culminated in a Consent Order, signed in 1987, providing for a groundwater study and completion of the site study.

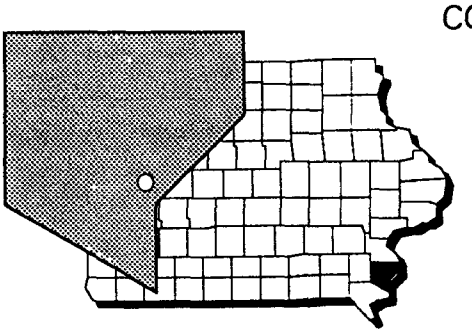
Environmental Progress

After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were needed at the Farmers' Mutual Cooperative site, pending selection of the final site cleanup approach.

IOWA ARMY AMMUNITION PLANT

IOWA

EPA ID# IA7213820445



EPA REGION 7
CONGRESSIONAL DIST. 01
Des Moines County
10 miles west of Burlington

Site Description

The 19,127-acre Iowa Army Ammunition Plant (IAAP) site's primary activity since 1941 has been to load, assemble, and pack a variety of conventional ammunitions and fusing systems. Wastes currently produced at IAAP consist of various explosive-laden sludges, wastewater, and solids; lead-contaminated sludges; ashes from incineration and open burning of explosives; and waste solvents from industrial and laboratory operations. Past operations also generated waste pesticides, radioactive wastes (which have been removed from the site), and incendiaries. The Army has identified a number of potentially contaminated areas, including an abandoned 4-acre settling lagoon, the Line 800 Pinkwater Lagoon, which received wastewater containing explosives from 1943 to 1955. It now holds an estimated 37,000 cubic yards of hazardous sludges. A second area under investigation involves an earthen and concrete dam across Brush Creek, the former Line 1 impoundment, which was used from 1948 to 1957. Wastewater flowed through a 3 1/2-acre sedimentation area where explosives settled out. The liquids subsequently overflowed the dam into Brush Creek. Approximately 100 people live within 3 miles of the site and obtain drinking water from private wells within 3 miles of the base. Surface water within 3 miles downstream of the site is used for recreational activities.

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

NPL LISTING HISTORY
Proposed Date: 07/14/89
Final Date: 08/30/90

Threats and Contaminants

The Army conducted tests from 1981 to 1984 and detected explosives from former waste disposal practices in surface water and wells downgradient of the lagoon and dam. In 1984, the U.S. Army detected explosives and lead in creek sediments. People using Brush Creek for recreational purposes may be at risk due to the contaminated sludge lagoons. Individuals drinking from contaminated wells also may be at risk.

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 Army began a study to investigate the type and extent of contamination at the site in 1990. Upon completion of the study, scheduled for 1995, the Army will suggest alternative technologies for cleanup. The site probably will be split into several remedial phases for the management of cleanup activities.

Site Facts: A Federal Facilities Compliance Agreement between the Army and the EPA was signed in 1988. The installation subsequently was proposed for the NPL, and Interagency Agreement negotiations are being initiated. The IAAP site 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.

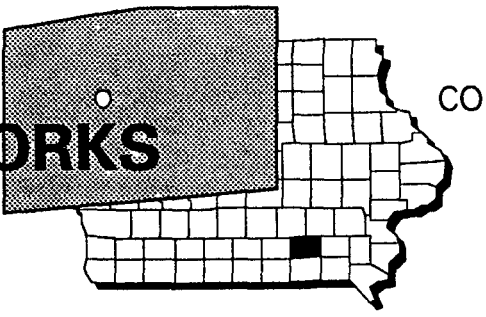
Environmental Progress

After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were needed at the IAAP site while further studies leading to long-term cleanup activities are taking place.

JOHN DEERE (OTTUMWA WORKS LANDFILLS)

IOWA

EPA ID# IAD005291182



EPA REGION 7
CONGRESSIONAL DIST. 01
Wapello County
Ottumwa

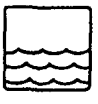
Site Description

The John Deere (Ottumwa Works Landfills) site consists of 118-acre tract of land and has been used for the manufacture of farm implements since 1946. From 1911 until 1973, the company disposed of approximately 3,000 tons of solvents, paint sludges, acids, heavy metals, and cyanide on site. The site is 200 feet from prime agricultural land. Approximately 700 people obtain drinking water from private wells within 3 miles of the site. The main water supply for Ottumwa (population 27,000) is the Des Moines River; the intake is 4,000 feet upstream from the John Deere landfills. The river also is used for recreational activities. The city's secondary water supply, which is used intermittently throughout the year, is Black Lake. It is 500 feet downgradient of the on-site landfills.

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

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

Threats and Contaminants



Low levels of various heavy metals from site disposal activities have been detected in the soil, surface water, and sediments. Also, low levels of methylene chloride, a volatile organic compound (VOC), are present in the soil and sediments. Potential risks may exist for individuals who accidently ingest or touch contaminated soil and surface water.

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: Under EPA monitoring, the John Deere Company began an investigation in 1990 to determine the type and extent of contamination. Field work was completed in late 1990, and the investigation is planned to be completed in 1991. Alternative cleanup technologies will be recommended, the EPA will select the most appropriate remedies, and cleanup activities will begin soon thereafter.

Site Facts: In 1989, the John Deere Company entered into an Administrative Order on Consent with the EPA to conduct an investigation to determine the type and extent of contamination at the site and to identify alternative technologies for the cleanup.

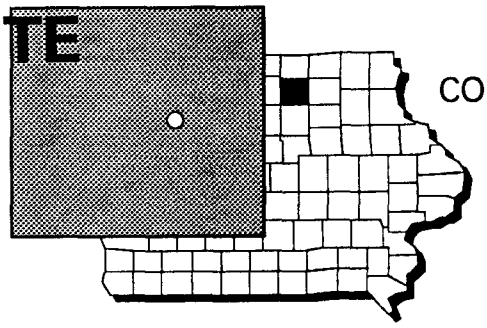
Environmental Progress

After adding this site the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the John Deere Company site while further studies and long-term cleanup activities are taking place.

LABOUNTY SITE

IOWA

EPA ID# IAD980631063



EPA REGION 7
CONGRESSIONAL DIST. 03
Floyd County
Charles City

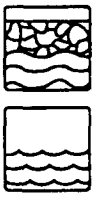
Site Description

The Labounty Site covers 8 1/2 acres on the Cedar River flood plain. From 1953 to 1977, Salsbury Laboratories, a manufacturer of veterinary pharmaceuticals, disposed of over 6 million cubic feet of sludges containing various compounds and metals on the site. This has resulted in the contamination of a shallow groundwater aquifer that connects to the Cedar River. Investigations by the EPA and the Iowa Department of Environmental Quality in 1977 and 1978 revealed that major waste components were being leached and transported from the disposal site by groundwater to the Cedar River. The State of Iowa ordered the site closed in 1977. That same year, Salsbury constructed a 24-well groundwater monitoring system, and, in 1980, completed a clay cap over the wastes. Approximately 10,000 people live within 3 miles of the site. The nearest residence is 1,000 feet from the site. People in the area use groundwater in the adjacent aquifer for drinking water supplies.

