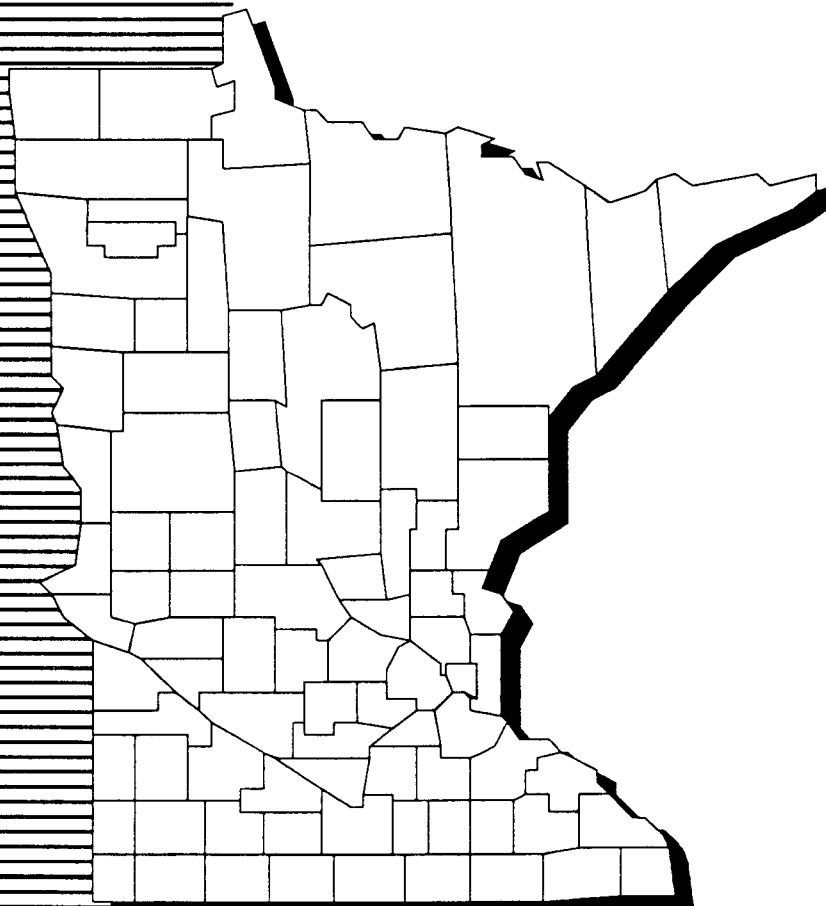




National Priorities List Sites:

MINNESOTA



1 9 9 1



NATIONAL PRIORITIES LIST SITES: Minnesota

U.S. Environmental Protection Agency
Region 5, Library (PL-100)
77 West Jackson St.
Chicago, IL 60601

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

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

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

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

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

TABLE OF CONTENTS

	Page
Introduction:	
A Brief Overview	1
Superfund:	
How Does the Program Work to Clean Up Sites?	5
The Volume:	
How to Use the State Book	13
NPL Sites:	
In the State of Minnesota	17
The NPL Report:	
Progress to Date	19
The NPL Fact Sheets:	
Summary of Site Activities	21
<hr/> <hr/>	
Appendix A: Glossary:	
Terms Used in the Fact Sheets	119
Appendix B: Repositories of Site Information	135

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

After Discovery, the Problem Intensified

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

Since the Superfund program began, hazard-

A Brief Overview

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

The EPA Identified More than 1,200 Serious Sites

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

THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

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

INTRODUCTION

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

THE EPA IS MAKING PROGRESS ON SITE CLEANUP

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

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

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

The ultimate goal for a hazardous waste site on the NPL is a permanent solution to an environ-

