

EPA/540/4-90/024
September 1990

**NATIONAL PRIORITIES LIST SITES:
Minnesota**

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

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

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INTRODUCTION:

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.

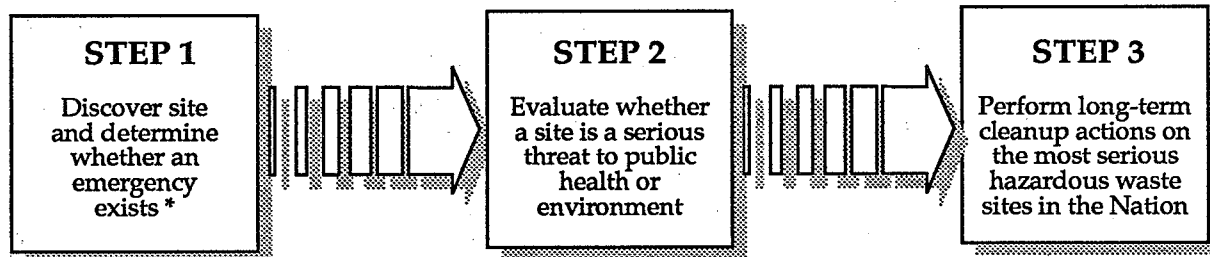
To help you understand the cleanup accomplishments made at these sites, this State volume includes a description of the process for site discovery, threat evaluation and long-term cleanup of Superfund sites. This description — *How Does the Program Work to Clean Up Sites?* — will serve as a good reference 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**.

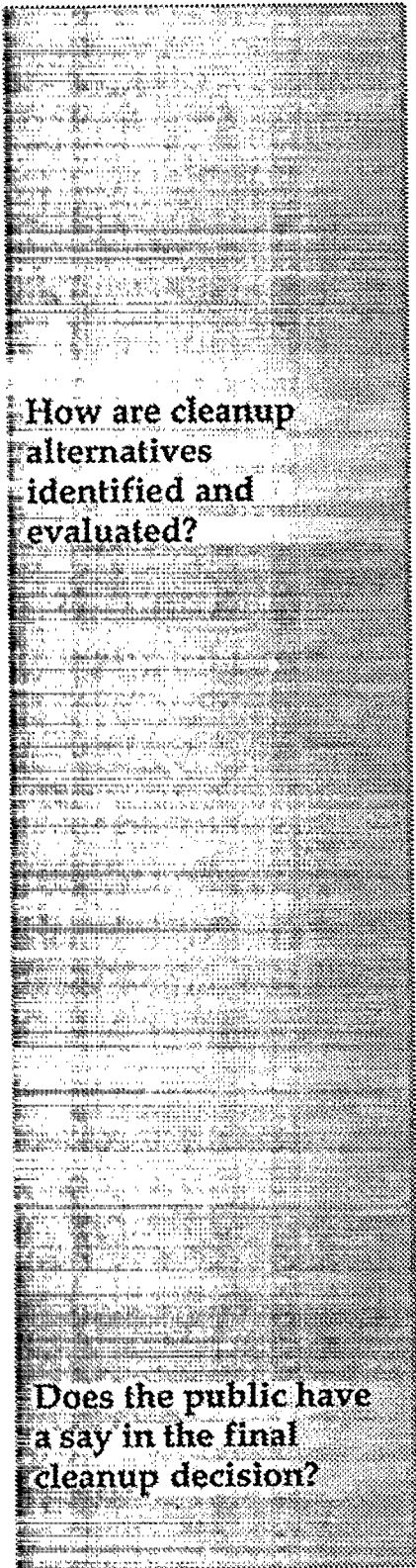
This remedial response process is a long-term effort to provide a permanent solution to an environmental problem that presents a serious, but not an imminent threat to the public or environment.

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?

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

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.

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?

HOW TO:

USING THE STATE VOLUME

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

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

Icons in the *Threats and Contaminants* Section



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



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



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



Contaminated Soil and Sludges on or near the site.



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

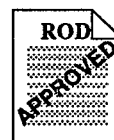
Icons in the *Response Action Status* Section



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



Site Studies at the site are planned or underway.



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



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



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



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

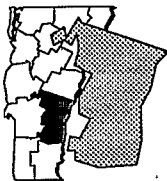
Site Responsibility

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

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

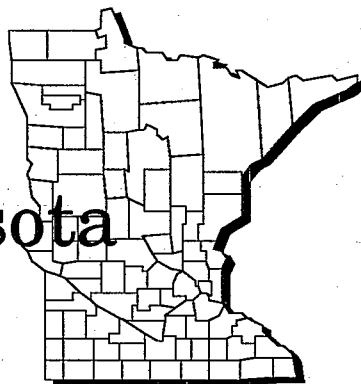
from area residents in communities affected by Superfund sites. Citizens are likely to be affected not only by hazardous site conditions, but also by the remedies that combat them. Site cleanups take many forms and can affect communities in different ways. Local traffic may be rerouted, residents may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



The State of Minnesota is bordered by Canada to the north, North and South Dakota to the west, Wisconsin and Lake Superior to the east, and Iowa to the south. Minnesota covers 84,402 square mile and consists of central hilly and lake regions, rocky ridges and deep lakes in the northeast, flat plains in the northwest, with rolling plains and deep river valleys in the south. The State experienced a 5.7 percent increase in population during the 1980s and currently has approximately 4,307,000 residents, ranking 21st in U.S. populations. Principal State industries include agricultural business, forest products, mining, manufacturing, and tourism. Minnesota manufactures in food processing, non-electrical equipment, printing and publishing, instruments, and fabricated metal products.

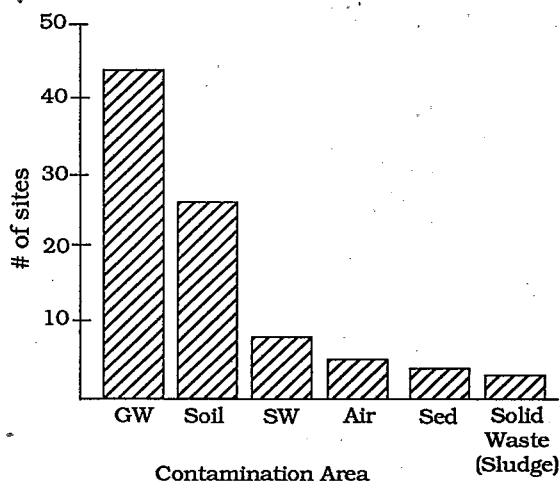
How Many Minnesota Sites Are on the NPL?

Proposed	2
Final	40
Deleted	<u>1</u>
	43

Where Are the NPL Sites Located?

Cong. District 04	2 sites
Cong. District 02, 08	3 sites
Cong. District 01, 05	5 sites
Cong. District 06	7 sites
Cong. District 03, 07	9 sites

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



Groundwater: Volatile organic compounds (VOCs), heavy metals (inorganics), and creosotes (organics).



Soil and Solid Waste: Volatile organic compounds (VOCs), heavy metals (inorganics), creosotes (organics), polychlorinated biphenyls (PCBs), dioxins, and petrochemicals.



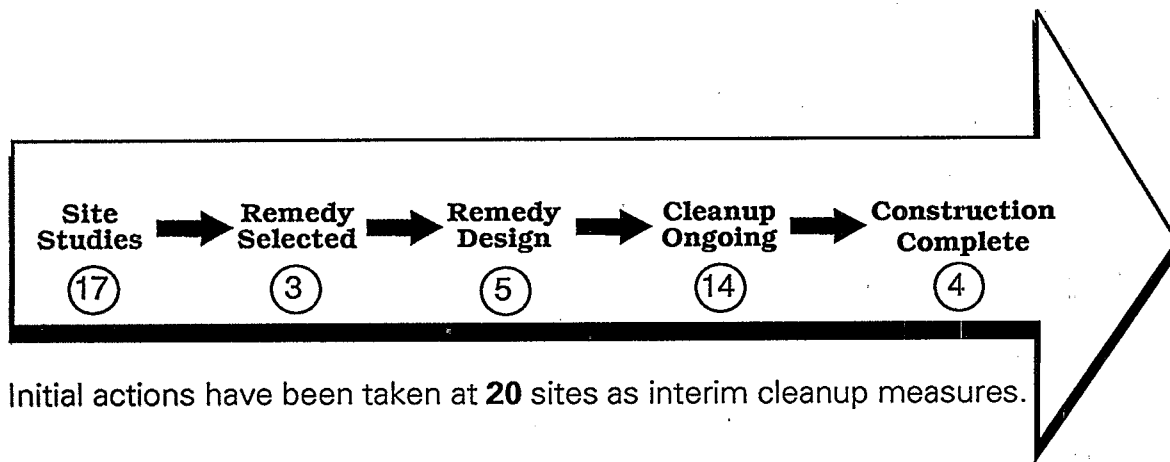
Surface Water and Sediments: Creosotes (organics), heavy metals (inorganics), and volatile organic compounds (VOCs).



Air: Heavy metals (inorganics), Volatile organic compounds (VOCs), and gases.

*Appear at 10% 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 Minnesota, providing specific information on threats and contaminants, cleanup activities, and environmental progress. Should you have questions, please call one of the offices listed below:

Minnesota Superfund Office	(612) 296-7290
EPA Region V Superfund Office	(312) 886-7456
EPA Public Information Office	(202) 477-7751
EPA Superfund Hotline	(800) 424-9346
EPA Region V Superfund Public Relations Office	(312) 353-2072

*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.
- ➡ An 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 Minnesota

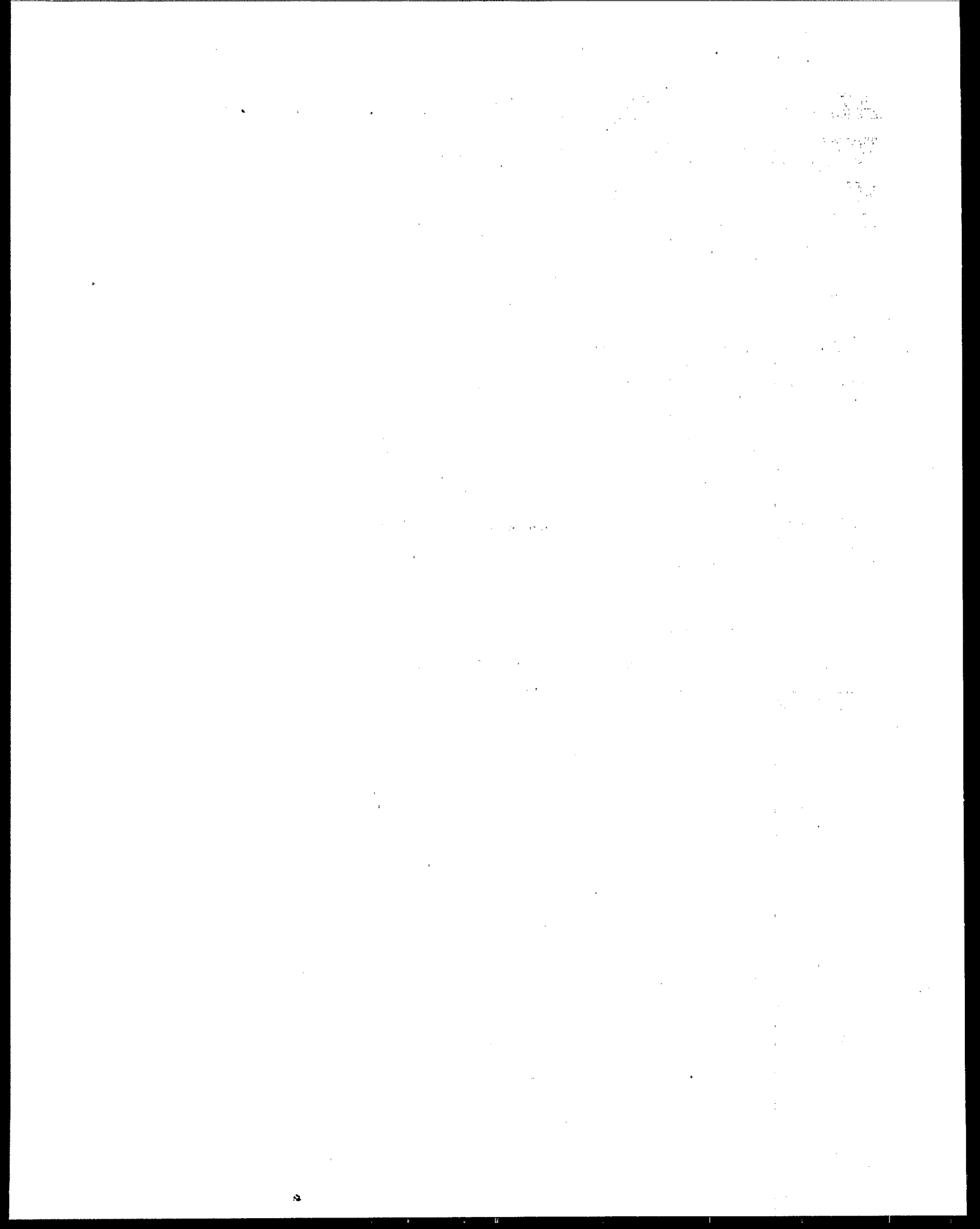
Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
1	ADRIAN MUNICIPAL WELL FIELD	NOBLES	Final	06/10/86		➡	➡			
3	AGATE LAKE SCRAP YARD	CASS	Final	06/10/86	➡	➡				
5	ARROWHEAD REFINING CO.	ST. LOUIS	Final	09/21/84	➡	➡	➡	➡		
7	BOISE CASCADE, ONAN, MEDTRONICS	ANOKA	Final	09/21/84		➡	➡	➡	➡	
9	BURLINGTON NORTHERN	CROW WING	Final	09/08/83		➡	➡	➡	➡	
11	DAKHUE SANITARY LANDFILL	DAKOTA	Prop	10/26/89	➡	➡				
13	EAST BETHEL DEMOLITION LANDFILL	ANOKA	Final	06/10/86		➡				
15	FMC CORP.	HENNEPIN	Final	09/08/83	➡	➡	➡	➡	➡	➡
17	FREEWAY SANITARY LANDFILL	DAKOTA	Final	06/10/86		➡				
19	GENERAL MILLS/HENKEL CORPORATION	HENNEPIN	Final	09/21/84	➡	➡				
21	JOSLYN MFG & SUPPLY CO.	HENNEPIN	Final	09/21/84	➡	➡	➡	➡	➡	
23	KOCH REFINING COMPANY	DAKOTA	Final	06/10/86		➡				
25	KOPPERS COKE	RAMSEY	Final	09/08/83	➡	➡				
27	KUMMER SANITARY LANDFILL	BELTRAMI	Final	10/15/86		➡	➡	➡	➡	
29	KURT MANUFACTURING CO.	ANOKA	Final	06/10/86	➡	➡	➡	➡	➡	
31	LAGRAND SANITARY LANDFILL	DOUGLAS	Final	07/21/87		➡				
33	LEHILLIER MANKATO	BLUE EARTH	Final	09/08/83	➡	➡	➡	➡	➡	
35	LONG PRAIRIE GROUNDWATER	TODD	Final	06/10/86		➡	➡	➡		
37	MACGILLIS & GIBBS CO./BELL LUMBER	RAMSEY	Final	09/21/84	➡	➡				

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
39	MORRIS ARSENIC DUMP	STEVENS	Delete	03/07/86		➡	➡			➡
41	NAVAL INDUSTRIAL RESERVE ORDNA	ANOKA	Final	11/24/89	➡	➡				
43	NEW BRIGHTON / ARDEN HILLS	RAMSEY	Final	09/08/83	➡	➡	➡	➡	➡	
46	NL IND TARACORP GOLDEN AUTO	HENNEPIN	Final	09/08/83		➡	➡	➡	➡	➡
48	NUTTING TRUCK & CASTER CO.	RICE	Final	09/21/84		➡				
50	OAK GROVE SANITARY LANDFILL	ANOKA	Final	06/10/86		➡	➡	➡		
52	OAKDALE DUMP	WASHINGTON	Final	09/08/83		➡	➡	➡	➡	➡
54	OLMSTED COUNTY SANITARY LDFL	OLMSTED	Final	06/10/86		➡				
56	PERHAM ARSENIC	OTTER TAIL	Final	09/21/84	➡	➡				
58	PINE BEND SANITARY LANDFILL	DAKOTA	Final	06/10/86		➡				
60	REILLY TAR & CHEMICAL CORP.	HENNEPIN	Final	09/08/83	➡	➡	➡	➡	➡	
63	RITARI POST & POLE	WADENA	Final	07/21/87		➡				
65	SOUTH ANDOVER SITES	ANOKA	Final	09/08/83	➡	➡	➡	➡		
68	ST. AUGUSTA LDFL / ENGEN DUMP	STEARNS	Final	07/01/87		➡				
70	ST. LOUIS RIVER SITE	ST. LOUIS	Final	09/21/84	➡	➡	➡			
73	ST. REGIS PAPER CO.	CASS	Final	09/21/84		➡	➡	➡	➡	
75	TWIN CITIES AIR FORCE RESERVE BASE	HENNEPIN	Final	07/21/87	➡	➡				
77	UNION SCRAP IRON & METAL CO.	HENNEPIN	Final	09/21/84	➡	➡	➡			
79	UNIVERSITY OF MINNESOTA	DAKOTA	Final	06/10/86		➡	➡		➡	

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
81	WAITE PARK WELLS	STEARNS	Final	06/10/86	➡	➡	➡	➡	➡	
83	WASHINGTON COUNTY LANDFILL	WASHINGTON	Final	09/21/84	➡			➡	➡	
85	WASTE DISPOSAL ENGINEERING, INC.	ANOKA	Final	09/08/83		➡	➡	➡		
87	WHITTAKER CORPORATION	HENNEPIN	Final	09/08/83		➡	➡	➡	➡	
89	WINDOM MUNICIPAL DUMP	COTTONWOOD	Final	06/10/86		➡	➡	➡	➡	

SITE
FACT
SHEETS

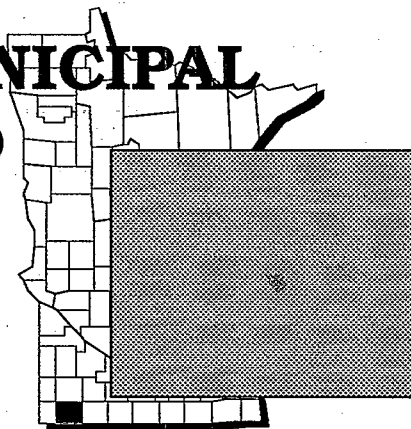
NPL:



ADRIAN MUNICIPAL WELL FIELD

MINNESOTA

EPA ID# MND980904023



REGION 5
CONGRESSIONAL DIST. 02
Nobles County
Adrian

Site Description

The Adrian Municipal Well Field site, located within the Adrian city limits, is contaminated with volatile *halogenated* and non-halogenated organic chemicals, according to tests conducted by the State. The State has closed the two most highly contaminated city wells because of the health risk. The City is now using two uncontaminated wells previously slated to be abandoned due to age and low capacity. Since contaminants found in Adrian wells are typical of gasoline contamination, source investigations have focused on a number of underground storage tanks used to store gasoline and fuel oil. There are nine separate underground storage tank locations in the vicinity of the Adrian Municipal Well Field. The source of the contamination appears to be a service station that has had visibly leaking underground storage tanks removed in the past, and possibly a local glass company. The underground storage tanks from all but three of the locations have been removed. The estimated 1987 population of Adrian was 1,305 residents. All households, with one exception, are connected to a municipal water supply. The nearest residence is approximately 2 blocks south of the contaminated area. Several recreational facilities are located between the areas of contamination and the upper arm of Kanaranzi Creek, including a swimming pool, two ballfields, and a campground.