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

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

Threats and Contaminants



Volatile organic compounds (VOCs) and arsenic leached into the groundwater and surface water from the disposal site. Drinking of contaminated surface water and groundwater or inhaling volatilized contaminants from the site were potential threats to individuals.

Cleanup Approach

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

Response Action Status

Entire Site: The parties potentially responsible for the site contamination installed a groundwater monitoring system in 1979 and a clay cap in 1980. The capping effectively has reduced the leaching of wastes located above the water table. However, capping was not effective in reducing pollutant leaching where wastes were placed below the water table. Therefore, under EPA monitoring, the potentially responsible parties installed an upgradient groundwater diversion wall between 1985 and 1986. The wall diverts groundwater around the fill material into the Cedar River. Salsbury will continue to sample monitoring wells and the Cedar River. The EPA has conducted a limited amount of field sampling and currently is preparing the five-year review to determine if the site should be deleted from the NPL.

Site Facts: The State of Iowa issued an Administrative Order in 1977 that required the owner, Salsbury Laboratories, to prevent runoff, cease operations, and submit a plan for the removal of wastes. In 1985, the EPA and Salsbury entered into an Administrative Order on Consent for the construction of the upgradient diversion wall and monitoring system in the upper and lower Cedar Valley aquifers.

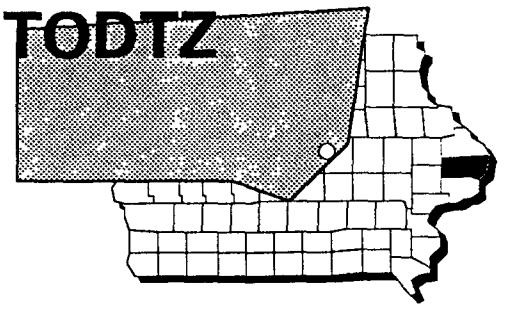
Environmental Progress

All cleanup activities have been completed at the Labounty Site. The EPA and the potentially responsible parties will continue to test the effectiveness of the completed cleanup actions and soon will determine if the site should be deleted from the NPL.

LAWRENCE TODTZ FARM

IOWA

EPA ID# IAD000606038



EPA REGION 7
CONGRESSIONAL DIST. 02
Clinton County
1 mile west of Camanche

Other Names:
DuPont Company Landfill

Site Description

The Lawrence Todtz Farm site is located in a predominantly agricultural area of Clinton and covers slightly over 6 acres. Municipal solid waste and industrial solid and liquid wastes were disposed at the site from 1958 to 1975. The E.I. DuPont de Nemours Company, Inc.'s cellophane plant buried 4,300 tons of liquid waste at the site from 1972 to 1975. The wastes were reported to include strong acids and bases, plasticizers, resins, alcohols, inorganic salts, paints, and pigments. The site was closed in 1975 and capped with approximately 2 feet of "red sugar" clay and topsoil overlay. One hundred people live within 1 mile of the site. Within 1/4 mile of the site are 10 farmhouses with private wells for drinking water and approximately 12 mobile homes. Murphy's Lake (formerly Willow Lake) and Badixen Lake, located near the site, are used for recreational activities such as fishing and swimming. Two chemical industrial plants are located within a mile of the landfill. Evidence of deer, raccoon, and cattle has been seen on the site. Wild geese were observed on the site and the surrounding lakes.

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

NPL LISTING HISTORY
Proposed Date: 09/05/85
Final Date: 06/10/86

Threats and Contaminants

Groundwater samples from on-site monitoring wells detected heavy metals including arsenic, barium, and lead; sodium; and volatile organic compounds (VOCs) including benzene and toluene from the former waste disposal activities on the site. Sodium was the only contaminant detected at levels above health guidelines in groundwater samples collected from area residential wells. Analyses of soil samples collected in 1988 detected only arsenic at levels that may pose adverse health effects. Children playing on the site may risk exposure by accidentally ingesting or touching contaminated soil. Future contamination of surface water (on-site ponds and nearby lakes) cannot be ruled out if a release from the impoundment occurs, because the lakes are hydraulically connected to the shallow sand and gravel aquifer.

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 parties potentially responsible for the site contamination installed an alternate water supply that included drilling a new well to supply water to three area residents. This was completed in the summer of 1989. Under the EPA's monitoring, the potentially responsible parties are grading the site area and are installing a 2-foot soil cover over the impoundment. A slurry wall around the buried liquid waste materials, or another treatment option, will be considered if monitoring levels exceed established limits. Monitoring of the impoundment and municipal landfill will continue, and installation of a groundwater pump and treat system will occur if the need arises. Cleanup activities are scheduled to be completed in 1991.

Site Facts: In November 1990, a Consent Decree, between the EPA and the potentially responsible parties was entered in court. Under this decree, the parties agreed to perform long-term cleanup of the site.

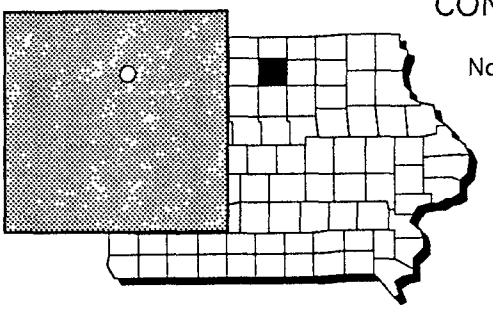
Environmental Progress

The installation of an alternate water source has reduced the potential for exposure to contaminated groundwater at the Lawrence Todtz Farm site while the final cleanup activities are taking place. The EPA will continue to monitor the groundwater and, if necessary, will install additional treatment facilities to address contamination.

LEHIGH PORTLAND CEMENT CO.

