EPA/540/4-90/016
September 1990

NATIONAL PRIORITIES LIST SITES: Iowa

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

If you wish to purchase copies of any additional State volumes or the National Overview volume, ***Superfund: Focusing on the Nation at Large***, contact:

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INTRODUCTION: 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, property values depreciated. 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 the 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 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.

In the 10 years 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 at others improperly disposed or stored wastes threatened the health of the surrounding community and the environment.

EPA Identified More than 1,200 Serious Sites

EPA has identified 1,236 hazardous waste sites as the most serious in the Nation. These sites comprise the "National Priorities List": sites targeted for cleanup under the Superfund. But site discoveries continue, and EPA estimates that, while some will be deleted after lengthy cleanups, this list, commonly called the NPL, will continue to grow by approximately 100 sites per year, 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 (1,236) are thus a rela-

tively small subset of a larger inventory of potential hazardous waste sites, but they do comprise the most complex and environmentally compelling cases. EPA has logged more than 32,000 sites on its National hazardous waste inventory, and assesses each site within one year of being logged. In fact, over 90 percent of the sites on the inventory have been assessed. Of the assessed sites, 55 percent have been found to require no further Federal action because they did not pose significant human health or environmental risks. The remaining sites are undergoing further assessment to determine if long-term Federal cleanup activities are appropriate.

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.

The 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 hazardous release, or the threat of one. 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 the Superfund 's most noted achievements. Where imminent threats to the public or environment were evident, EPA has completed or monitored emergency actions that attacked the most serious threats to toxic exposure in more than 1,800 cases.

The ultimate goal for a hazardous waste site on the NPL is a permanent solution to an environmental problem that presents a serious (but not an imminent) threat to the public or environment. This often requires a long-term effort. In the last four years, 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. And in 1989 more sites than ever reached the construction stage of the Superfund cleanup process. Indeed construction starts increased by over 200 percent between late 1986 and 1989! Of the sites currently on the NPL, more than 500 — nearly half — have had construction cleanup activity. In addition, over 500 more sites are presently 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. Measuring success by "progress through the cleanup pipeline," EPA is clearly gaining momentum.

EPA MAKES SURE CLEANUP WORKS

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.

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, 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 still being safeguarded. EPA will correct any deficiencies discovered and 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. EPA's job is to analyze the hazards and deploy the experts, but the Agency needs citizen input as it makes choices for affected communities.

Because the people in a community with a Superfund site will be those most directly affected by hazardous waste problems and cleanup processes, 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.

This State volume and the companion National Overview volume provide general Superfund background information and descriptions of activities at each State NPL site. These volumes are intended to clearly describe what the problems are, what 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 IN TANDEM

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. The public 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 volume — ***Superfund: Focusing on the Nation at Large*** — accompanies this State volume. The National Overview 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, the Superfund program's successes in cleaning up the Nation's serious hazardous waste sites, and the vital roles of the various participants in the cleanup process.

This State volume compiles site summary fact sheets on each State 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 State book gives a "snapshot" of the conditions and cleanup progress that has been made at each NPL site in the State through the first half of 1990. Conditions change as our cleanup efforts continue, so these site summaries will be updated periodically to include new information on progress being made.

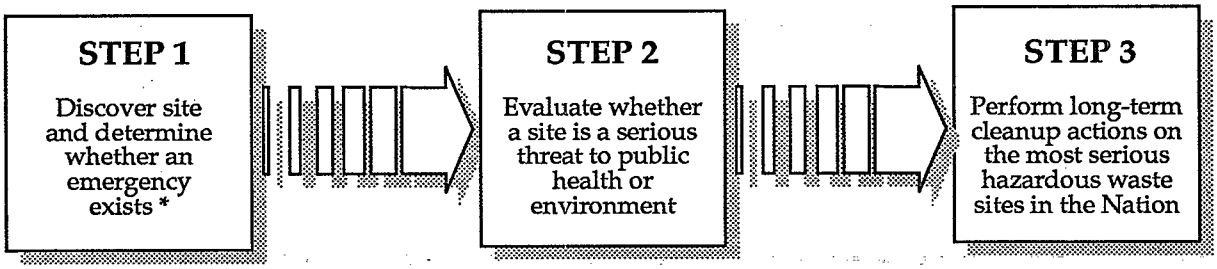
To help you understand the cleanup accomplishments made at these sites, this State volume includes a description of the process for site discovery, threat evaluation and long-term cleanup of Superfund sites. This description — ***How Does the Program Work to Clean Up Sites?*** — will serve as a good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

SUPERFUND:

How Does the Program Work to Clean Up Sites?

The diverse problems posed by the Nation's hazardous waste sites have provided EPA with the challenge to establish a consistent approach for evaluating and cleaning up the Nation's most serious sites. To do this, EPA 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. EPA has established procedures to coordinate the efforts of its Washington, D.C. Headquarters program offices and its front-line staff in 10 Regional Offices with the State 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 EPA or the State or, under their monitoring, by private parties who are potentially responsible for site contamination.

The process for discovery of the site, evaluation of threat, and 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 below provides a summary of this three step process.



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

FIGURE 1

Although this State 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 up to identifying and cleaning up these most serious uncontrolled or abandoned hazardous waste sites in the Nation. This discovery and evaluation process is the starting point for this summary description.

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

How does 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. Or 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 EPA informed about either 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, 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 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 figure out what is contaminating the drinking water supply and the best way to clean it up. Or

EPA may determine that there is no imminent danger from a site, so now 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 requires a long-term cleanup action.

Once a site is discovered and any needed emergency actions are taken, 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 like 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 don't 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 32,000 sites maintained in this inventory.

If the preliminary assessment shows that 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 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 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, EPA developed the Hazard Ranking System (HRS). The HRS is the scoring system 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 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 EPA's **National Priorities List (NPL)**. That's why there are 1,236 sites are on the NPL, but there are more than 32,000 sites in the Superfund inventory. Only NPL sites can have a long-term cleanup paid for from the national hazardous waste trust fund — the Superfund. But the Superfund can and does pay for emergency actions performed at any site, whether *or not it's on the NPL.*

How do people find out whether EPA considers a site a national priority for cleanup using Superfund money?

The public can find out whether a site that concerns them is on the NPL by calling their Regional EPA office at the number listed in this book.

The proposed NPL identifies sites that 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 added 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. Updated at least once a year, it's only after public comments are considered that these proposed worst sites are officially added to the NPL.

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

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. So a five-phase "remedial response" process is used to develop consistent and workable solutions to hazardous waste problems across the Nation:

1. Investigate in detail the extent of the site contamination: **remedial investigation,**
2. Study the range of possible cleanup remedies: **feasibility study,**
3. Decide which remedy to use: **Record of Decision or ROD,**
4. Plan the remedy: **remedial design,** and
5. Carry out the remedy: **remedial action.**

This remedial response process is a long-term effort to provide a permanent solution to an environmental problem that presents a serious, but not an imminent 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 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. But 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 is information that allows 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?

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 carefully compared. 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 use treatment technologies to destroy principal site contaminants. But remedies such as containing the waste on site or removing the source of the problem (like leaking barrels) are often 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 carefully considered 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. 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.