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



The groundwater is polluted with *volatile organic compounds* (VOCs) including benzene, toluene, and chloroform. Accidental ingestion, inhalation of airborne contaminants, and direct contact with contaminated groundwater may be potential health threats.

Cleanup Approach

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

Response Action Status

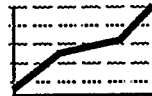


Entire Site: After installation of activated carbon filtration units, the closed wells (wells 3 and 4) were temporarily brought back on line from July through November 1984. During this interim period, two new wells were installed outside the area of contamination. Well 5 went into production in November 1984, and Well 6 went into production later in 1985.

Responsibility for the remaining site cleanup actions has been transferred to the EPA's Underground Storage Tank (UST) program, which is administered by the Minnesota Pollution Control Agency (MPCA), for removal and area cleanup.

Site Facts: The UST program was established in 1986 to clean up contamination resulting from leaking petroleum storage tanks.

Environmental Progress



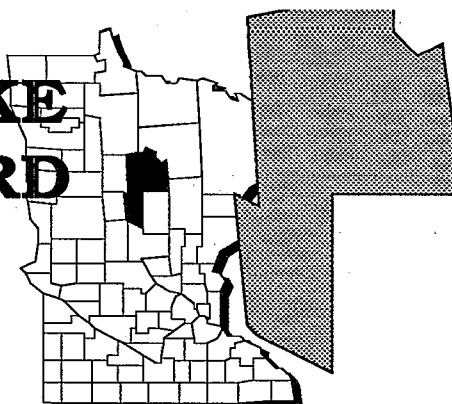
The installation of two new wells outside of the area of contamination at the Adrian Municipal Well Field site has virtually eliminated the potential for exposure to contaminated drinking water for users of the municipal water system. Final cleanup will be conducted under the EPA UST program.



AGATE LAKE SCRAP YARD

MINNESOTA

EPA ID# MND980898068



REGION 5
CONGRESSIONAL DIST. 08
Cass County
Western shore of Agate Lake,
Fairview Township

Site Description

The Agate Lake Scrap Yard covers about 2 acres on the eastern shore of Agate Lake in a rural area of Fairview Township. The area is used mostly for recreation and residential purposes. About 480 acres of public forest and adjacent *wetland* near the northwestern side of the site are used for hunting. Approximately 33 homes, a small resort, and a golf course are located across the lake from the site. The Agate Lake Scrap Yard was operated from 1952 to 1982 as an industrial waste treatment facility. Two homemade furnaces were used to smelt aluminum, copper, and lead for an unknown time period until the site closed. Transformer oils and *halogenated* solvents were used to fuel the furnace. Transformer liquids were sometimes spilled or drained onto the ground, mainly near the furnaces. A large ash pile from the furnaces was found in the main transformer storage area. This pile was fenced during some cleanup of the site in the early 1980s. The fencing has been partially removed since that time, which allows access to the ash pile. Two smaller ash piles that are thought to contain asbestos were found on the northeastern side of the site. An on-site open dump area along the west side of the entrance road, just north of a gully, contains bottles, cans, and other trash. The gully area slopes down toward a wetland area about 10 feet north. Junked automobiles are found in various parts of the site, about 100 feet from Agate Lake. Lead batteries were observed in several places. Approximately 1,100 people reside within 3 miles of the site. These people depend on groundwater as a source of drinking water.

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

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



The groundwater is contaminated with *volatile organic compounds* (VOCs) including *trichloroethylene* (TCE), benzene, toluene, and methylene chloride. The soil is contaminated with *polychlorinated biphenyls* (PCBs), dioxins, furans, and lead. Exposure to contaminants from soils is most likely through accidental ingestion, especially by children playing in the area, or by way of inhaling contaminated soil or ash particles. Swimmers and people fishing may be exposed to PCBs if they use Agate Lake or the nearby wetlands for recreation. People consuming fish from the lake may be exposed to health risks.

Cleanup Approach

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

Response Action Status



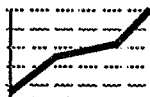
Interim Actions: Transformers, 5 drums of transformer oils, and 51 drums of waste solvents and liquids were removed from the site in two operations in 1983. Two furnaces were also dismantled. In fall of 1983, approximately 300 cubic yards of contaminated soil were excavated from the main transformer storage area and were deposited in an on-site gully located west of the site entrance road. The contaminated soil was mixed with clean soil and revegetated with grass seed.



Entire Site: Investigations into the nature and extent of contamination have been completed by the party potentially responsible for site contamination under State monitoring. The final decision on the remedy that will be used to clean up the site is expected to be completed in late 1990, with remedy design scheduled to begin in 1991.

Site Facts: The State of Minnesota issued a *Unilateral Administrative Order* compelling the potentially responsible party to perform an investigation of site contamination and to identify alternative methods for cleanup.

Environmental Progress

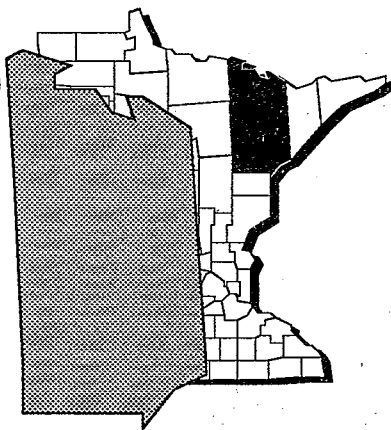


Much of the contaminated materials and soils have been removed from the Agate Lake Scrap Yard site, thereby reducing the potential for exposure to hazardous materials while the final remedy selection is being made.



ARROWHEAD REFINING COMPANY MINNESOTA

EPA ID# MND980823975



REGION 5
CONGRESSIONAL DIST. 08
St. Louis County
Hermantown

Alias:
Arrowhead Ref. Sludge Dspl.

Site Description

The Arrowhead Refining Company site, which is located in Hermantown near Duluth, consists of 10 acres of relatively flat land with peaty *wetlands* scattered across the area. During the 1940s, the site was used for retinning milk cans. In 1951, however, Arrowhead began recycling waste oil, which produced a highly *acidic*, metal-laden *sludge*. It is estimated that the operation generated approximately 7,000 cubic yards of waste by-products, which were discharged into a 2-acre *lagoon* and a wastewater ditch in a wetland area. The Arrowhead Refinery Company incorporated in 1961 and continued refining and recycling operations until 1977, when the Minnesota Pollution Control Agency (MPCA) ordered work to be stopped. On-site investigations conducted by the EPA in 1979 revealed that on-site surface water was transporting contaminants to nearby wetlands areas and navigable waters. Nearly 754 residences within a 3-mile radius of the site use groundwater that could be affected by the contaminants in the sludge.

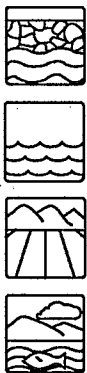
Site Responsibility: This site is being addressed through a combination of Federal, State, and *potentially responsible parties'* actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



EPA studies found that the groundwater, surface water, soils, and *sediments* are contaminated with *volatile organic compounds*, (VOCs) *polycyclic aromatic hydrocarbons* (PAHs), and heavy metals such as lead. The sludge lagoon, covering roughly an acre, consists of liquid sludge approximately 1 1/2 feet deep and up to 7 feet of solid sludge and peat saturated with oil to a depth of at least 4 inches. The contaminated sludge may pose health risks to individuals or wildlife coming in direct contact with it. Groundwater beneath the site is contaminated, but the contamination has not yet affected the private water wells near the site. The area is fenced to prevent public access to the site.

Cleanup Approach

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

Response Action Status



Immediate Action: A surface water diversion ditch was constructed to prevent further contaminant *migration* in 1980 by the Coast Guard and the EPA, and a fence was installed.



Entire Site: In 1986, the EPA selected the following remedies to address the site contamination: (1) excavation and on-site incineration of 4,600 cubic yards of sludge and 39,400 cubic yards of contaminated soils and sediments; (2) groundwater pumping and treating designed to restore the *aquifer* and control contaminant migration over a 25- to 50-year period; (3) extension of a nearby municipal water supply system to replace those private water supplies most likely to be affected by groundwater contamination; and (4) proper abandonment of individual wells formerly used as drinking water supplies in accordance with State well codes. The EPA and the State are investigating alternative technologies to incineration of the contaminated soil. Under EPA monitoring, the potentially responsible parties are designing the technical specifications for the construction of the Hermantown water main extension. Construction is scheduled to be completed by late 1990. Construction of the extraction and treatment system is scheduled for 1991. Sludge and soil cleanup are slated to begin in 1992. A solvent extraction treatability study was conducted in 1989. A *bioremediation* treatability study is under way.

Site Facts: In March 1990, the EPA issued a *Unilateral Administrative Order* to several potentially responsible parties directing them to implement the groundwater cleanup actions. In May 1990, the EPA issued special *notice letters* to several parties informing them of their liability for the waste sludge and to commence the process of negotiating a three-party *Consent Decree* with EPA and the State for cleanup of the sludge.

Environmental Progress



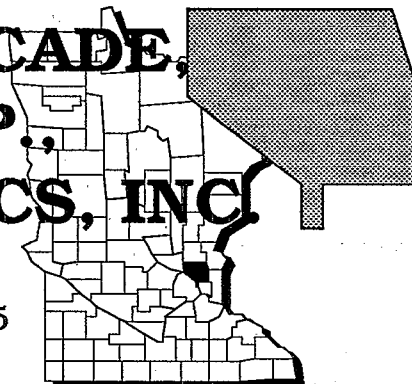
By constructing the surface water diversion ditch and installing the fence the potential for contact with contaminated materials has been greatly reduced. Further remedy design activities leading to final cleanup actions are taking place.



BOISE CASCADE, ONAN CORP., MEDTRONICS, INC.

MINNESOTA

EPA ID# MND053417515



REGION 5
CONGRESSIONAL DIST. 05

Anoka County
Fridley

Alias:
National Pole Treating Company

Site Description

The Boise Cascade/Onan Site covers 183 acres in Fridley. The National Pole and Treating Company (later the Minnesota and Ontario Paper Company) treated wood from 1921 until 1961 at this location. Operations at the site first used *creosote* to treat wood for railroad cross ties and for utility poles. In 1958, the company began using *pentachlorophenol* (PCP) to treat their wood products until 1961, when all operations stopped. In 1964, the Minnesota and Ontario Paper Company and the National Pole Treating Company were purchased and merged into the Boise Cascade Company. The Onan Corporation acquired 133 acres of the Boise Cascade property, and Medtronic Corporation purchased the remaining 50 acres. Both of these new owners built commercial and manufacturing facilities on the site. In 1979, Onan and Medtronic uncovered large quantities of creosote from past treatment operations. Approximately 3,000 people live within 4,000 feet of the site. Several residences are located within 500 feet of the site. Two elementary schools and several small urban parks are located within 1 mile of the site. Groundwater contamination from this site is a major concern, because the towns of Fridley and Moundsview use water drawn from municipal wells that are near the site.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



The EPA detected high levels of organics including creosote and *phenols* in on-site groundwater monitoring wells. *Sediments* and soils throughout the site also contained these same contaminants. Sampling of all contaminated areas indicate that the contaminants have either been removed from the site or confined within a *containment* vault built at the site.

Cleanup Approach

This site was addressed in a single *long-term remedial phase*, which was focused on cleanup of the entire site.

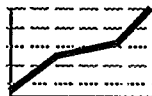
Response Action Status



Entire Site: Work was completed in 1986 on both properties on the site to address the contamination problems. The work included: (1) excavating and disposing of contaminated soil; (2) filling in the excavated areas with clean soil; (3) removing and treating contaminated groundwater at the site; (4) constructing a fence around the site; and (5) monitoring the air and surface water within the site vicinity. Long-term monitoring of the vault constructed on the site to contain contaminated materials is planned.

Site Facts: In 1984, Medtronic entered into a *Consent Decree* with the State to help pay the cost of addressing contamination of its part of the site. Onan Corporation, Boise Cascade, and two railroad companies went to court to decide their individual responsibility and an acceptable solution to contamination of the property.

Environmental Progress

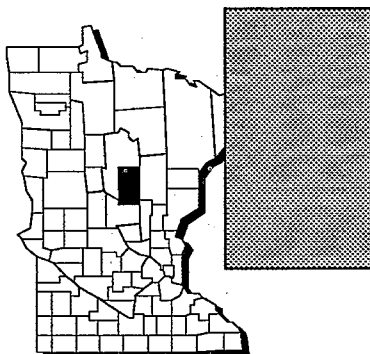


All the cleanup work at the Boise Cascade site has been completed, and the EPA is continuing to monitor the air and surface water. The containment vault will also be monitored to ensure the long-term effectiveness of the remedies selected for the site.



BURLINGTON NORTHERN MINNESOTA

EPA ID# MND000686196



REGION 5
CONGRESSIONAL DIST. 08
Crow Wing County
Brainerd

Site Description

The Burlington Northern site is a 70-acre facility that preserves railroad ties with *creosote* and is located in the Baxter/Brainerd area. Since 1907, Burlington Northern has owned and operated the railroad tie treatment plant. During the 1950s, Burlington Northern began mixing creosote, a preserver, with number 5 fuel oil. At some undetermined time, the mixture was changed to creosote and coal tar. Wastewater generated from the wood treating process was sent to two shallow, unlined surface *impoundments* for disposal. The discharge of wastewater to the disposal ponds generated a *sludge* that contaminated both the underlying soils and groundwater. The original pond was abandoned in the 1930s and was covered. The second pond was used until the fall of 1982, when a wastewater pre-treatment plant became operational. The *effluent* from the pre-treatment plant is discharged to the local municipal sewage collection system. The Mississippi River flows about 3,000 feet east of the plant, and residential areas are located to the northeast and southeast, less than 1,000 feet from the site. Six private water supply wells are within a 1/2-mile radius of the site.

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

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater *downgradient* of the site is contaminated with carcinogenic and non-carcinogenic *polycyclic aromatic hydrocarbons* (PAHs). Heavy metal contamination also has been detected in groundwater samples. PAHs have *migrated* into the surrounding soils from the contaminated wastewater and sludge. Access to the railroad tie treatment plant is restricted; therefore it is not likely that the general public would wander onto the installation. Prior to the initiation of the cleanup activities, workers at the site could have been exposed to the contaminants through direct contact with contaminated soil, sludge, or groundwater or by inhaling dust when contaminated soil or sludge was disturbed. The Mississippi River will be sampled periodically for contamination from the site.

Cleanup Approach

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

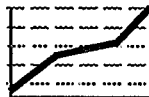
Response Action Status



Entire Site: In 1985, the EPA selected the following cleanup remedies for the site: (1) preparation of a lined staging area for temporary storage of the sludge and contaminated soil; (2) removal of all standing water in the impoundment; (3) excavation and segregation of the sludges for subsequent free oil recovery; and (4) excavation of visibly contaminated soil from both impoundments and subsequent storage in the staging area. The excavated areas will be *backfilled* and covered. A sump for collection of the stormwater and *leachate* will be installed, and *bioremediation* of soil and the installation of an irrigation system will also be carried out. After the treatment process has been completed, a cover will be installed over the site. The EPA is currently conducting soil and groundwater cleanup activities on the site. The groundwater is being treated through a gradient control system that has been installed on site. Any water discharged to the river will be regulated by Federal and State permits. The soil bioremediation is taking place. The final goal of treatment by bioremediation is the transformation and immobilization of waste constituents in soil into non-toxic materials.

Site Facts: A *Consent Agreement* was signed in April 1985 between the EPA and Burlington Northern. Burlington Northern is carrying out the site cleanup at its own expense. In addition, the company will reimburse the Minnesota Pollution Control Agency and the EPA for expenses incurred in connection with past and future investigations.

Environmental Progress



The potential for exposure to hazardous wastes continues to diminish as cleanup activities at the Burlington Northern site continue. The EPA has determined that the site does not pose an imminent threat to the surrounding population or the environment while the groundwater gradient control treatment system is in operation and the other cleanup activities are under way.



DAKHUE SANITARY LANDFILL MINNESOTA

EPA ID# MND981191570



REGION 5
CONGRESSIONAL DIST. 03
Dakota County
3 miles north of Cannon Falls

Site Description

The Dakhue Sanitary Landfill, covering approximately 80 acres, is a privately owned and State-permitted sanitary *landfill* that has operated since 1971 in Cannon Falls. Prior to 1971, the land within the site boundary was undeveloped. Since opening, the landfill has been utilized for the disposal of mixed municipal and commercial waste and small amounts of industrial waste. The landfill was opened on a part-time basis until 1973, when the landfill extended its operations to 6 days a week. The exact quantity and disposal area of hazardous substances is unknown. The area surrounding the site consists mainly of single family dwellings or farms. Residential drinking water supply wells, municipal water supply wells, and irrigation wells draw groundwater from a shallow *aquifer* and from the hydraulically connected aquifers beneath it. Approximately 650 people use the aquifer as the primary source of drinking water within a 3-mile radius of the site, and about 6,600 acres of major cropland are irrigated with water from the aquifer. Pine Creek, 3/4 mile south of the site, and the Cannon River, 2 3/4 miles south of the site, are used for recreational purposes.

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

NPL LISTING HISTORY

Proposed Date: 10/26/89

Threats and Contaminants



On-site groundwater is contaminated with *volatile organic compounds* (VOCs), chloroform, and heavy metals including cadmium and lead. People could be exposed to potential health threats by drinking the contaminated groundwater or by eating food crops that have been irrigated with the contaminated groundwater.

Cleanup Approach

The site is being addressed in three stages: interim actions and two *long-term remedial phases* focusing on source control and cleanup of the entire site.

Response Action Status



Interim Actions: Interim erosion control measures were completed in June 1990. Areas where garbage was exposed were filled in, and a trench was dug around the site to direct surface water into catch basins.



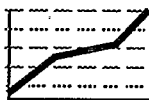
Source Control: Under the supervision of the State of Minnesota, a study to determine the source of the contamination and to identify cleanup actions to control the source began in spring 1990. This study is slated for completion in 1992.



Entire Site: An investigation into the nature and extent of the groundwater contamination began in spring 1990. This investigation is slated for completion in 1992. Upon completion, the EPA will select and implement the cleanup actions needed to address the groundwater contamination.

Site Facts: The State amended the landfill permit in 1983, and in 1984, it issued a notice to the facility for violation of the amended permit. In 1984, the State and the party potentially responsible for the site contamination, under EPA supervision, entered into a *Consent Order* requiring the party potentially responsible to conduct the investigation into the nature and extent of contamination at the site and to recommend alternatives for final cleanup.

Environmental Progress



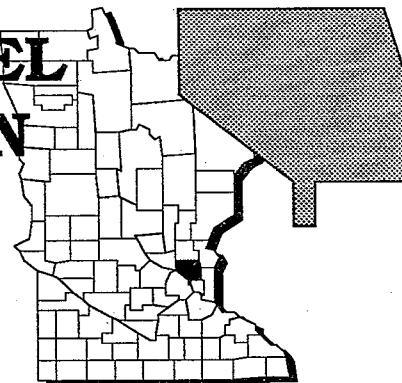
Interim measures to control the movement of contamination from the Dakhue Sanitary Landfill site have reduced the potential for exposure to hazardous materials on and around the site. An investigation leading to the selection of a final remedy to address groundwater contamination is currently taking place.