IOWA

EPA ID# IAD005288634



EPA REGION 7
CONGRESSIONAL DIST. 06
Cerro Gordo County
Northern section of Mason City

Site Description

The Lehigh Portland Cement Company owns and operates this Portland cement processing facility on approximately 150 acres in the northern section of Mason City. The facility has been in operation since 1937. The southern side of the site is bordered by 25th Street, and a small residential area is located to the north of the site. The site is composed of abandoned limestone quarries and mine tailings piles. Waste kiln dust, a by-product in the manufacturing of cement, has been discarded in piles throughout the facility, and a large quantity also is disposed of directly into two of the four abandoned quarries on the property. The quarries are filled with water and have drained into Calmus Creek directly south of the site. In 1984, the Iowa Department of Water, Air, and Waste Management (WAWM) conducted a comprehensive study of Calmus Creek and found contaminants that may have come from Blue Waters Pond, one of the quarries on the Lehigh site. Another NPL site, the Northwestern States Portland Cement Company, is situated immediately south of the site and is separated from it by Calmus Creek. An estimated 31,000 people obtain drinking water from public and private wells within 3 miles of the site. Wells are the sole source of drinking water in the area. A small subdivision of about 300 residents is located a mile north of the site. The Winnebago River, within 3 miles downstream of the site, is used for recreational activities, especially sport fishing.

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

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

Threats and Contaminants

Groundwater on site is contaminated with heavy metals including arsenic, as well as elevated pH levels caused by the former process waste disposal practices at the site. However, no significant levels of contaminants were found in off-site wells, and municipal and private drinking water wells are not polluted (except for sodium in one residential well). Sodium, sulfates, and elevated pHs were detected in Arch Pond and Blue Waters Pond, both on the Lehigh site. Calmus Creek is polluted, and people who use the creek for recreation or who may eat fish from it could be at risk. The pH level of soil, sediments, and surface water of the quarry is high enough to be considered caustic; therefore, direct contact with these substances could be a health hazard. If the contaminant plume migrates from Calmus Creek and into the Cedar Valley Aquifer, the private wells may become contaminated and could pose a health hazard to people who use them.

Cleanup Approach

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

Response Action Status

Initial Action: After the Iowa Department of Natural Resources found that surface water contamination in the creek was related to contaminants at the site, a weir was placed in the southeastern corner to control water elevations, because one of the quarries overflows during heavy rainfall. Dikes also were constructed to separate three of the quarries; an aboveground piping system was installed, which pumps water from one of the quarries to another. Lehigh installed three monitoring wells and sampled groundwater and surface water.

Entire Site: A site investigation has been conducted by Lehigh to determine the type and extent of contamination at the site. The EPA is evaluating the alternatives and plans to select the most appropriate remedies for final site cleanup in 1991.

Site Facts: In 1985, the State issued an Administrative Order, requiring Lehigh to conduct a hydrogeological investigation of the quarry. In 1989, the State issued another Administrative Order, requiring Lehigh to conduct a study to determine the type and extent of contamination on the site.

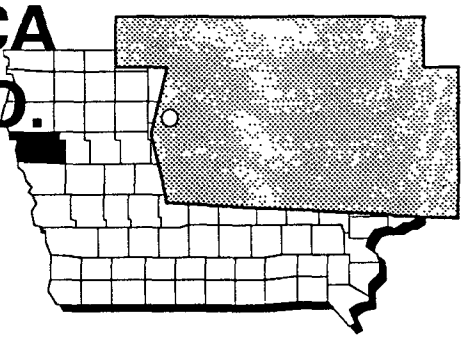
Environmental Progress

The construction of dikes to isolate the contamination in the quarries and the piping system that pumps water from one quarry to another have helped to reduce the potential for migration of contaminants or accidental exposure to contaminated groundwater or surface water while the Lehigh Portland Cement site awaits further cleanup activities.

MID-AMERICA TANNING CO.

IOWA

EPA ID# IAD085824688



EPA REGION 7
CONGRESSIONAL DIST. 06
Woodbury County
5 miles south of Sergeant Bluff

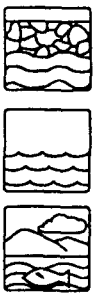
Site Description

The Mid-America Tanning Company site, located south of Sergeant Bluff, covers approximately 100 acres and has processed hides under several names since 1969. In 1979, the Mid-America Tanning Company discharged an estimated 1,000 cubic yards of tannery sludges containing chromium into two unlined trenches on the property. U.S. Tanning acquired the operation in 1985. Wastes were treated on site. Solids were settled out in concrete-lined ponds, while liquids were chemically treated and then discharged into Oxbow Lake. The site is in the Missouri River flood plain. Approximately 85 people live within a mile of the site, and 850 people live within 3 miles.

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

NPL LISTING HISTORY
Proposed Date: 06/24/88
Final Date: 03/30/89

Threats and Contaminants



Monitoring wells on site show that the groundwater is contaminated with heavy metals including arsenic, barium, chromium, lead, and cadmium from the former process waste disposal practices. The sediments and surface water of Oxbow Lake contain elevated levels of heavy metals. The groundwater, used by local residents as a drinking water supply, may be polluted with heavy metals; drinking such tainted water would be hazardous to human health. About a mile north of the site is a wetland used as a nesting site for the piping plover, an endangered species.

Cleanup Approach

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

Response Action Status

Initial Actions: In 1990, the EPA removed approximately 1,300 cubic yards of contaminated soil and sludge from on-site burial pits. This material later will be solidified as part of the final cleanup remedy. The EPA also plans to remove any raw materials found on site and recycle them, if possible. These initial actions are scheduled to be completed in 1991.

Entire Site: Due to financial difficulties encountered by the potentially responsible party, the EPA has had to initiate studies into the nature and extent of contamination at the site and the alternative technologies for cleanup. Completion of this study and selection of a cleanup alternative, expected to entail solidification methods for surface soils, are scheduled for 1991.

Site Facts: The EPA issued a Unilateral Administrative Order to the potentially responsible party in late 1989. Due to financial difficulties, the party did not comply with the initial actions specified in the Order.

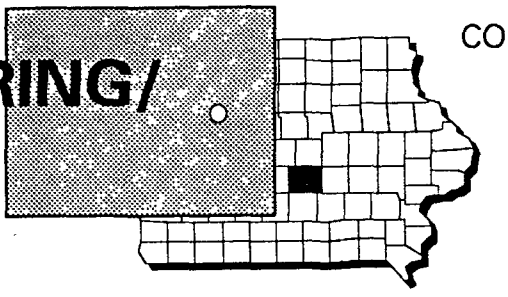
Environmental Progress

The EPA is completing initial actions to address elevated levels of cadmium, arsenic, barium, and lead in the groundwater by excavating and consolidating contaminated materials. These actions will contain the source of contamination and will remove the potential for direct contact with hazardous wastes on site.

