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Agency

Solid Waste And
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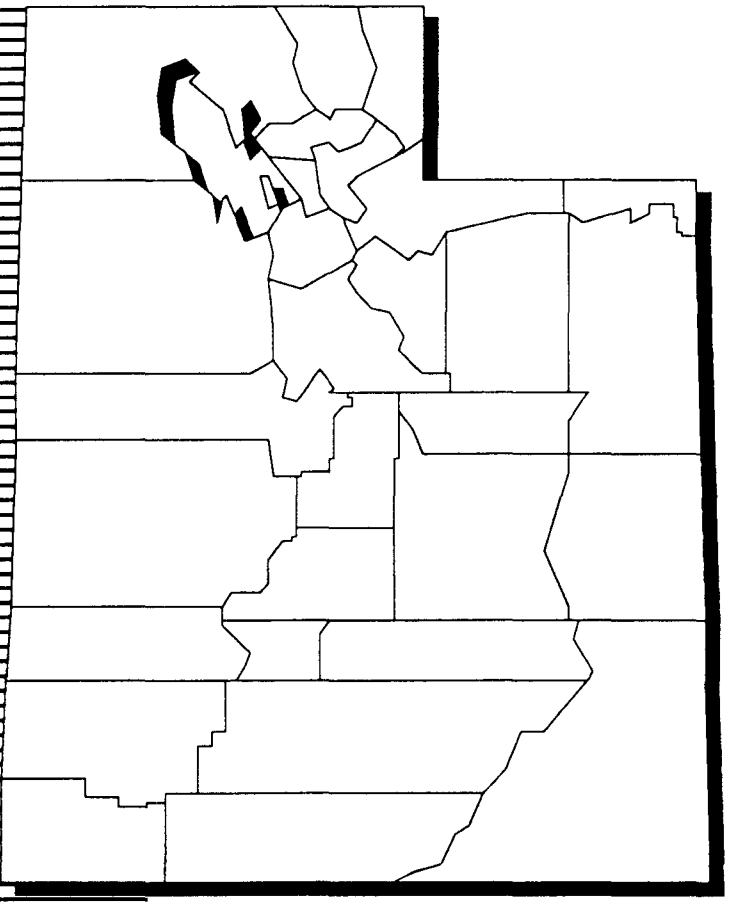
EPA

National Priorities List Sites:

U T A H



1991

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NATIONAL PRIORITIES LIST SITES:
Utah

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

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

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

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

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

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A Brief Overview

WHY THE SUPERFUND PROGRAM?

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

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

After Discovery, the Problem Intensified

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

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

The EPA Identified More than 1,200 Serious Sites

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

THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

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

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

THE EPA IS MAKING PROGRESS ON SITE CLEANUP

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

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

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

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

THE EPA MAKES SURE CLEANUP WORKS

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

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

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

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

CITIZENS HELP SHAPE DECISIONS

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

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

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

USING THE STATE AND NATIONAL VOLUMES TOGETHER

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

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

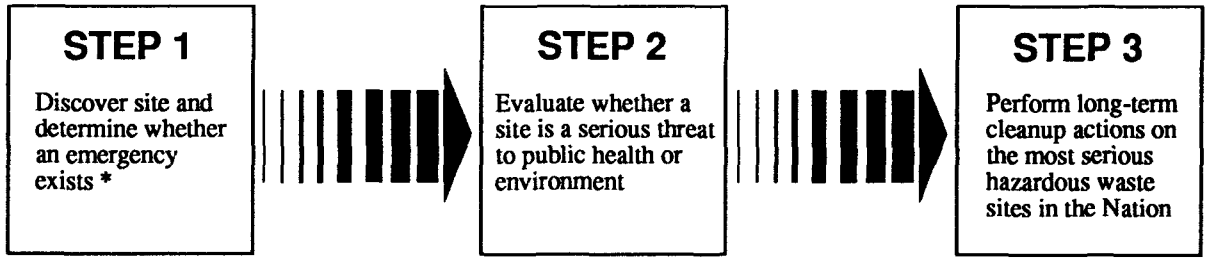
This volume compiles site summary fact sheets on each State or Territorial site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation and require the most complicated and costly site solutions yet encountered. Each book gives a "snapshot"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

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

How Does the Program Work to Clean Up Sites?

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

THREE-STEP SUPERFUND PROCESS



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

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

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

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

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

How does the EPA learn about potential hazardous waste sites?

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

What happens if there is an imminent danger?

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

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

STEP 2: SITE THREAT EVALUATION

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

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

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

- Are hazardous substances likely to be present?

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

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

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

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

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

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

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

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

Why are sites proposed to the NPL?

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

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

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

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

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

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

STEP 3: LONG-TERM CLEANUP ACTIONS

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

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

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

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

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

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

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

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

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

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

How are cleanup alternatives identified and evaluated?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Can the EPA make parties responsible for the contamination pay?

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

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

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

How to Use the State Book

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

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

HOW CAN YOU USE THIS STATE BOOK?

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

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

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

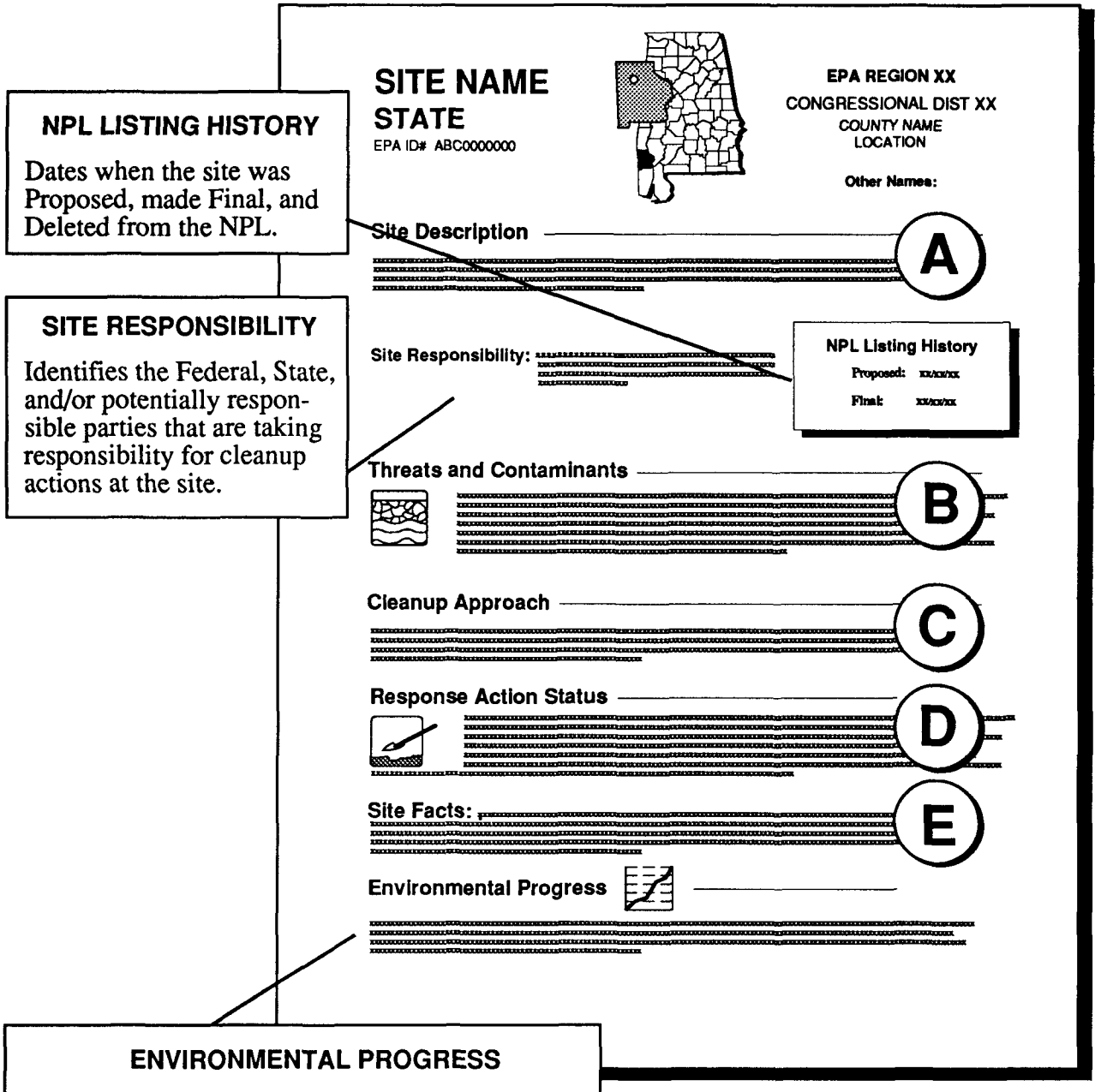
THE VOLUME

NPL LISTING HISTORY

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

SITE RESPONSIBILITY

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



ENVIRONMENTAL PROGRESS

A summary of the actions to reduce the threats to nearby residents and the surrounding environment; progress towards cleaning up the site and goals of the cleanup plan are given here.