EAST BETHEL DEMOLITION LANDFILL

MINNESOTA

EPA ID# MND981088180



REGION 5
CONGRESSIONAL DIST. 06

Anoka County
East Bethel Township

Alias:
East Bethel Sanitary Landfill

Site Description

The East Bethel Demolition Landfill is a 60-acre *landfill* located in East Bethel Township, 1 mile east of Highway 65. The site was operated as an unpermitted solid waste disposal site from 1969 to 1971. In fall 1971, the Minnesota Pollution Control Agency (MPCA) issued a solid waste disposal facility permit for the site, which was amended in 1985. The site currently accepts only demolition waste and a small amount of municipal waste. According to information provided by representatives of the landfill, most hazardous wastes were accepted between 1969 and 1976. MPCA files indicate that the equivalent of approximately 4,400 drums of hazardous industrial wastes and contaminated soils were buried in the landfill in 1974. Hazardous industrial wastes reported to have been disposed of at the site include cleaning solvents, waste inks, caustics and *acids*, paint, waste oils, thinner, dry cleaning solvents, liquids with a strong chemical odor, small transformers, and 8-ounce cans of ether. The landfill is located on the Anoka Sand Plain, a shallow sand *aquifer* that provides drinking water to a few residents in the area. The aquifer is contaminated; however, the majority of residents use a deeper aquifer for drinking water. Approximately 3,400 people live within a 3-mile radius of the site, with about 300 living within 1 mile that use private wells. The two closest residences are about 1,500 feet southwest of the landfill. A growing subdivision begins about 2,000 feet southwest of the site.

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

NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 06/10/86

Threats and Contaminants

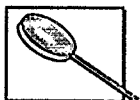


Volatile organic compounds (VOCs) have been identified in groundwater from the shallow aquifer. Two wells on the western and southern borders of the landfill area are the most heavily contaminated with VOCs. Several other compounds have been detected in the two most contaminated wells, including the heavy metals arsenic, barium, cadmium, mercury, and lead. *Polycyclic aromatic hydrocarbons (PAHs)* were also detected in these wells. On-site soils have been found to be contaminated with VOCs including toluene and vinyl chloride. Potential health risks may exist for those accidentally ingesting, touching, or inhaling volatilized contaminants from the contaminated groundwater or soil. The areas to the west and southeast are marshy *wetlands*, and Ned's Lake lies 1,000 feet to the south; both the wetlands and Ned's Lake may be threatened from site contaminants.

Cleanup Approach

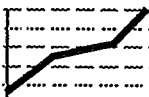
The site is being addressed in a single *long-term remedial phase* directed at cleanup of the entire site.

Response Action Status



Entire Site: The State is conducting an investigation to determine the nature and extent of contamination at the site. Once the investigation is completed, the most appropriate cleanup alternatives for the site will be recommended.

Environmental Progress



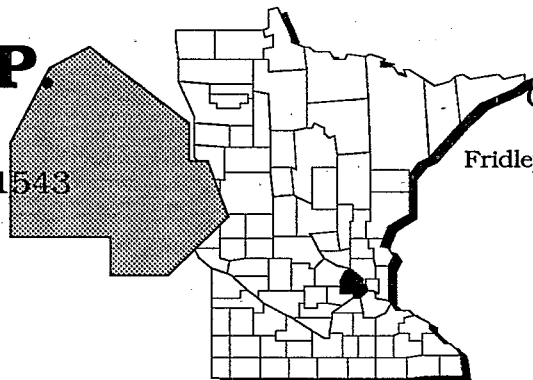
After listing the East Bethel Demolition Landfill on the NPL, the EPA performed a preliminary investigation and determined that there are no immediate threats to the surrounding community or the environment while the investigations leading to the final remedy selection are taking place.



FMC CORP.

MINNESOTA

EPA ID# MND006481543



REGION 5

CONGRESSIONAL DIST. 06

Hennepin County

Fridley, about 1,000 feet east of the Mississippi River

Site Description

The 18-acre FMC site combines two areas in Fridley, referred to as the FMC lands and the Burlington Northern Railroad Company lands, 13 acres and 5 acres in size, respectively. Both areas are located immediately south of the FMC Ordnance Plant. From 1941 until 1964, the site operated as a naval ordnance manufacturing complex. From about 1945 to 1969, a tract of land south of the manufacturing complex was used for the burning and disposal of wastes, including plating wastes, paint, paint *sludges*, oils, bottom ash, and chlorinated and non-chlorinated solvents. An 11-acre unlined *landfill* on the site was used for the disposal of hazardous wastes. Records indicate that solvents and sludges were dumped directly into unlined pits and burned or buried. Disposal at the site was discontinued in 1969. There are approximately 70,000 people living within 3 miles of the site. This population receives drinking water from wells extended into the bedrock *aquifer*. The City of Minneapolis has a drinking water supply *intake* on the river 1/2 mile downstream of the site. The drinking water plant supplies about 500,000 people.

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

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater and soils were contaminated with *volatile organic compounds* (VOCs) including *trichloroethylene* (TCE) and benzene. TCE was detected in high concentrations near the Mississippi River and probably contributed to the detection of VOCs in the Minneapolis drinking water supply intake. The main health risk of concern to people was from drinking contaminated groundwater. There are no private drinking water wells in the area and the industrial wells are not contaminated. Therefore, area residents were not directly exposed to groundwater contamination from the site.

Cleanup Approach

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

Response Action Status



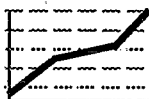
Immediate Actions: In 1983, the party potentially responsible for the site contamination, under EPA and State supervision, excavated approximately 38,600 cubic yards of contaminated soil and placed it in a secure *containment* and treatment facility constructed on site. Drummed waste that was found in isolated areas on the site was excavated, *overpacked*, sampled, and disposed of at an off-site approved landfill. A gas extraction and treatment system was constructed to gradually reduce the levels of contamination in the soil in the containment and treatment facility. Excavated areas were restored and revegetated. In a separate action, and during the same year, the party excavated additional contaminated soil and placed the soil in the on-site containment facility.



Entire Site: The cleanup methods selected to address groundwater contamination included: (1) groundwater pump and treatment with discharge to a sanitary sewer system; (2) groundwater monitoring to assure effectiveness of the pump and treatment, and (3) implementation of land use restrictions to stop the use of contaminated groundwater between the site and the Mississippi River. The potentially responsible party constructed the groundwater treatment system, which has been in operation since 1987. A secure cover was placed on the landfill as an interim measure to stop ongoing groundwater contamination, and the site disposal areas are enclosed by an 8-foot high chain link fence.

Site Facts: In 1983, the party potentially responsible, the State, and the EPA entered an agreement that required that the party potentially responsible construct a large clay-lined vault on an uncontaminated portion of the site for placement of about 58,000 cubic yards of contaminated soils excavated from the site. The party also agreed to conduct the study to determine the nature and extent of groundwater contamination at the site and to recommend alternatives for final groundwater cleanup.

Environmental Progress



Cleanup goals for groundwater and surface water have been met due to the excavation and treatment of contaminated soils, the removal of the drummed wastes, the installation of the groundwater treatment system, and other noted actions. The EPA has determined that the site is now safe to nearby residents and the environment and will continue to monitor the site to assure the effectiveness of the cleanup remedies.



FREEWAY SANITARY LANDFILL

MINNESOTA

EPA ID# MND038384004



REGION 5
CONGRESSIONAL DIST. 03
Dakota County
Burnsville

Site Description

The Freeway Sanitary Landfill site covers 126 acres in Burnsville. Since 1971, the Minnesota Pollution Control Agency licensed the *landfill* to accept 1,962 acre-feet of household, commercial, demolition, and non-hazardous industrial wastes. The State permit prohibited the disposal of liquids and hazardous wastes. However, heavy metals, *acids*, and *bases* were accepted by the landfill from local industries. The landfill also accepted 200 cubic yards of battery casings and 448 tons of aluminum sweat furnace slag. In 1984, *volatile organic compounds* (VOCs) and heavy metals were detected in the groundwater. The owner has installed a cover over the landfill. Burnsville's municipal wells are located about 4,000 feet south of the landfill. These wells serve approximately 36,000 people. Two quarries are located nearby. Surface water *runoff* drains from the site into the Minnesota River, about 400 feet from the landfill.

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

NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 06/10/86

Threats and Contaminants



Groundwater contains VOCs such as benzene, ethyl benzene, and xylene and heavy metals including arsenic, chromium, copper, lead, and manganese. Exposure to contaminated groundwater is possible if the pollutants *migrate* to the Burnsville municipal well field. Water beneath the landfill discharges into the Minnesota River. Wildlife in and around the river may be harmed by the contaminants.

Cleanup Approach

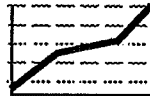
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire site: Under State supervision, the parties potentially responsible for the site contamination are studying the type and extent of the contamination. Once the study is completed in 1992, the final cleanup remedy for the site will be selected.

Environmental Progress



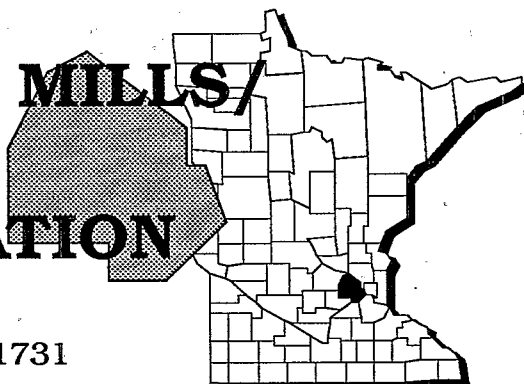
After adding the Freeway Sanitary Landfill site to the NPL, the EPA performed preliminary evaluations and determined that the site does not pose an immediate threat to the surrounding population or the environment while the studies leading to the selection of final site cleanup actions are taking place.



GENERAL MILLS/ HENKEL CORPORATION

MINNESOTA

EPA ID# MND051441731



REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
Minneapolis

Aliases:
Tech Center Research Lab
Henkel Tech Center

Site Description

The General Mills/Henkel Corporation site is located in an industrial section of Minneapolis. General Mills operated a technical center and research laboratories at the site from 1930 through 1977. Food research was conducted until 1947, when chemical research began. From 1947 to 1962, solvents were disposed of in a soil adsorption pit and are believed to be contained in 3 buried perforated 55-gallon drums, stacked one on top of another, with the deepest drum 10 to 12 feet below the ground surface. Approximately 1,000 gallons of solvents per year were disposed of in this manner. The soil and the *aquifers* are contaminated. Although the site is in an industrial section of Minneapolis, approximately 4,900 people live within 1 mile of the property. Access to the site is restricted. All residences and businesses in the area are connected to the municipal water system. This water is obtained from the Mississippi River north of the city.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater and soils are contaminated with *volatile organic compounds* (VOCs) including benzene, chloroform, toluene, and xylenes. People who touch or accidentally ingest contaminated groundwater or soil may be at risk.



Cleanup Approach

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

Response Action Status

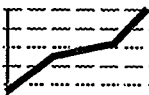


Interim Actions: General Mills installed wells to pump the water out of the contaminated aquifers and treat it by *air stripping* in 1985. Air is forced through the water and blows the contaminants out. The air is then treated before being released into the atmosphere. The treated water is discharged into the municipal sewer system. The groundwater is being monitored to ensure the effectiveness of the treatment.



Entire site: The State recently completed an investigation to determine the extent of the groundwater and soil contamination. The results of the study are being reviewed to determine if there is any remaining contamination at the site. Once reviewed, the EPA will select the appropriate cleanup methods to completely clean up the site.

Environmental Progress



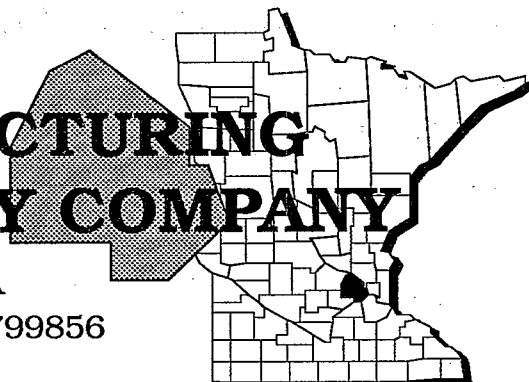
By pumping and treating the contaminated groundwater, the potential for exposure to hazardous materials at the General Mills/Henkel site has been greatly reduced while selection of final site cleanup remedies are taking place.



JOSLYN MANUFACTURING & SUPPLY COMPANY

MINNESOTA

EPA ID# MND044799856



REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
Brooklyn Center

Alias:
Joslyn Wood Products Plant

Site Description

The Joslyn Manufacturing and Supply Company site covers 30 acres in Brooklyn Center. From the 1920s until 1980, a wood treating facility was operated at the site where processes involved using *creosote*, *pentachlorophenol* (PCP), and a copper-arsenic solution. In 1944, this facility discharged its wastewater into a marshy area connected to Twin Lakes. Later, an unlined *lagoon* adjacent to the marsh was used. In 1976, 216,000 gallons of oil were discharged into the lagoon. Waste *sludge* was also buried on site. Approximately 800 people live within 1/2 mile of the site. The surrounding area is both light industrial and residential. Surface water *runoff* from the site drains into Shingle Creek, which empties into the Mississippi River. Twin Lakes is used for swimming, boating, and fishing.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater and soils are contaminated with PCPs, creosote, *polycyclic aromatic hydrocarbons* (PAHs), and oil. Because groundwater flow in the area is to the east, away from Twin Lakes, the lakes are not affected by the site, and sampling of the lakes confirmed this. Area drinking water is also not affected since residences are connected to the city water system.

Cleanup Approach

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

Response Action Status



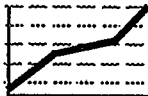
Interim Actions: Joslyn removed about 30,000 gallons of wood treating solutions in 1981 and 65,000 gallons of sludge in 1982 to a federally approved facility. In 1986, Joslyn fenced the entire site area, and the company connected six properties to the city water supply.



Entire site: In 1989, the State selected a remedy for site cleanup, now being conducted by Joslyn, which includes pumping the groundwater and discharging it to the sanitary sewer system where it is treated. Before the water is discharged to the sewer system, water and oil mixtures are first sent through an on-site treatment system to remove the oil. It is estimated the groundwater pumping will continue for 30 years. In addition, Joslyn is cleaning the soil through a method called *landfarming*. This involves thinly spreading contaminated soil over a specially engineered area on the site, adding water and nutrients, periodically tilling the area, and allowing the soil bacteria, with help from the applied water and nutrients, to break down the contaminants into non-hazardous constituents. This process was begun in 1989 and will take approximately 4 to 6 years to complete.

Site Facts: In 1985, the State and Joslyn signed a *Consent Order* whereby the company agreed to clean up the site.

Environmental Progress



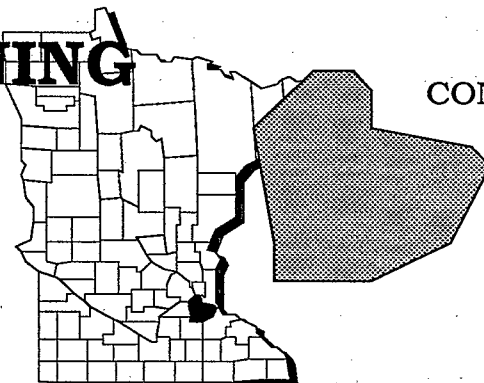
The removal of the most highly contaminated soils and the groundwater pump and treat system have significantly reduced the possibility of exposure to hazardous materials on the site while the final cleanup activities are taking place at the Joslyn Manufacturing site.



KOCH REFINING COMPANY

MINNESOTA

EPA ID# MND000686071



REGION 5
CONGRESSIONAL DIST. 03
Dakota County
Rosemount

Site Description

The Koch Refining Company site covers 1,200 acres in the Pine Ben industrial district of Rosemount. The site includes the refinery and adjacent properties owned by Koch. The Great Northern Refining Company began refining oil on this site in 1955. In 1969, the refinery was sold to Koch, which has expanded refining capacity from 25,000 barrels to 160,000 barrels per day. The refinery receives crude oil by pipeline and barge, which is then refined into gasolines, jet fuels, heating oil, kerosene, diesel fuel, boiler fuel, asphalt, petroleum coke, sulfur, carbon dioxide, butane, and propane. Product spills have been recorded in the storage tank area on the site since the early 1970s. The State sampled water from six private wells near the refinery and found them contaminated with *volatile organic compounds* (VOCs). A section of gasoline pipeline running from the tank farms to the barge dock on the Mississippi River had corroded but was replaced. This pipeline is believed to be the source of groundwater and soil contamination at the site. Approximately 60 people live within 1 mile of the refinery. About 1,600 people, as well as a school with 2,600 students, use wells within 3 miles of the site for drinking water. Four miles north of the site is Inver Grove Heights, with a population of about 16,100. There is a population of about 6,800 people to the south of the site. Four people living in two homes east of the refinery are being supplied with bottled water due to well contamination.

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 contaminants include VOCs, *polycyclic aromatic hydrocarbons* (PAHs), *phenols*, and lead. Soil also is contaminated with VOCs including benzene, toluene, and xylenes as well as PAHs. Drinking water for the employees on the site is obtained from deep bedrock production wells that are not contaminated. People who touch or accidentally ingest contaminated soils may be at risk.

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: Koch, under State supervision, is conducting an investigation to determine the type and extent of contamination at the site. Once the investigation is completed, planned for 1990, alternatives will be recommended for site cleanup.

Site Facts: In 1985, the State entered into a *Consent Agreement* with Koch Refining Company, whereby the company agreed to clean up the site.

Environmental Progress



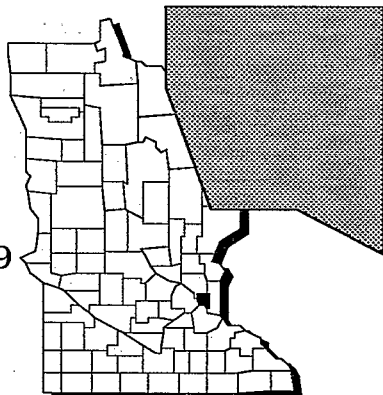
After listing the Koch Refining site on the NPL, the EPA conducted preliminary evaluations of the site conditions and determined that no immediate threat is posed to the surrounding communities or the environment while the investigations leading to the selection of the final cleanup remedies are taking place.



KOPPERS COKE

MINNESOTA

EPA ID# MND000819359



REGION 5
CONGRESSIONAL DIST. 03

Ramsey County
St. Paul

Aliases:
Minnesota Coke Plant
Koppers Company, Inc.

Site Description

The Koppers Coke site covers 45 acres in the Midway area of St. Paul. The facility operated from 1911 until 1978, producing coke, coal tars, and coal tar distillates from the coking of coal. Coke plant wastes were disposed of in unlined earthen pits. In addition, contamination of soils from coal tar distillates, naphtha and benzene wash have occurred. Numerous tanks and valves leaked over the years, causing additional coal tar distillate to *migrate* to the shallow groundwater table. The company demolished all standing structures and removed storage tanks in 1981. The site was acquired in 1981 by the Port Authority for the St. Paul Energy Park. Office and light industrial buildings now occupy the site. Approximately 15,400 residents live within 1 mile of the site. The nearest residence is 100 feet away, and Como Park, a recreational facility, is 3/4 mile from 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: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs), heavy metals, *polycyclic aromatic hydrocarbons* (PAHs), and *phenols*. Because all local residences are connected to the municipal water supply, the private wells are not used for drinking water. However, these wells are occasionally used for lawn and garden watering. There is a potential for people to be exposed to contaminants by eating vegetables that may have been watered with the contaminated groundwater.