MIDWEST MANUFACTURING/ NORTH FARM

IOWA

EPA ID# IAD069625655



EPA REGION 7
CONGRESSIONAL DIST. 04
Jasper County
2 miles north of Kellogg

Other Names:
North Farm
Smith-Jones

Site Description

The Midwest Manufacturing/North Farm site contains two subsites: the North Farm subsite, which is an unlined disposal cell 2 miles from the facility; and the Midwest Manufacturing subsite, which is the plant facility. The sites were combined, because they contain the same wastes and affect the same population. From 1973 to 1981, under Smith-Jones ownership, the plant was engaged in electroplating special-order stamped metal pieces, a process that involved using various heavy metals. The plant currently manufactures high-speed flywheel ring gears and assemblies for automobiles. Prior to a wastewater treatment plant being brought on-line in 1977, the electroplating waste from the plant was discharged directly into the North Skunk River. From 1977 to 1978, the sludge produced by this process was disposed of in an unlined cell at North Farm, 2 miles northeast of the plant. The unlined cell does not have a soil cap and lacks a leachate collection system or other containment measures to prevent the release of hazardous substances. A trench near the plant itself also was used to dispose of the sludge produced by the treatment process. In 1982, the EPA collected sludge samples from the disposal trench, and concentrations of metals were found to be below the concentrations that would designate the sludge as hazardous. Groundwater samples identified the potential for contaminant migration from the disposal trench. During an EPA site visit in 1987, a manmade drainage ditch was discovered to the west of the disposal trench at the plant. The sediments in this ditch were covered with a black, oily substance that had a petroleum odor. Stressed vegetation and an oily substance floating on top of the water were observed in a marshy area located on the western end of the plant property. Approximately 700 people depend on wells located within 3 miles of the site for their drinking water supply.

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

NPL LISTING HISTORY
Proposed Date: 09/05/85
Final Date: 06/10/86

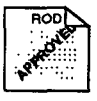
Threats and Contaminants

Midwest Plant city well #1 showed elevated levels of zinc from the former waste disposal activities, during sampling in 1982. Recent groundwater studies found elevated levels of volatile organic compounds (VOCs) such as vinyl chloride, trichloroethylene, and dichlorothylene and the heavy metals cadmium and nickel. Surface soils at both subsites contain high concentrations of heavy metals. Adverse health effects could result from ingesting vegetables grown on contaminated soils or watered with contaminated groundwater. Consuming contaminated groundwater may pose a health risk to area residents. The site is located within a critical habitat of the Indiana bat, which is on the endangered species list of the U.S. Fish and Wildlife Service.

Cleanup Approach

The site is being addressed in two long-term remedial phases directed at cleanup of the Midwest subsite and the North Farm subsite.

Response Action Status



Midwest Manufacturing Plant Subsite: The EPA concluded a study of the nature and extent of contamination at the plant site in 1990. Based on the results of the study, the EPA has selected a remedy that includes extracting and treating the groundwater through air stripping and filtration, along with capping the site to contain contamination. The design efforts are expected to begin in 1991.

North Farm Subsite: The remedy for the North Farm subsite has been selected and includes excavation of contaminated soil within and around the disposal cell, treatment and disposal of the soil in a regulated facility, and backfilling and grading excavated areas with clean fill. The design phase is scheduled to begin in late 1991.

Site Facts: Smith-Jones Midwest Manufacturing and Merl Brown were issued special Notice Letters in September 1987.

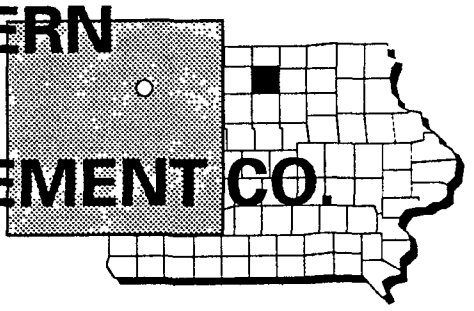
Environmental Progress

After adding the Midwest Manufacturing site to the NPL, the EPA performed a preliminary assessment of site conditions and determined that there were no immediate actions required to reduce the potential for exposure to contaminants while the designs for the final cleanup technologies for both subsites are being planned.

NORTHWESTERN STATES PORTLAND CEMENT CO.

IOWA

EPA ID# IAD980852461



EPA REGION 7
CONGRESSIONAL DIST. 06
Cerro Gordo County
Mason City

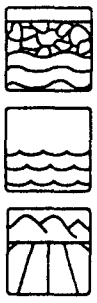
Site Description

The Northwestern States Portland Cement Company (NWSPCC) site covers 150 acres of a 250-acre parcel of land in Mason City. The NWSPCC began limestone mining operations in 1908. The company ceased the mining in 1950 and abandoned the quarry west of the plant. In 1969, NWSPCC began to use the quarry for the disposal of waste kiln dust containing hydroxides, potassium, chromium, and sulfates. An estimated 2 million tons of waste kiln dust were disposed of in the quarry. Over the years, the water level rose approximately 2 feet per year, filling in the quarry so that it held approximately 420 million gallons of water. Rainwater runoff drains from the quarry into adjacent Calmus Creek, a tributary of the Winnebago River. The Iowa Department of Natural Resources conducted an investigation in 1984, when a citizen became concerned over the Winnebago River turning white. Calmus Creek was found to have a higher than normal pH level. The Mason City municipal wells are within 3 miles of the site and serve approximately 30,000 people. About 300 people obtain their drinking water from private wells within 1 1/2 miles of the site. The municipal wells are connected to the deep Jordan aquifer. The private wells are served by the Cedar Valley aquifer. Calmus Creek and the Winnebago River are used for recreational activities, including fishing.

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

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

Threats and Contaminants



The groundwater is contaminated with sulfates, sodium, and elevated pH from the former process waste disposal practices at the site. Although the groundwater is contaminated, municipal and private drinking water wells are not polluted. If the contaminant plume migrates from Calmus Creek and into the Cedar Valley aquifer, the private wells may become contaminated and pose a health hazard to people who use them. Sediments and soils are contaminated with higher than normal pH. Calmus Creek is contaminated with higher than normal pH, and people who use the creek for recreation or eat fish from it may be at risk. The increased pH found in soil, sediments, and surface water of the quarry is considered caustic; therefore, coming in direct contact with these substances would pose a health risk.

Cleanup Approach

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

Response Action Status

Initial Actions: The State ordered NWSPCC to stop discharges into Calmus Creek, and the company complied by installing a system that intercepts the flow and pumps the water back into the quarry. In 1987, the company began treating the surface water before discharging it into the creek.