The public has a minimum of 30 days to comment on the proposed cleanup plan after it is published. These comments can either be written or given verbally at public meetings that EPA or the State are required to hold. Neither 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 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 of the 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 6 months to 2 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 complete, 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 decontaminate them — an action that takes limited time and money. In most cases, however, a remedial action may involve different and expensive 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, a remedial cleanup action takes an average of 18 months to complete and costs an average of $26 million per site.

Once the cleanup action is complete, 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 the **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 completed".

It's not until a site cleanup meets all the goals and monitoring requirements of the selected remedy that 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 can actually be deleted from the NPL. Deletions that have occurred are included in the "Construction Complete" category in the progress report found later in this book.

Can 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 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 EPA, and must meet the same standards required for actions financed through the Superfund.

Because these enforcement actions can be lengthy, 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 for repaying the money EPA spends in cleaning up the site.

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

HOW TO:

USING THE STATE VOLUME

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 National Priorities List (NPL) and their locations, as well as the conditions leading to their listing ("Site Description"). They 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 on 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 following two pages show a generic fact sheet and briefly describes the information under each section. The square "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.

Icons in the *Threats and Contaminants* Section

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

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

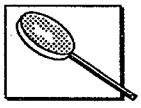
Contaminated **Air** in the vicinity of the site. (Pollution is usually periodic and involves contaminated dust particles or hazardous gas emissions.)

Contaminated **Soil and Sludges** on or near the site.

Threatened or contaminated **Environmentally Sensitive Areas** in the vicinity of the site. (Examples include wetlands and coastal areas, 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 are planned or underway.

Remedy Selected indicates that site investigations have been concluded and 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 — are currently underway.

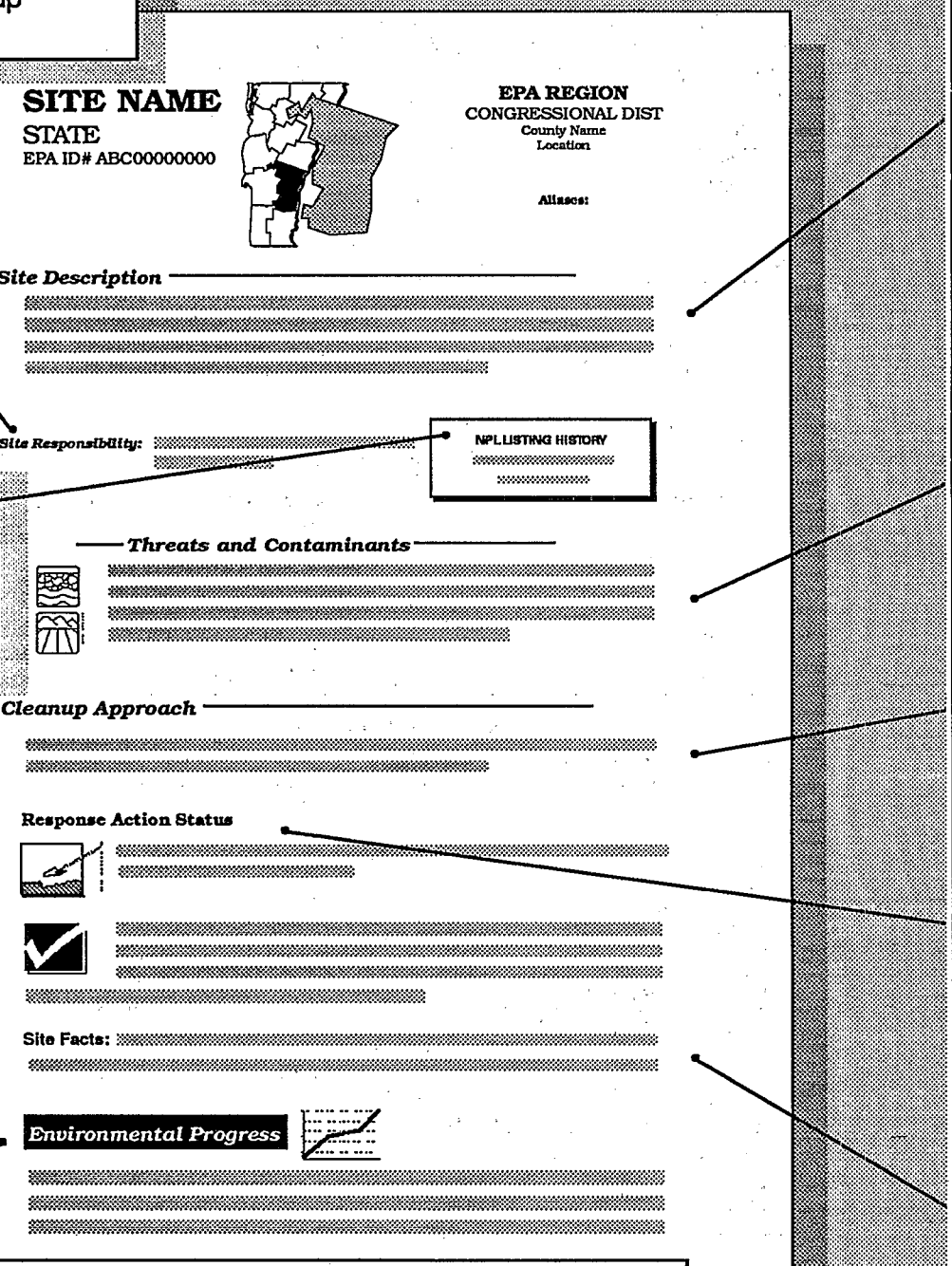
Cleanup Complete shows that all cleanup goals have been achieved for the contaminated site or part of the site.

Site Responsibility

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

NPL Listing History

Dates when the site was Proposed, made Final, and Deleted from the NPL



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.

WHAT THE FACT SHEETS CONTAIN

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. Throughout the site description and other sections of the site summary, technical or unfamiliar terms that are *italicized* are presented in the glossary at the end of the book. Please refer to the glossary for more detailed explanation or definition of the terms.

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 are also described. Specific contaminants and contaminant groupings are italicized and explained in more detail in the glossary.

Cleanup Approach

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

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 are often 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.

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 EPA to achieve site cleanup or other facts pertaining to community involvement with the site cleanup process are reported here.

How To

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 is always being made at NPL sites, and EPA will periodically update the Site Fact Sheets to reflect recent actions and publish updated State volumes.

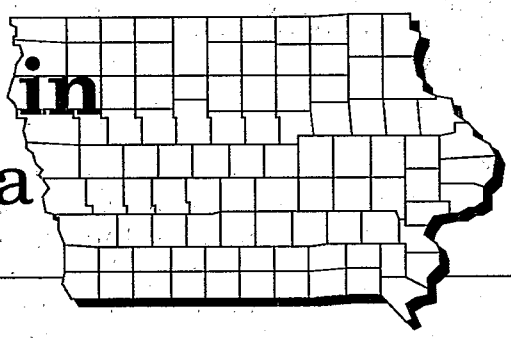
HOW CAN *YOU* USE THIS STATE BOOK?

You can use this book to keep informed about the sites that concern you, particularly ones close to home. EPA is committed to involving the public in the decisionmaking 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 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 to know what the community can realistically expect once the cleanup is complete.

