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**NATIONAL PRIORITIES LIST SITES:
Alaska**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Washington, D.C. 20460

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

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INTRODUCTION:

WHY THE SUPERFUND PROGRAM?

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

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

After Discovery, the Problem Intensified

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

In the 10 years since the Superfund program began, hazardous waste has surfaced as a major environmental concern in every part of the United States. It wasn't just the land that was contaminated by past disposal practices. Chemicals in the soil were spreading into the groundwater (a source of drinking water for many) and into streams, lakes, bays, and wetlands. Toxic vapors contaminated the air at some sites, while at others improperly disposed or stored wastes threatened the health of the surrounding community and the environment.

EPA Identified More than 1,200 Serious Sites

EPA has identified 1,236 hazardous waste sites as the most serious in the Nation. These sites comprise the "National Priorities List": sites targeted for cleanup under the Superfund. But site discoveries continue, and

A BRIEF OVERVIEW

EPA estimates that, while some will be deleted after lengthy cleanups, this list, commonly called the NPL, will continue to grow by approximately 100 sites per year, reaching 2,100 sites by the year 2000.

THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

From the beginning of the program, Congress recognized that the Federal government could not and should not address all environmental problems stemming from past disposal practices. Therefore, the EPA was directed to set priorities and establish a list of sites to target. Sites on the NPL (1,236) are thus a rela-

INTRODUCTION

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

EPA IS MAKING PROGRESS ON SITE CLEANUP

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

The Superfund responds immediately to sites posing imminent threats to human health and the environment at both NPL sites and sites not on the NPL. The purpose is to stabilize, prevent, or temper the effects of a hazardous release, or the threat of one. These might include

tire fires or transportation accidents involving the spill of hazardous chemicals. Because they reduce the threat a site poses to human health and the environment, immediate cleanup actions are an integral part of the Superfund program.

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

The ultimate goal for a hazardous waste site on the NPL is a permanent solution to an environmental problem that presents a serious (but not an imminent) threat to the public or environment. This often requires a long-term effort. In the last four years, EPA has aggressively accelerated its efforts to perform these long-term cleanups of NPL sites. More cleanups were started in 1987, when the Superfund law was amended, than in any previous year. And in 1989 more sites than ever reached the construction stage of the Superfund cleanup process. Indeed construction starts increased by over 200 percent between late 1986 and 1989! Of the sites currently on the NPL, more than 500 — nearly half

— have had construction cleanup activity. In addition, over 500 more sites are presently in the investigation stage to determine the extent of site contamination, and to identify appropriate cleanup remedies. Many other sites with cleanup remedies selected are poised for the start of cleanup construction activity. Measuring success by "progress through the cleanup pipeline," EPA is clearly gaining momentum.

EPA MAKES SURE CLEANUP WORKS

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

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

Likewise, EPA does not abandon a site even after the cleanup work is done. Every

five years the Agency reviews each site where residues from hazardous waste cleanup still remain to ensure that public and environmental health are still being safeguarded. EPA will correct any deficiencies discovered and report to the public annually on all five-year reviews conducted that year.

CITIZENS HELP SHAPE DECISIONS

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

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

This State volume and the companion National Overview volume provide general Superfund background information and descriptions of activities at each State NPL site. These volumes are

intended to clearly describe what the problems are, what EPA and others participating in site cleanups are doing, and how we as a Nation can move ahead in solving these serious problems.

USING THE STATE AND NATIONAL VOLUMES IN TANDEM

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

The National Overview volume — *Superfund: Focusing on the Nation at Large* — accompanies this State volume. The National Overview contains important information to help you understand the magnitude and challenges facing the Superfund program as well as an overview of the National cleanup effort. The sections describe the nature of the hazardous waste problem nationwide, threats and contaminants at NPL sites and their potential effects on human health and the environment, the Superfund program's successes in cleaning up the Nation's

serious hazardous waste sites, and the vital roles of the various participants in the cleanup process.

This State volume compiles site summary fact sheets on each State site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation, and require the most complicated and costly site solutions yet encountered. Each State book gives a "snapshot" of the conditions and cleanup progress that has been made at each NPL site in the State through the first half of 1990. Conditions change as our cleanup efforts continue, so these site summaries will be updated periodically to include new information on progress being made.

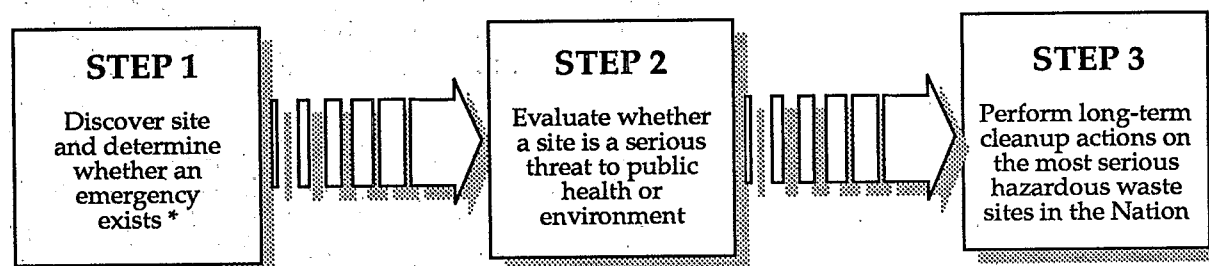
To help you understand the cleanup accomplishments made at these sites, this State volume includes a description of the process for site discovery, threat evaluation and long-term cleanup of Superfund sites. This description — *How Does the Program Work to Clean Up Sites?* — will serve as a good reference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

SUPERFUND:

HOW DOES THE PROGRAM WORK TO CLEAN UP SITES?