Entire Site: The NWSPCC has pumped most of the water from the quarry. The NWSPCC also conducted an investigation, under State supervision, to determine the extent of contamination at the site. The investigation was completed in 1990. Based on the results of the investigation, a remedy was selected. Along with pumping the water from the quarry, it includes construction of a permanent drain system in the quarry to collect precipitation runoff and groundwater inflow; installation of a cap over the quarry area filled with waste kiln dust to minimize infiltration through to kiln dust; installation of bedrock dewatering wells to collect contaminated groundwater, to prevent migration of contaminated groundwater, and to maintain groundwater levels; installation of kiln dust dewatering wells, if necessary; treatment of contaminated waters and final discharge into Calmus Creek; and continued operation of a dewatering system. The design of these technologies by NWSPCC is scheduled to begin in 1991.

Site Facts: In 1985, the State issued an Administrative Order to NWSPCC to stop discharges into Calmus Creek. In addition, the Order instructed the company to conduct a study, under State supervision, to determine the effect of the quarry on the environment. In 1989, the State issued an Administrative Order to NWSPCC to complete the study.

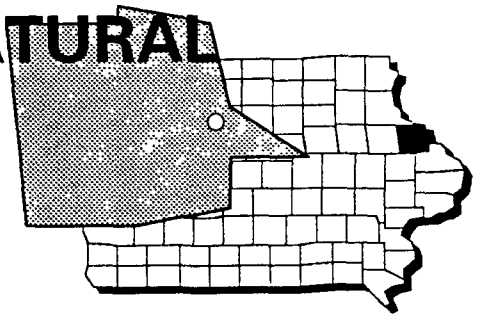
Environmental Progress

Pumping the water from the quarry and treating surface water prior to release to Calmus Creek have reduced the potential for exposure to contaminated water and sediments at the Northwestern States site while the design of the final site remedies is taking place.

PEOPLES NATURAL GAS CO.

IOWA

EPA ID# IAD980852578



EPA REGION 7
CONGRESSIONAL DIST. 02
Dubuque County
East Dubuque

Other Names:
Key City Coal Gasification Plant

Site Description

The Peoples Natural Gas Company site is located in Dubuque and covers approximately 5 acres. From 1890 until 1954, the Key City Gas Company owned and operated this gas plant, where a natural gas substitute was produced from coal. In 1954, the North Central Public Service Company took over operations until 1957, when Peoples Natural Gas Company assumed operations. The company used the site as a storage and maintenance area and did not manufacture gas. Peoples Natural Gas sold the site to the City of Dubuque, which used it as the Dubuque Municipal Garage in the late 1970s. Two waste products resulting from coal gasification are of primary concern: coal tar sludges and spent iron oxide. Coal tar sludges were produced during the coal or coke combustion and during the oil injection processes, and spent iron oxide wastes were produced during the gas purification process. Spent iron oxide wastes, removed from the three gas cleaning boxes (purifiers), were dumped behind two gas holding tanks on the site at least twice a year. Approximately 5,400 cubic yards of spent iron oxide wastes were deposited in the northeastern section of the site. Coal tars were removed from the gas in the wash box and condenser. These wastes either were sold or disposed of in pits or holding tanks. Two coal tar waste storage tanks were used at the Key City plant, one aboveground and one below. The aboveground tank has been removed. Evidence of materials left in the underground tank, as well as migration of waste out of the tank, is supported by a study done by the Iowa Department of Transportation in 1983 while conducting a right-of-way survey for the proposed extension of U.S. 61. An estimated 60,000 people obtain drinking water from municipal wells within 3 miles of the site. Approximately 2,400 people live within a mile of the site, and 21,000 people live within 3 miles. The Mississippi River is approximately 500 feet east of the site. Surface water downstream is used for industrial and recreational activities. A wildlife and fish refuge is 2 miles downstream, and wetlands are within 1/2 mile 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: 08/30/90

Threats and Contaminants

Phenols, polycyclic aromatic hydrocarbons (PAHs), and inorganic chemicals from the gasification process wastes were detected by the State in on-site wells. Soil samples collected at the site in 1983 also contained phenols, PAHs, and inorganic chemicals. Accidental ingestion or direct contact with contaminated soil or groundwater may pose potential health threats to individuals. No private drinking water wells have been identified in the area. The wetlands and the wildlife and fish refuge may be threatened by runoff from the site.

Cleanup Approach

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

Response Action Status

Immediate Actions: Under EPA monitoring, the parties potentially responsible for the site contamination currently are removing the contaminated coal tar sludges and soils containing contaminants above human health standards from within the construction corridor for U.S. Highway 61. Contaminated soil will be incinerated off site at a federally approved facility. The actual removal of sludges and soils is scheduled to be completed in 1991, with the incineration lasting until 1992.

Soil and Groundwater: A complete study of the extent and type of groundwater and soil contamination is being conducted by the parties potentially responsible for the contamination. The study is scheduled for completion in 1991. The soil to be studied will include contaminated soils outside of the construction corridor for U.S. 61.

Site Facts: The EPA signed an Administrative Order on Consent with Midwest Gas (of Iowa Public Service, a successor corporation of Peoples Natural Gas), the Iowa Department of Transportation, and the City of Dubuque in 1989. The Order requires the company to remove or treat any contaminated soil. It also requires completion of an investigation to determine the need for treatment of residual soil and for groundwater treatment.

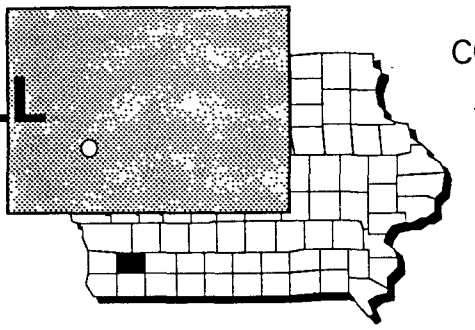
Environmental Progress

Once the contaminated soil is removed from the Peoples Natural Gas site, the area will be safer for the surrounding communities and the ecologically sensitive areas close to the site while investigations and selection of the final remedy are being completed.

RED OAK CITY LANDFILL

IOWA

EPA ID# IAD980632509



EPA REGION 7
CONGRESSIONAL DIST. 05
Montgomery County
1 1/2 miles northwest of Red Oak

Other Names:
Union Carbide Disposal

Site Description

The 40-acre Red Oak City Landfill is an inactive landfill located within an old limestone quarry in a rural setting. Of the 40 acres, 20 acres were used for disposal. The landfill is bounded on the west by Parkwest Road and on the east by the East Nishnabotna River. Quarrying activities at the site were conducted by strip mining from the late 1940s to the early 1960s. A limestone rim was left in place between the quarry pit and the west bank of the river to prevent flooding. Red Oak purchased the site property in the mid-1950s and converted it into a municipal landfill. From 1962 until 1974, hazardous substances were deposited in the landfill. The landfill lacks a leachate collection system and other engineering structures such as a liner or an effective cover to contain the disposed hazardous wastes. There is a thin layer of soil covering the landfill, and at some points, waste materials, including 55-gallon drums, are exposed to the surface. The eastern portion of the landfill, adjacent to the East Nishnabotna River, is being eroded as a result of river bank undercutting and surface water runoff. In 1981, Union Carbide Corp. and Uniroyal, Inc. notified the EPA that wastes they had sent to the landfill contained metals, volatile organic compounds (VOCs), and alcohol. In 1984, the EPA observed leachate seeping from the landfill into the river. Approximately 7,000 people within 3 miles of the site depend on groundwater as a source of drinking water. The nearest residence uses a private well 1,800 feet away from the landfill. There are 250 people living within a mile of the site.