A

SITE DESCRIPTION

This section describes the location and history of the site. It includes descriptions of the most recent activities and past actions at the site that have contributed to the contamination. Population estimates, land usages, and nearby resources give readers background on the local setting surrounding the site.

B

THREATS AND CONTAMINANTS

The major chemical categories of site contamination are noted, as well as which environmental resources are affected. Icons representing each of the affected resources (may include air, groundwater, surface water, soil, and contamination to environmentally sensitive areas) are included in the margins of this section. Potential threats to residents and the surrounding environments arising from the site contamination also are described.

C

CLEANUP APPROACH

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

D

RESPONSE ACTION STATUS

Specific actions that have been accomplished or will be undertaken to clean up the site are described here. Cleanup activities at NPL sites are divided into separate phases, depending on the complexity and required actions at the site. Two major types of cleanup activities often are described: initial, immediate, or emergency actions to quickly remove or reduce imminent threats to the community and surrounding areas; and long-term remedial phases directed at final cleanup at the site. Each stage of the cleanup strategy is presented in this section of the summary. Icons representing the stage of the cleanup process (initial actions, site investigations, EPA selection of the cleanup remedy, engineering design phase, cleanup activities underway, and completed cleanup) are located in the margin next to each activity description.

E

SITE FACTS

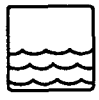
Additional information on activities and events at the site are included in this section. Often details on legal or administrative actions taken by the EPA to achieve site cleanup or other facts pertaining to community involvement with the site cleanup process are reported here.

THE VOLUME

The "icons," or symbols, accompanying the text allow the reader to see at a glance which environmental resources are affected and the status of cleanup activities at the site.

Icons in the Threats and Contaminants Section

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



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

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

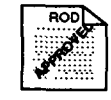
Contaminated *Soil and Sludges* on or near the site. (This contamination category may include bulk or other surface hazardous wastes found on the site.)

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

Icons in the Response Action Status Section

Initial Actions have been taken or are underway to eliminate immediate threats at the site.

Site Studies at the site to determine the nature and extent of contamination are planned or underway.



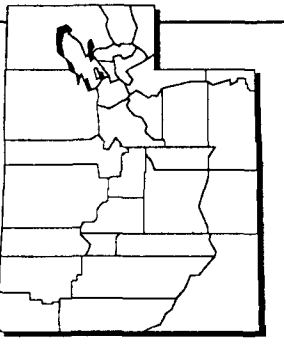
Remedy Selected indicates that site investigations have been concluded, and the EPA has selected a final cleanup remedy for the site or part of the site.

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

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

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

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



The State of Utah

The State of Utah is located in the middle Rocky Mountain region of the United States, within EPA Region 8. Region 8 includes six northern central states extending from the mid-western plains to the Rocky Mountains. Utah covers 84,899 square miles consisting of the high Colorado Plateau in the southwest, the broad, flat desert-like Great Basin in the west, the Great Salt Lake and salt flats in the northwest, as well as the Rocky Mountains and the valleys and plateaus of the Wasatch Front. Currently ranked 35th in U.S. populations, according to the 1990 Census, Utah experienced an 18 percent increase in population since 1980 and has approximately 1,722,800 residents. Principal state industries include manufacturing, tourism, trade, services, mining, transportation, and education. Utah manufactures guided missiles and parts, electronic components, fabricated metals, steel, electrical and transportation equipment.

How Many NPL Sites Are in the State of Utah?

Proposed	0
Final	11
Deleted	0
	11

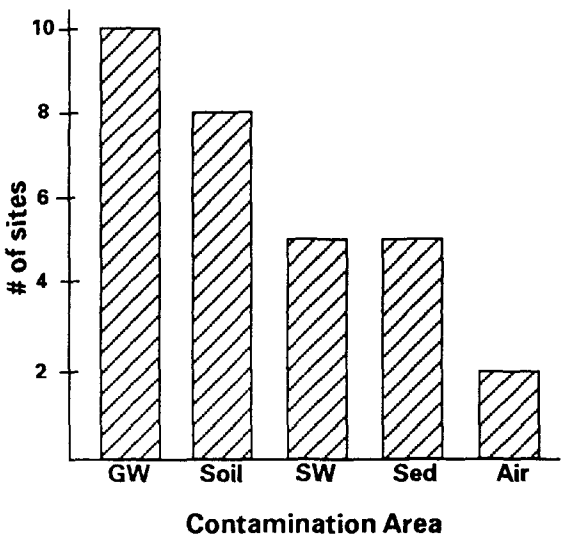
Where Are the NPL Sites Located?

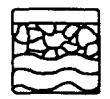
Congressional District 1	3 sites
Congressional District 3	6 sites
Congressional District 3	2 sites

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

# of sites	type of sites
3	Metal & Allied Products
3	Federal Facilities
1	Petroleum Refining & Related Industry
1	Chemical & Allied Products
1	Construction
1	Minng
1	Recycler

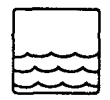
How Are Sites Contaminated and What Are the Principal* Chemicals?





Groundwater: Heavy metals (inorganics), and volitale organic compounds (VOCs).

Soil: Heavy metals (inorganics), volitale organic compounds (VOCs), pesticides, creosotes (organics), and radiation.

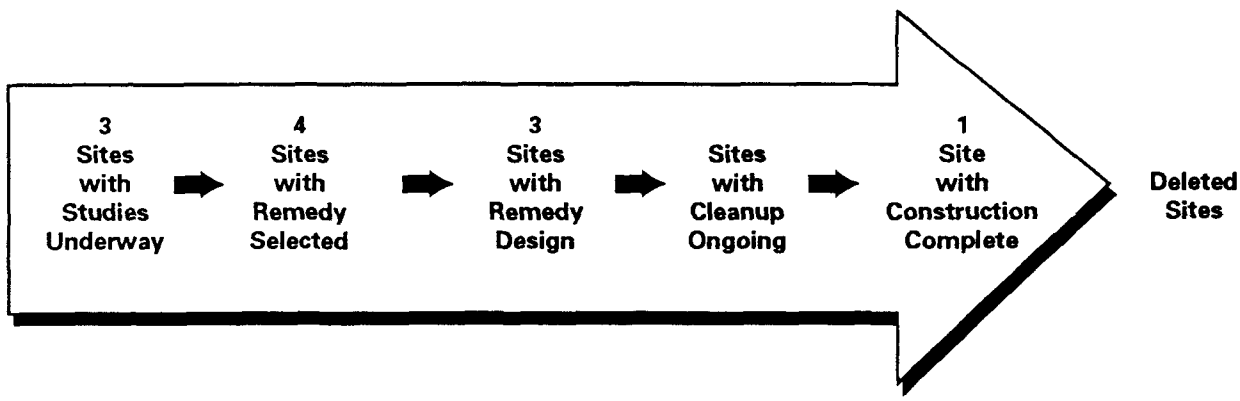


Surface Water and Sediments: Heavy metals (inorganics), volitale organic compounds (VOCs), and pesticides.

Air: Heavy metals (inorganics).

*Appeared at 25% or more sites.

Where Are the Sites in the Superfund Cleanup Process?†



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

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

Progress To Date

The following Progress Report lists all sites currently on, or deleted from, the NPL and briefly summarizes the status of activities for each site at the time this report was prepared. The steps in the Superfund cleanup process are arrayed across the top of the chart, and each site's progress through these steps is represented by an arrow (⇨) indicating the current stage of cleanup.