The diverse problems posed by the Nation's hazardous waste sites have provided EPA with the challenge to establish a consistent approach for evaluating and cleaning up the Nation's most serious sites. To do this, EPA had to step beyond its traditional role as a regulatory agency to develop processes and guidelines for each step in these technically complex site cleanups. EPA has established procedures to coordinate the efforts of its Washington, D.C. Headquarters program offices and its front-line staff in 10 Regional Offices with the State governments, contractors, and private parties who are participating in site cleanup. An important part of the process is that any time during cleanup, work can be led by EPA or the State or, under their monitoring, by private parties who are potentially responsible for site contamination.

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



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

FIGURE 1

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

How does EPA learn about potential hazardous waste sites?

What happens if there is an imminent danger?

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

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

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

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

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

STEP 2: SITE THREAT EVALUATION

Even after any imminent dangers are taken care of, in most cases contamination may remain at the site. For example, residents may have been supplied with bottled water to take care of their immediate problem of contaminated well water. But now it's time to figure out what is contaminating the drinking water supply and the best way to clean it up. Or

EPA may determine that there is no imminent danger from a site, so now any long-term threats need to be evaluated. In either case, a more comprehensive investigation is needed to determine if a site poses a serious but not imminent danger, and requires a long-term cleanup action.

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

- Are hazardous substances likely to be present?
- How are they contained?
- How might contaminants spread?
- How close is the nearest well, home, or natural resource area like a wetland or animal sanctuary?
- What may be harmed — the land, water, air, people, plants, or animals?

Some sites do not require further action because the preliminary assessment shows that they don't threaten public health or the environment. But even in these cases, the sites remain listed in the Superfund inventory for record keeping purposes and future reference. Currently, there are more than 32,000 sites maintained in this inventory.

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.

Information collected during the site inspection is used to identify the sites posing the most serious threats to human health and the environment. This way EPA can meet the

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

How does EPA use the results of the site inspection?

SUPERFUND

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

requirement that Congress gave them to use Superfund monies only on the worst hazardous waste sites in the Nation.

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

Only sites with high enough health and environmental risk scores are proposed to be added to EPA's National Priorities List (NPL). That's why there are 1,236 sites on the NPL, but there are more than 32,000 sites in the Superfund inventory. Only NPL sites can have a long-term cleanup paid for from the national hazardous waste trust fund — the Superfund. But the Superfund can and does pay for emergency actions performed at any site, *whether or not it's on the NPL*.

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

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

Listing on the NPL does not set the order in which sites will be cleaned up. The order is influenced by the relative priority of the site's health and environmental threats compared to other sites, and such factors as State priorities, engineering capabilities, and available technologies. Many States also have their own list of sites that require cleanup; these often contain sites not on the NPL that are scheduled to be cleaned up with State money. And it should be said again that any emergency action needed at a site can be performed by the Superfund whether or not a site is on the NPL.

STEP 3: LONG-TERM CLEANUP ACTIONS

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

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

This remedial response process is a long-term effort to provide a permanent solution to an environmental problem that presents a serious, but not an imminent threat to the public or environment.

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

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

A remedial investigation can best be described as a carefully designed field study. It includes extensive sampling and laboratory analyses to generate more precise data on the types and quantities of wastes present at the site, the type of soil and water drainage patterns, and specific human health and environmental risks. The result is information that allows EPA to select the cleanup strategy that is best suited to a particular site or to determine that no cleanup is needed.

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

How are cleanup alternatives identified and evaluated?

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.

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

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

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

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

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

The results of the remedial investigation and feasibility study, which also point out the recommended cleanup choice, are published in a report for public review and comment. EPA or the State encourages the public to review the information and take an active role in the final cleanup decision. Fact sheets and announcements in local papers let the community know where they can get copies of the study and other reference documents concerning the site.

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

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

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

Projects to clean up a hazardous waste site may appear to be like any other major construction project but, in fact, the likely presence of combinations of dangerous chemicals demands special construction planning and procedures. Therefore, the design of the remedy can take anywhere from 6 months to 2 years to complete. This blueprint for site cleanup includes not only the details on every aspect of the construction work, but a description of the types of hazardous wastes expected at the

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

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

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

site, special plans for environmental protection, worker safety, regulatory compliance, and equipment decontamination.

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

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

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

It's not until a site cleanup meets all the goals and monitoring requirements of the selected remedy that EPA can officially propose the site for "deletion" from the NPL. And it's not until public comments are taken into consideration that a site can actually be deleted from the NPL. Deletions that have occurred are included in the "Construction Complete" category in the progress report found later in this book.

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

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

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

Can EPA make parties responsible for the contamination pay?