EPA wants to develop cleanup methods that meet community needs, but the Agency can only 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.

NPL Sites in State of Iowa



Iowa lies between the Mississippi and Missouri Rivers, and is bordered by Illinois and Wisconsin on the east, Missouri to the south, Nebraska and South Dakota in the west, and Minnesota to the north. Iowa covers 56,275 square miles and consists of watershed from northwest to the southeast and especially rich soil in the north. The State experienced a 2.7 percent decrease in population during the 1980s and currently has 2,834,000 residents, ranking 29th in U.S. populations. Principal state industries are manufacturing, agriculture, and insurance. Iowa manufacturing produces tires, appliances, fertilizers, auto accessories, electronic products, chemicals, office furniture, and farm machinery.

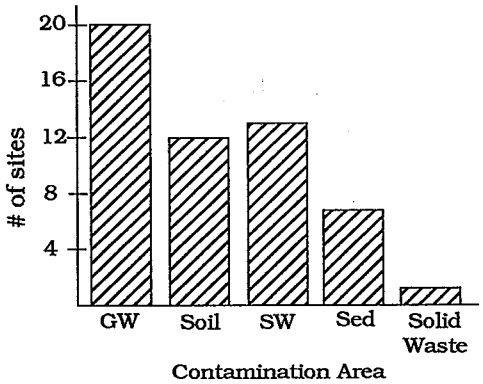
How Many Iowa Sites Are on the NPL?

Proposed Sites	10
Final Sites	11
Deleted Sites	0
	21

Where Are the NPL Sites Located?

Cong. District 04, 05	2 sites
Cong. District 03	3 sites
Cong. District 02	4 sites
Cong. District 01, 06	5 sites

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



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

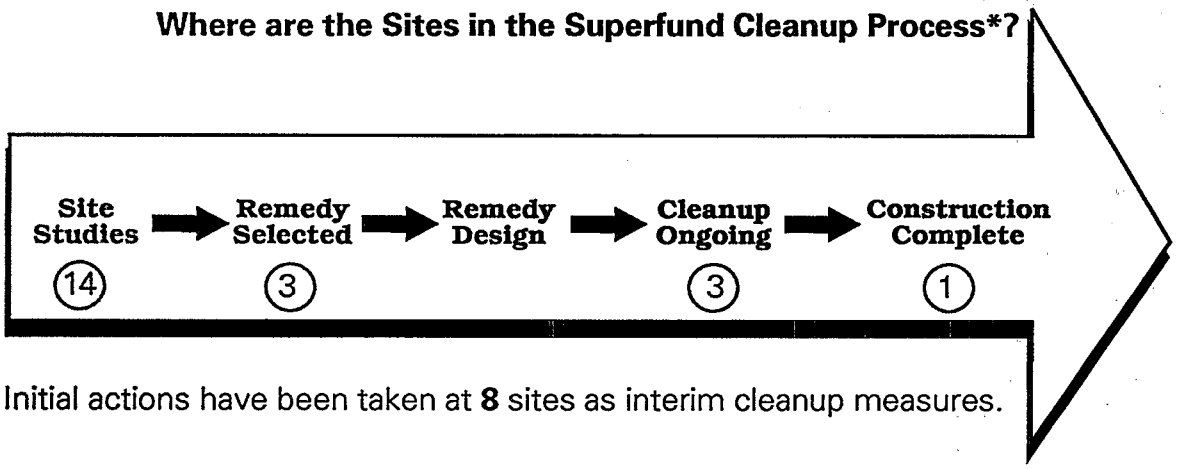
Soil and Solid Waste: Heavy metals (inorganics), and volatile organic compounds (VOCs).

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

*Appear at 15% or more sites

continued

Where are the Sites in the Superfund Cleanup Process*?



Initial actions have been taken at **8** sites as interim cleanup measures.

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 one of the offices listed below:

Iowa Superfund Office	(515) 281-4968
EPA Region VII Superfund Office	(913) 757-2855
EPA Region VII Superfund Community Relations	(913) 551-7003
EPA Superfund Hotline	(800) 424-9346

*Cleanup status reflects phase of site activities rather than administrative accomplishments.

The NPL Progress Report

The following Progress Report lists the State 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 (➡) which indicates the current stage of cleanup at the site.

Large and complex sites are often 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 is currently underway. Emergency or initial actions are taken as an interim measure to provide immediete relief from exposure to hazardous site conditions or to stabilize a site to prevent further contamination.
- ➡ An arrow in the "Site Studies" category indicates that an investigation to determine the nature and extent of the contamination at the site is currently ongoing or planned to begin in 1991.
- ➡ An 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 in the Progress Report are discontinued at the "Remedy Selection" step and resume in the final "Construction Complete" category.
- ➡ An arrow at the "Remedial Design" stage indicates that engineers are currently designing the technical specifications for the selected cleanup remedies and technologies.
- ➡ An arrow marking the "Cleanup Ongoing" category means that final cleanup actions have been started at the site and are currently underway.
- ➡ A 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 may currently be undergoing long-term pumping and treating of groundwater, operation and maintenance or monitoring to ensure that the completed cleanup actions continue to protect human health and the environment.

The sites are listed in alphabetical order. 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
1	AIDEX CORPORATION	POTTAWATTAMIE	Final	09/08/83	➡	➡	➡	➡	➡	
3	CHEMPLEX COMPANY	CLINTON	Prop.	10/15/84	➡	➡	➡			
5	DES MOINES TCE	POLK	Final	09/08/83		➡	➡	➡	➡	
7	E.I. DUPONT DE NEMOURS & CO, INC.	LEE	Prop.	06/24/88		➡				
9	ELECTRO-COATINGS, INC.	LINN	Final	10/04/89	➡	➡				
11	FAIRFIELD COAL GASIFICATION PLANT	JEFFERSON	Prop.	06/24/88	➡	➡				
13	FARMERS MUTUAL COOPERATIVE	SIOUX	Prop.	06/24/88		➡				
15	IOWA ARMY AMMUNITION PLANT	DES MOINES	Prop.	07/14/89		➡				
17	JOHN DEERE (OTTUMWA WORKS LDFL)	WAPELLO	Final	02/21/90		➡				
19	LABOUNTY DUMP SITE	FLOYD	Final	09/08/83		➡		➡	➡	➡
21	LAWRENCE TODTZ FARM	CLINTON	Final	06/10/86		➡	➡	➡	➡	
23	LEHIGH PORTLAND CEMENT CO.	CERRO GORDO	Prop.	06/24/88	➡	➡				
25	MID-AMERICA TANNING	WOODBURY	Final	03/30/89		➡				
27	MIDWEST MFG/NORTH FARM	JASPER	Final	06/10/86		➡	➡			
29	NORTHWESTERN STATES PORTLAND	CERRO GORDO	Prop.	06/24/88	➡	➡				
31	PEOPLES NATURAL GAS CO.	DUBUQUE	Prop.	06/24/88	➡	➡				
33	RED OAK CITY LANDFILL	MONTGOMERY	Final	03/13/89		➡				
35	SHAW AVENUE DUMP	FLOYD	Final	07/22/87		➡				