Large and complex sites often are organized into several cleanup stages. For example, separate cleanup efforts may be required to address the source of the contamination, hazardous substances in the groundwater, and surface water pollution, or to clean up different areas of a large site. In such cases, the chart portrays cleanup progress at the site's *most advanced* stage, reflecting the status of site activities rather than administrative accomplishments.

- An arrow in the "Initial Response" category indicates that an emergency cleanup or initial action has been completed or currently is underway. Emergency or initial actions are taken as an interim measure to provide immediate relief from exposure to hazardous site conditions or to stabilize a site to prevent further contamination.

- A final arrow in the "Site Studies" category indicates that an investigation to determine the nature and extent of the contamination at the site currently is ongoing.

- A final arrow in the "Remedy Selection" category means that the EPA has selected the final cleanup strategy for the site. At the few sites where the EPA has determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No Action" remedy is selected. In these cases, the arrows are discontinued at the "Remedy Selection" step and resume in the "Construction Complete" category.

- A final arrow at the "Remedial Design" stage indicates that engineers currently are designing the technical specifications for the selected cleanup remedies and technologies.

- A final arrow in the "Cleanup Ongoing" column means that final cleanup actions have been started at the site and currently are underway.

- A final arrow in the "Construction Complete" category is used only when all phases of the site cleanup plan have been performed, and the EPA has determined that no additional construction actions are required at the site. Some sites in this category currently may be undergoing long-term operation and maintenance or monitoring to ensure that the cleanup actions continue to protect human health and the environment.

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

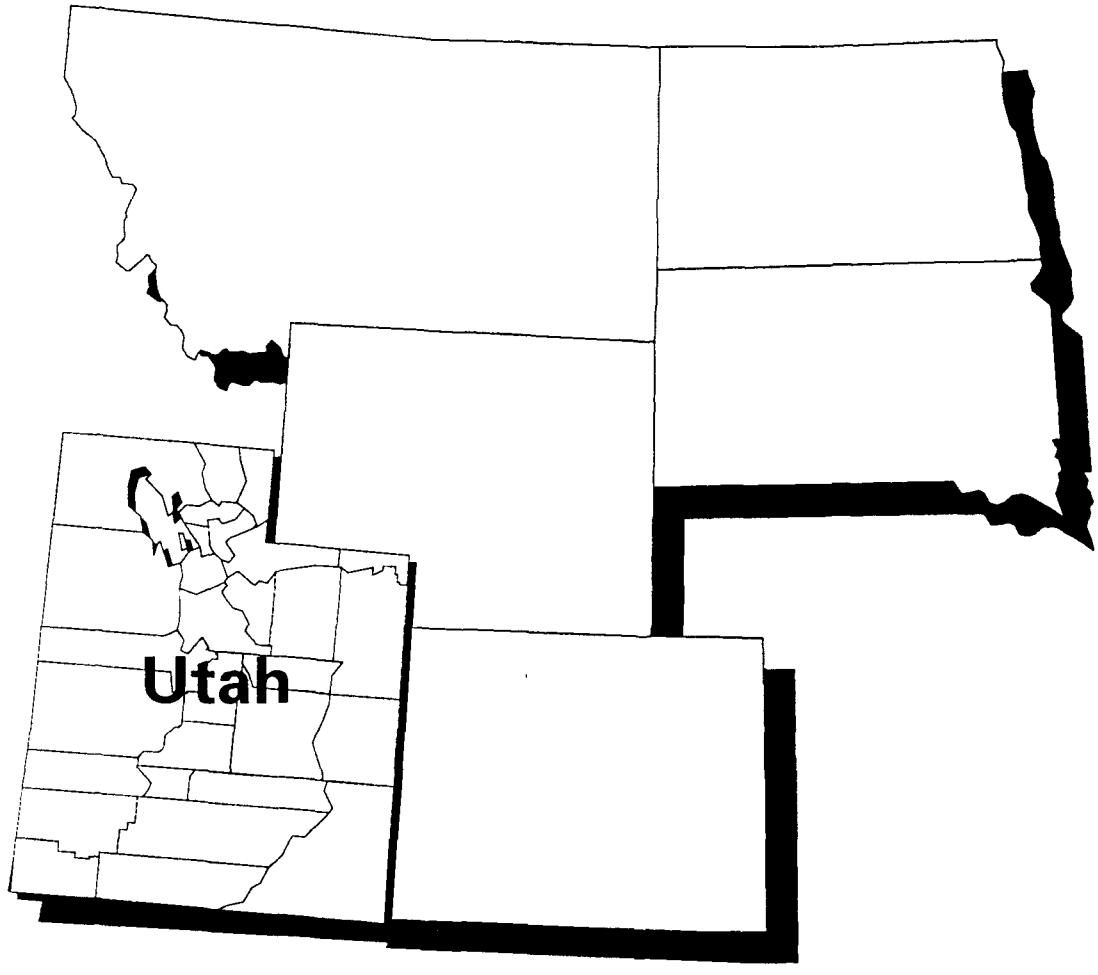
Further information on the activities and progress at each site is given in the site "Fact Sheets" published in this volume.

Progress Toward Cleanup at NPL Sites in the State of Utah

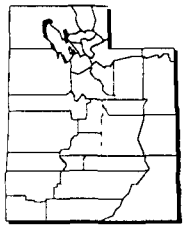
Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
23	HILL AIR FORCE BASE	WEBER	Final	07/01/87		⇨	⇨				
25	MIDVALE SLAG	SALT LAKE	Final	02/11/91	⇨	⇨					
27	MONTICELLO MILL TAILINGS (DOE)	SAN JUAN	Final	11/21/89		⇨	⇨	⇨			
29	MONTICELLO RADIOACTIVELY CONTAM.	SAN JUAN	Final	06/10/86		⇨	⇨	⇨			
31	OGDEN DEFENSE DEPOT	WEBER	Final	07/01/87	⇨	⇨	⇨				
33	PORTLAND CEMENT (KILN DUST #2&#3)	SALT LAKE	Final	06/10/86	⇨	⇨	⇨				
35	ROSE PARK SLUDGE PIT	SALT LAKE	Final	09/08/83		⇨		⇨	⇨	⇨	
37	SHARON STEEL (MIDVALE TAILINGS)	SALT LAKE	Final	08/30/90	⇨	⇨	⇨	⇨			
39	TOOELE ARMY DEPOT (NORTH AREA)	TOOELE	Final	08/30/90		⇨					
41	UTAH POWER & LIGHT/AMERICAN BRL.	SALT LAKE	Final	10/04/89	⇨	⇨					
43	WASATCH CHEMICAL CO. (LOT 6)	SALT LAKE	Final	02/11/91	⇨	⇨	⇨				
	† RICHARDSON FLAT TAILINGS	SUMMIT	(Removed for technical reasons)								

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

Summary of Site Activities



EPA REGION 8



Who Do I Call with Questions?

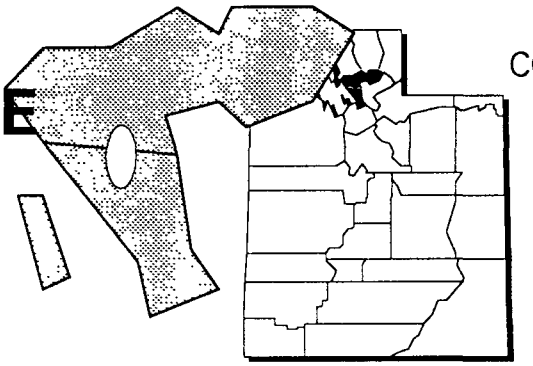
The following pages describe each NPL site in Utah, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call EPA's Region 8 Office in Denver, Colorado or one of the other offices listed below:

EPA Region 8 Superfund Community Relations Office	(303) 294-1100
EPA Region 8 Superfund Office	(303) 293-1720
EPA Superfund Hotline	(800) 424-9346
EPA Headquarters Public Information Center	(202) 260-2080
Utah Superfund Office	(801) 538-6170

HILL AIR FORCE BASE

UTAH

EPA ID# UT0571724350



EPA REGION 8

CONGRESSIONAL DIST. 01

Davis and Weber Counties
5 miles south of Ogden

Site Description

The 6,665-acre Hill Air Force Base site is used by the Air Force for the overhaul and maintenance of aircraft. Several areas on base have been identified by the Air Force as being contaminated, including four landfills, three chemical disposal pits, Berman Pond, Industrial Wastewater Treatment Plant Sludge Drying Beds, Fire Training Area One, Refueling Area JP-4 Spill, Bamberger Pond, Refueling Vehicle Maintenance Facility, and the Tooele Army Rail Shop. Industrial and municipal wastes were dumped on base, including volatile organic chemicals (VOCs), electroplating wastes, sludges from the Industrial Wastewater Treatment Plant (IWTP), waste oils, and petroleum fuel products. Migration of site-related contaminants has caused low-level contamination of nearby groundwater and surface water, as well as the sewer systems in the Sunset and Layton communities. Approximately 20,000 people work on Hill Air Force Base. Most of the residences in the area surrounding the site are connected to the municipal water supply system; however, some private wells or springs are used for drinking water and irrigation.