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

THE EPA MAKES SURE CLEANUP WORKS

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

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

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

INTRODUCTION

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

CITIZENS HELP SHAPE DECISIONS

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

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

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

USING THE STATE AND NATIONAL VOLUMES TOGETHER

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

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

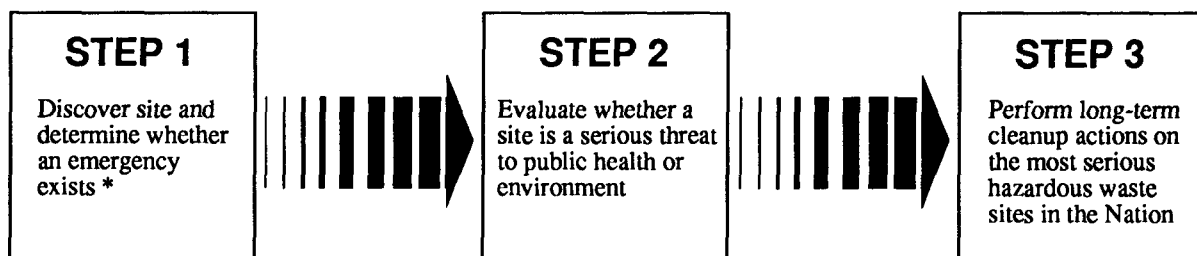
This volume compiles site summary fact sheets on each State or Territorial site being cleaned up under the Superfund program. These sites represent the most serious hazardous waste problems in the Nation and require the most complicated and costly site solutions yet encountered. Each book gives a "snapshot"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

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

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

How Does the Program Work to Clean Up Sites?

THREE-STEP SUPERFUND PROCESS



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

during cleanup, work can be led by the EPA or the State or, under their monitoring, by private parties who are potentially responsible for site contamination.

The process for discovery of the site, evaluation of threat, and the long-term cleanup of Superfund sites is summarized in the following pages. The phases of each of these steps are highlighted within the description. The

flow diagram above provides a summary of the three-step process.

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

SUPERFUND

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

STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION



How does the EPA learn about potential hazardous waste sites?

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



What happens if there is an imminent danger?

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

wastes for safe disposal.

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

STEP 2: SITE THREAT EVALUATION



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

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

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

- Are hazardous substances likely to be present?

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

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



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

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



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

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

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

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



Why are sites proposed to the NPL?

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

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

SUPERFUND

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

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



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

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

STEP 3: LONG-TERM CLEANUP ACTIONS



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

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

1. *Remedial Investigation*: investigate in detail the extent of the site contamination

2. *Feasibility Study*: study the range of possible cleanup remedies

3. *Record of Decision or ROD*: decide which remedy to use

4. *Remedial Design*: plan the remedy

5. *Remedial Action*: carry out the remedy

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

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

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

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

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

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

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

How are cleanup alternatives identified and evaluated?

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

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

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

depending on the size and complexity of the problem.

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

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


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

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

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


SUPERFUND

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

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

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


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

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

The time and cost for performing the site cleanup, called the *remedial action*, are as varied as the remedies themselves. In a few

cases, the only action needed may be to remove drums of hazardous waste and to decontaminate them, an action that takes limited time and money. In most cases, however, a remedial action may involve different and expensive cleanup measures that can take a long time.

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

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

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

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

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



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

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

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

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

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



Can the EPA make parties responsible for the contamination pay?

Yes. Based on the belief that "the polluters should pay," after a site is placed on the NPL, the EPA makes a thorough effort to identify

and find those responsible for causing contamination problems at a site. Although the EPA is willing to negotiate with these private parties and encourages voluntary cleanup, it has the authority under the Superfund law to legally force those potentially responsible for site hazards to take specific cleanup actions. All work performed by these parties is closely guided and monitored by the EPA and must meet the same standards required for actions financed through the Superfund.

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

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

The site fact sheets presented in this book are comprehensive summaries that cover a broad range of information.

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

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

HOW CAN YOU USE THIS STATE BOOK?

You can use this book to keep informed about the sites that concern you, particularly ones close to home. The EPA is committed to involving the public in the decision making process associated with hazardous waste cleanup. The Agency solicits input from area residents in communities affected by Superfund sites. Citizens are likely to be affected not only by hazardous site conditions, but also by the remedies that combat them. Site clean-

How to Use the State Book

ups take many forms and can affect communities in different ways. Local traffic may be rerouted, residents may be relocated, temporary water supplies may be necessary.