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

The following two pages show a generic fact sheet and briefly describes the information under each section. The square "icons" or symbols accompanying the text allow the reader to see at a glance which environmental resources are affected and the status of cleanup activities.

Icons in the *Threats and Contaminants* Section



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



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



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



Contaminated Soil and Sludges on or near the site.



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

Icons in the *Response Action Status* Section



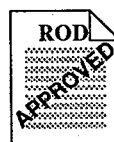
Initial Actions have been taken or are underway to eliminate immediate threats at the site.



Site Studies at the site are planned or underway.

HOW TO:

USING THE STATE VOLUME



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



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



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



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

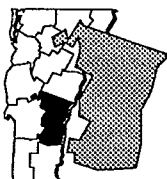
Site Responsibility

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

SITE NAME

STATE

EPA ID# ABC00000000



EPA REGION
CONGRESSIONAL DIST
County Name
Location

Aliases:

Site Description

NPL Listing History

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

Site Responsibility:

NPL LISTING HISTORY

Threats and Contaminants



Cleanup Approach

Response Action Status





Site Facts:

Environmental Progress



Environmental Progress

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

WHAT THE FACT SHEETS CONTAIN

Site Description

This section describes the location and history of the site. It includes descriptions of the most recent activities and past actions at the site that have contributed to the contamination. Population estimates, land usages, and nearby resources give readers background on the local setting surrounding the site. Throughout the site description and other sections of the site summary, technical or unfamiliar terms that are *italicized* are presented in the glossary at the end of the book. Please refer to the glossary for more detailed explanation or definition of the terms.

Threats and Contaminants

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

Cleanup Approach

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

Response Action Status

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

Site Facts

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

How To

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

HOW CAN YOU USE THIS STATE BOOK?

You can use this book to keep informed about the sites that concern you, particularly ones close to home. EPA is committed to involving the public in the decisionmaking process associated with hazardous waste cleanup. The Agency solicits input

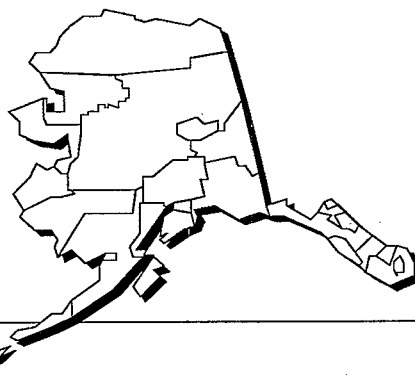
from area residents in communities affected by Superfund sites. Citizens are likely to be affected not only by hazardous site conditions, but also by the remedies that combat them. Site cleanups take many forms and can affect communities in different ways. Local traffic may be rerouted, residents may be relocated, temporary water supplies may be necessary.

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

and to know what the community can realistically expect once the cleanup is complete.

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

NPL Sites in State of Alaska



The northernmost State of Alaska is bordered by Canada to the east, the Bering Sea to the west, the Pacific Ocean to the south, and the Arctic Ocean to the north. The State covers 586,412 square miles, consisting mostly of the Pacific and Arctic mountain systems with a central plateau and an Arctic slope region. Alaska experienced a 30.5 percent increase in population during the 1980s, and currently has approximately 524,000 residents, ranking 49th in U.S. populations. Principal State industries include oil, gas, tourism, and commercial fishing. Alaska-manufactured goods include fish products, lumber and pulp, and furs.

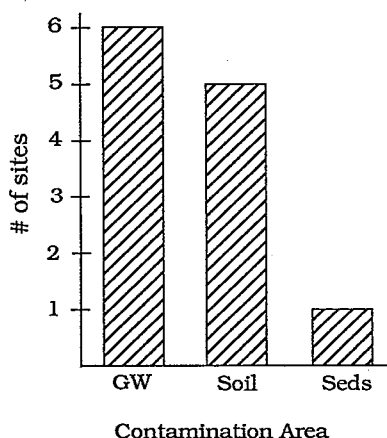
How Many Alaska Sites Are on the NPL?

Proposed Sites	4
Final Sites	2
Deleted Sites	0
	<hr/> 6

Where Are the NPL Sites Located?

Cong. District 01 6 sites

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



Groundwater: Heavy metals (inorganics), volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs).



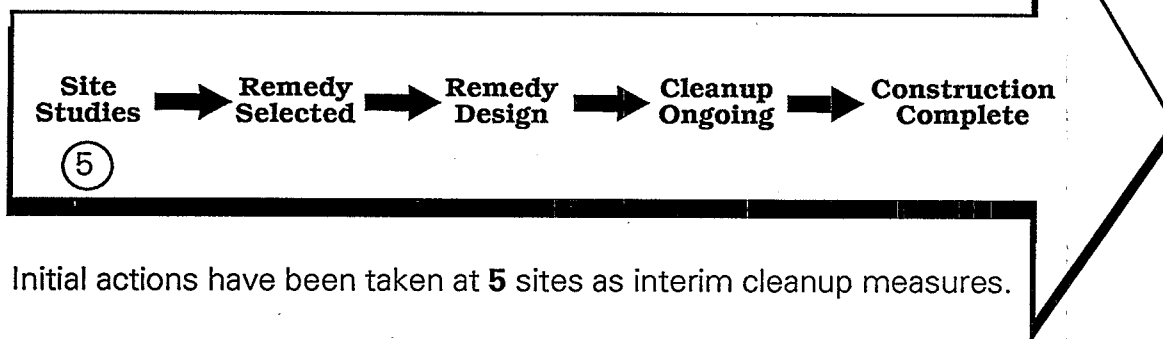
Soil: Heavy metals (inorganics), polychlorinated biphenyls (PCBs), creosotes (organics), pesticides, asbestos, and acids.