Cleanup Approach

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

Response Action Status



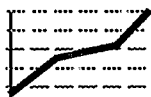
Interim Actions: In the fall of 1982, about 240,000 gallons of residue in 20 tanks were disposed of by Koppers in a federally approved facility. Approximately 21,600 cubic yards of contaminated soils were excavated and disposed of. The entire site was covered with clean fill. Soils found in pits too deep to be totally excavated were partially excavated and *backfilled* with clean soil. They were then covered with clay, additional clean fill, and a second layer of clay was installed.



Entire site: Koppers began an investigation to determine the types and extent of contamination at the site in 1989. Upon completion of the investigation, the EPA will review the recommended cleanup alternatives and select the final remedial actions. The EPA expects to reach a decision on final cleanup remedies in late 1990.

Site Facts: In 1978, the State and Koppers signed a Stipulation Agreement that required the plant to shut down and Koppers to conduct an investigation of soil and groundwater contamination.

Environmental Progress



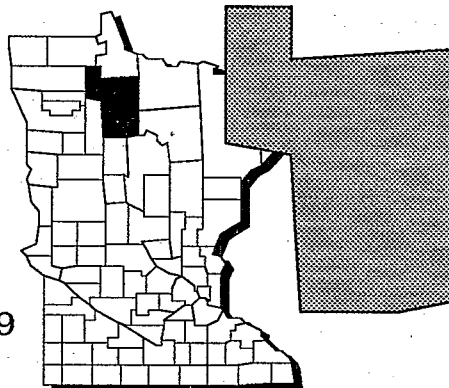
Most, if not all, of the contaminated residue and soils have been excavated and disposed of at an approved disposal facility. Through these actions and the installation of the cover over the site, the potential for exposure to hazardous materials at the Koppers Coke facility has been greatly reduced. Further studies are currently under way that will result in the selection of the final cleanup remedies for the site.



KUMMER SANITARY LANDFILL

MINNESOTA

EPA ID# MND980804049



REGION 5
CONGRESSIONAL DIST. 07
Beltrami County
Northern Township

Site Description

The Kummer Sanitary Landfill site in Northern Township covers 35 acres on a 40-acre parcel of land, which includes the Kummer residence. The site was a privately owned and operated solid waste *landfill* from 1971 until 1984, accepting mixed municipal wastes. Landfill operations consisted of excavating trenches, filling them with waste materials, and covering the fill with on-site sand and gravel deposits. The trenches may have been excavated to the water table and the wastes placed in direct contact with the groundwater. Beginning in 1974, demolition debris consisting of *fly ash* and sawdust was disposed of on site. There is a history of violations such as improper covering of the debris, garbage blowing from the site, and improper grading. In 1982 and 1983, the Minnesota Pollution Control Agency (MPCA) sampled groundwater from on-site monitoring wells and found the water to be contaminated with *volatile organic compounds* (VOCs). Residential wells *downgradient* from the site were found to be contaminated the following year, and subsequently, in 1985, the landfill was closed. Northern Township has a population of about 4,100 people. A trailer park is about 1,500 feet away from the landfill, and a residential area is about 1,000 feet away, with both areas housing approximately 1,000 people. An estimated 14,700 people use wells that draw on two *aquifers* within 3 miles of the site. The City uses groundwater for its municipal water supply, and those wells are within 1/4 mile upgradient from the landfill. There are numerous *wetlands* and lakes within the area of the site, including Lake Bemidji, which is 1 mile away.

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

NPL LISTING HISTORY

Proposed Date: 06/10/84

Final Date: 10/15/86

Threats and Contaminants



Groundwater underlying the site contains VOCs including vinyl chloride, xylenes, carbon tetrachloride, and naphthalene. People who use or come into contact with contaminated groundwater may be at risk. There is the potential for contaminants from the landfill to *leach* into Lake Bemidji or the wetlands area. Wildlife in and around the lake and wetlands may be harmed by pollutants.

Cleanup Approach

The site is being addressed in three *long-term remedial phases* directed at supplying an alternate water source, controlling the source of contamination, and cleanup of the groundwater.

Response Action Status



Alternate Water Supply: In 1985, the EPA selected a remedy to provide alternate water for affected residents by constructing a connecting well tapping into the deep uncontaminated aquifer, connecting into the City of Bemidji's main water line, and installing a water distribution system. All work for the well installation and distribution system is expected to be completed by the end of 1990. The State is in the process of connecting the affected residences to the municipal water supply. However, some residences have refused connection.



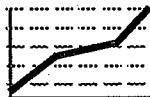
Source Control: In 1988, the EPA selected a remedy to control the source of the contamination by: (1) grading the site and consolidating the soil and other waste material; (2) placing a sloping foundation layer of natural soil fill; (3) covering the landfill with clay or synthetic material and a drainage layer with a soil and vegetative cover; (4) deed restrictions limiting the future use of the site; (5) fencing the site; and (6) monitoring the groundwater and landfill gas to ensure the effectiveness of the cleanup. The State is designing the technical specifications for the cleanup actions. Once the design phase is completed, the cleanup activities will begin.



Groundwater: The State is conducting an investigation to determine the extent of the on-site *migration* of contaminants into the groundwater. Once the investigation is completed in 1990, effective measures to clean up the groundwater and prevent the further movement of contaminants will be determined. The State began an additional investigation in 1990 to determine the extent to which the contaminants have migrated off site in the groundwater. Once this investigation is completed, the most appropriate alternatives will be recommended for off-site groundwater cleanup.

Site Facts: In 1985, the EPA and the State signed a *Cooperative Agreement* whereby the State will investigate and clean up the site. In addition, the agreement provided for the funding of an alternate water supply for residents with contaminated wells.

Environmental Progress



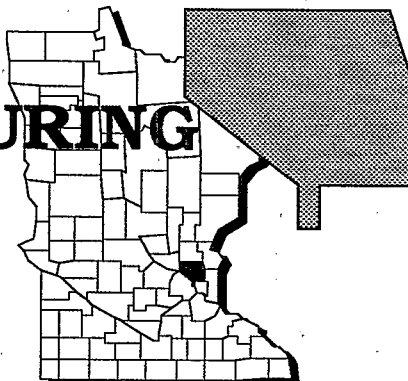
By providing a safe alternate drinking water source to affected residences, the potential for exposure to contaminated groundwater is being eliminated. Further investigations which will lead to the selection of the most appropriate permanent cleanup solutions are currently under way.



KURT MANUFACTURING COMPANY

MINNESOTA

EPA ID# MND059680165



REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Fridley

Site Description

The Kurt Manufacturing Company site covers 10 acres in Fridley. The company has been operating since 1960, producing precision computer components. Solvent-coated metal shavings from the machining area were placed in a storage bin located near the loading dock. In 1982, the Minnesota Pollution Control Agency (MPCA) found two company production wells to be contaminated with *volatile organic compounds* (VOCs); later that year, monitoring wells were installed at the site. Results of groundwater sampling showed the shallow groundwater near the loading dock was contaminated. The State determined the metal shavings bin *sump* was the source of the contamination. The site is in an industrial, commercial, and residential area. Over 163,000 people live within 3 miles of the site. The company is located 1 mile from the Mississippi River.

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

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Groundwater and soils are contaminated with VOCs including tetrachloroethylene, and trichloroethane (TCA). People who touch or accidentally ingest contaminated groundwater or soil may be at risk.

Cleanup Approach

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

Response Action Status



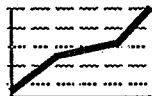
Interim Actions: In 1984, the shaving bin sump was excavated and capped to prevent further *seepage*.



Entire Site: In 1986, the State approved actions to clean up the site that consisted of: (1) long-term operation and maintenance of a groundwater pump-out system to prevent the *migration* of contaminated groundwater; (2) covering the sump area with clay to prevent rainwater from coming into contact with contaminants; (3) abandoning a shallow production well to minimize migration of contaminated groundwater; and (4) long-term monitoring to ensure the cleanup is effective. In 1986, Kurt started to pump and treat the groundwater, but the pumps were found to be inadequate. In 1987, the sump area was excavated and then covered with the clay. The response action plan is being re-evaluated.

Site Facts: In 1984, the State issued a Request for Response Action to Kurt Manufacturing. Under this action, the company was required to investigate the site and develop and implement a cleanup plan.

Environmental Progress



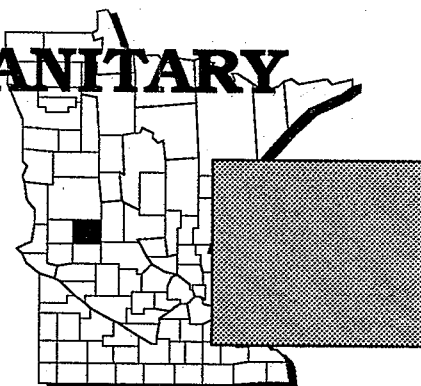
By excavating and covering the areas of greatest contamination, the potential for exposure to hazardous materials at the Kurt Manufacturing site has been significantly reduced. The cleanup plan chosen for the site is currently under re-evaluation. Once this phase is completed, final cleanup activities will begin.



LAGRAND SANITARY LANDFILL

MINNESOTA

EPA ID# MND981090483



REGION 5
CONGRESSIONAL DIST. 02
Douglas County
LaGrand Township

Site Description

The LaGrand Sanitary Landfill site covers 80 acres in LaGrand Township, 5 miles west of Alexandria. The *landfill*, which occupies 5 1/2 acres, began operations in 1974 and was licensed by the State to accept mixed municipal and non-hazardous industrial refuse. In 1977, the original owner transferred the permit and title to Valley Disposal, Inc. Approximately 140 cubic yards of soil containing 900 gallons of diesel fuel were stored, and consequently disposed of, on the site in 1980. The landfill had been in an almost constant state of noncompliance with solid waste regulations and was closed in 1985, covered, and seeded. There are five abandoned buildings on the site, a pile of several hundred tires, abandoned machinery, and junk. Approximately 1,100 people live within 3 miles of the landfill and depend on public and private wells for drinking water. The nearest private well is 1/3 mile away from the site. A *wetland* is less than 1 mile downstream of the site.

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

NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 07/21/87

Threats and Contaminants



Groundwater contains *volatile organic compounds* (VOCs) including chloroethane and methylene chloride. People who drink contaminated groundwater may suffer adverse health effects. If contaminants *leach* from the landfill into the nearby wetland, wildlife in or around the wetland may be harmed.



Cleanup Approach

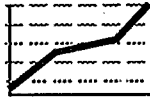
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire site: In 1987, the State began an investigation to determine the type and extent of contamination at the site. Once the investigation is completed in 1992, the final cleanup remedy will be selected.

Environmental Progress



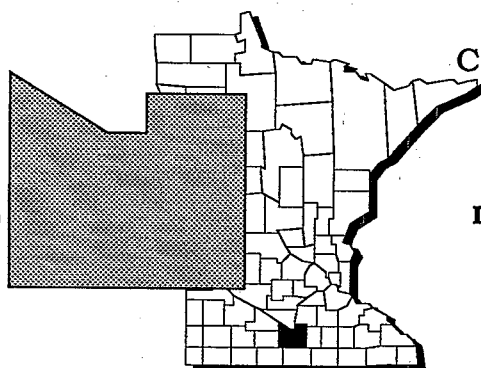
After listing the LaGrand Sanitary Landfill site on the NPL, the EPA performed preliminary evaluations and determined that the site does not pose an immediate threat to the surrounding communities or the environment while the investigations leading to the selection of a final cleanup remedy are taking place.



LEHILLIER MANKATO

MINNESOTA

EPA ID# MND980792469



REGION 5
CONGRESSIONAL DIST. 01

Blue Earth County
Mankato

Alias:
LeHillier/Mankato Groundwater

Site Description

The LeHillier/Mankato site, located just west of Mankato, covers 6,400 acres. Between 1925 and 1950, numerous natural and manmade depressions, resulting from changes in the channels of the Minnesota and Blue Earth Rivers and from sand and gravel excavations, were filled with miscellaneous rubbish. In 1981, the Minnesota Pollution Control Agency received anonymous information alleging that hazardous wastes had been disposed of in several areas. Studies confirmed contamination of the shallow sand and gravel *aquifer*, the primary source of drinking water for the LeHillier and Mankato area. Although this area draws its drinking water from the contaminated aquifer, the wells presently do not show contamination. Approximately 500 people reside in LeHillier. Mankato's primary water supply well is located approximately 1/4 mile north of the contaminated area. About 29,000 people are served by Mankato's municipal water supply. The Minnesota and the Blue Earth Rivers are used for recreational activities.

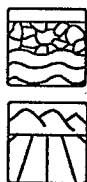
Site Responsibility: The site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with *trichloroethylene* (TCE) and other *volatile organic compounds* (VOCs). Soil contains petroleum products and VOCs. LeHillier residents have been provided with an alternate water supply; however, individuals may be exposed to contaminants through accidental ingestion or direct contact with contaminated groundwater and soil.

Cleanup Approach

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

Response Action Status



Immediate Actions: The EPA and the State supplied LeHillier residents with bottled water for drinking and cooking in 1984 and 1985. A new LeHillier community well and a distribution system were constructed through a Housing and Urban Development (HUD) grant and have been operational since late 1985.



Entire Site: Based on the results of an investigation completed in 1985, the EPA selected a remedy to clean up the site by extracting the contaminated groundwater and treating it by using an *air stripping* technique that removes contaminants by exposure to air. The cleanup plan includes using eight existing U.S. Army Corps of Engineers groundwater and flood control wells and constructing two new extraction wells; extending the LeHillier community water system to affected residents and businesses not currently serviced; and properly closing individual wells formerly used for drinking water supplies. The cleanup actions currently under way are expected to be completed in late 1991.

Environmental Progress



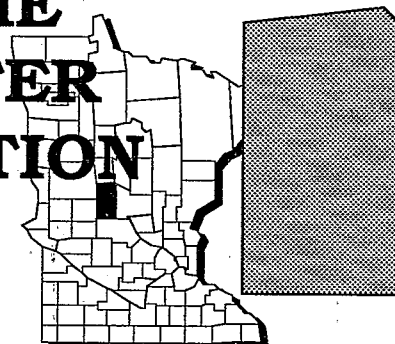
The immediate action of providing LeHillier residents with an alternate water supply have significantly reduced the threat of exposure from contaminated drinking water. The cleanup actions are currently under way and will continue to reduce contamination and establish safety levels.



LONG PRAIRIE GROUNDWATER CONTAMINATION

MINNESOTA

EPA ID# MND980904072



REGION 5

CONGRESSIONAL DIST. 07

Todd County

Long Prairie

Site Description

The Long Prairie site, as defined by the extent of the *plume* of contaminated groundwater, covers an area 2,100 feet by 1,000 feet in Long Prairie. Various municipal and private wells are contaminated with solvents thought to be from a barrel of contaminated material used by a dry cleaning operation. The barrel of material was partially buried in the parking lot behind the building. The area of highest groundwater contamination is directly below this parking lot. On two separate occasions in 1983, routine municipal well monitoring by the Minnesota Department of Health (MDH) indicated contamination in two of five municipal wells. The MDH ordered the two wells shut down in 1983 and issued an advisory to provide bottled water for area residents. About 50 of the area's 300 private wells were affected by the groundwater contamination. Since the advisory was issued, the majority of homes using contaminated groundwater have been connected to the municipal drinking water system. Land use in the surrounding area is primarily residential. Businesses surround the parking lot over the contaminated area, and at the northern edges of the plume there are city garages and an athletic field. Long Prairie, a residential and business area, has a population of approximately 2,900 residents. Approximately 2/3 of the population receive water from municipal water supplies; the remaining 1/3 use private wells. Seven wells are still in use in the advisory area; four of these wells contain levels of chemicals above the EPA drinking water health advisories.

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

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



The groundwater and soils are contaminated with *volatile organic compounds* (VOCs) including vinyl chloride and *trichloroethylene* (TCE). Persons using the contaminated groundwater have been exposed to chlorinated ethylenes by drinking it or inhaling evaporated contaminant particles from the water.

Cleanup Approach

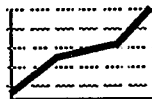
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: Based on the results of the site investigation, the EPA has selected the following methods for cleanup of the groundwater and soil: (1) install groundwater extraction wells in the contamination plume; (2) treat contaminated groundwater with an *air stripper*; (3) discharge treated groundwater from the air stripper to the Long Prairie River; and (4) treat contaminated soil with an active soil venting system. The technical design of the remedy is expected to be completed in late 1990, with cleanup expected to begin in late 1991.

Environmental Progress



After listing the site on the NPL, the EPA performed preliminary evaluations and determined that the Long Prairie site does not pose an immediate threat to the surrounding communities or the environment while final cleanup actions are being designed.



MACGILLIS & GIBBS COMPANY/BELL LUMBER

MINNESOTA

EPA ID# MND006192694



REGION 5
CONGRESSIONAL DIST. 04
Ramsey County
New Brighton

Alias:
Bell Lumber & Pole Company

Site Description

The MacGillis & Gibbs Company and the Bell Lumber & Pole Company are adjoining properties listed as one site on the National Priorities List. The site covers 68 acres in New Brighton. Both companies are wood treatment plants and have been in operation since the early 1920s. Both plants used *creosote* as a preservative until the mid-1950s. At that time, the companies began using light and heavy oils containing *pentachlorophenol* (PCP). MacGillis & Gibbs has been using *chromated copper arsenate* since 1970, some of which has been spilled in the process areas of the plants. Both companies used PCP *sludge* for weed control in the 1960s. A pond in a low-lying area between the properties was used for the disposal of PCP-contaminated sludge, treated and untreated wood scrap, and steel drums. Studies conducted by the companies indicate the groundwater is contaminated with wood preserving chemicals. There are more than 10,000 people living within 1 mile of the site. The closest residence is within several hundred feet.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater, *sediments*, and soils are contaminated with *polycyclic aromatic hydrocarbons* (PAHs); PCP; and heavy metals such as copper, chromium, and arsenic. Barrels on the site contain PAHs, PCP, dioxins, and furans. These barrels have been moved to a secure storage area on site. Although no private or municipal wells are contaminated, there is a potential for future contaminant plume *migration*, which may reach the drinking water wells. Children playing in sediments or water at the county ditch may be exposed to chemicals. Wetlands areas surrounding the site within a 2,000-foot radius may be subject to contamination from site *runoff*.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two *long-term remedial phases* directed at cleanup of disposal area soils and the process and storage areas.

Response Action Status



Immediate Actions: Open and leaking barrels containing PAHs, PCP, dioxins, and furans were *overpacked* and removed to a secure storage area on the MacGillis & Gibbs property. The part of the disposal area owned by Bell Pole has been excavated and filled with sand and gravel and covered with a clay *cap*.



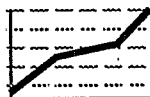
Disposal Area Soils: In 1987, the State began an investigation to determine the type and extent of soil contamination. Once this investigation is completed in 1991, final cleanup remedies will be selected.