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

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

THE VOLUME

NPL LISTING HISTORY

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

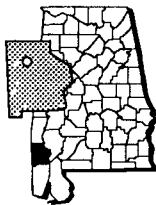
SITE RESPONSIBILITY

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

SITE NAME

STATE

EPA ID# ABC0000000



EPA REGION XX

CONGRESSIONAL DIST XX

COUNTY NAME

LOCATION

Other Names:

Site Description A

.....

.....

.....

Site Responsibility:

.....


.....

NPL Listing History

Proposed: xx/xx/xx

Final: xx/xx/xx

Threats and Contaminants B



.....

.....


Cleanup Approach C

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.....

.....

Response Action Status D



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Site Facts: E

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.....

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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.

A

SITE DESCRIPTION

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

B

THREATS AND CONTAMINANTS

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

C

CLEANUP APPROACH

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

D

RESPONSE ACTION STATUS

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

E

SITE FACTS

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

THE VOLUME

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

Icons in the Threats and Contaminants Section



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



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



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



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



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



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

Icons in the Response Action Status Section



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



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



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



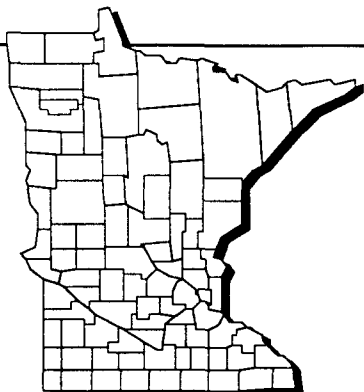
Remedy Design means that engineers are preparing specifications and drawings for the selected cleanup technologies.



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



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



The State of Minnesota

The state of Minnesota is located in EPA Region 5, which includes the six midwestern states bordering the Great Lakes. Minnesota covers 84,402 square miles 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. Ranked 20th in the U.S. populations, according to the 1990 Census, the state experienced a 7% increase in population between 1980 and 1990 and currently has approximately 4,375,000 residents. Principal state industries include agricultural business, forest products, mining, manufacturing, and tourism. Food processing, non-electrical equipment, printing and publishing, instruments, and fabricated metal are major manufacturing activities in Minnesota.

How Many NPL Sites Are in the State of Minnesota?

Proposed	0
Final	42
Deleted	<u>1</u>
	43

Where Are the NPL Sites Located?

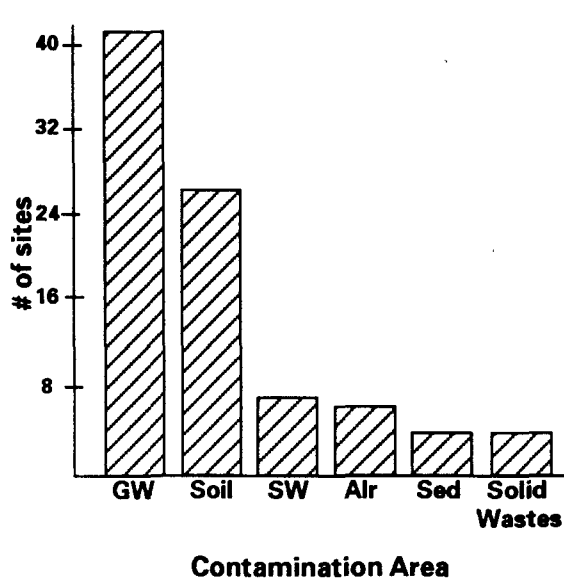
Congressional District 4	2 sites
Congressional Districts 2, 8	3 sites
Congressional Districts 1, 5	5 sites
Congressional Districts 6, 7	8 sites
Congressional District 3	9 sites

What Type of Sites Are on the NPL in the State of Minnesota?

# of sites	type of sites
11	Municipal & Industrial Landfills
7	Lumber & Wood
7	Disposal Facilities
4	Metals & Allied Products
3	Chemicals & Allied Products
3	Federal Facilities
2	Petroleum Refining & Related Industries
6	Others (Underground storage tank treatment facility, drycleaners, recyclers, electronics & equipment, coke mill)

NPL 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.