Sediments: Polychlorinated biphenyls (PCBs).

*Appear at 20% or more sites

Where are the Sites in the Superfund Cleanup Process*?



Who Do I Call with Questions?

The following pages describe each NPL site in Alaska, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call one of the offices listed below:

Alaska Superfund Office	(907) 465-2666
EPA Region X Superfund Office	(206) 399-1987
EPA Region X Public Relations Office	(206) 442-1283
EPA Superfund Hotline	(800) 424-9346
EPA Public Information Office	(202) 477-7751

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



The NPL Progress Report

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

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

- ➡ An arrow in the "Initial Response" category indicates that an emergency cleanup or initial action has been completed or is currently underway. Emergency or initial actions are taken as an interim measure to provide immediate relief from exposure to hazardous site conditions or to stabilize a site to prevent further contamination.
- ➡ An arrow in the "Site Studies" category indicates that an investigation to determine the nature and extent of the contamination at the site is currently ongoing or planned to begin in 1991.
- ➡ An arrow in the "Remedy Selection" category means that the EPA has selected the final cleanup strategy for the site. At the few sites where the EPA has determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No Action" remedy is selected. In these cases, the arrows in the Progress Report are discontinued at the "Remedy Selection" step and resume in the final "Construction Complete" category.
- ➡ An arrow at the "Remedial Design" stage indicates that engineers are currently designing the technical specifications for the selected cleanup remedies and technologies.
- ➡ An arrow marking the "Cleanup Ongoing" category means that final cleanup actions have been started at the site and are currently underway.
- ➡ A arrow in the "Construction Complete" category is used *only* when *all phases* of the site cleanup plan have been performed and the EPA has determined that no additional construction actions are required at the site. Some sites in this category may currently be undergoing long-term pumping and treating of groundwater, operation and maintenance or monitoring to ensure that the completed cleanup actions continue to protect human health and the environment.

The sites are listed in alphabetical order. Further information on the activities and progress at each site is given in the site "Fact Sheets" published in this volume.

Progress Toward Cleanup at NPL Sites in the State of Alaska

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
1	ALASKA BATTERY ENTERPRISES	FAIRBANKS N. S.	Final	03/31/89	➡	➡				
3	ARCTIC SURPLUS	FAIRBANKS N. S.	Prop.	10/26/89	➡					
5	EIELSON AIR FORCE BASE	FAIRBANKS N. S.	Final	11/21/89	➡	➡				
7	ELMENDORF AIR FORCE BASE	ANCHORAGE	Prop.	07/14/89	➡	➡				
9	FORT WAINWRIGHT	FAIRBANKS N. S.	Prop.	07/14/89		➡				
11	STANDARD STEEL & METALS SALVAGE	ANCHORAGE	Prop.	07/14/89	➡	➡				

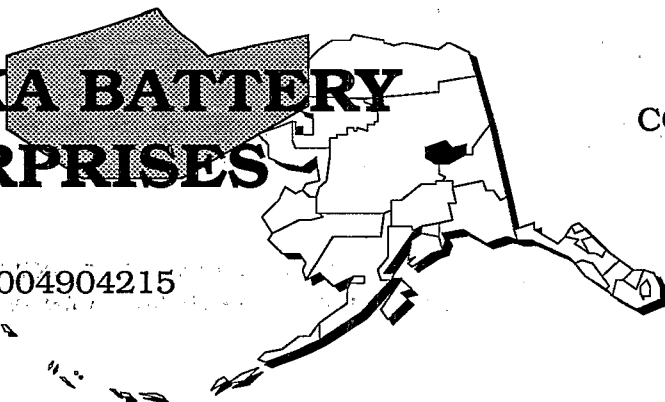
NPL:

SITE
FACT
SHEETS

ALASKA BATTERY ENTERPRISES

ALASKA

EPA ID# AKD004904215



REGION 10
CONGRESSIONAL DIST. 01

Fairbanks North Star County
1 1/2 miles south of Fairbanks

Alias:
Alaskan Battery Enterprises

Site Description

Alaska Battery Enterprises manufactured batteries on a 1-acre site approximately 1 1/2 miles south of Fairbanks. Used batteries were accepted for recycling, and battery parts and *acid* were stored in a fenced unpaved yard and inside a building on the site. Operations began in 1961 with the filling in of marshland with battery casings. Wash water, spills, and domestic wastewater generated inside the building were discharged to an on-site septic tank and drain field. Prior to 1988, used batteries were broken open on site, the acid was reused, and the lead was shipped out of state. In 1986, the Alaska Department of Transportation, whose right-of-way completely surrounds the site, found lead and acid in soil on and off the site. The City of Fairbanks has a population of approximately 22,600. There are 12 schools within 3 miles of the site, as well as the Alaskaland Theme Park. *Wetlands* covering more than 5 acres are located within 1/2 mile northeast of the facility.