Process and Lumber Yard Storage Areas: In 1990, the State began an investigation to determine the extent of the contamination in the process and the lumber yard storage areas. Once the investigation is completed in 1991, final cleanup alternatives for these areas will be selected.

Site Facts: In 1985, Bell Lumber signed a *Consent Order* with the State and began planning for the site cleanup on their portion of the site.

Environmental Progress



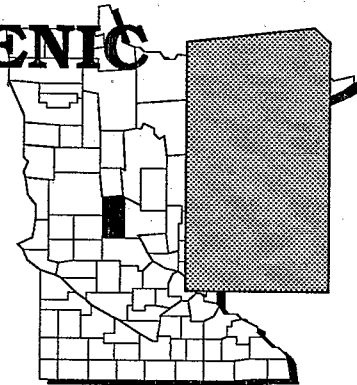
By removing the drums of contaminated materials and storing them in a safe location and excavating contaminated soil from part of the site, the potential for exposure to hazardous materials on the site has been significantly reduced. Investigations at both locations are currently under way and will lead to the final selection of remedies for the MacGillis & Gibbs/Bell Lumber & Pole Company areas of the site.



MORRIS ARSENIC DUMP

MINNESOTA

EPA ID# MND980792287



REGION 5
CONGRESSIONAL DIST. 07
Stevens County
Northeast of Morris

Site Description

The Morris Arsenic Dump site is located approximately 1 mile northeast of the town of Morris. In the early 1940s, approximately 1,500 pounds of arsenic-laced grasshopper bait was reportedly buried in a gravel pit near the intersection of Highways 28 and 59. The subsequent construction of the Highway 59 bypass through the general location of the burial site made the discovery of the exact location of the materials difficult. It has been presumed that the arsenic was mechanically dispersed during highway construction since topsoil cleared from the site for roadbed preparation was later spread along the side slopes.

Site Responsibility: This site was addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 09/01/83

Final Date: 09/01/84

Deletion Date: 03/07/86

Threats and Contaminants



Arsenic was detected in the groundwater. The site poses no imminent health hazards to the public due to the direction of groundwater movement from the site and the minimal population concentration within the site area. In addition, levels of arsenic found in the soils at the site are within the range of natural levels.

Cleanup Approach

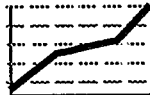
The site was addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: The EPA conducted a thorough investigation of the site in 1985 to determine the type and extent of contamination at the site. The results of the investigation indicated that the site poses no imminent health hazards to the public. Therefore, no further cleanup actions were deemed to be necessary. The site was deleted from the NPL in 1986.

Environmental Progress



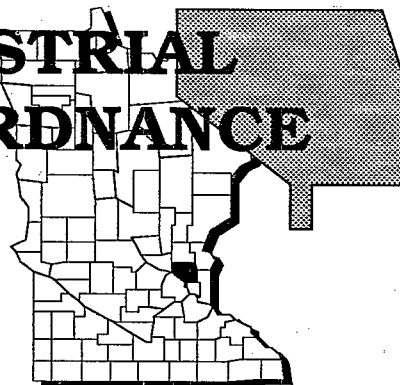
The investigation of the Morris Arsenic Dump led to the determination that the site poses no danger to the surrounding population or the environment, and it has been deleted from the National Priorities List.



NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT

MINNESOTA

EPA ID# MN3170022914



REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Fridley

Alias:
Naval Sea Systems Command

Site Description

The Naval Industrial Reserve Ordnance Plant (NIROP) occupies 83 acres in an industrial, commercial, and residential area of Fridley. NIROP has produced advanced weapons systems since it was constructed in 1940. Paints, solvents, lubricants, oil, and plating waste were and still are generated at the site. Analyses conducted by the Minnesota Pollution Control Agency (MPCA) found that soil and groundwater on the site are contaminated with solvents. In 1981, three bedrock wells supplying drinking water to NIROP were taken out of service because of *trichloroethylene* (TCE) contamination. The plant discontinued the use of TCE in 1987. FMC Corporation, NIROP's operating contractor, owns a 50-acre site bordering on the south of the site that was placed on the National Priorities List in 1983. Over 200,000 people live within 3 miles of the site. The Mississippi River is about 1/4 mile to the west. The water supply *intake* for Minneapolis is located approximately 1 mile downstream of the site. An estimated 29,000 people obtain drinking water from public wells within 3 miles of the site.

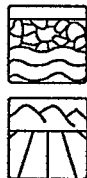
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 07/14/89

Final Date: 11/24/89

Threats and Contaminants



On-site groundwater and soils are contaminated with solvents, including *trichloroethylene* (TCE) and methylene chloride. Highly permeable sands, conducive to the downward *migration* of contaminants, lie below the facility. The *aquifers* beneath these sands may be threatened from site contaminants. Potential health risks may exist for individuals who accidentally ingest contaminated groundwater or soil.

Cleanup Approach

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

Response Action Status



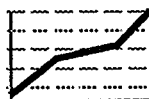
Initial Actions: From 1983 to 1984, the Army Corps of Engineers excavated a trench and *borrow pit* consisting of 1,200 cubic yards of soil and approximately 43 barrels containing *polychlorinated biphenyls* (PCB) wastes, flammable solids, and base solids. The excavated materials were removed to an EPA-regulated hazardous waste *landfill*.



Entire Site: In 1984, MPCA requested that the Navy and FMC determine the extent of surface water and groundwater contamination, locate any additional disposal areas, and take cleanup action. In response, a network of monitoring wells were installed to gather information on patterns of groundwater flow and contaminant concentrations. The study was completed in 1988, and an investigation into groundwater pumping and treatment has been completed. The EPA is evaluating the results and is drafting an outline of the selected remedy. The EPA also is planning to investigate the soil contamination.

Site Facts: The site is being cleaned up as part of the *Installation Restoration Program* (IRP). Under this program, established in 1978, the Department of Defense (DOD) seeks to identify and evaluate its hazardous waste and control the migration of hazardous contaminants from these sites.

Environmental Progress



The EPA is reviewing results of studies performed by the Navy and FMC to determine the most appropriate cleanup technologies for the Naval Industrial Reserve Ordnance Plant. While these activities are ongoing, the site does not pose an imminent threat to the surrounding population or the environment.



NEW BRIGHTON/ ARDEN HILLS

MINNESOTA

EPA ID# MN7213820908



REGION 5
CONGRESSIONAL DIST. 04
Ramsey County
Arden Hills

Aliases:
US Army Twin Cities Ammo. Plant
St. Anthony Site

Site Description

The New Brighton/Arden Hills site is located in Arden Hills, approximately 2 miles north of the twin cities of Minneapolis/St. Paul. The site consists of over 18 square miles of groundwater contaminated with *volatile organic chemicals* (VOCs). The Twin Cities Army Ammunition Plant (TCAAP), located north of St. Paul and Minneapolis, comprises the northeast corner of the New Brighton/Arden Hills/St. Anthony (NBAHSA) site. According to the U.S. Army, VOC contaminants are *migrating* off TCAAP into the groundwater and the Prairie Du Chien/Jordan *Aquifer*. In 1981, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Health detected VOC contamination in the system used for municipal drinking water in New Brighton. Prior to these findings, the City of New Brighton had constructed and operated a total of nine municipal wells. From 1982 to 1984, the city shut down six wells, deepened two municipal wells to the Mt. Simon/Hinckley Aquifer and constructed three new wells. The City of St. Anthony, located directly north of Minneapolis, is one of several communities that obtain their municipal water supply from the Prairie Du Chien/Jordan Aquifer system. Following the detection of contaminants in the New Brighton wells, the City of St. Anthony also detected contamination in their three Prairie Du Chien/Jordan Aquifer wells, one of which was shut down in early 1984. Since contaminants were first discovered, the levels have increased in the remaining undeeptened municipal wells. The site includes parts of the municipalities of Shoreview, Arden Hills, Moundsview, New Brighton, and St. Anthony.

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

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Polychlorinated biphenyls (PCBs), chromium, arsenic, and VOC contaminants, including *trichloroethylene* (TCE), benzene, toluene, and xylene have been detected in the groundwater. Potential health risks may exist for individuals drinking or coming into direct contact with contaminated groundwater.

Cleanup Approach

The site is being addressed in nine stages: immediate actions and eight *long-term remedial phases* directed at: the sewer line; groundwater; off-base contamination; groundwater *plume*; New Brighton well #7; contamination source control; soil; and cleanup of the entire site.

Response Action Status



Immediate Actions: Between 1983 and 1984, the EPA supplied bottled water to many residences and businesses, extended the existing water supply system to the New Brighton and Arden Hills private well users whose wells were found to be contaminated, installed granular activated carbon filters on two wells to meet the peak summertime demand, and treated the New Brighton/Arden Hills wells #5 and #6 with activated carbon. All the nearby affected residents are now using either uncontaminated water or treated water.



Sewer Line: The State conducted an investigation in 1987 to determine the type and extent of contamination around a sewer line/force main that was used for TCAAP waste transportation to the metropolitan waste district. The results of the study will be used to determine the appropriate actions needed to clean up the sewer line area contamination.



Groundwater: In March 1990, the EPA selected the remedy to address St. Anthony wells #3, #4, and #5, which consisted of the construction of granular activated carbon (GAC) water treatment facilities to remove VOCs from the wells. The treated water will be discharged into the municipal water treatment plant and distribution system. A pipeline will be constructed to connect St. Anthony well #5 to the GAC treatment facility. The EPA completed design of the technologies and the State agreed to take responsibility for the construction.



Off-Base Contamination: In 1983, the State began an investigation to determine the type and extent of contamination off the Army base. The first study was completed in 1987. The second study is expected to be completed in 1990. The U.S. Army will then identify the alternative technologies for the cleanup.



Groundwater Plume: In 1988, the U.S. Army initiated an investigation of the nature and extent of the contaminated groundwater plume and recommended a recovery system. The State and the EPA have not accepted this option because there is no useful way to dispose of the water. The EPA is investigating a program for groundwater plume extraction and injection of the water into the Mississippi River or treatment of the water for use as potable water.



New Brighton Well #7: In 1986, the EPA selected a remedy to address potential future contamination of New Brighton well #7, which involves the construction of a new well into the Mt. Simon-Hinckley Aquifer system. However, in the fall of 1989, the EPA signed an amendment to this remedy, because the Army agreed to provide the City over 4 million gallons per day of drinking water. In 1987, the Army also agreed to provide results of monitoring the water quality of Well # 7 and to construct a barrier system to prevent future contamination.

continued



Soil: In 1989, following the investigation of on-site soil contamination, the Army and the EPA selected incineration of the PCB-contaminated dirt in a mobile incinerator as the soil cleanup remedy. The incineration was completed within a month in 1989. The final disposal of drummed waste and the cleanup of incidentals, such as concrete pads for the incinerator, is expected to be finished in 1990.



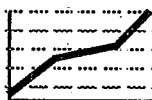
Source Control: In 1987, to address the source of the groundwater contamination, the EPA, the MPCA, and the Army initiated the operation of a 6-well system to extract groundwater migrating from the southwestern corner of TCAAP and treated it with *air stripping*. Approximately 300,000 gallons per day are utilized in the plant, with the remainder being disposed of by reinjection/infiltration through the arsenal sand and gravel pit. Operating data and monitoring results are evaluated and additional measures will be taken, if necessary, to ensure that any contaminated groundwater migrating from the site is captured. Currently, there is a 14-well extraction system in operation; all water is air stripped, and some is carbon filtered for the military base's drinking water supply.



Entire Site: The U.S. Army initiated an investigation in 1987 to study technologies to be used in cleaning up the entire site. All contamination source areas found on the base during the investigation will be evaluated for the need and type of cleanup.

Site Facts: The U.S. Army Twin Cities Ammunition Plant is participating in the *Installation Restoration Program (IRP)*, a specially funded program developed in 1978 by the Department of Defense (DOD) to identify, control, and investigate hazardous wastes on military or other DOD installations.

Environmental Progress



By supplying the affected residents with a safe drinking water supply, incinerating the PCB-contaminated soils, and constructing the water treatment system, the potential for contact with hazardous materials from the the New Brighton/Arden Hills site has been greatly reduced. Further investigations into the other areas needing attention are currently taking place and will lead to the selection of final remedies for the entire site.



NL INDUSTRIES/ TARACORP/GOLDEN AUTO

MINNESOTA

EPA ID# MND097891634



REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
St. Louis Park

Aliases:
Northwestern Metal Works
Taracorp Ind.

Site Description

The NL Industries/Taracorp/Golden Auto site is located in St. Louis Park, just west of Minneapolis. The site consists of two neighboring properties, one formerly owned by Taracorp, Inc., and the other currently owned by Morris and Harry Golden. Metal refining, fabricating, and associated activities were conducted at the site until 1903, when the secondary lead smelting operation was started. The secondary smelting operations produced a number of products, including sheet lead solder, shotgun lead pellets, lead wool, lead pipe, powdered lead, and secondary lead ingots. Historically, solid waste generated by the manufacturing facilities was stored on site in a slag storage area. Liquid wastes were discharged through process sewers, which ran under the site, to the municipal sewer system. NL Industries, Inc., formerly the National Lead Company, bought the site in 1928. NL Industries operated a lead smelting plant on the site from 1940 until 1979. Plant operations included recovering lead from lead plates, battery fragments, and lead containers. Lead smelting operations and disposal practices resulted in elevated levels of lead in the air and on-site soils. In 1962, NL sold a 4 1/2-acre portion of the property to Republic Enterprises, which, in turn, sold the property to Morris and Harry Golden, who used the land for an auto wrecking and used auto parts business from 1964 until 1983. Currently, that land is leased by Quality Auto Body, also a used auto parts and wrecking company. NL sold the lead smelting operation and the remaining property to Taracorp, Inc. in 1979. The smelter remained in operation until its *closure* in 1981. There are residential areas within 1/4 mile of the site. *Aquifers* beneath the site serve as a primary source of drinking water in the area, supplying 90% of all groundwater used in the region. Marshy areas exist approximately 1,000 feet from the site, and there is a pond about 500 feet to the northwest. Minnehaha Creek is about 1 mile away, and the Mississippi River is approximately 3 miles northwest of the site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater in the vicinity of the site was found to be contaminated with elevated levels of sulfates, dissolved solids, lead, and lower pH levels. Off-site soils have shown elevated levels of lead, although levels are generally well below the safety levels for lead in soil established by the State. On-site soils were found to contain highly elevated levels of lead. Also present on the site were battery fragments, lead-bearing debris, and slag. Potential health risks may have existed for individuals who accidentally ingested or came into direct contact with the contaminated soils or groundwater.

Cleanup Approach

The site has been addressed in two *long-term remedial phases* focusing on cleanup of the groundwater and on-site soils and cleanup of the off-site soils.

Response Action Status

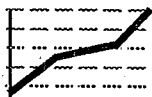


Groundwater and On-Site Soils: Under a *Consent Order*, NL Industries conducted on-site investigations and cleanup activities between 1985 and 1988. These activities included: (1) restricting access to the site; (2) removing contaminated on-site soils to a federally approved facility and replacing the excavated area with clean soils; (3) revegetating the excavated area; (4) paving areas with asphalt to minimize exposure to contaminated soil; (5) cleaning and demolishing several on-site buildings; and (6) long-term monitoring of groundwater. The groundwater will continue to be monitored for 30 years. If contaminant levels exceed standards, further cleanup actions will be taken.



Off-Site Soils: A risk assessment conducted by NL Industries in 1987, and a similar study conducted by the EPA both concluded that the lead in soils near the NL Industries site do not presently pose a risk to public health and the environment. Based on these results and the recommendations of the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Health, and the Agency for Toxic Substances and Disease Registry (ATSDR), the EPA recommended that no further action was necessary with regard to off-site soils near the site.

Environmental Progress



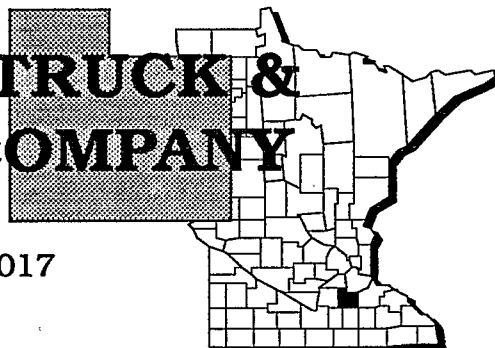
Cleanup goals for the site have been fully achieved. Based on a consensus of recommendations from the various agencies involved in the investigations of the site conditions, it was agreed that the site requires no further cleanup actions. The EPA will continue to monitor the groundwater to ensure that the contaminant levels do not to exceed standards. The site will not be deleted from the NPL until the EPA is absolutely certain the site poses no threats to the public.



NUTTING TRUCK & CASTER COMPANY

MINNESOTA

EPA ID# MND006154017



REGION 5
CONGRESSIONAL DIST. 01
Rice County
Fairbault

Site Description

The 11-acre Nutting Truck and Caster Company site was used for the production of various manufacturing tools beginning in 1891. *Sludge* from various manufacturing wastes were disposed of in an unlined pit from 1959 to 1979. In 1979, the Minnesota Pollution Control Agency (MPCA) issued a notice of non-compliance to the company. In response to this notice, Nutting excavated the pit, *backfilled* it with clean fill, and paved over the area. MPCA required that the company investigate the soil and groundwater in the area. Monitoring wells were installed and *trichloroethylene* (TCE) contamination was discovered in on-site monitoring wells that were screened in the upper *aquifer*. In 1984, the manufacturing operations were moved to another location. The property is presently unused. The population of the City of Fairbault is approximately 16,500. The city is served by a municipal water system.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants

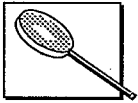


The groundwater is contaminated with various *volatile organic compounds* (VOCs). Cadmium was also detected in the groundwater directly under the disposal pit. Potential health threats include drinking or touching contaminated groundwater.

Cleanup Approach

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

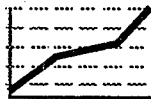
Response Action Status



Entire Site: The company completed the investigation of groundwater contamination in 1986. Two pump-out wells were placed in the aquifer, and the contaminated water is being treated by a passive *aeration* system before being discharged to a nearby creek. As part of site investigations, a groundwater monitoring system was also put in place. Monitoring of TCE levels are continuing on the site. The selection of the final cleanup technology will be made using the results of this investigation.

Site Facts: A *Consent Order* was signed in 1984 by the MPCA and Nutting requiring Nutting to conduct an investigation of the extent of groundwater contamination originating from its property.

Environmental Progress



The treatment and monitoring systems installed at the Nutting Truck and Caster Company site have greatly reduced the potential for exposure to contaminated groundwater while further monitoring and cleanup activities are taking place.



OAK GROVE SANITARY LANDFILL

MINNESOTA

EPA ID# MND980904056



REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Oak Grove Township

Site Description

The 104-acre Oak Grove Sanitary Landfill site was operated as an open dump until 1971, when the Minnesota Pollution Control Agency (MPCA) issued a permit to the owner for a sanitary *landfill*. In 1976, operations were taken over by Northwest Disposal Inc. until *closure* in 1984. Approximately 2 1/2 million cubic yards of wastes including garbage, various *sludges* and *acids*, pesticide manufacturing waste, cutting oils, cleaning solvents, and inks were disposed of at the landfill. The Minnesota Department of Health sampled nine nearby residential wells in 1984. The wells are screened in a sand *aquifer*, which is the primary water supply source in the area. Samples from three wells indicated the presence of several *volatile organic compounds* (VOCs). Subsequent resampling did not detect these compounds. In 1985, lime sludge was received and used as a cover for part of the landfill. Approximately 330 people live within 1 mile of the site, and 9,800 live within 4 miles. The majority of these residents depend on water from wells. A creek flows through the site and is adjacent to a *wetland*, discharging to Rum River 2 miles from the site.