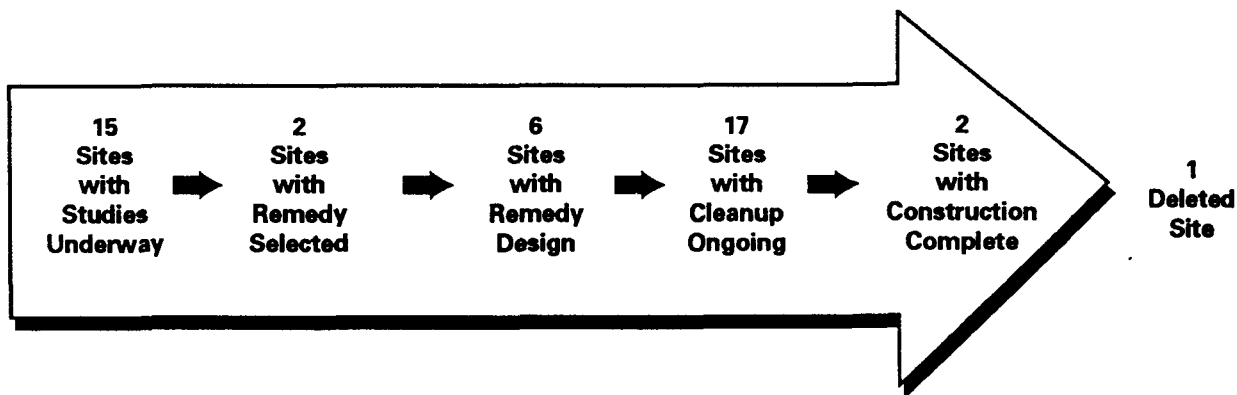
Surface Water and Sediments: Creosotes (organics), heavy metals (inorganics), and volatile organic compounds (VOCs).



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?†



In addition to the activities described above, initial actions have been taken at 22 sites as interim cleanup measures.

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

Progress To Date

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

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

- An arrow in the "Initial Response" category indicates that an emergency cleanup or initial action has been completed or currently is underway. Emergency or initial actions are taken as an interim measure to provide immediate relief from exposure to hazardous site conditions or to stabilize a site to prevent further contamination.
- A final arrow in the "Site Studies" category indicates that an investigation to determine the nature and extent of the contamination at the site currently is ongoing.
- A final arrow in the "Remedy Selection" category means that the EPA has selected the final cleanup strategy for the site. At the few sites where the EPA has determined that initial response actions have eliminated site contamination, or that any remaining contamination will be naturally dispersed without further cleanup activities, a "No

Action" remedy is selected. In these cases, the arrows are discontinued at the "Remedy Selection" step and resume in the "Construction Complete" category.

- A final arrow at the "Remedial Design" stage indicates that engineers currently are designing the technical specifications for the selected cleanup remedies and technologies.
- A final arrow in the "Cleanup Ongoing" column means that final cleanup actions have been started at the site and currently are underway.
- A final arrow in the "Construction Complete" category is used only when all phases of the site cleanup plan have been performed, and the EPA has determined that no additional construction actions are required at the site. Some sites in this category currently may be undergoing long-term operation and maintenance or monitoring to ensure that the cleanup actions continue to protect human health and the environment.
- A check in the "Deleted" category indicates that the site cleanup has met all human health and environmental goals and that the EPA has deleted the site from the NPL.