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

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 07/01/87

Threats and Contaminants

Groundwater in the disposal and pit areas is contaminated with various VOCs and heavy metals. On-site groundwater, located near the Berman Pond, contains lead, manganese, and trichloroethylene (TCE). Groundwater located near the Industrial Wastewater Treatment Plant Drying Beds and Chemical Disposal Pit #3 contains lead and VOCs. Surface water located in springs downgradient from Chemical Disposal Pit #3 is contaminated by VOCs and lead. The Toole Army Rail Shop and Bamberger Pond areas are contaminated with VOCs. Contaminants are migrating to off-site groundwater. Possible health threats include drinking or direct contact with contaminated groundwater and surface water.

Cleanup Approach

This site is being addressed in five long-term remedial phases including cleanup of: Landfills #3 and #4, Chemical Disposal Pits #1 and #2, and the Fire Training Area; Chemical Disposal Pit #3; IWTP Sludge Drying Beds, the Sodium Hydroxide Tank Leak Area, Berman Pond, and the Refueling Vehicle Maintenance Facility (Building 514); Landfills #1 and #2; and Tooele Army Rail Shop and Bamberger Pond.

Response Action Status

Landfills #3 and #4, Chemical Disposal Pits #1 and #2, and the Fire Training Area: In 1984, a clay cap was placed over Landfill #4, installation began on a slurry wall around the upgradient areas of contamination, and a series of extraction wells were installed. The slurry wall was completed in 1985. In 1986, clay caps were constructed over Landfill #3 and a portion of the chemical disposal pits. A parking lot was installed over the Fire Training Area and the rest of the chemical disposal pits. A total of about 70 acres have been covered. Over 50 million gallons of contaminated groundwater subsequently have been extracted and treated by the Air Force. Off-base migration of contaminants has been significantly reduced. Continued studies into site contamination and the most effective ways to address it are underway and are scheduled to be completed in 1992.

Chemical Disposal Pit #3: The Air Force began a study to determine the nature and extent of contamination and to identify alternatives for cleanup. Interim measures will be identified in 1991 to address liquid chemical wastes remaining in the pit. Final cleanup remedies for the disposal pit area are expected in 1994.

IWTP Sludge Drying Beds, the Sodium Hydroxide Tank Leak Area, Berman Pond, and the Refueling Vehicle Maintenance Facility (Building 514): Berman Pond has been filled with construction rubble and regraded, and a clay cap was installed over the area. The unlined IWTP Sludge Drying Beds were lined with asphalt and then concrete. The investigation into site contamination and methods to effectively address these sites is being conducted and interim measures for sludges and the leaking tank are expected to be recommended in 1992. Final cleanup remedies are expected in 1994.

Landfills #1 and #2: Investigative work into site contamination and the most effective methods to address Landfills #1 and #2 is underway. Studies of cleanup alternatives are scheduled to be completed in 1994.

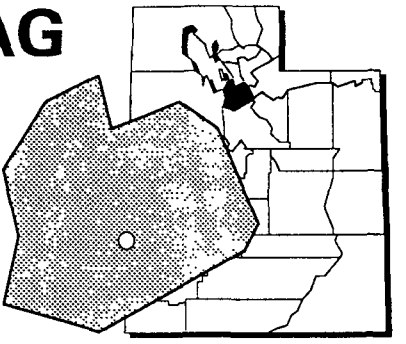
Tooele Army Rail Shop and Bamberger Pond: The investigation into site contamination and the most effective methods to address these areas was begun by the Air Force in 1989. This investigation is scheduled for completion in 1995.

Site Facts: Hill Air Force Base is participating in the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities. In 1991, the EPA and Hill Air Force Base signed a Federal Facilities Agreement (FFA), whereby the Air Force will conduct investigations at the site. Ongoing site characterization work may identify additional areas of the site that require cleanup.

Environmental Progress

Initial actions have been performed at several of the investigation areas: the installation of a cap, a slurry wall, and extraction wells have significantly reduced the migration of contaminants from the Hill Air Force Base site while further studies and cleanup activities are taking place.

MIDVALE SLAG
UTAH
EPA ID# UTD081834277



EPA REGION 8
CONGRESSIONAL DIST. 02
Salt Lake County
Midvale

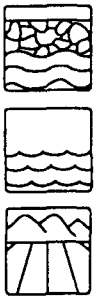
Site Description

The 330-acre Midvale Slag site is a former copper and lead smelting facility. The Midvale Smelter originally was constructed on this site in 1902 as a copper plant. Over the years, the plant was changed to a lead facility, producing gold-lead-silver bullion. From 1918 to 1928, approximately 400,000 tons of lead were produced. The smelter is no longer there; however, large piles of slag and other smelter wastes remain on site. The current operators of the site process the slag for use as sandblasting and railroad bed material. Two million tons of slag containing lead, arsenic, cadmium, and radioactive contaminants are present on site. A substantial amount of slag has been removed and used for road bases, fill, and sandblasting. Access to the site currently is restricted by fences. A clay berm has been constructed to prevent the erosion of slag into the bordering Jordan River. There are approximately 1,500 people within 1/4 mile of the site. The contaminated shallow aquifer on site has been reported to discharge into the Jordan River at some locations. Public and municipal wells located near the site are used for domestic purposes.

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

NPL LISTING HISTORY
Proposed Date: 06/10/86
Final Date: 02/11/91

Threats and Contaminants



Groundwater and sediments are contaminated with heavy metals including cadmium, lead, and chromium. Radium was detected in off-site slag. On-site soils are contaminated with heavy metals and radioactive compounds. Explosives found on the site posed a potential threat to on-site workers. The Jordan River is potentially contaminated from runoff from the site and groundwater discharge. Potential health threats may include drinking contaminated groundwater and surface water; direct contact with groundwater, surface water, or slag; or ingestion of contaminated soil.

Cleanup Approach

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

Response Action Status

Immediate Actions: In 1990, the EPA performed initial site cleanup actions to address immediate threats at the site. Abandoned chemicals found in an assay lab were overpacked and removed, and approximately 20 pounds of explosives were detonated. Additionally, the site was fenced to prevent public access.

Entire Site: The EPA began a study into the nature and extent of contamination at the site in late 1990. The investigation will define the contaminants of concern and will recommend alternatives for final cleanup. The site investigation is scheduled for completion in 1992.

Site Facts: The Midvale Slag site is adjacent to the Sharon Steel site, another site on the NPL.

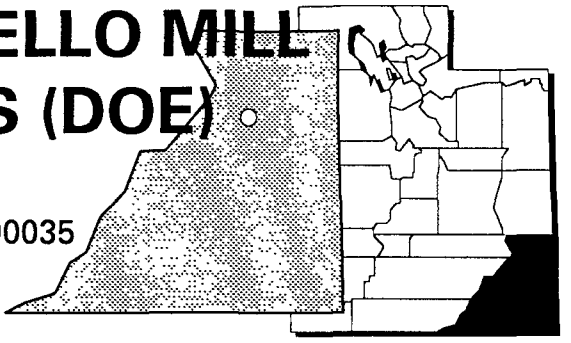
Environmental Progress

Immediate actions to remove explosives and abandoned chemicals at the Midvale Slag site are protecting area residents and the surrounding environment while further investigations are underway and cleanup activities are being planned.