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

NPL LISTING HISTORY
Proposed Date: 06/10/86
Final Date: 03/13/89

Threats and Contaminants

VOCs including toluene and xylene and heavy metals including chromium, lead, and barium from the landfilling practices have been detected in the groundwater and the surface water. The sediments near the landfill contain toluene. Wells located near the landfill may be contaminated. Accidentally ingesting or coming in direct contact with the contaminated groundwater, surface water, or sediments could be hazardous to the health of people in the area. There also is prime agricultural land adjacent to the site, which could be contaminated by chemicals from the site. The landfill is situated in permeable soil, which increases the chances of the groundwater being contaminated.

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 investigative work to determine the extent and nature of the contamination on site originally was conducted by the EPA and then taken over by the potentially responsible parties. This investigation is expected to be completed in 1992.

Site Facts: The potentially responsible parties signed a Consent Order in November 1989 with the EPA, in which they agreed to study the nature and extent of contamination at the site and to evaluate cleanup alternatives.

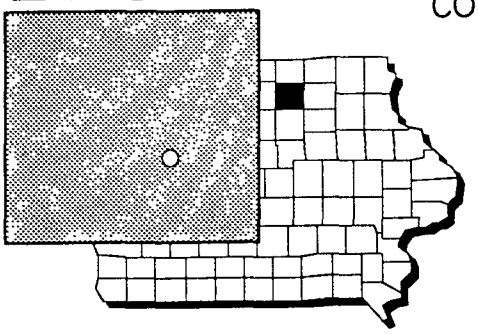
Environmental Progress

After placing the Red Oak City Landfill site on the NPL, the EPA determined, after a preliminary assessment of site conditions, that no immediate actions were required while further investigations leading to the selection of a final cleanup remedy are taking place.

SHAW AVENUE DUMP

IOWA

EPA ID# IAD980630560



EPA REGION 7
CONGRESSIONAL DIST. 03
Floyd County
Charles City

Site Description

The Shaw Avenue Dump site, an 8-acre city dump, is located in southeastern Charles City, approximately 500 feet east of the Cedar River. The City owns the site and operated it as a municipal waste dump without a permit. Two areas in the northern half of the site were used from 1949 to 1953 to dispose of 14,000 to 28,000 cubic feet of arsenic-contaminated solid waste generated by Salsbury Laboratories in the production of animal pharmaceuticals. Sludge from the Charles City wastewater treatment plant, which received liquid wastes discharged from Salsbury, was placed in the northern waste cells and in an undefined area on the southern portion of the site. The northern disposal area no longer is in use and has been covered with soil and vegetated. Between the southern and northern areas, trenches were used for disposing of lime sludges from the drinking water treatment plant. The City and the public used this area for open burning of wastes. The site is within a large residential area. A high school is located approximately 1,000 feet north of the site. Students use a playground and a stadium within 500 feet of the northern waste disposal cells. One residence, 1,500 feet southeast of the site, uses a private well for domestic purposes. The Charles City municipal water supply system, within 2 miles uphill of the site, serves 8,800 people. The Cedar River flows through Charles City and is used for recreational fishing, swimming, and canoeing.

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

NPL LISTING HISTORY
Proposed Date: 09/05/85
Final Date: 07/22/87

Threats and Contaminants

The groundwater and soils are contaminated with arsenic from the disposal site. The Cedar River also is contaminated with arsenic. Students playing on school grounds, City employees grading areas of the site, construction workers on site, and trespassers may inhale contaminated dust during future excavation. Direct contact with the contaminated soil, groundwater, and surface water could result in irritation of the skin and mucous membranes. The site is surrounded by a fence with no-trespassing signs and a locked gate.

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 EPA began an investigation of the site and its cleanup alternatives in 1987; however, a party potentially responsible for site contamination took over the investigation in 1988. Completion of the investigation and the selection of the cleanup alternatives are expected in mid-1991.

Site Facts: In March 1987, the EPA sent letters notifying Salsbury Laboratories and Charles City of their potential responsibility and requested information about their use of the site. A Consent Order was completed on May 26, 1988. Under this Order, the potentially responsible parties will conduct an investigation to determine the type and extent of contamination on the site.

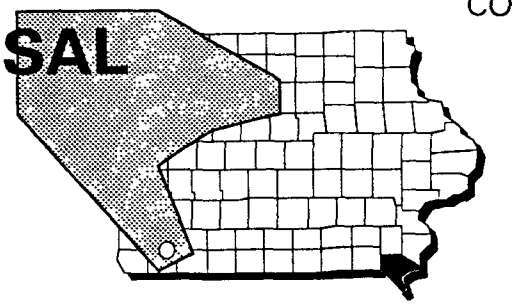
Environmental Progress

After adding the Shaw Avenue Dump site to the NPL, the EPA determined that no immediate actions were required while the investigations leading to selection of a remedy are taking place.

SHELLER-GLOBE CORP. DISPOSAL

IOWA

EPA ID# IAD980630750



EPA REGION 7
CONGRESSIONAL DIST. 01
Lee County
4 miles northwest of Keokuk

Other Names:
Grimes Property

Site Description

Sheller-Globe Corp. operated an industrial landfill and solvent burning area from 1947 to 1970. The 5-acre site was filled in and sold in 1980 to an individual who built a home on it and draws water from a 300-foot-deep on-site well. The water from the well contains lead and zinc, possibly from the distribution lines. In the past, the Sheller-Globe Corporation manufactured rubber products, including automobile weather stripping, at a facility located in Keokuk. Liquids and sludges from the operation were deposited directly into a ravine with no system for diverting surface runoff. According to the company, among these wastes were at least 1,000 drums of paint sludge, volatile organic compounds (VOCs), isopropyl alcohol, and resins containing fluorocarbons. Solvents routinely were burned in the open. In 1987, the EPA found heavy metal and VOC contamination in soil, groundwater, and surface water during testing. The Agency also observed seepage and an oil sheen on an intermittent stream near the northeastern edge of the site. More recently, the EPA also found 52 drums on the surface, as well as scrap rubber and polyurethane foam. An estimated 1,125 people obtained their drinking water from private wells within 3 miles of the heavily wooded rural site. Many now obtain drinking water from one of two rural water districts recently made available.