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

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants



The groundwater is contaminated with lead, nitrate, and sulfate. The soil contains lead, *polychlorinated biphenyls* (PCBs), and acid. A potential hazard exists if individuals accidentally ingest or come into direct contact with contaminated soil and groundwater. The groundwater is shallow and the soil is permeable, conditions which facilitate the movement of contaminants into the groundwater. Contamination from the site could also adversely affect the freshwater wetland.

Cleanup Approach

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

Response Action Status

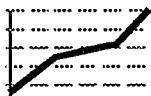


Immediate Action: In 1988, the EPA excavated contaminated soil and stockpiled it in a lined trench on site. Test pits were dug to the shallow water table and water samples were collected for analysis. A total of 39 gondola rail cars were loaded with 2,900 cubic yards of lead-contaminated soil and disposed of in a federally approved facility. Areas of high lead content were *capped* with a liner and a foot of topsoil. The EPA removed the remaining 800 cubic yards of soil in 1989.



Entire Site: In 1990, the EPA began a detailed investigation to determine the nature and the extent of the contamination. The results of the study will result in determining the final cleanup method. The investigation is scheduled for completion in 1992.

Environmental Progress



Excavating contaminated soil and capping parts of the Alaska Battery Enterprises site have reduced the threat to human health and the environment while the investigation is taking place and final cleanup actions are being planned.



ARCTIC SURPLUS

ALASKA

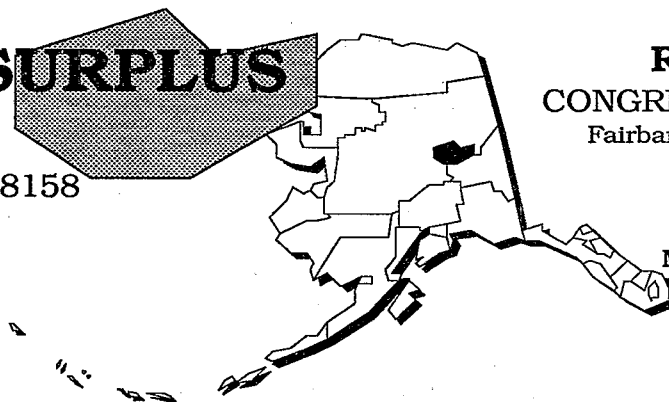
EPA ID# AKD980988158

REGION 10

CONGRESSIONAL DIST. 01

Fairbanks North Star County
Fairbanks

Alias:
McPeak Salvage



Site Description

The Arctic Surplus site occupies 22 acres in southeast Fairbanks. Salvage operations at the site were conducted from 1946 to 1976 by a number of parties, including the Department of Defense (DOD). On site are a variety of buildings, storage trailers, and discarded military equipment. Approximately 3,500 to 4,000 drums containing unknown quantities of various oils, fuels, and chemicals are on site. Other wastes include unknown quantities of asbestos, batteries, and battery *acid* that were drained onto the ground during battery recycling activities and ash piles from incineration of transformer casings. In 1988, the Alaska Department of Environmental Conservation conducted a site inspection and detected elevated levels of metals on site. Groundwater beneath the site is shallow and also contains elevated levels of metals. An unnamed *alluvial aquifer*, which underlies the Tanana-Chena floodplain, is the primary source of drinking water for the residents in and around Fort Wainwright, located 1 1/2 miles northwest of the site. Fort Wainwright operates four groundwater wells which supply potable water to approximately 12,000 residents. The 1,000 residents within a 3-mile radius of the site are not serviced by the Fort Wainwright wells and are dependent on private domestic wells or bottled water.

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

NPL LISTING HISTORY

Proposed Date: 10/26/89

Threats and Contaminants



On-site groundwater contains heavy metals including zinc and lead. On-site soil is contaminated with heavy metals, *polychlorinated biphenyls* (PCBs), *polycyclic aromatic hydrocarbons* (PAHs), asbestos, and pesticides. People ingesting or coming into direct contact with contaminated groundwater and soil may suffer adverse health effects. The Tanana and the Chena Rivers flow approximately 1 mile away from the site and could become polluted by the contaminants.

Cleanup Approach

The site is being addressed in emergency actions.

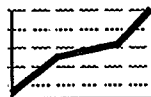
Response Action Status



Emergency Actions: In 1989, the EPA emergency staff assessed the site and found approximately 1,700 drums containing liquids and *sludges*, some flammable or corrosive. The EPA *overpacked* leaking drums, *stabilized* loose asbestos, and erected a chain link fence. The DOD is expected to initiate additional activities in mid-1990 and is scheduled to complete them in 1991.

Site Facts: Under an EPA *Consent Order*, the DOD assumed responsibility for emergency actions.