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
37	SHELLER-GLOBE CORP. DISPOSAL	LEE	Prop.	05/05/89		➡				
39	VOGEL PAINT AND WAX COMPANY	SIOUX	Final	06/10/86	➡	➡	➡			
41	WHITE FARM EQUIPMENT CO. DUMP	FLOYD	Prop.	06/24/88		➡				

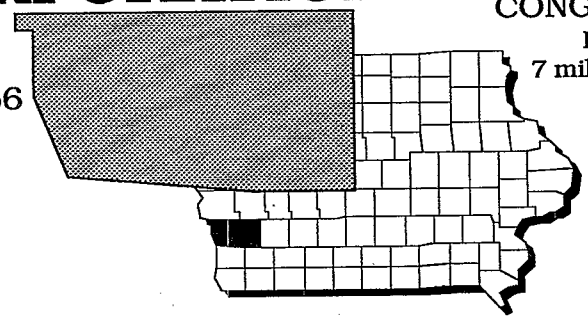
NPL:

Site Fact Sheets

AIDEX CORPORATION

IOWA

EPA ID# IAD042581256



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 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 spillage of pesticides. 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 floodplain. 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.

continued

Response Action Status

Immediate Action: In late 1981, the EPA constructed a security fence around the site. Decontamination of the interior building surfaces is planned to be completed in 1990.

Cleanup Surface: 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 quarterly 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.

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 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 will assess the long-term effectiveness of the site's remedy.

CHEMPLEX COMPANY

IOWA

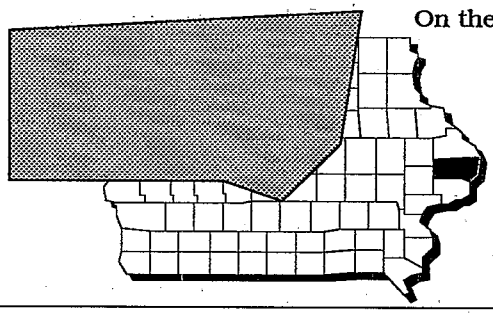
EPA ID# IAD045372836

REGION 7

CONGRESSIONAL DIST. 02

Clinton County

On the western edge of Clinton and Camanche



Alias:
Northern Petrochemical Co.

Site Description

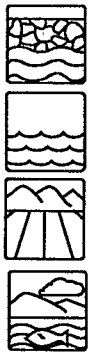
The Chemplex Company site on Highway 30W is an active polyethylene plastic manufacturer. Known variously as Norchem, USI Chemical Company, and Enron, the facility has made high- and low-density polyethylene from chemical stocks since 1968. Process wastes include peroxides, mineral spirits, vinyl acetate, and various hazardous *polycyclic aromatic hydrocarbons* (PAHs). For 10 years, unknown quantities of these wastes were disposed of in an unlined *landfill* on the site, now inactive and covered. Wastewater containing some of the same contaminants was stored in a 2-acre lined pond on the site. Hazardous substances escaped when workers ruptured the liner while dredging pond *sediment.* The company replaced the liner and took steps to prevent further releases. The two main areas of concern at the site are the former landfill and the Debutanized Aromatic Concentrate (DAC) area. Soil and groundwater under both areas are contaminated. There is an outflow pipe from the wastewater treatment plant to the Mississippi River. Past fish kills in the Mississippi have been attributed to releases from this pipe. Neighboring Rock Creek empties into the river. Fish from both the creek and the river have been reported to be contaminated. The City of Camanche, with a population of 3,500, lies about 1 1/2 miles east of the site. The city pumps its drinking supplies from groundwater; an estimated 5,000 people draw drinking water from wells within 3 miles of the site. Ten homes and a trailer park lie 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: 10/15/84

Threats and Contaminants



Groundwater in monitoring wells at Chemplex and soil contain *volatile organic compounds* (VOCs), notably benzene and tetrachloroethylene, and PAHs from former process wastes. Off-site sediments contain phenanthrene. If used untreated, the contaminated groundwater may pose a health threat to people who accidentally consume it or come in direct contact with it. Breathing contaminated vapors issuing from the water may also harm health. Reports of contaminated fish and fish kills in Rock Creek and the Mississippi indicate that surface water may be contaminated, although data are lacking.

continued

Cleanup Approach

The site is being addressed in an initial action and two *long-term remedial phases* focusing on groundwater cleanup and cleanup of the soil and the remainder of the site.

Response Action Status

Initial Action: In 1984, the new owner of the company installed a system for recovering and treating contaminated groundwater prior to its disposal.

Groundwater: The EPA selected a remedy for cleaning up groundwater at this site in the fall of 1989, which includes: (1) restricting the use of groundwater to prevent exposure of people to contaminants; (2) extracting contaminated groundwater; (3) pre-treating the extracted groundwater by an as yet to be determined technology and cleaning it further at the existing on-site wastewater treatment plant; (4) discharging the treated groundwater to the Mississippi River under an EPA-approved permit. The parties potentially responsible for contamination at the site are collecting *hydrogeological* data. The EPA is working on performance standards for the engineering design and cleanup effort, both of which will be performed by the potentially responsible parties. The start of the engineering design is scheduled for late 1990, and design completion is expected by the end of 1991.

Soil and Other Cleanup: The parties potentially responsible for contamination at the site have begun an intensive study of pollution problems at several locations. These locations include the landfill area, the DAC area, several solid waste management units, and a storage area. The investigation will explore the nature and extent of contamination problems and will recommend the best strategies for final cleanup. It is scheduled for completion in early 1992.

Site Facts: In September 1987, the EPA and the past and present owners/operators of Chemplex signed an *Administrative Order on Consent*. The order calls for the company to characterize the contaminants in the on-site landfill, sample Rock Creek, which is *downgradient* of the site, and improve the existing groundwater recovery system. In December 1989, the EPA entered into a *Consent Order* with the potentially responsible parties to conduct studies related to soil contamination and cleanup, as well as for conducting the cleanup. The EPA is proposing to drop Chemplex Co. from the proposed NPL, because the site is an active treatment, storage, and disposal facility, and is subject to cleanup under the Resource Conservation and Recovery Act (RCRA).

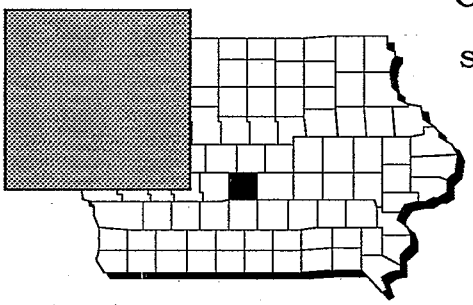
Environmental Progress

After adding the Chemplex site to the NPL, the EPA determined that the site does not currently pose an immediate threat to public health or the environment while further studies into the final cleanup alternatives are taking place.

DES MOINES TCE

IOWA

EPA ID# IAD980687933



REGION 7

CONGRESSIONAL DIST. 04

Polk County

Southwest of downtown Des Moines

Aliases:
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 floodplain of the Raccoon River. The surrounding area is industrial and commercial, with some recreational parklands. The city 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 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 east of the 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."

continued

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 under way 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 1991. Another potentially responsible party is conducting a study of its 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 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 1991.

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.