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

Progress Toward Cleanup at NPL Sites in the State of Minnesota

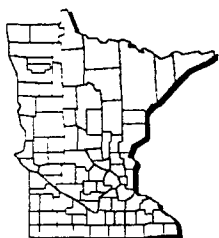
Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
25	ADRIAN MUNICIPAL WELL FIELD	NOBLES	Final	06/10/86		↑	↑				
27	AGATE LAKE SCRAPYARD	CASS	Final	06/10/86	↑	↑					
29	ARROWHEAD REFINERY CO.	ST. LOUIS	Final	09/21/84	↑	↑	↑	↑	↑		
31	BOISE CASCADE/ONAN/MEDTRONICS	ANOKA	Final	09/21/84		↑	↑	↑	↑		
33	BURLINGTON NORTHERN	CROW WING	Final	09/08/83		↑					
35	DAKHUE SANITARY LANDFILL	DAKOTA	Final	08/30/90	↑	↑					
37	EAST BETHEL DEMOLITION LANDFILL	ANOKA	Final	06/10/86		↑					
39	FMC CORP. (FRIDLEY PLANT)	HENNEPIN	Final	09/08/83	↑	↑	↑	↑	↑	↑	
41	FREEWAY SANITARY LANDFILL	DAKOTA	Final	06/10/86		↑					
43	GENERAL MILLS/HENKEL CORP.	HENNEPIN	Final	09/21/84	↑	↑	↑	↑	↑		
45	JOSLYN MFG & SUPPLY CO.	HENNEPIN	Final	09/21/84	↑	↑	↑	↑	↑		
47	KOCH REFINING COMPANY/N-REN CORP.	DAKOTA	Final	06/10/86		↑					
49	KOPPERS COKE	RAMSEY	Final	09/08/83	↑	↑					
51	KUMMER SANITARY LANDFILL	BELTRAMI	Final	06/10/86		↑	↑	↑	↑		
53	KURT MANUFACTURING CO.	ANOKA	Final	06/10/86		↑	↑	↑	↑		
55	LAGRAND SANITARY LANDFILL	DOUGLAS	Final	07/21/87		↑					
57	LEHILLIER/MANKATO SITE	BLUE EARTH	Final	09/08/83	↑	↑	↑	↑	↑		
59	LONG PRAIRIE GROUND WATER CONT.	TODD	Final	06/10/86		↑	↑	↑			
61	MACGILLIS & GIBBS CO./BELL LUMBER	RAMSEY	Final	09/21/84	↑	↑					
63	MORRIS ARSENIC DUMP	STEVENS	Deleted	03/07/86		↑	↑			↑	
65	NAVAL INDUS. RES. ORDNANCE PLANT	ANOKA	Final	11/24/89	↑	↑	↑	↑			
67	NEW BRIGHTON / ARDEN HILLS	RAMSEY	Final	09/08/83	↑	↑	↑	↑	↑	↑	
71	NL IND/TARACORP/GOLDEN AUTO	HENNEPIN	Final	09/08/83		↑	↑	↑	↑		
73	NUTTING TRUCK & CASTER CO.	RICE	Final	09/21/84	↑	↑					

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete	Deleted
75	OAK GROVE SANITARY LANDFILL	ANOKA	Final	06/10/86		↑	↑	↑			
77	OAKDALE DUMP	WASHINGTON	Final	09/08/83		↑	↑	↑	↑	↑	
79	OLMSTED COUNTY SANITARY LDFL	OLMSTED	Final	06/10/86		↑					
81	PERHAM ARSENIC SITE	OTTER TAIL	Final	09/21/84	↑	↑					
83	PINE BEND SANITARY LANDFILL	DAKOTA	Final	06/10/86	↑	↑					
87	REILLY TAR & CHEMICAL CORP.	HENNEPIN	Final	09/08/83	↑	↑	↑	↑	↑		
89	RITARI POST & POLE	WADENA	Final	07/21/87		↑					
93	SOUTH ANDOVER SITE	ANOKA	Final	09/08/83	↑	↑	↑	↑			
95	ST. AUGUSTA LDPL / ENGEN DUMP	STEARNS	Final	07/01/87		↑					
99	ST. LOUIS RIVER SITE	ST. LOUIS	Final	09/21/84	↑	↑	↑	↑			
101	ST. REGIS PAPER CO.	CASS	Final	09/21/84		↑	↑	↑	↑		
103	TWIN CITIES AIR FORCE RESERVE BASE	HENNEPIN	Final	07/21/87	↑	↑					
105	UNION SCRAP IRON & METAL CO.	HENNEPIN	Final	09/21/84	↑	↑	↑				
107	U. OF M. (ROSEMOUNT RESEARCH CTR)	DAKOTA	Final	06/10/86		↑	↑	↑	↑		
109	WAITE PARK WELLS	STEARNS	Final	06/10/86	↑	↑	↑	↑	↑		
111	WASHINGTON COUNTY LANDFILL	WASHINGTON	Final	09/21/84	↑	↑	↑	↑	↑		
113	WASTE DISPOSAL ENGINEERING	ANOKA	Final	09/08/83		↑	↑	↑			
115	WHITTAKER CORPORATION	HENNEPIN	Final	09/21/84		↑	↑	↑	↑		
117	WINDOM DUMP	COTTONWOOD	Final	06/10/86		↑	↑	↑	↑		