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 groundwater and soils are contaminated with heavy metals including arsenic, chromium, lead, nickel, and zinc and VOCs from the former disposal activities. The surface water is contaminated with heavy metals including arsenic. Accidental ingestion of contaminated groundwater, surface water, or soil may cause a potential health threat. The Mississippi River, approximately 3 miles downstream of the site, is used for recreational boating and fishing and could be subject to pollution from the site runoff.

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: An investigation of the site and the possible cleanup alternatives by the potentially responsible parties began in late 1990. Field work is expected to begin in 1991. The decision on cleanup methods is scheduled for 1992.

Site Facts: An Administrative order on Consent, requiring the potentially responsible parties to conduct site studies, was signed October 18, 1990.

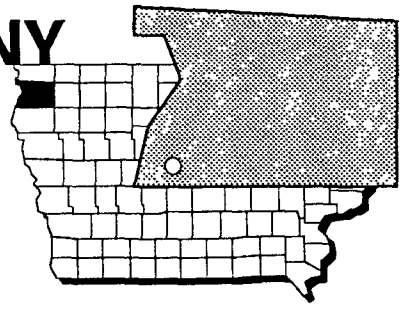
Environmental Progress

Following listing of the Sheller-Globe Disposal site on the NPL, the EPA determined, after an initial evaluation of the site conditions, that the site did not require any immediate actions while intensive studies leading to the selection of a final cleanup remedy are taking place.

VOGEL PAINT & WAX COMPANY

IOWA

EPA ID# IAD980630487



EPA REGION 7
CONGRESSIONAL DIST. 06
Sioux County
Maurice

Other Names:
Vogel Disposal Site

Site Description

Vogel Paint & Wax Company used a 2-acre disposal area within an 80-acre parcel of land. A sand and gravel pit was used by the company for disposal of its paint and varnish production wastes. From 1967 to 1979, the site received paint wastes containing heavy metals, volatile organic compounds (VOCs), and mineral spirits. Liquid wastes were dumped into several trenches from 8 to 12 feet deep. The trenches were left open for extended periods to allow evaporation. Partially filled and full drums and other debris were dumped on top of the liquid wastes. The trenches eventually were covered with 1 to 2 feet of soil. The company has conducted numerous investigations in conjunction with the Iowa Department of Natural Resources to determine the extent of the pollution. The site lies within a primarily agricultural area, and Maurice, with a population of 288, is located 2 miles northeast of the site. Struble is 3 miles south of the site and has a population of 59. The Southern Sioux County Rural Water System well field, located approximately 2 miles downstream of the site, serves 3,200 people. Within 1,600 feet upstream of the disposal site is an agricultural well and a residential well used for drinking water.

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

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

Threats and Contaminants

The groundwater is contaminated with heavy metals including cadmium, chromium, lead, and mercury and VOCs such as benzene and xylene from the former disposal activities. The soil and surface water are contaminated with heavy metals. Any contaminated soil above the waste trench area may be a potential health hazard if airborne dust is inhaled or direct contact is made with the contaminants in the soil. Contaminated surface water could affect plant and animal life in the intermittent streams.

Cleanup Approach

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

Response Action Status

Initial Action: As a preliminary action, a 2-foot thick clay cap was placed over the disposal area, and floating hydrocarbons are removed from the top of the water table on a monthly basis. This action has reduced the floating hydrocarbons from about 2 feet thick to only intermittent presence.

Entire Site: After evaluating alternative cleanup methods, the EPA selected a remedy for cleanup of the site. The potentially responsible parties will excavate contaminated soils and separate solid and liquid waste for off-site incineration, recycling, or disposal. An estimated 10,000 cubic yards of contaminated soils will be treated using a bioremediation process in a fully contained surface impoundment unit. Treated soil will be stabilized, if necessary, to prevent leaching of metals, placed back into the excavation area, and covered. Groundwater will be pumped and air stripped, with discharge to the nearby stream. Losses of volatile organics to the atmosphere in both the soil and groundwater actions will be controlled by carbon adsorption, if necessary. Health-based standards for groundwater and leaching standards for soils have been established. The potentially responsible parties are conducting design activities for the cleanup. Once this step is completed, scheduled for later in 1991, the cleanup activities will begin.

Site Facts: A State Consent Order has been signed and the Vogel Paint & Wax Co. has taken responsibility for the costs incurred to date. The site currently is listed on the State Abandoned or Uncontrolled Sites Registry (SAUSR). Substantial changes or transfer of property on this registry is prohibited without written approval of the Director of the Iowa Department of Natural Resources.

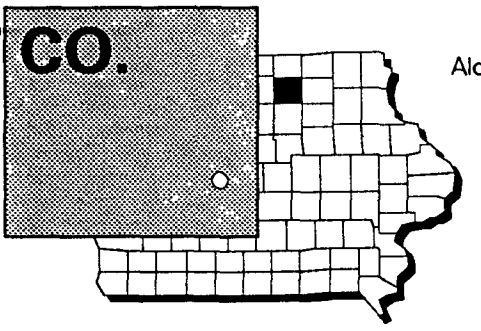
Environmental Progress

By placing a cap over the areas of greatest contamination and removing the floating contaminants from standing water, the Vogel Paint & Wax site no longer poses an immediate threat to the public or the environment. Further long-term cleanup actions at the site are being designed and are scheduled to begin soon.

WHITE FARM EQUIPMENT CO. DUMP

IOWA

EPA ID# IAD065210734



EPA REGION 7
CONGRESSIONAL DIST. 03
Floyd County
Along the northern boundary of Charles City

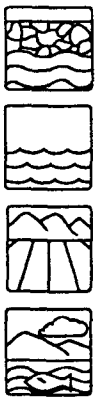
Site Description

The White Farm Equipment Co. Dump site occupies approximately 20 acres along the northern border of Charles City. The dump is located in an old sand and gravel pit that is bordered by low-lying areas and farmland. Tractors and other farm equipment have been manufactured near the dump since the early 1900s. White Farm Equipment operated on land leased from H.E. Construction Co. until it filed for bankruptcy in 1980. Allied Products Co. purchased the operation in late 1986. Starting in the 1920s, White Farm's operations generated foundry sand, sludges, and dust from air pollution control equipment. Since 1971, the plant intermittently has been disposing of foundry sands, baghouse dust, and other industrial wastes at the site. Approximately 650,000 cubic yards of these wastes were placed on site. Nearby residents have complained of dust blowing off the dump. Charles City draws its drinking water from an aquifer underlying the White Farm Equipment Dump site. There are about 10,000 people living within 3 miles of the site who use drinking water from public and private wells within 3 miles of the site, and 2,300 people live within a 1-mile radius of the site. The contamination from the site flows into the Cedar River, which is used for recreational activities.