MONTICELLO MILL TAILINGS (DOE)

UTAH

EPA ID# UT3890090035



EPA REGION 8
CONGRESSIONAL DIST. 03
San Juan County
City of Monticello

Other Names:
AEC Mill Site
Monticello Remedial Action Project

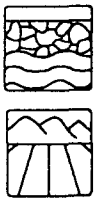
Site Description

The Monticello Mill Tailings site lies in the Montezuma Creek Valley, east of the Abajo Mountains. The inactive ore milling facility, on 78 acres of land, is bordered by the City of Monticello and Bureau of Land Management lands. Approximately 11 acres of the site were the mill area, and the other 67 acres constituted the mill tailings impoundment area containing an estimated 2 million tons of tailings and contaminated soil. The former ore buying stations and areas contaminated by wind and waterborne particulate material and tailings cover another 300 acres. These areas, known as the Peripheral Properties, contain an estimated 300,000 tons of contaminated materials. The mill was constructed by the Vanadium Corporation of America in 1942 with funds from the Defense Plant Corporation. Initially, vanadium was produced, but in 1943 the mill began production of a uranium/vanadium sludge for the Manhattan Engineer District. In 1948, the Atomic Energy Commission (AEC) bought the site. Uranium milling continued until 1960, when the mill was permanently closed. It is estimated that approximately 900,000 tons of ore were processed at the site. Mill operations were terminated in 1960 and in 1961 the AEC stabilized the tailings piles. In 1964, the mill was dismantled. The population of the City of Monticello is estimated to be 1,900. The City of Monticello has its own water system, supplied by water from springs located on the flanks of the Abajo Mountains. The domestic water source for those people living outside the city limits is groundwater drawn chiefly from wells completed in the Burro Canyon Formation. There is no known contamination of the domestic water supplies attributable to contamination from the mill site.

Site Responsibility: The site is being addressed through a combination of Federal and State action.

NPL LISTING HISTORY
Proposed Date: 07/14/89
Final Date: 11/21/89

Threats and Contaminants

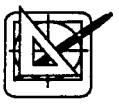


The groundwater and soil are contaminated with uranium, as well as its radioactive decay products, thorium-230, radium-226, radon-222, and heavy metals from tailings deposited on the site. Exposure to uranium through contact with contaminated soil, groundwater, and airborne contaminated dust may be a potential threat to the health of individuals in the area of the site.

Cleanup Approach

The site is being addressed in three long-term remedial phases focusing on cleanup of the tailings piles and former mill site, the peripheral properties, and the surface water and groundwater.

Response Action Status



Tailings Piles and Former Mill Site: In 1990, the Department of Energy (DOE) completed an investigation of contamination in the tailings piles and the former mill site. The selected remedy includes removing approximately 1.5 million cubic yards of tailings, ore, and process-related material from their present location, where they are within the flood plain of Montezuma Creek or where they are in contact with the groundwater, to a repository 1 mile south of the present mill tailings site. Once this is accomplished, the repository will be capped to protect the groundwater, isolate the waste from the environment, and control the escape of radon gas. Contaminated runoff will be collected and treated through evaporation of contaminants or reverse osmosis. When cleanup activities are completed, the mill site and the repository area will be revegetated. The design of the repository is currently underway and expected to be completed in 1994.

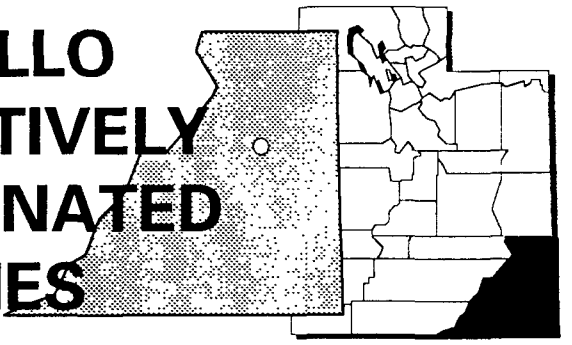
Peripheral Properties: In 1990, an investigation of the contamination at the peripheral properties was completed. The remedy involves excavating approximately 300,000 cubic yards of tailings and removing them to the repository, revegetating the area after the tailings are removed, and limiting access and the potential for future use. Design of this portion of the site remedy is underway and cleanup activities are planned for 1992.

Surface Water and Groundwater: The DOE will conduct an investigation to determine the nature and extent of contamination in the surface water and groundwater. Completion of this investigation is not anticipated until the cleanup of the contaminated source materials at the tailing piles and mill site is finished.

Environmental Progress

The DOE is conducting numerous investigations and is planning activities for the Monticello Mill Tailings site. Remedies and cleanup plans currently are being designed to address mill tailings and piles and to limit further surface and groundwater contamination. While these investigations are ongoing, the EPA has determined that the site does not pose an immediate threat to the surrounding community or the environment.

MONTICELLO RADIOACTIVELY CONTAMINATED PROPERTIES



UTAH

EPA ID# UTD980667208

EPA REGION 8
CONGRESSIONAL DIST. 03
San Juan County
Monticello

Other Names:
Monticello Remedial Action Project
Monticello Vicinity Properties

Site Description

The Monticello Radioactively Contaminated Properties consist of private and commercial properties in Monticello, covering approximately 4 square miles. An estimated 400 residences have been contaminated with radioactive mill wastes from ore processing operations near the town. During World War II, the Federal government established an ore processing mill to produce vanadium, a steel hardener, for the war effort. Vanadium is not radioactive itself, but it is found in the same ore with uranium and radium; thus, the processing wastes contain significant radioactivity. Soon after its construction, the mill began production of a uranium/vanadium sludge for the Manhattan Engineer District. Uranium production continued until 1960, when the plant was closed and dismantled. Contaminated dust from the mill tailings piles has been blown into the city. Tailings from the mill site have been used as construction material, backfill, and as sand mix in concrete. These uses have resulted in the radioactive contamination of numerous properties within Monticello. Approximately 1,900 people live in the town of Monticello. The mill site is located immediately south of the city on the flood plain of Montezuma Creek.

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

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

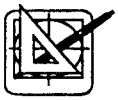
Threats and Contaminants

Soil is contaminated with uranium. People who are exposed to the radioactive materials may suffer adverse health effects. Inhalation of radon-222 or direct contact with radionuclides in the tailings may be harmful to human health. There is no contamination of the domestic water supply.

Cleanup Approach

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

Response Action Status



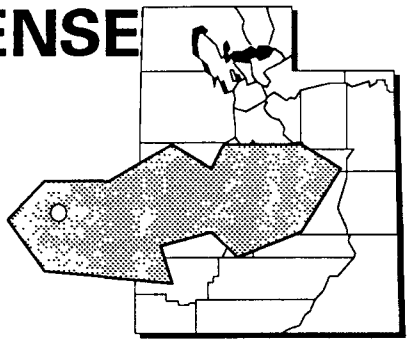
Entire Site: In 1984, the EPA cleaned up two of the most heavily contaminated homes. Since 1984, the Department of Energy (DOE) has been systematically cleaning up the remaining properties. Three families were temporarily relocated while their property was being cleaned up. Cleanup actions have been completed at 90 properties. An additional 300 or more properties are expected to be cleaned up by 1996. In 1990, the EPA selected a remedy to clean up the radioactive properties by excavating the mill tailings around the residences and disposing of the material at the Monticello mill site. A repository will be built to contain the material. The DOE presently is completing the technical specifications for the repository, and construction is scheduled to begin in 1994. Relocation of the contaminated materials is expected to begin in 1995 and to be completed by 1997.

Site Facts: In 1988, the EPA, the DOE, and the State signed an Interagency Agreement. Under this Agreement, the DOE will clean up the contaminated properties. Some property owners will not allow investigations or cleanup of their property.

Environmental Progress

The DOE has finished cleaning 90 properties at the Monticello site, greatly reducing the potential for exposure to hazardous substances. The DOE also is completing the technical design for further cleanup activities, including the repository for the mill tailings.