Summary of Site Activities



EPA REGION 5



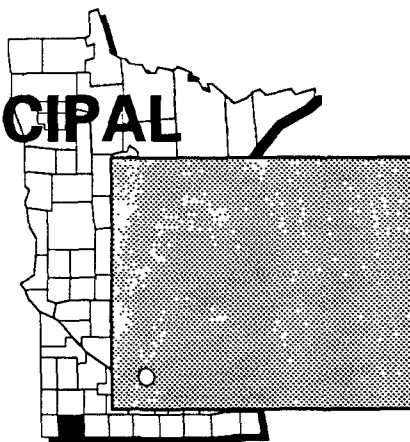
Who Do I Call with Questions?

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 the EPA's Region 5 Office in Chicago, Illinois or one of the other offices listed below:

EPA Region 5 Superfund Community Relations Office	(312) 353-2073
EPA Region 5 Superfund Office	(312) 886-7456
EPA Superfund Hotline	(800) 424-9346
EPA Headquarters Public Information Center	(202) 260-2080
Minnesota Superfund Office	(612) 296-7290

ADRIAN MUNICIPAL WELL FIELD MINNESOTA

EPA ID# MND980904023



EPA 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 now is using two uncontaminated wells previously slated to be abandoned due to their 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 two blocks south of the contaminated area. Several recreational facilities, including a swimming pool, two ballfields, and a campground, are located between the areas of contamination and the upper arm of Kanaranzi Creek.

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

<p>NPL LISTING HISTORY Proposed Date: 10/15/84 Final Date: 06/10/86</p>
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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 are 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 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 contaminated soil removal and area cleanup. The site is expected to be removed from the NPL in late 1991.

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

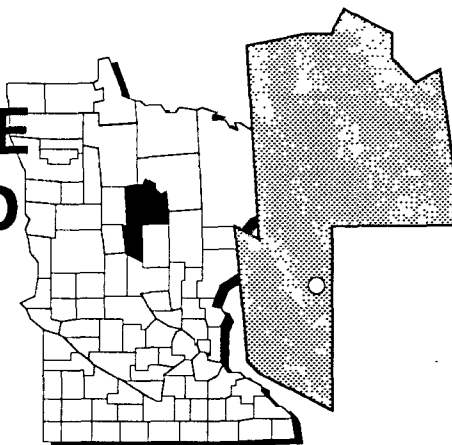
Environmental Progress



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 SCRAPYARD MINNESOTA

EPA ID# MND980898068



EPA REGION 5
CONGRESSIONAL DIST. 08

Cass County
Western shore of Agate Lake,
Fairview Township

Site Description

The Agate Lake Scrapyard 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 Scrapyard 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 furnaces. Transformer liquids sometimes were 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 western 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.

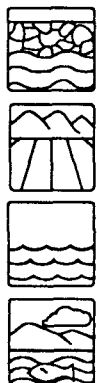
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

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, five drums of transformer oils, and 51 drums of waste solvents and liquids were removed from the site in two operations in 1983. Two furnaces also were 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 1991, with remedy design scheduled to begin in 1992.

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.

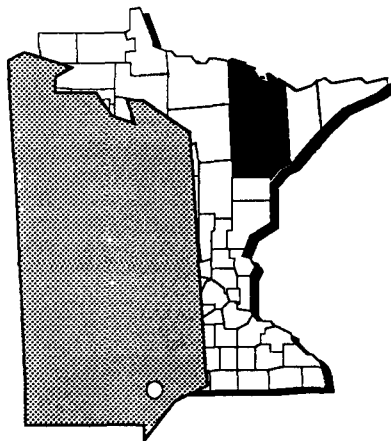
Environmental Progress



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

ARROWHEAD REFINERY COMPANY MINNESOTA

EPA ID# MND980823975



EPA REGION 5
CONGRESSIONAL DIST. 08
St. Louis County
Hermantown

Other Names:
Arrowhead Ref. Sludge Displ.