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

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

Threats and Contaminants



Heavy metals including arsenic, chromium, copper, lead, nickel, and zinc and volatile organic compounds (VOCs) from the former waste disposal practices are contaminating the groundwater. Sediments, soils, and surface water contain heavy metals. Health of individuals could be at risk if the contaminated groundwater, surface water, soil, or sediments are accidentally ingested or touched. The pollutants also may be affecting the Cedar River wetlands, disturbing the ecological balance.

Cleanup Approach

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

Response Action Status

Entire Site: One of the parties potentially responsible for the contamination investigated the nature and extent of contamination. The investigation included characterization of waste in the landfill, determination of contamination spread by rainwater runoff, detection of contamination spread by air, detection of contamination spread by dissolved metal, and determination of groundwater movement and evaluation of possible connections between the shallow aquifer and the drinking water aquifer. The EPA chose a compacted soil and vegetative layer cap as the cleanup measure. The potentially responsible parties will design the remedy, scheduled to begin in mid-1991.

Site Facts: In 1989, the EPA and two parties potentially responsible for the contamination signed an Administrative Order on Consent. In that Order, one of the parties agreed to take responsibility for the site investigation to determine the nature and the extent of the contamination.

Environmental Progress

After adding the site to the NPL, the EPA determined that no immediate actions were required while cleanup activities are being planned and work is started.

Glossary: Terms Used in the Fact Sheets

Terms Used in the NPL Book

This glossary defines terms used throughout the NPL Volumes. The terms and abbreviations contained in this glossary apply specifically to work performed under the Superfund program in the context of hazardous waste management. These terms may have other meanings when used in a different context.

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

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

Administrative Order [Unilateral]: A legally binding document issued by the EPA, directing the parties potentially responsible to perform site cleanups or studies (generally, the EPA does not issue Unilateral Orders for site studies).

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Carbon Treatment: [see Carbon Adsorption].

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

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

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

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

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

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

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

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

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

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

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

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

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

Consent Order: [see Administrative Order on Consent].

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feasibility Study: The analysis of the potential cleanup alternatives for a site. The feasibility study usually starts as soon as the remedial investigation is underway; together, they are commonly referred to as the RI/FS [see Remedial Investigation].

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

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

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

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

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

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

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

Good Faith Offer: A voluntary offer, generally in response to a Special Notice letter, made by a potentially responsible party, consisting of a written proposal demonstrating a potentially responsible party's qualifications

and willingness to perform a site study or cleanup.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Interagency Agreement: A written agreement between the EPA and a Federal agency that has the lead for site cleanup activities,

setting forth the roles and responsibilities of the agencies for performing and overseeing the activities. States often are parties to interagency agreements.

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

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

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

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

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

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

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

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

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

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

Mill Tailings: [See Mine Tailings].

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

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

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

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

which groundwater flows and the types and amounts of contaminants present.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Potentially Responsible Parties (PRPs): Parties, including owners, who may have contributed to the contamination at a Superfund site and may be liable for costs of response actions. Parties are considered PRPs until they admit liability or a court makes a determination of liability. PRPs may sign a Consent Decree or Administrative Order on Consent to participate in site cleanup activity without admitting liability.

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

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

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

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

RCRA: [See Resource Conservation and Recovery Act].

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

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

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

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

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

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

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

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

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

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

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

Resource Conservation and Recovery Act (RCRA): A Federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure

procedures to be used in treating, transporting, storing, and disposing of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Gas: Gaseous elements and compounds that occur in the small spaces between particles of soil. Such gases can move through

or leave the soil or rock, depending on changes in pressure.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Water Table: The upper surface of the groundwater.

Weir: A barrier to divert water or other liquids.

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

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

APPENDIX B

Information Repositories for NPL Sites in Iowa

* U.S. G.P.O.:1992-311-893-60432

Information Repositories for NPL Sites in the State of Iowa

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
AIDEX CORPORATION	Glenwood City Hall, 107 S. Locust Street, Glenwood, IA 55134
DES MOINES TCE	Des Moines City Library, 100 Locust, Des Moines, IA 50308
E.I. DUPONT DE NEMOURS & CO, INC. (COUNTY ROAD X23)	Idol Raschid Library, 3421 Avenue L., Fort Madison, IA 68901
ELECTRO-COATINGS, INC.	Contact the Region 7 Superfund Community Relations Office
FAIRFIELD COAL GASIFICATION PLANT	Fairfield Public Library, Court & Washington, Fairfield, IA 52556
FARMERS MUTUAL COOPERATIVE	Hospers City Hall, Hospers, IA
IOWA ARMY AMMUNITION PLANT	Contact the Region 7 Superfund Community Relations Office
JOHN DEERE (OTTUMWA WORKS LDFL 5)	Ottumwa Public Library, 129 N. Court Street, Ottumwa, IA 52501
LABOUNTY SITE	Contact the Region 7 Superfund Community Relations Office
LAWRENCE TODTZ FARM	Clinton Main Library, 306 Eighth Ave. S., Clinton, IA 53742
LEHIGH PORTLAND CEMENT CO.	Mason City Public Library, 225 Second Street, Mason City, IA 50401
MID-AMERICA TANNING CO.	Sergeant Bluff City Hall, 401 Fourth Street, Sergeant Bluff, IA 54054
MIDWEST MFG/NORTH FARM	Kellogg City Library, Kellogg City Hall, Kellog, IA 50135
NORTHWESTERN STATES PORTLAND	Mason City Public Library, 225 Second Street, Mason City, IA 50401
PEOPLES NATURAL GAS CO.	Carnegie Stout Public Library, Eleventh and Bluff, Dubuque, IA 52001
RED OAK CITY LANDFILL	Red Oak Public Library, Second and Washington, Red Oak, IA 51566
SHAW AVENUE DUMP	Charles City Public Library, 106 Milwaukee, Charles City, IA 66101
SHELLER-GLOBE CORP. DISPOSAL	Contact the Region 7 Superfund Community Relations Office
VOGEL PAINT AND WAX COMPANY	Contact the Region 7 Superfund Community Relations Office
WHITE FARM EQUIPMENT CO. DUMP	Charles City Public Library, 106 Milwaukee, Charles City, IA 50616