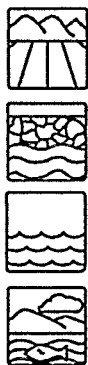
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants

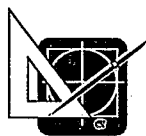


Methane and VOCs were detected beneath the lime sludge cover material. VOCs, phenols, phthalates, and heavy metals were detected in the aquifer. *Leachate* samples indicated the presence of VOCs, *phenols*, and heavy metals. Several VOCs, phenols, and heavy metals were found in *sediment* samples and surface water at the site. *Leachate* discharges to a nearby wetland, thereby potentially threatening the wetland and the connected Cedar Creek. Potential human health risks may exist from accidental ingestion or touching of the contaminated soil, sediments, or leachate. Drinking contaminated groundwater may also pose potential health risks.

Cleanup Approach

This site is being addressed in two *long-term remedial phases* focusing on source control and cleanup of the groundwater.

Response Action Status

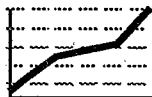


Source Control: In 1988, the MPCA and the EPA selected the following cleanup actions for the site: (1) installation of a security fence; (2) *capping* with a multi-layer cover system; (3) installation of a topsoil cover and vegetation; (4) enforcement of deed restrictions; (5) consideration of treatment options for air emissions from gas vents after construction of the final cover; and (6) air and groundwater monitoring. The State began designing the cleanup technologies in 1988; completion is scheduled for 1990.



Groundwater: An investigation was initiated in 1985 to determine the nature and extent of groundwater contamination. The selection of final cleanup actions is scheduled to be made in 1990.

Environmental Progress



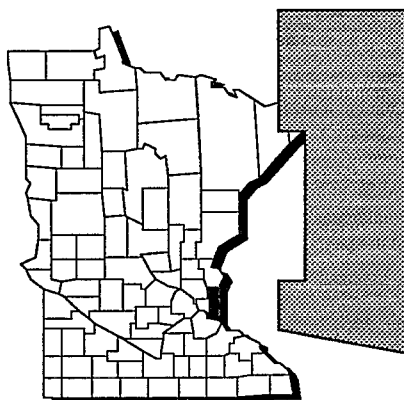
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Oak Grove Sanitary Landfill site while further studies are being completed and cleanup activities are being planned.



OAKDALE DUMP

MINNESOTA

EPA ID# MND980609515



REGION 5
CONGRESSIONAL DIST. 06
Washington County
Oakdale

Alias:
Abresch Barrel & Drum Company

Site Description

The 40-acre Oakdale Dump site consists of three disposal areas: two of the areas were burial areas, and one was a burning area. The burial areas were owned and operated by the Abresch Drum and Barrel Company from the mid-1940s to 1961. Aerial photos reveal that the greatest activity at the burial operations occurred in the late 1950s, when large trenches were dug with heavy equipment, and drums containing chemical wastes were disposed of in the trenches. In 1961, the disposal of wastes at the site had ceased and the property was later sold to several parties. The site was left vacant, covered with rusted drums, pails, and a variety of industrial wastes. Groundwater pollution was detected, forcing the closing of two community wells and a number of private wells within the City of Oakdale. Approximately 600 private wells are within 1 mile of the site; approximately 540 people live within 1 mile of the site. More than 44,000 people live within 3 miles of the site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater was contaminated with various *volatile organic compounds* (VOCs). Since the cleanup activities were conducted by the Minnesota Mining and Manufacturing Corporation (3M), one of the potentially responsible parties, the potential health risks have been eliminated. The site is currently being considered for deletion from the NPL.

Cleanup Approach

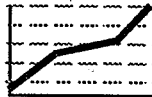
This site was addressed in a single *long-term remedial phase* that focused on cleanup of the entire site.

Response Action Status



Entire Site: Under an agreement reached in 1983 between 3M, the Minnesota Pollution Control Agency, and the EPA, 3M handled the necessary arrangements and payments for the reconstruction of multi-aquifer wells in 1984; removal of concentrated waste deposits in 1984; installation of a shallow groundwater pump-out system in 1985; and the establishment of a monitoring well network in 1985. Cleanup actions have been completed.

Environmental Progress



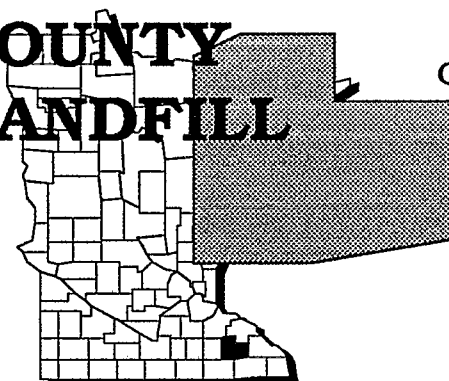
Cleanup for contaminated groundwater have been fully achieved at the Oakdale Dump site. Through the cleanup efforts of 3M to address the groundwater contamination and the removal of its source, health risks to nearby residents have been eliminated, and the environment has been protected. The site is currently being considered for deletion from the NPL.



OLMSTED COUNTY SANITARY LANDFILL

MINNESOTA

EPA ID# MND000874354



REGION 5
CONGRESSIONAL DIST. 01

Olmsted County
Oronoco

Aliases:
Rochester Landfill
Oronoco Sanitary Landfill

Site Description

The 50-acre Olmsted County Sanitary Landfill was owned and operated by the City of Rochester and was licensed by the Minnesota Pollution Control Agency (MPCA). The first *cell* of the *landfill* was constructed without a liner or a system for collecting *leachate*. The liner for the second cell was poorly constructed, but the third and fourth cells were properly built. The landfill has operated since 1972 and has accepted various industrial wastes including electroplating sludge, asbestos, transformers, paint, and solvents. A large amount of flood-soaked material was put into the landfill in 1977. By 1984, groundwater under the landfill was heavily contaminated with leachate from the waste pile. There were extensive leachate seeps on the site. Also, an intermittent stream, which runs through the site to the Zumbro River, could carry contaminants during heavy rains. In 1984, the County of Olmsted assumed ownership and operation of the landfill. Approximately 200 people live within 1 mile of the site. Approximately 1,200 private wells are located near 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: 06/10/86

Threats and Contaminants



Groundwater is contaminated with various *volatile organic compounds* (VOCs) and heavy metals including chromium, cadmium, and lead. People who use contaminated groundwater supplies or inhale vapors from it, may be exposed to hazardous chemicals from the site. Groundwater under the landfill is likely to discharge into the nearby Zumbro River, potentially contaminating area surface waters and *sediments*.

Cleanup Approach

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

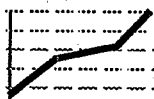
Response Action Status



Entire Site: The County of Olmsted is scheduled to start a study of contamination at the site in 1991, which will include an analysis of the groundwater, surface water, and sediments to define the problem and assess possible cleanup alternatives. The County is conducting a dye tracing study to identify the flow pattern of groundwater in and around the site.

Site Facts: In 1989, the MPCA signed a *Consent Order* with Olmsted County to carry out a study of the nature and extent of contamination at the site and to carry out final cleanup activities.

Environmental Progress



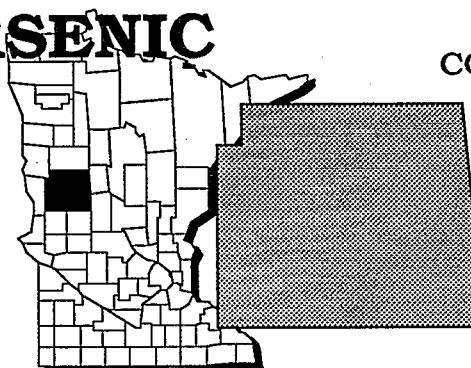
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Olmsted County Sanitary Landfill site while further studies are taking place and cleanup activities are being planned.



PERHAM ARSENIC

MINNESOTA

EPA ID# MND980609572



REGION 5
CONGRESSIONAL DIST. 07
Otter Tail County
Perham

Alias:
Perham Fairgrounds

Site Description

The State of Minnesota set up the 1/4-acre Perham Arsenic site to mix pesticides in the 1930s and 1940s. This was part of the U.S. Department of Agriculture's (USDA) program to control an outbreak of grasshoppers that threatened crops throughout the Midwest. The USDA provided all midwestern states at that time with pesticides to control the infestation, and it helped them set up numerous stations to mix the chemicals used in the program. Approximately 200 to 2,500 pounds of pesticides were buried between what is now the cattle shed of the county fairgrounds and a building of the Hammers Construction Company. The EPA believes the pesticides were buried around 1947, after the USDA ended its program against the infestation. In 1971, the Hammers Construction Company purchased property next to the fairgrounds from the City of Perham to build offices and a warehouse. In 1972, the company installed a shallow well to provide water to the facility. Eleven employees were poisoned with arsenic when they drank water from the well. The well was *capped*, and the City of Perham extended its municipal water supply to the facility. Approximately 2,000 people live in the City of Perham.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants

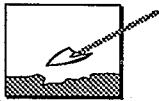


Groundwater and soil on the site is contaminated with arsenic. Potential health threats include accidentally ingesting or touching contaminated groundwater or soil.

Cleanup Approach

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

Response Action Status

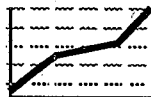


Initial Actions: In 1982, the City of Perham capped the site with a plastic film and clay soil to reduce the amount of arsenic that can *leach* through the soil as a result of rain and snow. In 1985, the State excavated approximately 200 cubic yards of arsenic wastes in the burial pit and disposed of the wastes in a hazardous waste *landfill*. The State filled the pit with clean soil, placed an impermeable membrane and clay cap over the pit, and set up a program to monitor the groundwater. The city extended its municipal water supply to the affected workers at the Hammers Construction Company.



Entire Site: In 1989, the State of Minnesota began a study into the nature and extent of contamination at the site and is considering alternatives for cleaning up contamination at the site.

Environmental Progress



Excavation of contaminated soil and other initial actions taken at the Perham Arsenic site has significantly reduced exposure to contaminated soil and groundwater while further investigations are taking place and cleanup activities are being planned.



PINE BEND SANITARY LANDFILL

MINNESOTA

EPA ID# MND000245795



REGION 5
CONGRESSIONAL DIST. 01
Dakota County
Inver Grove Heights

Alias:
American Crosby Demolition Landfill

Site Description

The 252-acre Pine Bend Sanitary Landfill site is an active facility that accepts various wastes into two adjacent *landfills*. Browning Ferris Industries owns the landfill and has allowed Phoenix, Inc., a subsidiary, to operate it since 1972. During these years, the landfill has produced *leachate* containing arsenic, *halogenated* and non-halogenated organic compounds, and various chlorides. The EPA and the State analyzed the groundwater and soils on site and discovered contamination from leachate. The EPA found *volatile organic compounds* (VOCs) and *polycyclic aromatic hydrocarbons* (PAHs) in wells that monitor groundwater in the shallow *aquifer* and in residential and commercial wells that draw water from that same source. Approximately 50 people live within a 1-mile radius of the site. Approximately 16,000 people live in the town of Inver Grove Heights, 3 miles north of the landfill. Various wells of private residences are contaminated with heavy metals, VOCs, and PAHs. Eight private residences now use bottled water that is provided by the site owners. The site is approximately 3/4 of a mile west of the Mississippi River and is bordered by farms, food processing plants, chemical manufacturers, an oil refinery, a pumping station for natural gas, an asphalt plant, an installation for electrical utilities, and residences. The site is fenced, and there is a check-in station at the gates of both landfills to enforce security restrictions.

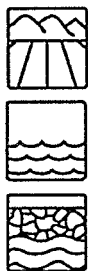
Site Responsibility: This site is being addressed through Federal, State, and *potentially responsible parties'* actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Leachate from the landfills and surface water contains arsenic, halogenated and non-halogenated organic compounds, and various chlorides. Groundwater is contaminated with VOCs and PAHs. People could potentially be exposed to contaminants from the site through drinking or touching contaminated groundwater, or by eating crops grown in private gardens watered with contaminated well water.

Cleanup Approach

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

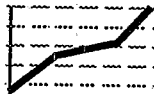
Response Action Status



Entire Site: The State of Minnesota has begun a study of the site to determine the nature and extent of contamination of the groundwater, surface water, soils, and *sediment* in and near the site and to identify cleanup alternatives. The study is scheduled for completion in late 1990. Once the study is completed, the EPA will review the results and determine what cleanup actions are needed to address the contamination.

Site Facts: In 1985, the State entered into an agreement with Pine Bend Sanitary Landfill and the adjacent Crosby American Demolition Landfill to conduct the investigation.

Environmental Progress



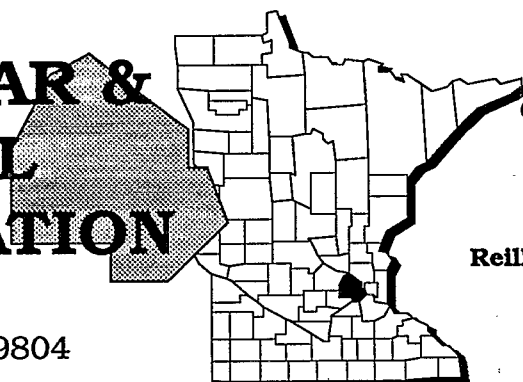
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Pine Bend Sanitary Landfill site while further investigations are taking place leading to the selection of final cleanup remedies.



REILLY TAR & CHEMICAL CORPORATION

MINNESOTA

EPA ID# MND980609804



REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
St. Louis Park Plant

Aliases:
**Reilly Tar & Chemical Republic Creosoting
Company**

Site Description

The 80-acre Reilly Tar & Chemical St. Louis Park site is an inactive facility that was used for coal tar distillation and wood preserving from 1917 to 1972. The site was sold and converted into recreational and residential areas in 1972. Highway and storm sewer improvements were also constructed on the site in 1972. Wastes from site operations were disposed of on the site and in a network of ditches that discharged to an adjacent wetland. The wastes contained many compounds, including *polycyclic aromatic hydrocarbons* (PAHs). Soil and groundwater below the wetland and the southern portion of the site are heavily contaminated. The site is located in St. Louis Park, a western suburb of Minneapolis, with a population of approximately 43,000 people. Portions of the northern end of the site have been developed as a residential complex. Seven municipal wells have been closed due to PAH contamination. The nearest residence is located approximately 1/4 mile from the site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with *petrochemicals* and various *volatile organic compounds* (VOCs). *Sludges* and soils are contaminated with petrochemicals and *creosotes* from wood preserving activities. The wetland adjacent to the site is threatened by the contaminants that have been discharged from the site. The potential health risks to people include drinking or touching groundwater, inhaling contaminated vapors, or coming into direct contact or accidentally ingesting contaminated soils and sludge.

Cleanup Approach

This site is being addressed in four stages: immediate actions and three *long-term remedial phases* focusing on water treatment and contamination source control, groundwater *aquifer* control, cleanup of the Drift Platteville Aquifer, and cleanup of the St. Peter Aquifer.

Response Action Status



Immediate Actions: In 1982 and 1983, the State cleaned out two deep wells on the site and conducted a complete off-site well survey. The State also performed a water treatability study on the closed municipal wells. The State plugged additional multi-aquifer wells, and tested the proposed gradient system to control *migration* of contamination to existing wells.



Water Treatment and Contamination Source Control: The cleanup option selected to address water treatment and contamination source control includes the construction and operation of a granular activated carbon water treatment system at two existing contaminated municipal wells. The parties potentially responsible for site contamination constructed this water treatment system, which has been fully operational since 1985.



Groundwater Aquifer Control: The cleanup methods selected to address groundwater and aquifer contamination include: (1) monitoring, pumping, and treating the various aquifers to maintain drinking water quality; (2) *capping* and filling exposed hazardous wastes in the vicinity of the peat bog and discharging those hazardous materials into a sanitary sewer; (3) investigating subsurfaces to implement deed restrictions for current and future land use; and (4) completing further investigations into the nature and extent of contamination in the northern area of the Drift Platteville and St. Peter Aquifers. In 1986, the City of St. Louis Park proceeded with the filling of exposed hazardous wastes in the vicinity of the peat bog. Five areas of the wetland were filled in to prevent further spread of contamination into the food chain. The filling activity was completed in 1986. The potentially responsible parties, under EPA guidance, began monitoring and pumping water from contaminated *plumes* to prevent further migration of contaminants. Work is ongoing for deed restrictions of future commercial and residential construction on the site. An existing municipal well in the Prairie du Chien Aquifer is to be used as a gradient control well to prevent the spread of contamination.

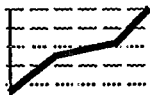


St. Peter and Drift Platteville Aquifers: The potentially responsible parties, under EPA monitoring, are conducting an investigation of the aquifers to determine if a higher capacity well pump should be installed in an existing well or whether a new gradient control well should be constructed. The investigations will define the extent of contamination in the aquifer and recommend a process to prevent the spread of the contamination. The investigation is scheduled for completion in late 1990 and 1991, respectively, for each aquifer.

continued

Site Facts: In 1984, the EPA issued an order to Reilly, a potentially responsible party, requiring the company to construct and install a granulated activated carbon drinking water system. In 1986, Reilly Tar and Chemical signed a *Consent Decree* requiring them to finance cleanup activities at the site. The Decree also required the company to conduct investigations into the nature and extent of contamination in the Drift Platteville and St. Peter Aquifers.

Environmental Progress



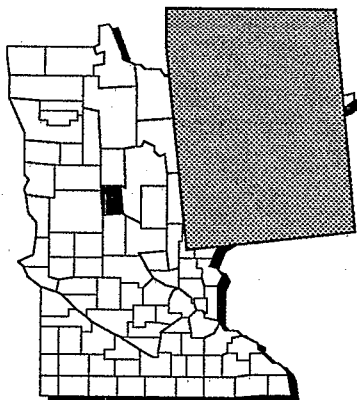
The immediate actions described above began treating the contaminated groundwater and removing the sources of contamination. These actions have greatly reduced the potential for exposure to contaminated groundwater at the Reilly Tar and Chemical St. Louis Park site while further investigations into additional measures required to clean up the aquifer are taking place.



RITARI POST & POLE

MINNESOTA

EPA ID# MND980904064



REGION 5
CONGRESSIONAL DIST. 07
Wadena County
3 miles northwest of Sebeka

Site Description

The 212-acre Ritari Post & Pole site is an active wood preserving facility that has been in operation since 1959. *Creosote* was used as a preservative up to 1966. The wood preserving operation now uses *pentachlorophenol* (PCP) as the preservative. From 1966 to 1973, the site used a process that allowed approximately 27,000 gallons of PCP to drip from treated wood directly onto the ground. In addition, approximately 3,200 gallons of PCP-contaminated *sludge* were applied directly to the ground. The site is partially fenced. There are approximately 350 people living within 3 miles of the site. Several on-site monitoring wells and a private well less than 500 feet away from the site are contaminated with PCP. The private well has been replaced by a new well into a deeper uncontaminated *aquifer*. The site is 3/4 miles from a *wetland* area draining into the Cat River. The river is used for recreation.