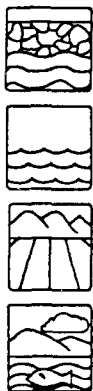
Site Description

The Arrowhead Refinery 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. Most of the 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 in 1980 by the Coast Guard and the EPA to prevent further contaminant migration, and a fence was installed in 1990.



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 designed the technical specifications for the construction of the Hermantown water main extension. Construction was completed in late 1990. Construction of the extraction and treatment system is scheduled for completion in 1992. Sludge and soil cleanup are slated to begin in 1992. A solvent extraction treatability study was conducted in 1989. A bioremediation treatability study is underway.

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 instructing them to begin the process of negotiating a three-party Consent Decree with the EPA and the State for cleanup of the sludge. No agreement was reached during the negotiations.

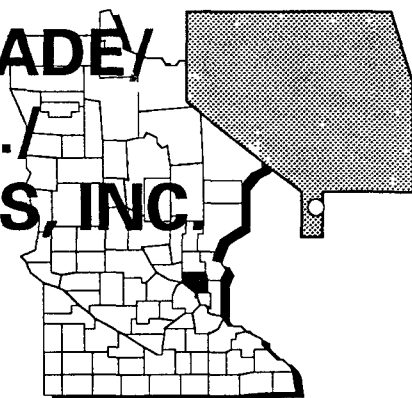
Environmental Progress



Construction of the surface water diversion ditch, extension of the Hermantown water main, and installation of the fence have greatly reduced the potential for contact with contaminated materials at the Arrowhead Refinery Company. Further remedy design activities leading to final cleanup actions are taking place.

BOISE CASCADE/ ONAN CORP./ MEDTRONICS, INC. MINNESOTA

EPA ID# MND053417515



EPA REGION 5
CONGRESSIONAL DIST. 05
Anoka County
Fridley

Other Names:
National Pole Treating Company

Site Description

The Boise Cascade/Onan Corp./Medtronics, Inc. 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 ties and for utility poles. The company began using pentachlorophenol (PCP) to treat its wood products in 1958 and continued this practice 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 a 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 located near 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 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 indicates that the contaminants either have been removed from the site or confined within a containment vault built at the site.

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: 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.

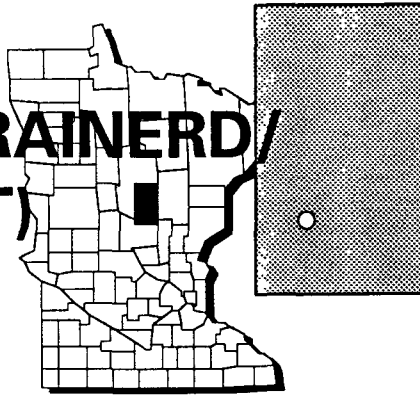
Environmental Progress



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 also will be monitored to ensure the long-term effectiveness of the remedies selected for the site.

BURLINGTON NORTHERN (BRAINERD/ BAXTER PLANT) MINNESOTA

EPA ID# MND000686196



EPA REGION 5
CONGRESSIONAL DIST. 08
Crow Wing County
Brainerd

Site Description

The Burlington Northern (Brainerd/Baxter Plant) 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.

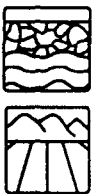
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

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 enter 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. A fence was installed around the land treatment area in 1987. 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 also will be carried out. After the treatment process has been completed, a cover will be installed over the site. The EPA currently is 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.

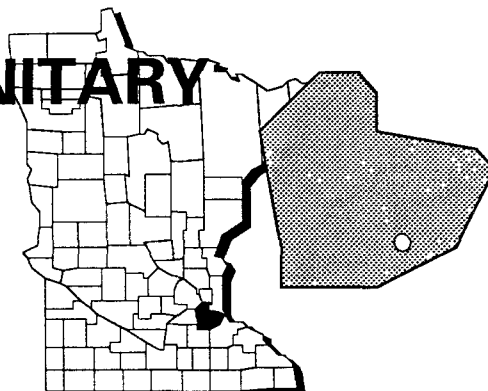
Environmental Progress



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 underway.