Environmental Progress



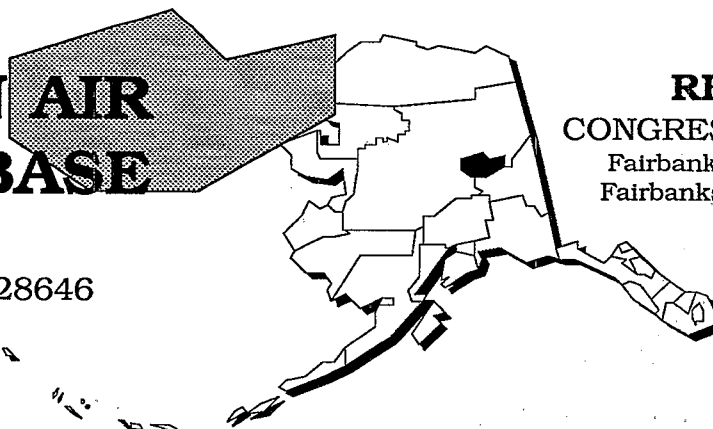
Overpacking leaking drums, stabilizing loose asbestos, and installing a fence have significantly reduced the threat to human health and the environment posed by the Arctic Surplus site while the DOD continues emergency cleanup at the site.



EIELSON AIR FORCE BASE

ALASKA

EPA ID# AK1570028646



REGION 10
CONGRESSIONAL DIST. 01
Fairbanks North Star County
Fairbanks North Star Borough

Site Description

The Eielson Air Force Base site covers 19,780 acres in Fairbanks North Star Borough, 24 miles southeast of Fairbanks. Since its establishment in 1944, its primary mission is providing tactical support to the Alaskan Air Command. The site contains closed and active unlined *landfills* extending into the groundwater, shallow trenches where weathered tank *sludge* was buried, a drum storage area, and other disposal or spill areas. Sampling has indicated numerous contaminants in the groundwater and soil. Several monitoring wells have been converted into static recovery wells to remove floating petroleum products from area groundwater, but only small quantities have been recovered. Approximately 6,000 people obtain drinking water from wells within 3 miles of hazardous substances on the base. Surface water 3 miles *downgradient* of the base is used for fishing. The base is in the floodplain of the Tanana River.

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

NPL LISTING HISTORY

Proposed Date: 07/14/89

Final Date: 11/21/89

Threats and Contaminants



Groundwater contains lead and *volatile organic compounds* (VOCs) such as benzene, xylene, and toluene. Soil is contaminated with heavy metals including lead, arsenic, chromium, and zinc. Ingesting or coming into direct contact with contaminated groundwater or soil may pose a potential health threat. If contaminants *leach* into the nearby Tanana River, wildlife in and around the river may be harmed.

Cleanup Approach

The site is being addressed in four stages: an interim cleanup action and three *long-term remedial phases* focusing on cleanup of the landfills, trenches, and remaining areas.

Response Action Status



Interim Actions: The Air Force is expected to install a petroleum product recovery system complete with an oil/water separator and carbon filtration in 1990. This system is designed to remove floating fuel from the groundwater. Other plans for 1990 include the removal of numerous tanks and drums containing various hazardous wastes.



Landfills: In 1990, the Air Force began investigating the type and extent of contamination in the landfills. Once completed, measures for final cleanup will be recommended.



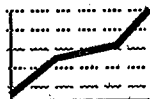
Trenches: In 1990, the Air Force began investigating the trenches where weathered tank sludge was buried. The investigation is exploring the nature and extent of contamination and will recommend the alternative strategies for cleanup.



Remaining Areas: In 1991, the Air Force is scheduled to investigate the remaining areas of the base to determine the type and extent of contamination. The investigation will conclude with recommendations for final site cleanup.

Site Facts: Eielson Air Force Base is participating in the *Installation Restoration Program*, which was established in 1978. Under this program, the Department of Defense (DOD) seeks to identify, investigate, and clean up contamination from hazardous materials on military bases or other DOD sites.

Environmental Progress



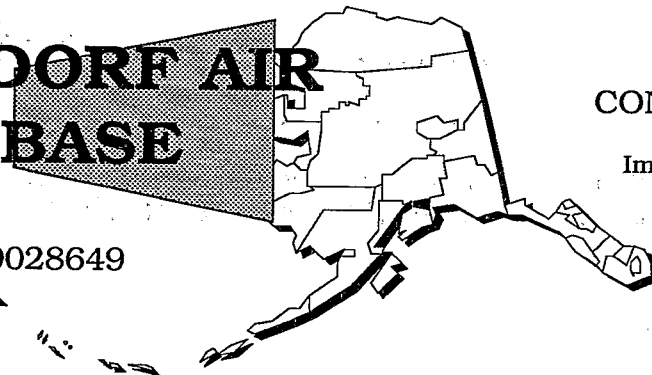
At the time this summary was written, the Eielson Air Force Base site had just obtained National Priorities List status, and it is too early to discuss environmental progress. However, the installation of a petroleum product recovery system and removing tanks and drums, scheduled for 1990, will reduce the threats to human health and the environment while investigations are taking place.