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

NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 07/21/87

Threats and Contaminants



On-site groundwater is contaminated with PCP and *phenols*. Potential health threats include using contaminated groundwater for household purposes and crop irrigation. Also, contamination of the food chain is possible if contaminants move into the adjacent wetlands and the small creek that drains into the Cat River.

Cleanup Approach

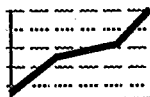
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: The State currently is conducting an investigation into the nature and extent of contamination at the site, which will result in the selection of final cleanup remedies. The investigation is scheduled to be completed in 1991.

Environmental Progress



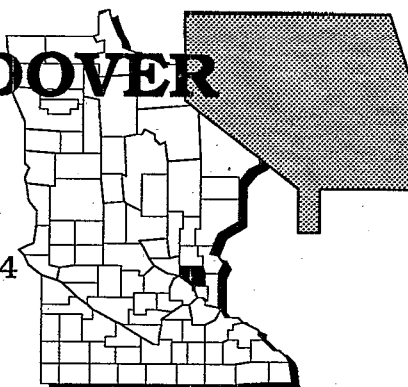
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Ritari Post and Pole site while further studies are taking place and cleanup activities are being planned.



SOUTH ANDOVER SITES

MINNESOTA

EPA ID# MND980609614



REGION 5

CONGRESSIONAL DIST. 06

Anoka County

Andover, 16 miles northeast of Minneapolis

Aliases:

**Heidelberger Cecil Musket Ranch
Pumpkin City Investments
Musket Ranch**

Site Description

The South Andover Sites are composed of several parcels of land totaling approximately 50 acres. The individual parcels of land are located adjacent to one another and are independently owned and used. Several small businesses involved with used auto part sales, auto salvage operations, and auto body repair are situated adjacent to the site. From 1954 until 1981, the majority of these properties were involved with waste disposal and salvage operations. The Cecil Heidelberger property stored drums containing inks and solvents. Approximately 75% of the Heidelberger property was later covered with an estimated 3 million tires. Thousands of barrels of solvents and inks were reportedly burned in open pits on the Batson property. A *wetland* on the property was used as a disposal area prior to filling. The Charles Mistelske property was used to store approximately 8,300 gallons of paints, adhesives, and greases in 1-, 2-, and 55-gallon containers. The Meyer property was used to store approximately 200 drums of chemical waste. Spillage of chemical waste is known to have occurred at this location. Drummed waste and transformers were stored on the Klar property. Transformers, salvaged electrical equipment, empty drums, and miscellaneous debris are evident on the site. Waste processing stopped in 1977, and waste was not accepted after 1978, when the property was sold to Parmack, Inc. In 1980, the State issued notices of violation for improper storage and disposal of chemical wastes. The site is located 3,000 feet from the Waste Disposal Landfill, another National Priorities List (NPL) site. The City of Andover has a population of 13,000. The area 1/4 mile north of the site is a residential neighborhood with about 170 homes. Five residences are located on site. Further development is planned to the west and south of the site. Several commercial ventures, including auto part and salvage operations, currently operate on site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater in three shallow drinking wells is contaminated with *volatile organic compounds* (VOCs) including benzene, xylenes, and vinyl chloride and the heavy metals lead and chromium. The shallow *aquifer* underlying the site is heavily contaminated at one location. No other contamination of drinking water wells has been detected. Subsurface soil is contaminated with trace amounts of *polychlorinated biphenyls* (PCBs), and surface soil is contaminated with lead and chromium. Trace amounts of several semi-volatiles have been detected in soil samples. The potential health threats of greatest concern to people are drinking, inhaling, or making direct contact with contaminated soil, groundwater, and contaminated vapors. Residents who live on site and use the shallow groundwater may be subject to health threats and have been advised by the State to use bottled water, pending provision of an alternate water supply.

Cleanup Approach

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

Response Action Status



Immediate Actions: In 1981, approximately 700 drums were disposed of by mixing the contents with waste oil and using the mixture as fuel. An estimated 600 drums were removed from the site by the potentially responsible parties in 1986 and were disposed of in a federally approved facility. In 1989, the EPA constructed a fence around the unfenced area of the site and posted warning signs in an effort to limit site access. Also in 1989, the EPA, in conjunction with the State, completed shredding and removing the tires from the site.



Groundwater: The selected groundwater cleanup technologies to control the *migration* of contaminants present in the surficial aquifer include: extraction of groundwater from the surficial aquifer; provision of municipal water to private well users on or near the site; monitoring of groundwater movement at the site; and placement of restrictions on new wells on or near the site. The State and the EPA are preparing the technical specifications and design for the groundwater cleanup technologies. Groundwater discharge and treatment options, as well as the exact number and location of extraction wells, will be determined during the design phase of the cleanup. Groundwater discharge options include on-site treatment, discharge of groundwater to a municipal sewage treatment plant, and discharge to a surface stream. Groundwater cleanup activities will begin once the design phase is completed in 1991.

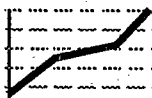
continued



Soils, Surface Water, and Sediment: The EPA currently is conducting an investigation into the nature and extent of soil, surface water, and sediment contamination at the site. Additionally, any contamination in the lower sand aquifer will be assessed. The investigation will define the contaminants of concern and will recommend alternatives for the cleanup of these resources and control of the sources of contamination at the site.

Site Facts: In 1976, the State issued a Citation of Violation to Cecil and Marian Heidelberger for unregulated chemical waste storage. In 1982, the EPA notified 16 potentially responsible parties that they may be liable for cleanup at the site. An early investigation of the site was initiated by the State in 1973, after a citizen lodged a complaint of suspected contamination in a residential well.

Environmental Progress



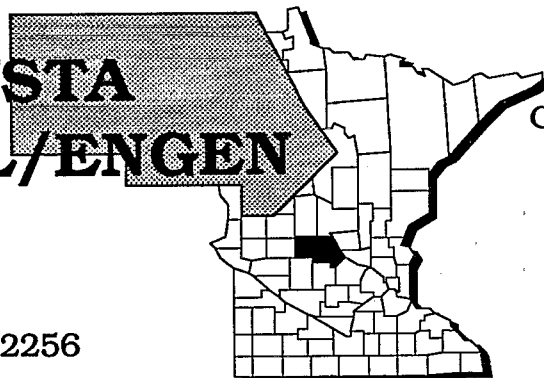
By removing contaminated drums, fencing the area of contamination, and removing numerous tires from the site, the potential for direct exposure to hazardous materials at the South Andover Sites facility has been greatly reduced. Further studies leading to the selection of a permanent cleanup strategy are currently being conducted, and the design specifications for groundwater cleanup are being prepared.



ST. AUGUSTA LANDFILL/ENGEN DUMP

MINNESOTA

EPA ID# MND981002256



REGION 5
CONGRESSIONAL DIST. 07

Stearns County
1 mile from St. Augusta

Alias:
St. Cloud Dump

Site Description

The 75-acre St. Augusta Landfill/Engen Dump site operated as a dump and *landfill*. The 10-acre Engen Dump portion of the site operated from 1966 to 1971. The 40-acre St. Augusta Landfill was operated as a sanitary landfill, licensed by the State, from 1971 until 1982. Paint wastes, solvents, *sludges*, and ash from hazardous waste incineration were buried at the site. Records indicate that open burning occurred at the Engen Dump portion of the site. There was also evidence of illegal dumping of wastes in the early 1980s. Also, erosion has at times exposed filled waste at the St. Augusta site, and a *leachate seep* has been noticed on the north side of the landfill. In 1983, the landfill and dump ceased operations and were covered with a *cap*. Fencing around the site is inadequate, and there is evidence of site use by recreational vehicles and hunters. St. Augusta has an approximate population of 2,500. The Mississippi River borders the old Engen Dump area of the site. Johnson Creek runs to the south of the site. One nearby residence has a private well which is regularly monitored. Since groundwater flow is toward the Mississippi River, site contaminants may be reaching the river which is used as a major drinking water resource.

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

NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 07/01/87

Threats and Contaminants



Groundwater is contaminated with heavy metals including arsenic, barium, and lead; *volatile organic compounds* (VOCs); atrazine; and phthalates. Potential health threats to people include touching and accidental ingestion of contaminated groundwater.

Cleanup Approach

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

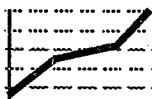
Response Action Status



Entire Site: A steering committee representing potentially responsible parties has installed monitoring wells, taken yearly samples, and had a *hydrogeological* study conducted. An investigation to determine the nature and extent of contamination is expected to begin in 1991 and is scheduled for completion in 1992.

Site Facts: Approximately 40 parties potentially responsible for wastes associated with the site have formed a steering committee to address contamination at the site.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the St. Augusta Landfill site while further investigations and cleanup activities are being planned.



ST. LOUIS RIVER SITE

MINNESOTA

EPA ID# MND039045430



REGION 5

CONGRESSIONAL DIST. 03

St. Louis County

5 miles southwest of Duluth's central business district

Aliases:

U.S. Steel Corp. Duluth Workshop
Interlake/Duluth Tar

Site Description

The 640-acre St. Louis River site contains two different areas: the St. Louis River/Interlake (Duluth Tar Area) and the U.S. Steel or USX area. These areas are separated by 4 miles of river. The USX Corporation began operation of an integrated steel mill on this site in 1915. Operations included coke and iron production, open hearth steel production, rolling, and wire milling. The USS Duluth Works closed in 1979; however, the wire mill building was used by a lessee until 1987. There is extensive contamination of *sediments*, soil, surface water, and groundwater with coke and tar products, which contain high concentrations of *polycyclic aromatic hydrocarbons* (PAHs). Demolition of most site buildings has already occurred, and some pipes and tanks used for storage in the past have been cleaned and dismantled. The St. Louis River and associated *wetlands* run along the east and south sides of the site. Eight miles downstream of the site, the river empties into Lake Superior. The Duluth Tar area is located about 3 miles from downtown Duluth. It occupies 230 acres of land and a marina area. The site consists of the 54th Avenue Peninsula, a boat slip, the Hallett Peninsula, and Stryker Embayment. The Hallett Peninsula has a long history of industrial use for pig iron manufacturing, coking operations, and related industries from the late 1800s to about 1960. Zenith Furnace Company manufactured pig iron on site from the late 1800s until the 1920s. The Zenith facilities were dismantled and partially removed during the 1920s, and the Interlake Iron Company plant was built. Between 1920 and 1927, Duluth Tar and Chemical Company produced tar paper from waste tar obtained from Interlake. During the 1930s, Dominion, and then American Tar and Chemical Companies, produced roofing paper and shingles also using tar from Interlake. Most buildings from these businesses have been removed. Presently, Hallett Dock Company, an auto junkyard, and other small businesses operate on the site. The St. Louis River is located south of this area. The river empties into Lake Superior 4 miles downstream of the site. Approximately 800 people live within 1 mile of the site. Contaminated groundwater is not a drinking water source. Drinking water is supplied from an *intake* several miles from the mouth of Lake Superior.

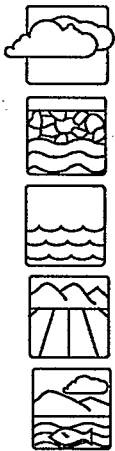
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants

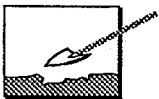


Air at the site contains contaminated dust and VOCs when the surface soil is disturbed. The groundwater at both site areas is contaminated with PAHs. Sediments and soils at the U.S. Steel area contain PAHs. Sediments and soils at the Duluth Tar Area contain PAHs and tars. The surface water at the U.S. Steel area is contaminated with PAHs. The tanks and pipes are contaminated with *polychlorinated biphenyls* (PCBs). If the contaminated soil, sediments, surface water and groundwater is accidentally swallowed or touched, it could lead to health hazards. The site could also contaminate the adjacent wetlands and the St. Louis River. There is a fish advisory in effect, "No swimming" signs are posted, and there are some restrictions on access to the site.

Cleanup Approach

This site is being addressed in three phases: initial actions and two *long-term remedial phases* focusing on cleanup of the Duluth Tar area and cleanup of the U.S. Steel area.

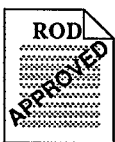
Response Action Status



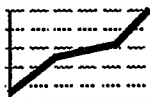
Initial Actions: Several initial actions have been completed to remove contaminated materials at the site. Most buildings at the site have been demolished, and tanks and pipes have been cleaned and dismantled.



Duluth Tar Area: The State is investigating the nature and extent of contamination on the Interlake portion of the site. The study, which is scheduled to be completed in late 1990, will lead to the selection of final cleanup activities at the site.



U. S. Steel Area: The State has selected the following remedy to cleanup the U.S. Steel portion of the site: (1) excavating and removing the tar-contaminated soil and using it as fuel; (2) discharging the contaminated water to the publicly owned water treatment facility; (3) incinerating PCB liquids; (4) constructing a *slurry wall*; (5) *landfarming* of some materials; (6) surface water and groundwater monitoring; and (7) disposing of wastes in an approved *landfill*. The EPA is currently evaluating the remedy selection to determine if the technologies and cleanup methods will adequately address site contamination.

Environmental Progress

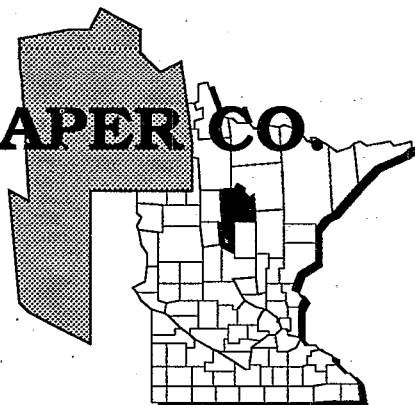
The demolition of contaminated buildings and cleanup and dismantling of contaminated tanks and pipes have reduced the potential for exposure to hazardous materials at the St. Louis River site while further studies and remedy selection are taking place.



ST. REGIS PAPER CO.

MINNESOTA

EPA ID# MND057597940



REGION 5

CONGRESSIONAL DIST. 07

Cass County
Chippewa National Forest

Alias:
Wheelers Division

Site Description

The St. Regis Paper Company site occupies 125 acres in the Chippewa National Forest between Pike Bay and Cass Lake. Wood treatment activities began at the site in the 1950s while the land was leased from Great Northern Railroad. In 1957, pressure treatment of lumber with *creosote* was being used for the wood treatment process, and wastewater from this process was discharged into a disposal pond. In 1960, *pentachlorophenol* (PCP) was being used to pressure-treat wood products. Wastewater from this process was discharged into three disposal ponds. In mid-1971, the three ponds were replaced by a new pond. Since mid-1980, the plant's wastewater was evaporated, and the residue was placed in barrels for transport to a hazardous waste disposal facility. Prior to this action, *sludge* was reportedly hauled to the southwestern corner of the property before it was transported to an off-site disposal facility. Also, the pond was dredged on one occasion and the contents were placed around the sides of the pond. Drinking water in the area comes from private and municipal wells. The Chippewa National Forest, Pike Bay, and Cass Lake have a potential of being contaminated by 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: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



The groundwater is contaminated with *polycyclic aromatic hydrocarbons* (PAHs) and *phenolic* compounds, low levels of metals, and dioxins. The soil is contaminated with PAHs, PCPs, dioxin and arsenic, while the surface water is contaminated with PAH and phenolic compounds. The contaminated soil and groundwater could have adverse health effects if accidentally touched or swallowed. *Seepage* from the site most likely flows into the nearby *wetlands* and could be harmful to its plant and animal life.

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 1986, the State decided to excavate the contaminated soil and store it in an on-site vault. The contaminated soil has been excavated and stored, and the groundwater is being treated by the *carbon absorption* method before being discharged to the surface water. This treatment system has been operative for the last two years.

Site Facts: Two *Consent Orders* signed between the State of Minnesota and Champion International in 1985 gave Champion the responsibility to conduct the investigation to determine the nature and extent of site contamination and to develop a plan for cleanup.

Environmental Progress



The ongoing groundwater treatment program and soil excavation at the St. Regis site has significantly reduced the potential for exposure to soils contaminants while cleanup activities are being completed.



TWIN CITIES AIR FORCE RESERVE BASE

MINNESOTA

EPA ID# MN8570024275



REGION 5

CONGRESSIONAL DIST. 05

Hennepin County

Minneapolis-St. Paul International Airport
Complex

Aliases:

US Air Force Minneapolis-St. Paul
International Airport
Small Arms Range Landfill

Site Description

Since 1944, the 280-acre Twin Cities Air Force Reserve Base site was used, for operations that resulted in the storage and disposal of hazardous substances. The Small Arms Range Landfill was the main base *landfill* from 1963 to 1972. The site is along the Minnesota River and covers approximately 3 acres. In addition to general base refuse, quantities of paint *sludge*, paint filters, and leaded-fuel sludge were also disposed of at the landfill. The site is within the 100-year floodplain of the Minnesota River and is periodically flooded, resulting in the release of chromium, lead, and zinc to the river. Approximately 64,700 people living in the Minneapolis-St. Paul metropolitan area depend on public and private wells for drinking water within a 3-mile area of the landfill. The northern boundary of the Minnesota Valley National Wildlife Refuge lies 500 feet from the landfill.

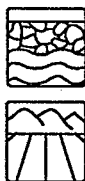
Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 07/21/87

Threats and Contaminants



Monitoring wells have shown contamination with low levels of mercury, chromium, lead, and zinc in the groundwater. Soil and sludge is contaminated with paint by-products and *petrochemicals*. People who accidentally ingest or touch contaminated groundwater, contaminated soil or sludge may potentially suffer adverse health effects.

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: In the spring of 1987, the EPA secured the site, posted warning signs, transferred liquids to on-site storage tanks, shipped 69 drums of organic sludges for incineration, and transported 35 cubic yards of contaminated soil for off-site disposal.

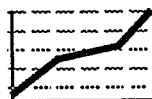


remedies.

Entire Site: The Air Force is currently conducting an investigation of the site to determine the extent of contamination. The study is scheduled to be completed in 1991 and will lead to the selection of final cleanup

Site Facts: The Twin Cities Air Force Reserve Base is participating in the *Installation Restoration Program* (IRP), the specially funded program established by the Department of Defense to identify, evaluate, and mitigate previous hazardous waste sites on military installations.

Environmental Progress



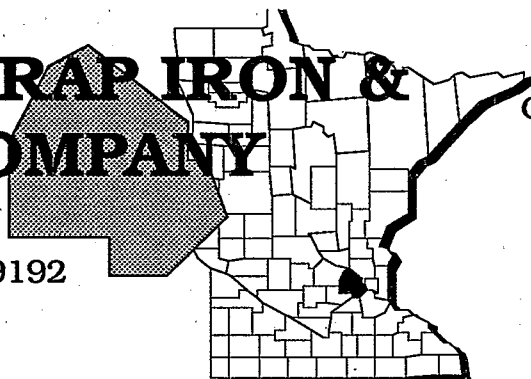
The immediate actions, especially the removal of liquid and solid wastes and contaminated soil, have greatly reduced the potential for exposure to hazardous substances at the Twin Cities Reserve Base site while further investigations are taking place and cleanup activities are being planned.