OGDEN DEFENSE DEPOT
UTAH
EPA ID# UT9210020922



EPA REGION 8
CONGRESSIONAL DIST. 01
Weber County
3 1/2 miles northwest of Ogden

Other Names:
Defense Depot Ogden Utah (DDOU)

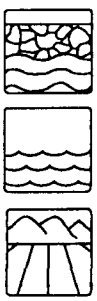
Site Description

The Ogden Defense Depot (ODD) site is located northwest of Ogden. The 1,319-acre site is a major supply distribution center for the Defense Logistics Agency. Unknown quantities of hazardous wastes, including methyl bromide and mustard gas, were stored and may have been buried on site during the 1940s and 1950s, when it was an Army installation. The ODD consists of 6 possible waste disposal areas. These areas include: the french drain in the herbicide/pesticide mixing area; Burial Site #3 used to dispose of toxic chemical warfare agents in the 1940s; Burial Site #4 which includes burning pits and a methyl bromide disposal pit; Building 244 4-C (metal plating shop); Burial Site #1 (riot control agent disposal area); and Burial Site #5 (mosquito repellent disposal area). The ODD is located within the city limits. The population center is located approximately 3 miles from the site. The distance from the site to the nearest residence is about 500 feet. The site is located above the Weber Delta Aquifer, which consists of shallow and deep zones. There are no municipal wells in use within the vicinity of the ODD. Pineview Reservoir supplies the City of Ogden with drinking water and is located 10 miles east of the site. Streams and a creek are located near the site.

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

NPL LISTING HISTORY
Proposed Date: 10/15/84
Final Date: 07/01/87

Threats and Contaminants



On-site groundwater sampling results have identified the heavy metals arsenic, cadmium, and chromium, and various volatile organic compounds (VOCs) including benzene, trichloroethene, vinyl chloride, and methylene chloride. Lead was identified in on-site sediments. Soil is contaminated with VOCs, zinc, cadmium, and the pesticide chlordane. Access to the site is restricted, thereby reducing the potential for contact with contaminants. Individuals accidentally ingesting or coming in direct contact with the contaminated groundwater, sediments, or soils may be at risk. Potential risks also may exist from eating bioaccumulated contaminants in fish, waterfowl, livestock, and commercial agricultural products.

Cleanup Approach

The site is being addressed in five stages: an immediate action and four long-term remedial phases focusing on cleanup of the french drain at the herbicide/pesticide mixing area and the three waste burial sites.

Response Action Status

Immediate Action: During soil excavations in 1988, a team from the Escort and Disposal Detachment at Dugway Proving Ground excavated Burial Site #3. During the soil excavation, vials were recovered and identified as items from both the chemical agent identification and training sets. Defused riot control grenades also were recovered and safely disposed of.

French Drain: The EPA selected a remedy for cleaning up groundwater at the french drain area which includes: extracting contaminated groundwater, treating the extracted groundwater, and reinjecting the treated groundwater. In addition, contaminated soils will be excavated and incinerated off site. Work on the engineering design is expected to be completed by late 1992.

Burial Site #1: Investigations to determine the nature and extent of the contamination and to identify alternative technologies for cleanup of Burial Site #1 were initiated in 1989 and are expected to be completed in 1992.

Burial Site #3: Investigations to determine the nature and extent of the contamination and to identify methods for cleanup of Burial Site #3 were started in 1990 and are scheduled to be completed in late 1992.

Burial Site #4: Investigations to determine the nature and extent of the contamination and to identify alternative methods for cleanup of Burial Site #4 were begun in 1989 and are slated for completion in late 1992.

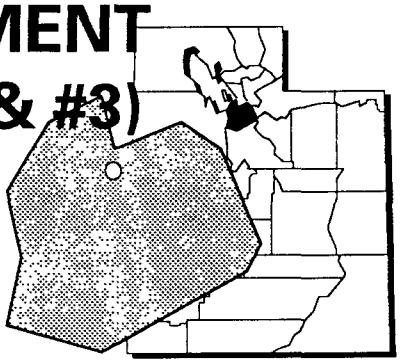
Environmental Progress

By excavating and removing contaminated soil, vials, and the defused grenades from Burial Site #3 at the Ogden Defense Deposit site, the potential for exposure to hazardous materials has been significantly reduced. Investigations into the extent of contamination at the other identified areas and appropriate cleanup alternatives are being conducted.

PORTLAND CEMENT (KILN DUST #2 & #3)

UTAH

EPA ID# UTD980718670



EPA REGION 8

CONGRESSIONAL DIST. 02

Salt Lake County

Salt Lake City

Other Names:
Lone Star Industries

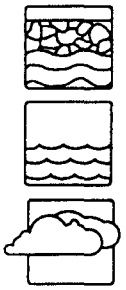
Site Description

The Portland Cement (Kiln Dust #2 & #3) site consists of three disposal sites located on 71 acres that were used for the disposal of spent kiln dust and old kiln chromate bricks. The kiln dust and bricks are stored in piles on the surface, exposing them to transport by wind and water. The company disposed of kiln dust and old kiln chromate bricks in the greater Salt Lake City area until 1983, including disposal since the mid-1960s at areas #2 and #3 and the west area. The dust, an alkaline by-product of cement manufacturing collected in baghouses from the kiln stacks, contains concentrations of lead and arsenic. The old kiln bricks contain elevated levels of heavy metals. Commercial and industrialized areas are located around the site. Four homes are located on the western side of the site. The Jordan River Surplus Canal and City Drain are surface water bodies adjacent to the site. A large residential area east of the site contains two elementary schools. Up to 12,000 people live within a mile of the site.

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

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

Threats and Contaminants



Groundwater and the nearby surface water are contaminated with heavy metals including arsenic, cadmium, chromium, lead, and molybdenum. Both also have high pH levels. Inhalation of the extremely fine dust particles may pose potential health threats to area residents and workers cleaning up the site. Potential health risks may exist for individuals touching or drinking the contaminated groundwater. Wildlife in the area also may be threatened by the contaminants. Nearby surface waters, the Surplus Canal and City Drain, and the upper aquifer may be threatened by the site contamination.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on the removal of contaminated kiln dust and bricks and the cleanup of the soil.

Response Action Status

Immediate Actions: The site was fenced by the potentially responsible parties to prevent access to contaminated materials. A dust suppressant is applied on an as-needed basis to prevent dust from blowing off the site.

Kiln Dust: The EPA selected a remedy for cleanup of the kiln dust in mid-1990. The selected remedy includes removing and shipping the cement kiln dust off site for disposal at an EPA-approved landfill. Groundwater will be monitored and, if necessary, the EPA will select a separate remedy for its cleanup. The potentially responsible party is expected to begin the design of the remedy in 1991.

Soils and Residual Contamination: In 1991, the EPA began a study of soil contamination and any residual contamination from the kiln dust. At the conclusion of this study, a final remedy selection will be made.

Site Facts: A Consent Decree was signed in March 1991 by the EPA, the Utah Department of Health, and Lone Star Industries. Under the Decree, the company will design and perform the cleanup actions associated with the kiln dust.

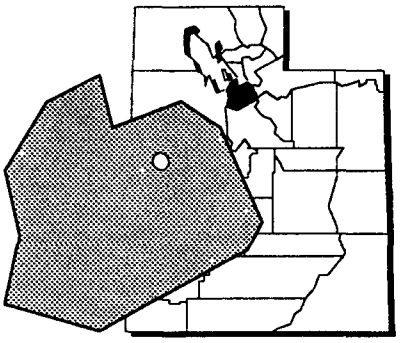
Environmental Progress

Actions taken to fence the site and apply a dust suppressant to the site surface help prevent possible contact with contamination both on and off site at the Portland Cement site. These actions also remove any immediate threat to the surrounding community or the environment while investigations continue and cleanup actions are being planned.

ROSE PARK SLUDGE PIT

UTAH

EPA ID# UTD980635452



EPA REGION 8

CONGRESSIONAL DIST. 02

Salt Lake County

Salt Lake City

Site Description

The Rose Park Sludge Pit site is approximately 2 acres in size and is located in a Salt Lake City park that includes a baseball field, tennis courts, soccer fields, and a golf course. The area was used by predecessors of Amoco Oil Co. for the disposal of petroleum wastes from the early 1920s until 1957. Refinery sludges were placed into unlined storage pits. The City bought the property in 1957 and covered the site. During park development grading operations, site contamination was discovered when a bulldozer broke through the cover and re-exposed the sludge. The area surrounding the site is primarily residential, with 150,000 people residing in Salt Lake City.