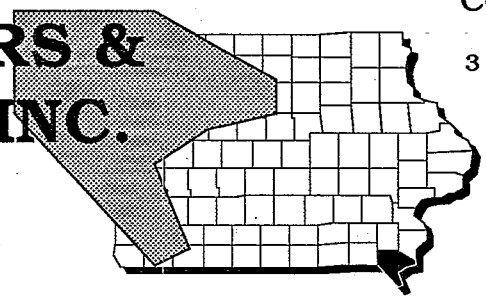
Environmental Progress

Groundwater cleanup and monitoring activities at the Des Moines TCE site are currently under way, 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.

IOWA

EPA ID# IAD980685804



REGION 7

CONGRESSIONAL DIST. 01

Lee County

3 1/2 miles southwest of West Point

Aliases:
Baier, James Farm
McCarl Farm

Site Description

The E.I. DuPont de Nemours & Company, Inc. site, an industrial waste dump in a rural area of Lee County, consists of two areas off County Road X-23 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 1 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 northwest sides. The company estimates that from 4,500 to 7,000 tons of ash and unburned *sludges* may still 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 1 mile from the site are used for limited recreational activities. Roughly 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 10 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

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 could also 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. As of early 1990, the party potentially responsible for contamination at this site was preparing for an intensive study of groundwater and soil pollution. This investigation, which will be monitored closely by the EPA, will determine the nature and extent of contamination problems on both subsites and will recommend the best strategies for final soil and water cleanup. It is slated for completion in late 1990.

Site Facts: On July 5, 1989, the EPA issued a *Unilateral Order* to DuPont, effective August 24, 1989, requiring DuPont to undertake a study of site contamination and cleanup options at the Baier subsite. The EPA has indicated its intention to seek reimbursement for past costs incurred by the Agency.

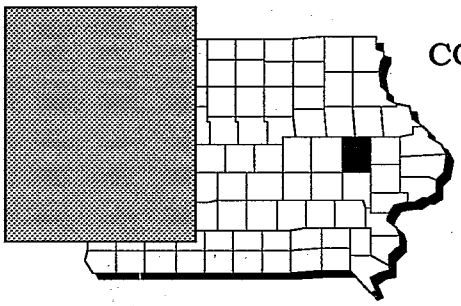
Environmental Progress

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



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 12,130 residents live within 1 mile of the site; 109,177 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.

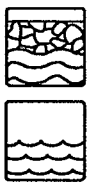
Site Responsibility: This site is being addressed through Federal, State, and *potentially responsible parties* actions.

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 waterbodies, including lakes and streams, are potentially threatened by site contamination.

Cleanup Approach

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

continued

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 is currently under way and planned to be completed late in 1990. The EPA 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.

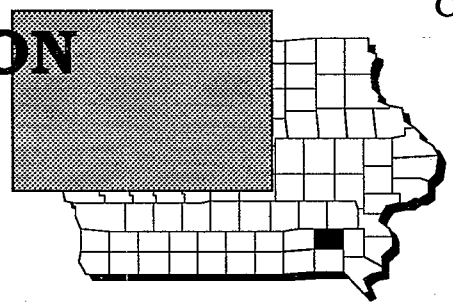
Environmental Progress

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



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. Known variously throughout its history as Interstate Power Co., Iowa Electric Co., and Fairfield Coal Gasification, the plant has always been owned and operated by Iowa Electric Light and Power. 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 may also 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 apparent source of the pollution. This structure formerly stored purified gas and now holds coal tar wastes. 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 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

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 contains VOCs such as benzene, toluene, and xylene. Drinking contaminated groundwater could pose a risk to human health, but private wells are not contaminated. A critical habitat for the endangered slender glass lizard lies within a mile of the site and could be subject to contamination from the site.

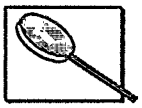
continued

Cleanup Approach

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

Response Action Status

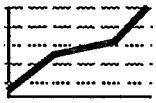
Immediate Actions: Under EPA monitoring, the utility undertook an emergency cleanup action featuring a groundwater extraction system. Currently operational, it is designed to contain the contaminated area of groundwater. The system will continue to operate throughout the site investigation described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



Groundwater: Also under the EPA's guidance, the utility began an intensive study of groundwater contamination at the site in 1989. Analysts will incorporate data collected from the groundwater extraction system into this investigation to determine the extent of the pollution problem and to recommend the best strategies for final cleanup. The draft study report has been submitted to the EPA by the utility for comment.

Site Facts: In 1989, Iowa Electric entered into an *Administrative Order on Consent* with the EPA to conduct additional investigations.

Environmental Progress

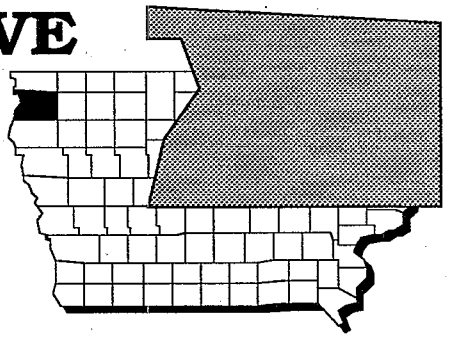


The groundwater extraction system currently in use at the Fairfield Coal site has reduced the level of contamination while further investigations to identify a final remedy are being conducted.

FARMERS MUTUAL COOPERATIVE

IOWA

EPA ID# IAD022193577



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 use of these two wells in addition to a nearby third well. In 1985, the coop 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 coop. 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

Threats and Contaminants

The groundwater and soil are contaminated with VOCs, which have also polluted water under the coop 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.

continued

Response Action Status

Entire Site: In 1987, the coop, 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. It is scheduled to be completed in 1990. Afterward, the EPA will assess the alternatives and select the most appropriate remedies for cleanup of the site.

Site Facts: In 1986, the State issued an *Administrative Order* requiring the coop 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.

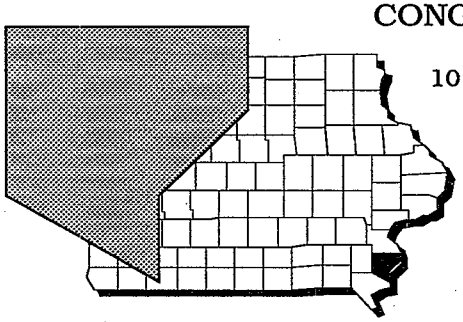
Environmental Progress

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 while further studies are being completed and long-term cleanup actions are taking place.

IOWA ARMY AMMUNITION PLANT

IOWA

EPA ID# IA7213820445



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 business 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

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.

continued

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 is planning to begin a study to investigate the type and extent of contamination at the site in 1990, and will suggest alternative technologies for cleanup,

Site Facts : A Federal Facilities Compliance Agreement between the Army and the EPA was signed in 1988. The installation was subsequently proposed for the NPL, and *Interagency Agreement* negotiations are being initiated. The IAAP site is participating in the *Installation Restoration Program* (IRP). Under this program, established in 1978, the Department of Defense seeks to identify, investigate, and clean up contamination from hazardous materials.