UNION SCRAP IRON & METAL COMPANY

MINNESOTA

EPA ID# MND022949192



REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
North Minneapolis

Site Description

Union Scrap Iron & Metal Company sorted and crushed lead battery fragments on this 1/4-acre site from 1973 to 1980. Lead was separated and sold for recycling. The plastic and rubber fragments remaining, which also contained lead, accumulated in piles. Approximately 30,000 tons of these fragments are on the site. According to the State, airborne lead levels adjacent to the site are significantly high. There is also potential for groundwater and surface water contamination. Approximately 3,700 people live within a 1/2-mile radius of the site and 17,100 live within 1 mile. There are three schools within 1 mile of the site.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



The air is contaminated with lead. The soil and *sludge* are contaminated with heavy metals including lead, arsenic, cadmium, nickel and copper, as well as *polychlorinated biphenyls* (PCBs). The site is located in a predominantly commercial area, but the potential for exposure to airborne particulates exists for people traveling and working near the area.

Cleanup Approach

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

Response Action Status

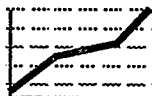


Emergency Actions: In 1985, the EPA covered the contaminated piles with tarpaulins and weighted them with tires to prevent erosion and air pollution. A fence was also installed. In 1987, the EPA removed the battery debris, casings, and contaminated soil from the property and refilled the area with clean fill. Contaminated materials were removed from sewer lines. Existing buildings were decontaminated and demolished. In 1989, a cement pad and the waste beneath it were removed.



Entire Site: The EPA conducted an investigation of the site to determine the nature and the extent of the contamination. The results of the investigation indicated that no significant contamination remained on the site after the completion of the emergency actions.

Environmental Progress



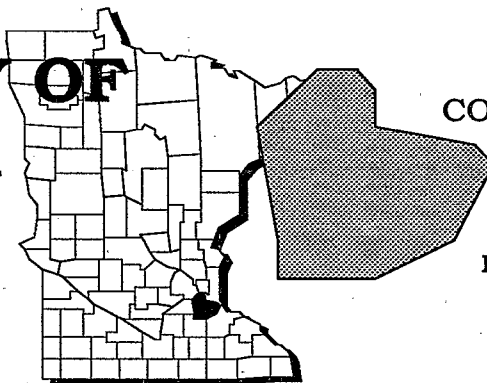
The emergency actions described above have greatly reduced the potential for exposure to contaminated materials at the Union Scrap Iron & Metal Company site. Because of these actions, all cleanup goals for surface contamination have been met and no significant contamination remains on the site, making the surroundings safe for nearby residents and the environment. The EPA will continue to monitor the site to assure the effectiveness of the cleanup remedies.



UNIVERSITY OF MINNESOTA

MINNESOTA

EPA ID# MND980613780



REGION 5
CONGRESSIONAL DIST. 03

Dakota County
Rosemount

Alias:
Rosemount Research Center

Site Description

The University of Minnesota formerly operated this 4-acre disposal site which includes the following six areas: (1) a burn pit, constructed in 1968, received about 7,000 gallons of waste per year. A second pit existed in the early 1960s and received about 100 gallons of waste per year; (2) a used equipment area that may have been used for storing electrical equipment and for disposal of *polychlorinated biphenyl* (PCB)-contaminated oil. Two incinerators were also operated in this area and may have been fueled by transformer oil; (3) a transformer area where a PCB spill occurred in the 1970s; (4) an oxidation pond and a Research Center Sewer System area which now receives sanitary sewer discharges; (5) a dump area where construction, demolition, and municipal wastes have been placed; and (6) a former Process Water Lagoon area, which operated for 4 months in 1945 and received sulfuric acid, nitric acid, ammonia, and ether. Between 1960 and 1973, the University buried and incinerated gaseous, liquid, and chemical laboratory wastes on the site. The University detected *volatile organic compounds* (VOCs) and heavy metals in monitoring wells and soil on site in 1972. New monitoring data collected by the State in 1984 indicate that the contamination is spreading. Approximately 9,600 people use wells within 3 miles of the site as a source of drinking water. The closest well *downslope* of the burn pit is 9,500 feet away. Employee and tenant work areas are within 1,000 feet away from the used equipment area.

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

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



The groundwater is contaminated with heavy metals including lead, copper, and zinc; VOCs; and nitrates. The soil is contaminated with VOCs; heavy metals including lead, chromium, copper, and zinc;



pesticides including lindane and chlordane; dioxins; and PCBs. The contaminated soil and groundwater could pose health problems to individuals if accidentally touched or swallowed.

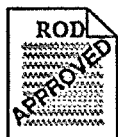
Cleanup Approach

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

Response Action Status



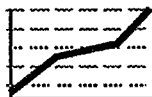
Groundwater: The University has taken the responsibility to monitor the groundwater. Also, the State is supplying bottled water to 28 families in Rosemount. A groundwater pump-out system has been constructed and is operational. Construction of a permanent water supply system began in 1988 and is scheduled for completion in late 1990.



Entire Site: The EPA and the State have completed an investigation into the soil contamination at the site. Lead-contaminated soil will be disposed of off site in a federally approved landfill. Soil heavily contaminated with PCBs will be treated on site using a thermal desorption/fume incineration process. The cleanup actions are scheduled to begin in 1991.

Site Facts: In 1986, under a State Order, the University of Minnesota conducted an investigation of the site. The Order also called for the removal of contaminated soil and monitoring of the contaminated groundwater.

Environmental Progress



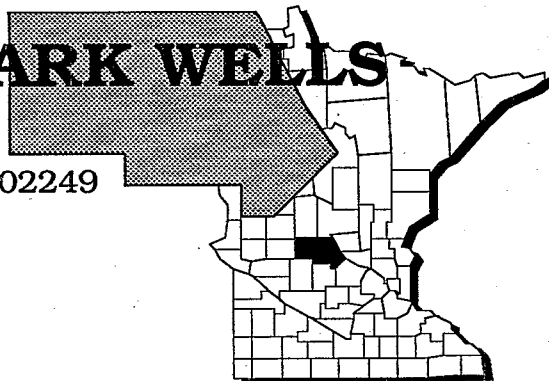
The provision of an alternative water supply to affected families and the ongoing cleanup activities described above have greatly reduced the potential for exposure to hazardous substances in the drinking water, while final cleanup activities are being completed.



WAITE PARK WELLS

MINNESOTA

EPA ID# MND981002249



REGION 5

CONGRESSIONAL DIST. 07

Stearns County
St. Cloud

Site Description

The Waite Park Wells site contains four municipal water wells. Wells 1 and 3 are located on Burlington Northern Car Shop property and were found to be contaminated with *volatile organic compounds* (VOCs) in 1984. Burlington Northern has constructed and repaired railroad cars on the site since 1894. The activities generated wastes that included oils and greases, sandblast sand, calcium hydroxide, solvents, paints, and *polychlorinated biphenyls* (PCBs). Burlington Northern ceased operations at this facility around 1980 and has donated much of the land to the City of Waite Park. The other two contaminated wells are located on the Electric Machinery plant property, which has manufactured electric generators since 1969. The plant had four major waste streams: waste oils and lubricants, resins from the thermoplastics operation, coolant from the machine shop, and solvents and paints from a paint booth. There were several disposal and storage areas on the property. Approximately 4,000 people reside in Waite Park, and 3,500 people are served by the municipal water system. The adjacent Sauk River joins the Mississippi River 2 miles from the site. The nearest houses are approximately 50 feet from the site.

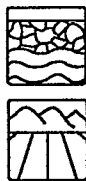
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 09/15/85

Final Date: 06/10/86

Threats and Contaminants



The groundwater and soil are contaminated with VOCs. Sandblast sand and soils are contaminated with heavy metals, VOCs, and PCBs. People may be at a health risk if they swallow contaminated water or touch contaminated soil.

Cleanup Approach

This site is being addressed in initial actions and two *long-term remedial phases* focusing on cleanup of the Electric Machinery property and cleanup of the Burlington Northern property.

Response Action Status



Initial Actions: The contaminated wells were taken out of service immediately with an emergency hookup to the St. Cloud water supply established in 1985. Since 1988, an *air stripper* has been operated by the municipality to treat the groundwater from these two municipal wells.

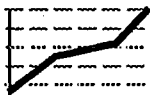


Electric Machinery Property: The remedy selected for cleanup of the Electric Machinery property includes: (1) installing groundwater extraction wells in the contaminated *plume*; (2) pumping and treating contaminated groundwater through a water treatment system and discharging the treated water to the Sauk River; and (3) restricting access to the site by installing a fence and security system around the site. Groundwater pumping and treatment are still taking place. All other cleanup activities have been completed.



Burlington Northern Property: The State is conducting an additional investigation to further define the areas of contamination at this site and to determine if additional cleanup actions will be required.

Environmental Progress

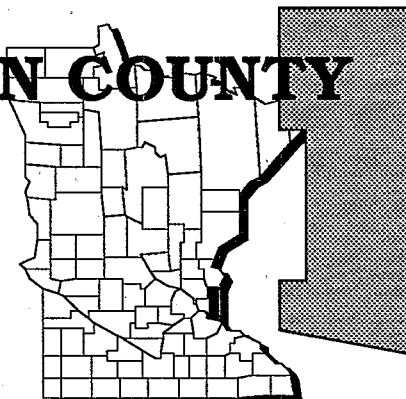


The emergency hookup to the municipal water system, installation and operation of the air stripper water treatment system, and securing of the site have greatly reduced the potential for exposure to contaminated soil and groundwater while further investigation and cleanup activities are taking place.



WASHINGTON COUNTY LANDFILL MINNESOTA

EPA ID# MND980704738



REGION 5
CONGRESSIONAL DIST. 01
Washington County
Lake Elmo

Site Description

From 1969 to 1975, Washington and Ramsey Counties operated a sanitary landfill at the 40-acre Washington County Landfill site. After operations were discontinued in 1975, a clean soil *cap* was placed on the landfill. In 1981, groundwater monitoring indicated the presence of elevated concentrations of *volatile organic compounds* (VOCs) and some heavy metals in on-site monitoring wells and off-site residential wells. In 1983 and 1984, alternate drinking water supplies were provided to affected residences. In 1983, Ramsey and Washington Counties installed a pump and treat system to reduce any potential groundwater contamination from the landfill. The site is located in a sparse residential development, with some farmland in the area.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater is contaminated with VOCs and lead. People may be at a health risk from swallowing or touching contaminated groundwater.

Cleanup Approach

This site is being addressed in two stages: an immediate action and a *long-term remedial phase* focusing on cleanup of the entire site,

Response Action Status



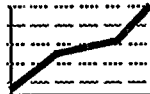
Immediate Action: In 1983 and 1984, alternate drinking water supplies were provided to affected residences, and Ramsey and Washington Counties installed a pump and treat system.



Entire Site: Cleanup remedies selected by the EPA include: (1) installation and operation of a groundwater gradient control operation at the site; (2) providing safe drinking water supplies for affected residences; (3) monitoring of the landfill and the effectiveness of the groundwater gradient control system; (4) appropriate landfill security and safety procedures; and (5) implementing a *closure* plan. The groundwater gradient control system is in operation and monitoring of the groundwater will continue until the Minnesota Pollution Control Agency (MPCA) determines that the groundwater has been cleaned. Landfill closure has been completed.

Site Facts: In 1984, a *Consent Order* was signed between the Counties and the MPCA for the Counties to perform cleanup activities.

Environmental Progress



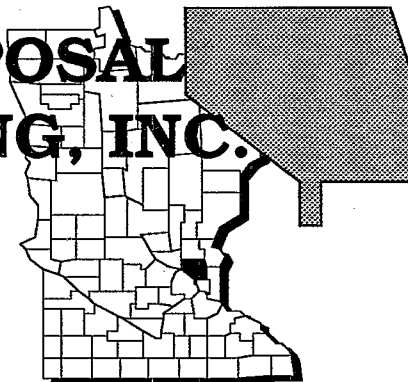
The immediate action to supply alternative water to affected residences has eliminated the potential of exposure to hazardous substances in the drinking water at the Washington County Landfill site while additional cleanup activities are ongoing.



WASTE DISPOSAL ENGINEERING, INC.

MINNESOTA

EPA ID# MND980609119



REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Andover

Site Description

The 114-acre Waste Disposal Engineering, Inc. site operated as a dump and *landfill* for approximately 20 years, closing in early 1983. Hazardous wastes were disposed of throughout the landfill during site operation. From 1972 until 1974, paint *sludges*, solvents, oils, caustics, and *acids* were disposed of in an asphalt-lined pit on the site. Poor operating practices and spills contributed to the site contamination. In 1982, lime sludge generated by the Minneapolis Drinking Water Treatment Plant was deposited at the site. The landfill covers 73 acres of refuse area and contains approximately 2,500,000 cubic yards of waste. Groundwater directly under the site is contaminated primarily with *volatile organic compounds* (VOCs). Area residents rely on groundwater for their potable water source. The area surrounding the site is residential, agricultural, and commercial. The site is bordered by Coon Creek.

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

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater, soil gas, and Coon Creek contain VOCs from wastes deposited in the landfill. Individuals may be exposed to contaminants through accidental ingestion, inhalation, or direct contact with groundwater, soil gas, or surface water.

Cleanup Approach

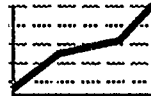
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: In 1987, the EPA selected a remedy to clean up the site by pumping and treating the groundwater using *carbon adsorption* and discharging the treated water to Coon Creek; installing a soil *cap* to completely cover the landfill; installing a clay groundwater cut-off wall; restricting well use; filling in a *wetland* and constructing an alternate wetland to replace the lost habitat; and monitoring the site. Once the technical specifications for the remedy are designed, the final site cleanup will begin.

Environmental Progress



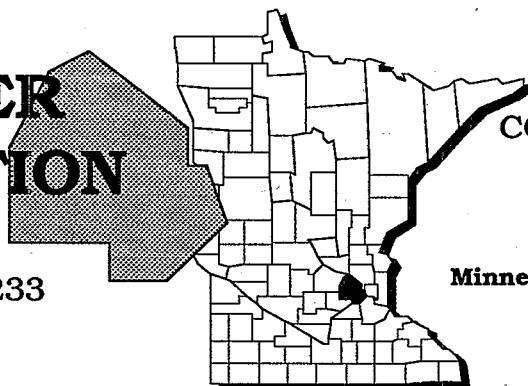
An initial evaluation by the EPA of the Waste Disposal Engineering, Inc. site determined that no immediate actions are necessary to protect the public or the environment from immediate threats while waiting for the final cleanup to begin.



WHITTAKER CORPORATION

MINNESOTA

EPA ID# MND006252233



REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
Minneapolis

Alias:
Minneapolis Coatings & Chemical Division

Site Description

The 1-acre Whittaker Corporation site is located within a 10-acre site. During World War II, Triploil Holding Company operated on the site and repackaged war materials, including antifreeze and oil, for the military. In the 1950s, Triploil expanded its operations by acquiring Midwestern Copper Works, which manufactures industrial coatings. Resins and industrial coatings were produced on the property. Raw materials were stored in underground storage tanks, in diked aboveground storage tanks, in drums, or inside the plant. Waste products were used in the manufacturing process, condensed into steam, incinerated on site, or disposed in a low, swampy area on the site. Hazardous materials were found during a 1978 excavation for a parking lot. The site is located within an industrial area of Minneapolis. The Mississippi River is approximately 1,200 feet to the west of the site. There are four industrial and four residential wells in the nearby area.

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

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater and soil were found to be contaminated with heavy metals including cadmium and lead, as well as *volatile organic compounds* (VOCs). Accidental ingestion or touching contaminated groundwater or soil could pose adverse health threats.

Cleanup Approach

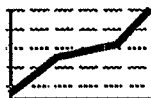
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: In 1985, the following actions were initiated: (1) excavation of buried drums; (2) removal of contaminated soils from the disposal area; (3) shipment of all hazardous wastes to permitted disposal facilities; and (4) pumping and treating of recovered groundwater. The groundwater is being treated by two *air strippers*, then discharged to a storm sewer. The State will continue to conduct the groundwater treatment system.

Environmental Progress



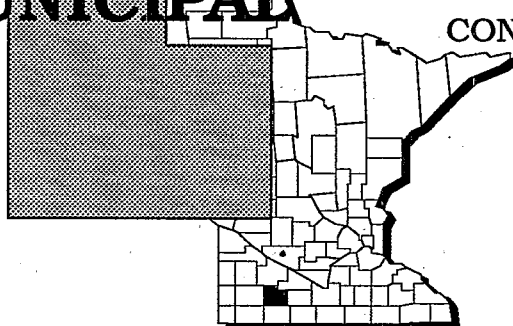
The removal and treatment actions described above have greatly reduced the potential for exposure to contaminated materials at the Whittaker Corporation site while further cleanup and monitoring activities are continuing.



WINDOM MUNICIPAL DUMP

MINNESOTA

EPA ID# MND980034516



REGION 5
CONGRESSIONAL DIST. 02
Cottonwood County
Windom

Site Description

Prior to the 1930s, the 11-acre Windom Municipal Dump site was quarried for sand and gravel, almost to the level of the water table. The site was used for the burning of municipal and industrial wastes from the 1930s until 1971. From 1971 to 1974, municipal wastes and some industrial wastes were placed in a fill area along the pit. However, burning of paint *sludges* continued during this time. The site was closed in 1974, although the City of Windom has continued to place demolition asphalt and concrete over the fill area. The population of Windom is approximately 4,500. Land near the site is comprised of residences and is used for farming and industrial activities. An elementary school is two blocks to the west 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: 06/10/86

Threats and Contaminants



Groundwater is contaminated with various *volatile organic compounds* (VOCs) and heavy metals including arsenic, cadmium, and chromium. VOCs were also detected in the soil. The contaminated groundwater and soil could pose a health hazard to individuals if accidentally touched or swallowed. Possible contamination of private wells and the city drinking water supply with VOCs is a major concern.

Cleanup Approach

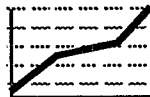
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

Response Action Status



Entire Site: Under EPA monitoring, the potentially responsible parties conducted an investigation at the site to determine the nature and the extent of the contamination. As part of the investigation, a fence was constructed around the borders of the site and six monitoring wells were installed by the City. In 1985, the Minnesota Department of Health sampled the city's municipal and residential wells. In 1987, an additional 12 monitoring wells were installed. The parties potentially responsible for site contamination performed the following activities to clean up the site: (1) grading the site to control erosion; (2) covering the site with compacted clay and other materials which are impermeable to water; (3) providing a drainage layer; and (4) installing a cover to prevent water and wind erosion. Intervention limits for the contaminants of concern were also established. These intervention limits were exceeded in 1989, so a pump and treatment system is currently being installed.

Environmental Progress



The numerous cleanup activities described above have greatly reduced the potential for exposure to hazardous substances at the Windom Municipal Dump site while further cleanup activities are taking place.



GLOSSARY:

TERMS USED IN THE FACT SHEETS

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

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

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

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

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.

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

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

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

GLOSSARY

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

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 is generally mounded or sloped so water will drain off.

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

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

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.

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

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

Consent Order: [see Administrative Order on Consent].

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

Creosotes: Chemicals used in wood preserving operations and produced by distillation of tar, including polycyclic aromatic hydrocarbons and polynuclear aromatic hydrocar-

bons [see PAHs and PNAs]. Contaminating sediments, soils, and surface water, creosotes may cause skin ulcerations and cancer with prolonged exposure.

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

Downslope: [see Downgradient].

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

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.

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.

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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.

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 are often 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 and can make water taste and smell bad.

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

sity of contaminants.

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.

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.

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

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

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

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.

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.

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

GLOSSARY

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

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

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.