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

NPL LISTING HISTORY

Proposed Date: 10/23/81

Final Date: 09/08/83

Threats and Contaminants

Refinery sludges are contaminated with volatile organic compounds (VOCs) and sulfur dioxide. The groundwater possibly contains VOCs as a result of refinery sludges being placed in unlined pits. The area is now capped and the sludges do not pose a threat to the public or the environment.

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: Construction of a lined clay cap and slurry wall over and around the site was completed in 1983. Revegetation was completed in spring 1984. The site cleanup was completed as of 1985. However, groundwater monitoring is being continued by the Salt Lake City and County Health Departments for a period of 30 years. At an annual monitoring meeting held in 1989, it was concluded that the present groundwater operation and maintenance criteria may not be adequate to determine the effectiveness of the remedy. In January 1990, Amoco submitted a plan to monitor groundwater flow around the containment area. The first phase of the monitoring is complete. The second phase, scheduled to begin in mid-1991, will include the installation of a new system of groundwater quality monitoring.

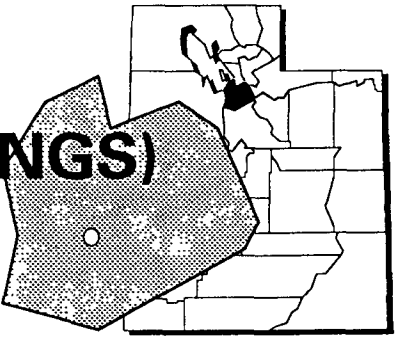
Environmental Progress

The cap and slurry wall have contained the sludges and have prevented further contamination of groundwater resources. All planned cleanup activities for the Rose Park Sludge Pit site have been completed. The State will continue to monitor groundwater to ensure that no further contamination is present and that the site will not pose a threat to human health or the environment.

SHARON STEEL (MIDVALE TAILINGS)

UTAH

EPA ID# UTD980951388



EPA REGION 8
CONGRESSIONAL DIST. 02
Salt Lake County
Midvale

Site Description

The Sharon Steel site is a former milling and smelting operation covering 268 acres in Midvale. Operations began in 1905, with the smelter closing in 1958 and the milling operations closing in 1971. Sulfide concentrates of lead, copper, zinc, and other metals were extracted from ore during the milling operations. Wastes from this process resulted in an estimated accumulation of 10 million tons of mine tailings piles on the site, which are 40 to 50 feet deep. The State first became involved at the mill in 1982, when it learned that nearby residents were gathering the windblown tailings for use in gardens and children's sandboxes. The State tested the "sand" from the gardens and sandboxes and found high levels of lead. The U.S. Geological Survey (USGS) found lead in groundwater underneath the site. Approximately 1,400 people live within 1/4 mile of the site; roughly 8,000 people live within 1 mile. The Jordan River supplies water to 160 acres of farm land through 10 irrigation intakes within 3 miles of the site. Two smaller drainage ditches, the North Jordan Canal and Galena Canal, are nearby. A 22-acre wetland and several small ponds also are on the mill site. The deep aquifer underlying the site is a source of drinking water for the metropolitan Salt Lake City area. Municipal wells that draw from this aquifer are within 3 miles of the site.

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: 08/30/90

Threats and Contaminants

The shallow groundwater is contaminated with heavy metals such as arsenic, iron, manganese, and zinc from the mill site. Sediments from the Jordan River, which is classified by the State for cold-water game fishing and recreation other than swimming, are contaminated with heavy metals. The wetlands on the site contain heavy metals and zinc tailings. Soil is contaminated with heavy metals including lead, arsenic, cadmium, and zinc. The greatest potential health threat to people is exposure to lead and arsenic through direct contact with or inhalation of contaminated soils, including dust; children playing in nearby neighborhood soils or sandboxes are especially at risk.

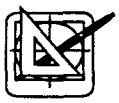
Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the groundwater and soils at the mill site and the vicinity property.

Response Action Status

Immediate Actions: In 1989, the party potentially responsible for the site contamination installed a fence around the site.

Mill Site and Grounds: The EPA has completed studies to determine the nature and extent of groundwater and soil contamination on the mill site. The EPA, with the assistance of the Bureau of Mines, currently is evaluating the selected treatment methods prior to final remedy selection in late 1992.



Vicinity Property: The remedy selected by the EPA in late 1990 to address soil contamination in the vicinity of the site includes excavating contaminated soil and temporarily storing the soil on site until final disposal. The excavated soil will be replaced with clean fill and revegetated. The State is managing the design of the remedy, which is expected to be completed in fall 1991.

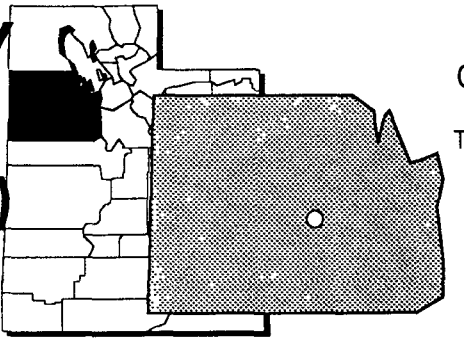
Environmental Progress

By constructing a fence to restrict access to the mill site and grounds, the potentially responsible parties and the EPA have reduced the possibility of direct exposure to the contaminants on the Sharon Steel site. Investigations leading to permanent solutions for cleaning up the soil and groundwater at the site and the surrounding affected areas have been completed, and design of cleanup actions is underway.

TOOELE ARMY DEPOT (NORTH AREA)

UTAH

EPA ID# UT3213820894



EPA REGION 8
CONGRESSIONAL DIST. 01
Tooele County
Tooele Valley, 2 miles south of Tooele

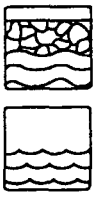
Site Description

The 24,732-acre Tooele Army Depot site, established in 1942, is one of the major ammunition storage and equipment maintenance installations in the United States. Disposal practices at the site have included discharging wastes to unlined evaporation or percolation ponds, neutralization and thermal destruction of chemical agents and munitions, detonation and burning, and burial of these materials at the demilitarization range. The City of Tooele has a population of 15,000. The deep regional aquifer, used as a drinking water source by area communities, is contaminated beneath the area of the Depot and several hundred yards beyond the property boundary.

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

NPL LISTING HISTORY
Proposed Date: 10/15/84
Final Date: 08/30/90

Threats and Contaminants



On-site groundwater is contaminated with heavy metals and volatile organic compounds (VOCs) including trichloroethylene (TCE). On-site contamination of the Industrial Waste Lagoon and wastewater ditches includes some low-level organic contamination and relatively high levels of the heavy metals cadmium, chromium, lead, and selenium. A release of TCE and TNT-related compounds also was identified on the site. The potential health threat to people includes drinking contaminated groundwater and direct contact with the groundwater and sediments. Because the site is a secured military installation, public access is restricted.

Cleanup Approach

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

Response Action Status

Groundwater: The Army has completed a Groundwater Quality Assessment and Corrective Action Plan for groundwater cleanup at the Industrial Waste Lagoon. Pilot testing of potential cleanup technologies is underway. An investigation of the groundwater is expected to begin in late 1991.

Entire Site: The Army has begun investigations to identify releases of hazardous chemicals and cleanup alternatives at numerous other areas of contamination on the site. Investigations, scheduled to begin in late 1991, will determine the nature and extent of the contamination and will identify alternatives for final cleanup at these waste disposal and release areas.

Site Facts: Toole Army Depot is participating in the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities. The Army has agreed to clean up the Industrial Waste Lagoon under a Consent Decree.

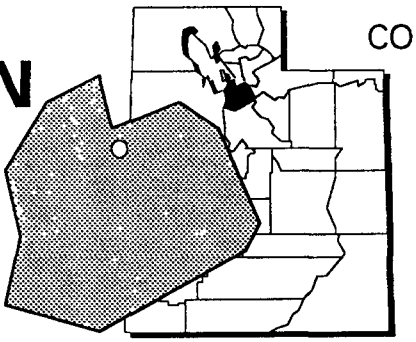
Environmental Progress

The Army has evaluated the Tooele Army Depot (North Area) site and has determined that no initial actions are necessary while investigations into groundwater contamination and other hazardous waste areas are underway.