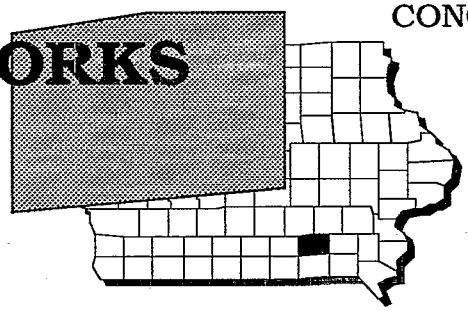
Environmental Progress

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 LANDFILL)

IOWA

EPA ID# IAD005291182



REGION 7

CONGRESSIONAL DIST. 01

Wapello County

Ottumwa

Site Description

The John Deere (Ottumwa Works Landfill) site covers 3 acres of a 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 in three unlined *landfills.* 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 is also 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 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

Various heavy metals from site disposal activities have been detected in the soil, surface water, and *sediments.* Also, methylene chloride, a *volatile organic compound* (VOC), is found in the soil and sediments. Potential risks may exist for individuals who accidentally ingest or touch contaminated soil and surface water.

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: Under EPA monitoring, the John Deere Company began an investigation in 1990 to determine the type and extent of contamination. This 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.

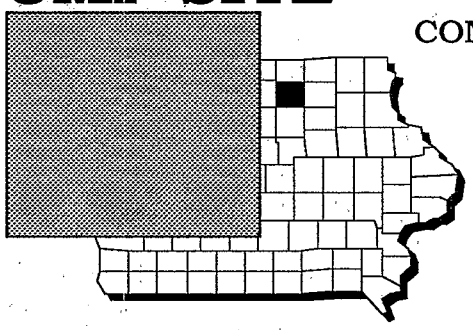
Environmental Progress

After adding this site to 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 DUMP SITE

IOWA

EPA ID# IAD980631063



REGION 7

CONGRESSIONAL DIST. 03

Floyd County
Charles City

Site Description

The Labounty Dump site covers 8 1/2 acres on the Cedar River floodplain. 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* from the disposal site and transported 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 *alluvium* for water supplies. River water is also used for irrigation purposes.

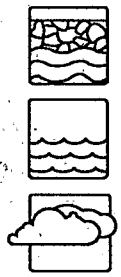
Site Responsibility: This site is being addressed through Federal and *potentially responsible parties'* actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



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 may pose potential threats to individuals. The Cedar River is potentially threatened by *runoff* from site contaminants.

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 has effectively 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 will conduct a limited amount of field sampling and will then prepare the 5-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.

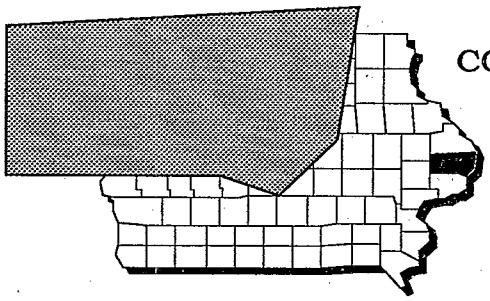
Environmental Progress

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

LAWRENCE TODTZ FARM

IOWA

EPA ID# IAD000606038



REGION 7

CONGRESSIONAL DIST. 02

Clinton County

1 mile west of Camanche

Alias:

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. Studies by the State of Iowa indicate that a residential well 400 feet south of the site is contaminated. The well of concern draws groundwater from the Mississippi River surface *aquifer*. The groundwater is monitored quarterly, and site evaluation documents are under review. 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 trailer 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. The presence of wild geese was observed on 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 accidental ingestion or by 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.

continued

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 one area resident. This was completed in the summer of 1989. Under the EPA's monitoring, the responsible parties are grading the site area and 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.

Site Facts: On September 17, 1984, the EPA negotiated a *Consent Decree* with the parties responsible for the contamination to perform long-term cleanup of site contaminants.

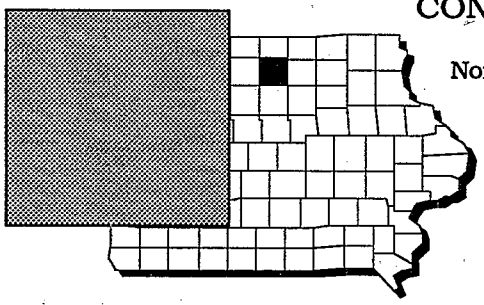
Environmental Progress

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, install additional treatment facilities to address contamination.

LEHIGH PORTLAND CEMENT CO.

IOWA

EPA ID# IAD005288634



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

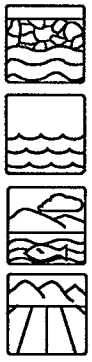
Site Description

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 tailing* piles. Waste kiln dust, a by-product in the manufacturing of cement, has been discarded in piles throughout the facility, and a large quantity is also 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

Threats and Contaminants



Groundwater onsite is contaminated with heavy metals including arsenic, cadmium, and lead as well as *acids* and high pH (i.e., it is chemically *basic*) 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). Lead, 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.

continued

Threats and Contaminants Continued

The soil, *sediments,* and surface water of the quarry have high enough levels of pH to be considered caustic; therefore, direct contact with these media 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 pose a health hazard to people who use them.

Cleanup Approach

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

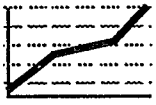
Response Action Status

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 were also 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 is currently being conducted by Lehigh to determine the type and extent of contamination at the site. Upon completion of this study, the EPA will evaluate the alternatives and select the most appropriate remedies for final site cleanups.

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 an Administrative Order requiring Lehigh to conduct a study to determine the type and extent of contamination on the site.

Environmental Progress

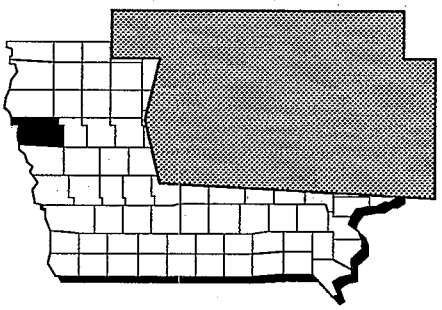


The construction of dikes to isolate the contamination in the quarries and the piping system that pumps water from one quarry to another have helped to reduce the potential for migration of contaminants or accidental exposure to contaminated groundwater or surface water while the Lehigh Portland Cement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

MID-AMERICA TANNING

IOWA

EPA ID# IAD085824688



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 99 acres and has processed hides under several names since 1969. In 1979, Mid-American Tanning Company discharged an estimated 900 cubic yards of tannery *sludges* containing chromium into 2 unlined trenches on the property. U.S. Tanning acquired the operation in 1985. Wastes are now treated on site. Solids are settled out in concrete-lined ponds, while liquids are chemically treated and then discharged into Oxbow Lake. The site is in the Missouri River floodplain. 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 actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/30/89

Threats and Contaminants

Monitoring wells on site show 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 drinking water supply, may be polluted with heavy metals; drinking such tainted water would be hazardous to human health. About 100 feet north of the site is a *wetland* used as a nesting site for bald eagles, an endangered species.

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 is studying the nature and extent of contamination at the site and the alternative technologies for cleanup. Design of the chosen alternative is expected to begin in 1991, with cleanup activities scheduled to begin in 1992.