ELMENDORF AIR FORCE BASE

ALASKA

EPA ID# AK8570028649



REGION 10
CONGRESSIONAL DIST. 01
Anchorage County
Immediately north of Anchorage

Alias:
USAF-Elmendorf AFB

Site Description

The Elmendorf Air Force Base site covers approximately 13,100 acres near Anchorage. The air base is host to the 21st Tactical Fighter Wing. The site contains closed and active *landfills*, drum storage areas, waste disposal areas, and spill areas. The Air Force has identified 52 areas of possible site contamination. Initially, the focus was on five areas including landfills D-5 (now closed) and D-7 (still active) which received a variety of hazardous wastes, including lead *acid* batteries and waste solvents. The landfills, which are not lined or *bermed*, are in sandy and gravelly soils. Shop wastes, including solvents and paint thinners, were disposed of in an unlined trench designated as site D-17. Site IS-1 is where fuel in Building 42-400 spilled into floor drains that feed into gravel-bottom dry wells. The last of the five areas included in the initial investigation is site SP5, where approximately 60,000 gallons of aviation fuel JP-4 spilled, of which only 33,000 gallons were recovered. Approximately 121,000 individuals reside within 3 miles of the base. Drinking water for these residents is obtained from surface supplies located 12 to 30 miles north of the base. Emergency backup water supply wells for Elmendorf are located within 3 miles of the identified contamination.

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

NPL LISTING HISTORY

Proposed Date: 07/14/89

Threats and Contaminants



Groundwater contains lead and *volatile organic compounds* (VOCs) such as *trichloroethylene* (TCE) and tetrachloroethylene. People who touch or drink contaminated groundwater may be at risk.

Cleanup Approach

The site is being addressed in five stages: an interim action and four *long-term remedial phases* focusing on cleaning up the landfills, the unlined trench and shop wastes, the dry wells and floor drain spills, and multiple fuel spills.

Response Action Status



Interim Actions: In 1990, the Air Force is expected to clean up an abandoned asphalt drum staging area, remove an 8,000-gallon underground storage tank, remove abandoned 28,000-to-50,000-gallon JP-4 tanks, and reslope and cover an old sanitary landfill. The Air Force also plans to install and operate a groundwater treatment system at the J-4 spill site.



Landfills and Unlined Trench and Shop Wastes: The Air Force is investigating the type and extent of contamination at the landfills and shop wastes in the unlined trench. Once the investigation is completed in late 1991, effective measures to clean up the landfills and the trench will be recommended.



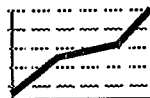
Dry Wells and Floor Drain Spills: The Air Force is investigating the extent of the contamination as a result of the fuel in Building 42-400 which spilled onto floor drains that feed into gravel-bottom dry wells. The investigation is scheduled for completion in 1992. At that time, the alternative strategies for cleanup will be recommended.



Multiple Fuel Spills: The Air Force is expected to begin an investigation of the multiple fuel spills area in late 1990.

Site Facts: Elmendorf Air Force Base is participating in the *Installation Restoration Program*, which was established in 1978. Under this program, the Department of Defense (DOD) seeks to identify, investigate, and clean up contamination from hazardous materials on military bases or other DOD sites. An *Interagency Agreement* between the facility and the State is expected to be signed in the summer of 1990.

Environmental Progress



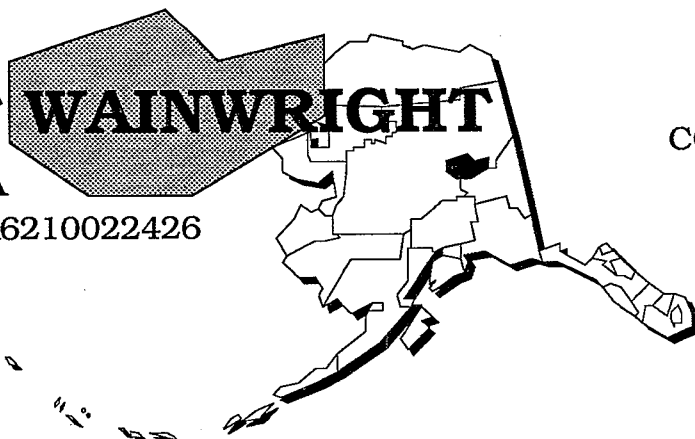
At the time this summary was written, the Elmendorf Air Force Base site had just obtained National Priorities List status, and it is too early to discuss environmental progress. However, the actions planned for 1990 of cleaning up the drum staging area, removing tanks, and resloping and covering an old landfill will reduce the threats posed to human health and the environment while investigations continue at the site.



FORT WAINWRIGHT

ALASKA

EPA ID# AK6210022426



REGION 10

CONGRESSIONAL DIST. 01

Fairbanks North Star County
Fairbanks North Star Borough

Alias:

U.S. Army - Fort Wainwright

Site Description

Fort Wainwright, near Fairbanks, was established in 1947 with the primary mission of training soldiers and testing equipment in arctic conditions. Industrial operations primarily involved maintenance of aircraft and vehicles. Fort Wainwright is made up of several areas including a 4,473-acre cantonment area, which includes a 74-acre sanitary landfill. The landfill has received waste oil, waste fuel, spent solvents, perchloroethylene-contaminated dry cleaning filters, asbestos, paint residues, and fuel tank sludge since the mid-1950s. The landfill is not lined or bermed and is built up higher than the surrounding land. A second contaminated area is the 45-acre North Post Oxbow and Family Housing Area, located 3,500 feet from the landfill. The Army used this area for storage of petroleum products, solvents, and other chemicals, and for the disposal of power plant ash and slag containing chromium and mercury. About 11,000 people, including the entire population of Fort Wainwright, obtain drinking water from wells within 3 miles of the site. The Chena River, which is used for sport fishing, is less than 3 miles downstream of the site.