UTAH POWER & LIGHT/AMERICAN BARREL

UTAH

EPA ID# UTD980667240



EPA REGION 8
CONGRESSIONAL DIST. 02
Salt Lake County
Salt Lake City

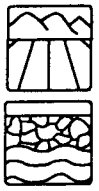
Site Description

The 2 1/2-acre Utah Power & Light/American Barrel site was used as a barrel storage, recycling, and reconditioning facility. Empty barrels at one time contained various volatile organic compounds (VOCs), degreasers, and solvents. Prior to the barrel operation, the site was used by Utah Power and Light as a creosote pole treating facility and as a coal processing plant in the late 1800s. Approximately 39,700 people live within 2 miles of the site. Four schools are located within 1 mile. The nearest residence is 225 feet away. One municipal well and one private well are located within 1 mile of the site. A drainage ditch runs along the eastern fence of the site. Water conveyed by the ditch is believed to percolate into the ground within several yards of the site.

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

NPL LISTING HISTORY
Proposed Date: 05/05/89
Final Date: 10/04/89

Threats and Contaminants



Soil contains polycyclic aromatic hydrocarbons (PAHs) from wood treating operations, phthalates, VOCs, and heavy metals including chromium, copper, lead, and zinc. Groundwater contains VOCs including benzene, styrene, toluene, and xylene. Potential health risks may exist for individuals who accidentally ingest or come into direct contact with contaminated soil and groundwater.

Cleanup Approach

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

Response Action Status

Immediate Action: In 1988, under EPA monitoring, the parties potentially responsible for the site contamination removed 50,000 barrels containing VOCs, solvents, and herbicide residues to a federally approved facility.

Soil and Groundwater: The potentially responsible parties initiated an investigation in 1990 to determine the type and extent of groundwater and soil contamination and to identify possible cleanup alternatives. The investigation is expected to be completed in 1992. Once this investigation phase is completed, the EPA will review the study findings and will select the final cleanup remedies for contaminated soils and groundwater resources.

Site Facts: The EPA and the potentially responsible parties signed an Administrative Order on Consent in August 1990, under which the parties agreed to conduct the soil and groundwater investigation.

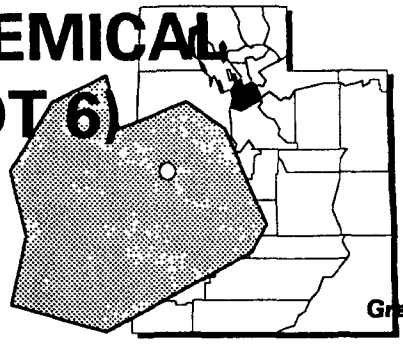
Environmental Progress

The removal of waste barrels containing VOCs, solvents, and herbicide residues has greatly reduced the potential for exposure to hazardous materials at the Utah Power & Light/American Barrel site while site investigations continue and cleanup activities are being planned.

WASATCH CHEMICAL COMPANY (LOT 6)

UTAH

EPA ID# UTD000716399



EPA REGION 8
CONGRESSIONAL DIST. 02
Salt Lake County
Salt Lake City

Other Names:
Huntsman-Christensen Corporation
Great Western Chemical Company-Wasatch Industrial Park

Site Description

The 15-acre Wasatch Chemical Company (Lot 6) site was used for the formulation of various pesticides, herbicides, and industrial chemical products in the early 1960s. Approximately 2,300 cubic yards of waste were disposed of in a concrete pond and drums on the site. During an inspection in 1985, the State found 48 drums holding ignitable and reactive liquids and 13 pressurized gas cylinders in deteriorated condition. Additional wastes from the operation were discharged into a street ditch, which eventually drains into the Great Salt Lake. Approximately 85,000 people live within a 3-mile radius of the site. The closest residence is 1/4 mile away. Although previously accessible to trespassers, the site is now secured. There are private wells within a 1/4-mile radius of the site that are used for drinking, bathing, cooking, and other household purposes.

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

NPL LISTING HISTORY
Proposed Date: 01/22/87
Final Date: 02/11/91

Threats and Contaminants

Groundwater underlying the site contains VOCs and herbicides. Soils and sludges contain VOCs, pesticides, herbicides, and dioxin. Low levels of pesticides were detected in surface water; however, these may have resulted from an off-site source. Potential health risks may exist for individuals who accidentally ingest or have direct contact with contaminated surface water, groundwater, sludges, or soils.

Cleanup Approach

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

Response Action Status

Immediate Actions: The EPA removed abandoned gas cylinders from the site in 1986 and detonated them at a State-owned site. The parties potentially responsible for the contamination constructed a dioxin storage facility. Abandoned drums were repackaged and stored in the facility along with certain surface soils removed from Lot 6. Actions to temporarily cap dioxin-contaminated soils currently are underway.

Entire Site: In early 1991, the potentially responsible parties completed an investigation, under State monitoring, to determine the type and extent of soil, surface water, and groundwater contamination. The selected remedy includes the consolidation of contaminated soils, sludges, and other wastes in an evaporation pond formerly used at the site and in-place vitrification of these materials. Contaminated groundwater will be removed through extraction wells and trenches, treated by air stripping and carbon absorption, and discharged to a sewer system. Additionally enforcing deed restrictions, not issuing new well permits, and restricting water rights will prevent the use of contaminated groundwater. Design of the selected remedy will begin in mid-1991.

Site Facts: In 1986, the State of Utah and the EPA negotiated a Consent Order for removal of the drums. A Consent Decree was signed in 1988 with one of the potentially responsible parties agreeing to complete a site investigation.

Environmental Progress

The removal of gas cylinders and safe storage of abandoned drums have greatly reduced the potential for exposure to contaminated materials at the Wasatch Chemical Company site while the design of cleanup activities is being planned.

APPENDIX A

Glossary: Terms Used in the Fact Sheets

Terms Used in the NPL Book

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

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

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

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

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Carbon Treatment: [see Carbon Adsorption].

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

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

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

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

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

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

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

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

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

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

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

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

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

Consent Order: [see Administrative Order on Consent].

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

and willingness to perform a site study or cleanup.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Mill Tailings: [See Mine Tailings].

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

RCRA: [See Resource Conservation and Recovery Act].

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Water Table: The upper surface of the groundwater.

Weir: A barrier to divert water or other liquids.

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

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

APPENDIX B

Information Repositories for NPL Sites in Utah

Information Repositories for NPL Sites in the State of Utah

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

Site Name	Site Repository
HILL AIR FORCE BASE	Davis County Library, 155 North Wasatch Drive, Layton, UT 84041
MIDVALE SLAG	Ruth V. Tyler Public Library, 315 Wood Street, Midvale, UT 84047
MONTICELLO MILL TAILINGS (DOE)	Utah State Department of Health, Bureau of Environmental Response and Remediation, Cannon Health Building, 2nd Floor, 288 North 1460, West, Salt Lake City, UT 84116
MONTICELLO RADIOACTIVELY CONTAM.	San Juan County Public Library, 81 North Main Street, Monticello, UT 84535
OGDEN DEFENSE DEPOT	Weber County Library, 2646 Jefferson Avenue, Ogden, UT 84401
PORTLAND CEMENT (KILN DUST #2 & #3)	Salt Lake City Public Library, Chapman Branch Library, 577 South Ninth Street, West Salt Lake City, UT 84104
ROSE PARK SLUDGE PIT	Utah State Department of Health, Bureau of Environmental Response and Remediation, Cannon Health Building, 2nd Floor, 288 North 1460, West, Salt Lake City, UT 84116
SHARON STEEL (MIDVALE TAILINGS)	Ruth V. Tyler Public Library, 315 Wood Street, Midvale, UT 84047
TOOELE ARMY DEPOT (NORTH AREA)	Utah State Department of Health, Bureau of Environmental Response and Remediation, Cannon Health Building, 2nd Floor, 288 North 1460, West, Salt Lake City, UT 84116
UTAH POWER & LIGHT/AMERICAN BARREL	Salt Lake City Public Library, Chapman Branch Library, 577 South Ninth Street, West Salt Lake City, UT 84104
WASATCH CHEMICAL CO. (LOT 6)	Salt Lake City Public Library, Chapman Branch Library, 577 South Ninth Street, West Salt Lake City, UT 84104

* U.S. G.P.O.:1992-311-893-60442