Environmental Progress

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

MIDWEST MANUFACTURING / NORTH FARM

IOWA

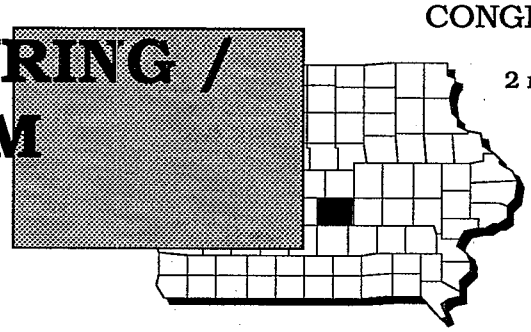
EPA ID# IAD069625655

REGION 7

CONGRESSIONAL DIST. 04

Jasper County

2 miles north of Kellogg



Aliases:
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 gear 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 was also 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 man-made 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 marsh 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 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. 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.

continued

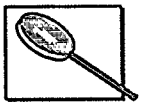
Threats and Contaminants Continued

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

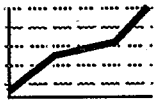


Midwest Manufacturing Plant Subsite: The EPA is currently studying the nature and extent of contamination at the plant site. At the conclusion of the study, scheduled to be completed in 1990, a final remedy selection will be made.

North Farm Subsite: The remedy for the North Farm subsite has been selected, but the design and cleanup phase is on hold pending completion of the investigation into the cleanup technologies for the Midwest Plant subsite. The selected remedy includes: 1) excavation of contaminated soil within and around the disposal cell, treatment and disposal of the soil in a regulated facility; and 2) *backfilling* and grading excavated areas with clean fill. The design phase is expected to begin in 1991, after the remedy has been selected for the Midwest Manufacturing Plant.

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

Environmental Progress

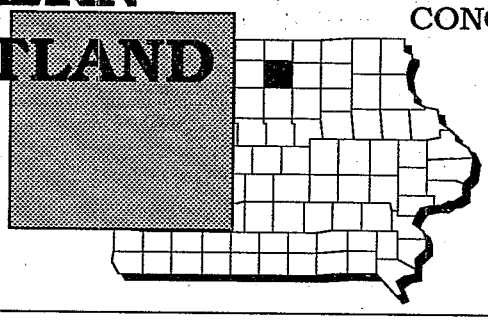


After adding the Midwest Manufacturing site to the NPL, the EPA performed a preliminary assessment of site conditions and determined that there were no immediate actions required to reduce the potential for exposure to contaminants while the investigations into the final cleanup technologies for both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

NORTHWESTERN STATES PORTLAND CEMENT CO.

IOWA

EPA ID# IAD980852461



REGION 7
CONGRESSIONAL DIST. 06
Cerro Gordo County
Mason City

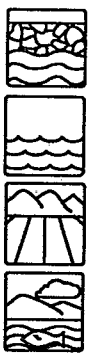
Site Description

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 has risen approximately 2 feet per year, filling in the quarry so that it now holds 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. 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

Threats and Contaminants



The groundwater is contaminated with sulfates, lead, sodium, and high levels of 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 high levels of pH. Calmus Creek is contaminated with sulfates, chromium, sodium, and high levels of pH, and people who use the creek for recreation or eat fish from it may be at risk. The high levels of pH found in soil, sediments, and surface water of the quarry are considered caustic; therefore, coming in direct contact with them would pose a health risk.

continued

Cleanup Approach

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

Response Action Status

Initial Action: 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: NWSPCC has pumped most of the water from the quarry. NWSPCC also conducted an investigation, under State supervision, to determine the extent of contamination at the site. The investigation was completed in 1990, and the results were evaluated to determine the best measure for site cleanup. The proposed cleanup plan was released to the public for comment on March 30, 1990.

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, under State supervision, to conduct a study to determine the effect of the quarry on the environment. In 1989, the State issued an Administrative Order to NWSPCC to complete the study.

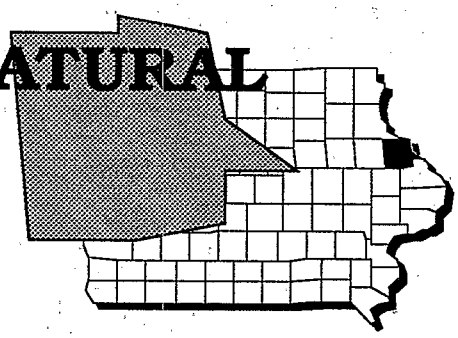
Environmental Progress

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 selection of a final site remedy is taking place.

PEOPLES NATURAL GAS CO.

IOWA

EPA ID# IAD980852578



REGION 7
CONGRESSIONAL DIST. 02
Dubuque County
East Dubuque

Alias:
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. Peoples 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 were either 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 1 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

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 wildlife and fish refuge may be threatened by *runoff* from the site.

Cleanup Approach

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

Response Action Status

Immediate Response Actions: Under EPA monitoring, the parties potentially responsible for the site contamination are scheduled in 1990 to remove the contaminated coal tar sludges and soils containing contaminants above human health standards within the construction corridor for U.S. Highway 61. Contaminated soil will be incinerated off site at a federally approved facility. The proposed action has been submitted to the public for comment. The comment period closed April 30, 1990.

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 late 1990. The soil to be studied will include contaminated soils outside 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 parties potentially responsible for the contamination 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.

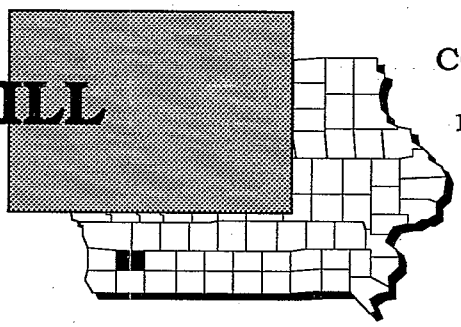
Environmental Progress

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 completed.

RED OAK CITY LANDFILL

IOWA

EPA ID# IAD980632509



REGION 7

CONGRESSIONAL DIST. 05

Montgomery County

1 1/2 miles northwest of Red Oak

Alias:
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 depend on groundwater within 3 miles of the site 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 1 mile of the site.

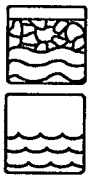
Site Responsibility: This site is being addressed through Federal and *potentially responsible parties'* actions.

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. Toluene has been detected in the *sediments* near the landfill. Wells located near the landfill may be contaminated. Accidentally ingesting or coming in direct contact with the contaminated groundwater, surface water, and sediments could be hazardous to the health of people in the area. There is also 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.

continued

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 was divided into two phases. The first phase of the investigation, undertaken by the parties potentially responsible for the site contamination, began in March 1990. The results from the first phase of the investigation will determine the scope of activities for the second phase of the field investigation, which will determine alternative cleanup actions.

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

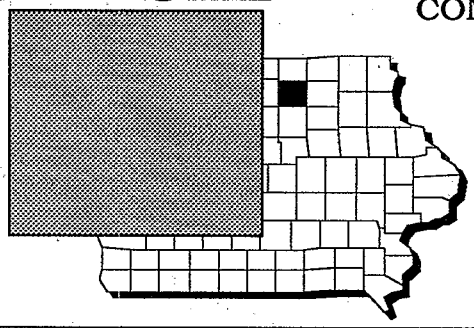
Environmental Progress

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



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 is no longer 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 *impoundment*. Students use a playground and a stadium within 500 feet of the northern waste disposal cells. One residence, 1,500 feet southeast of the impoundment, uses a private well for domestic purposes. The City of St. Charles 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 mid-1987; however, a party potentially responsible for site contamination took over the investigation in mid-1988. Completion of the investigation and the selection of the cleanup alternatives are expected in late 1990.