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

NPL LISTING HISTORY

Proposed Date: 07/14/89

Threats and Contaminants



On-site groundwater is contaminated with lead, chromium, and tetrahydrofuran. Soil contains chromium. Potential health threats to people include ingestion of or direct contact with contaminated groundwater and soil.

Cleanup Approach

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

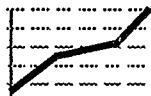
Response Action Status



Entire Site: The U. S. Army is expected to begin a study in 1990 that will determine the nature and extent of groundwater and soil contamination at the site. The study will define the contaminants of concern and recommend alternatives for the final groundwater and soil cleanup. The study is scheduled for completion in 1992.

Site Facts: Fort Wainwright is participating in the *Installation Restoration Program*, which was established in 1978. Under this program, the Department of Defense (DOD) seeks to identify, investigate, and clean up contamination from hazardous wastes on military or other DOD facilities.

Environmental Progress



At the time this summary was written, the Fort Wainwright site had just obtained National Priorities List status, and it is too early to discuss environmental progress. The Army will be performing a study to assess the need for any intermediate actions to make the site safer while waiting for cleanup actions to begin. Results of this assessment will be described in our next edition.



STANDARD STEEL & METALS SALVAGE YARD (USDOT)

ALASKA

EPA ID# AKD980978787

REGION 10
CONGRESSIONAL DIST. 01
Anchorage County
Anchorage

Alias:
US-DOT-Standard Steel

Site Description

The Standard Steel & Metal Salvage Yard (USDOT) site covers approximately 6 acres in a heavily industrialized area of Anchorage. The Federal Railroad Administration, part of the U.S. Department of Transportation (USDOT), acquired the land in the 1920s. Since 1972, the land has been leased to several different recyclers whose activities included reclamation of *polychlorinated biphenyls* (PCB)-contaminated electrical transformers, salvaging of assorted batteries, and processing of various types of equipment and drums from nearby military bases. In 1982, the land was leased to Standard Steel & Metals. The site contains transformers, bulk tanks, an incinerator, a metal crusher, drums and containers, and other items associated with salvage operations. In 1985, the EPA detected low levels of PCBs in the *sediment* of nearby Ship Creek. In 1987, the EPA detected contaminants in on-site groundwater. Over 121,000 people obtain drinking water from wells within 3 miles of the site. Ship Creek is used for sport fishing and is a salmon migratory stream.

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

NPL LISTING HISTORY

Proposed Date: 07/14/89

Threats and Contaminants



Chlorinated dioxin and furan have been detected in the ash near the on-site incinerator. Soils contain PCBs, solvents, and lead. On-site groundwater is contaminated with lead, PCBs, and tetrachloroethylene.



Sediments in Ship Creek are contaminated with PCBs. People may be exposed to pollutants through accidental ingestion or direct contact with contaminated groundwater, soil, sediments, or ash. Contaminants that have *bioaccumulated* in fish and other wildlife may also pose a health threat to people.



Cleanup Approach

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

Response Action Status

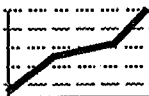


Immediate Actions: In 1986, the EPA removed surface wastes including an estimated 8,500 batteries, 175 transformers, 1,100 drums, 3 bulk storage tanks, assorted containers, and metal debris and transported the materials to federally regulated disposal facilities. In 1988, the EPA sealed the surface soil in the most highly contaminated areas, removed the remaining containers of hazardous materials, and strengthened the security fence.



Entire Site: In 1991, an investigation into the type and extent of contamination at the site is expected to begin. The investigation will result in recommendations for the final cleanup of the site.

Environmental Progress



The EPA's immediate actions of removing batteries, transformers, drums, tanks, debris, sealing highly contaminated surface soil, and strengthening the security fence have significantly reduced the threat of exposure to contaminants while investigations leading to final site cleanup are being planned.



GLOSSARY:

TERMS USED IN THE FACT SHEETS

This glossary defines the *italicized terms* used in the site fact sheets for the State of Alaska. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management as described in the site fact sheets, and apply specifically to work performed under the Superfund program. Thus, these terms may have other meanings when used in a different context.

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

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

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

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

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.

GLOSSARY

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

Consent Order: [see Administrative Order on Consent].

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.

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.

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

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

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

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

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.

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 emersion oils, and caulking compounds. PCBs are also produced in certain combustion processes. PCBs are extremely persistent in the environment because they are very stable, non-reactive, and highly heat resistant. Burning them produces even more toxins. Chronic exposure to PCBs is believed to cause liver damage. It is also known to bioaccumulate in fatty tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

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

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

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

Trichloroethylene (TCE): A stable, colorless liquid with a low boiling point. TCE has many industrial applications, including use as a solvent and as a metal degreasing agent. TCE may be toxic to people when inhaled, ingested, or through skin contact and can damage vital organs, especially the liver [see also Volatile Organic Compounds].

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

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