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.

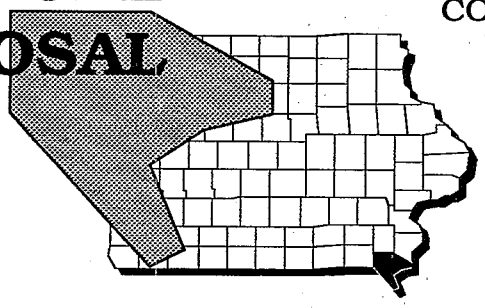
Environmental Progress

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

SHELLER-GLOBE CORP. DISPOSAL

IOWA

EPA ID# IAD980630750



REGION 7

CONGRESSIONAL DIST. 01

Lee County

4 miles northwest of Keokuk

Alias:
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 the site 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 were routinely 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 obtain their drinking water from private wells within 3 miles of the heavily wooded rural site.

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

NPL LISTING HISTORY

Proposed Date: 05/05/89

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.

continued

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 is expected to begin in late 1990. It will be conducted by the party potentially responsible for the site contamination.

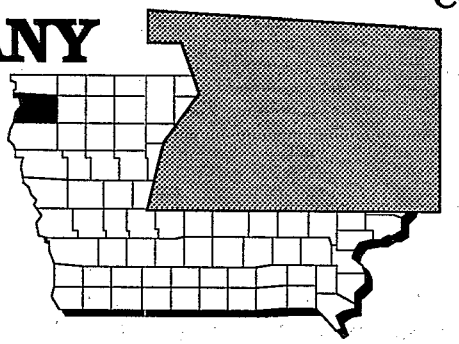
Environmental Progress

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 AND WAX COMPANY

IOWA

EPA ID# IAD980630487



REGION 7

CONGRESSIONAL DIST. 06

Sioux County

Maurice

Alias:
Vogel Disposal Site

Site Description

Vogel Paint and 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 were eventually 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 was used for mining sand and gravel. 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.

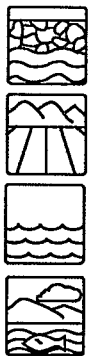
Site Responsibility: This site is being addressed through Federal, State, and *potentially responsible parties'* actions.

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 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: Under State supervision, the parties potentially responsible for the site contamination conducted an investigation to determine the extent of contamination at the site. After evaluating the alternatives, the EPA selected a remedy for cleanup of the site. Contaminated soils will be excavated, and solid and liquid waste will be separated for off-site incineration, recycling, or disposal. An estimated 3,000 cubic yards of contaminated soils will be treated using a *bioremediation* process in a fully contained surface *impoundment* unit. If additional testing shows bioremediation to be infeasible due to high metal levels, on-site thermal treatment will be used instead. 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.

Site Facts: A State *Consent Order* has been signed and the Vogel Paint and Wax Co. has taken responsibility for the costs incurred to date. The site is currently 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.

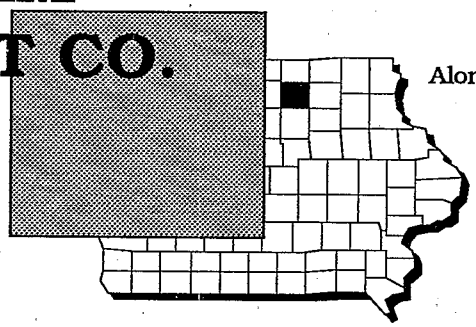
Environmental Progress

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

WHITE FARM EQUIPMENT CO. DUMP

IOWA

EPA ID# IAD065210734



REGION 7

CONGRESSIONAL DIST. 03

Floyd County

Along the northern boundary of Charles City

Site Description

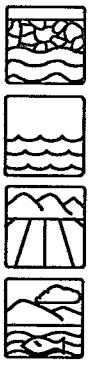
The White Farm Equipment Co. Dump site occupies approximately 20 acres along the northern border of Charles City. The dump is located in an old sand and gravel pit that is bordered by low-lying areas and farmland. Tractors and other farm equipment have been manufactured near the dump since the early 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 has been intermittently disposing of foundry sands, baghouse dust, and other industrial wastes at the 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

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 may also be affecting the Cedar River *wetlands*, disturbing the ecological balance.

continued

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 is investigating the nature and extent of contamination. The investigation is nearing completion and is expected to be released for public review in 1990. The investigation included: (1) characterization of waste in the landfill; (2) determination of contamination spread by rainwater *runoff*; (3) detection of contamination spread by air; (4) detection of contamination spread by dissolved metal; and (5) determination of groundwater movement and evaluation of possible connections between the shallow aquifer and the drinking water aquifer. The results of the investigation will determine various cleanup alternatives and will identify a preferred cleanup action. The EPA then will evaluate the alternatives and select the most appropriate remedies for site cleanup.

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 the responsibility of 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 investigations leading to a final remedy selection are taking place.

GLOSSARY:

TERMS USED IN THE FACT SHEETS

*This glossary defines the **italicized** terms used in the site fact sheets for the State of Iowa. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management as described in the site fact sheets, and apply specifically to work performed under the Superfund program. Therefore, 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 may possibly 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 EPA and the parties potentially responsible for site contamination. Under the terms of the Order, the potentially responsible parties 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 EPA directing the parties potentially responsible to perform site cleanups or studies (generally, EPA does not issue unilateral orders for site studies).

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.

Alluvial: An area of sand, clay, or other similar material that has been gradually deposited by moving water, such as along a river bed or the shore of a lake.

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.

Backfill: To refill an excavated area with removed earth; or the material itself that is used to refill an excavated area.

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.

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

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 is generally 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.

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.

Consent Decree: A legal document, approved and issued by a judge, formalizing an agreement between 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 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 ponds and lagoons, to prevent the migration of contaminants into the environment.

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

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.

Downslope: [see Downgradient].

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

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

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.

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 where a water supply is drawn from, such as from a river or waterbed.

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

Lagoon: A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater. Lagoons are typically used for the storage of wastewaters, sludges, liquid wastes, or spent nuclear fuel.

Landfill: A disposal facility where waste is placed in or on land.

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.

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 a number of these phases.

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

Mine (or Mill) Tailings: A fine, sandy residue left from ore milling operations. Tailings often contain high concentrations of lead and arsenic or other heavy metals.

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 EPA is not allowed to start work at a site or initiate enforcement actions against potentially responsible parties, although EPA may undertake certain investigatory and planning activities. The 60-day period may be extended if EPA receives a good faith offer [see Good Faith Offer] within that period.

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 and can make water taste and smell bad.

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.

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.

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. This means that PRPs may sign a consent decree or administrative order on consent [see Administrative Order on Consent] to participate in site cleanup activity without admitting liability.

Runoff: The discharge of water over land into surface water. It can carry pollutants from the air and land into receiving waters.

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

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.

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.

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 also Volatile Organic Compounds].

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

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

Volatile Organic Compounds (VOCs): VOCs are made 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.

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