DAKHUE SANITARY LANDFILL MINNESOTA

EPA ID# MND981191570



EPA 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 operations were extended to six 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

Final Date: 08/30/90

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 groundwater.

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 is being conducted by the potentially responsible parties to determine the source of the contamination and to identify cleanup actions to control the source. This study is slated for completion in mid-1991.



Groundwater: An investigation into the nature and extent of the groundwater contamination began in spring 1990. Preliminary sampling of the groundwater for VOCs has been completed. Wells have been drilled for more extensive sampling. The 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 potentially responsible party entered into a Consent Order requiring the party to conduct the investigation into the nature and extent of contamination at the site and to recommend alternatives for final cleanup.

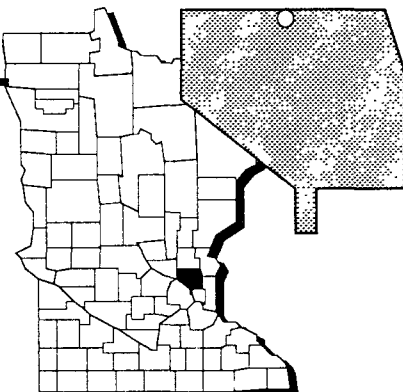
Environmental Progress



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 currently is taking place.

EAST BETHEL DEMOLITION LANDFILL MINNESOTA

EPA ID# MND981088180



EPA REGION 5
CONGRESSIONAL DIST. 06
Anoka County
East Bethel Township

Other Names:
East Bethel Sanitary Landfill

Site Description

The East Bethel Demolition Landfill site 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 facility 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 was 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 who use private wells living within 1 mile. 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) also were 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, coming in direct contact with, 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 has completed an investigation to determine the nature and extent of contamination at the site. A study currently is underway to determine the feasibility of site cleanup alternatives. Once the study is completed, the most appropriate cleanup alternatives for the site will be recommended.

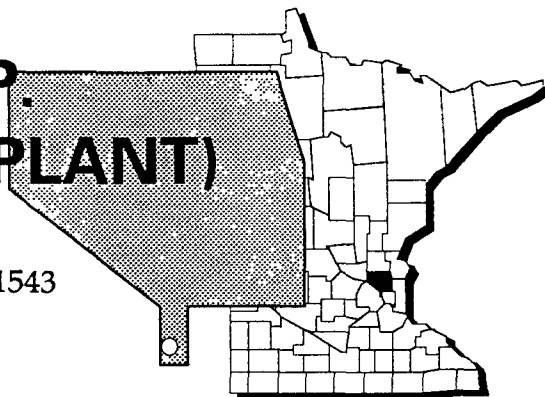
Environmental Progress



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. (FRIDLEY PLANT) MINNESOTA

EPA ID# MND006481543



EPA REGION 5
CONGRESSIONAL DIST. 06

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

Other Names:
FMC Corp. NIROP-U.S. Navy

Site Description

The 18-acre FMC Corp. 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 200,000 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 1,500 feet 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 are 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 is from drinking contaminated groundwater. There are no private drinking water wells in the area and the industrial wells are not contaminated. Therefore, area residents are 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, additional contaminated soil was excavated and placed 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 have been enclosed by an 8-foot-high chain-link fence.

Site Facts: In 1983, the potentially responsible party, the State, and the EPA entered an agreement that required the potentially responsible party to 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



Pumping and treating of contaminated groundwater is underway. Removing contaminated soil and covering the landfill will help prevent further contamination of groundwater and have fully achieved cleanup goals for land. These actions have substantially reduced the threat of exposure to contaminants while operation of the groundwater treatment system continues.

FREEWAY SANITARY LANDFILL MINNESOTA

EPA ID# MND038384004



EPA 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 to the 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.

Site Facts: The State is continuing to gather information on specific facilities and former landfill operators to identify potentially responsible parties.

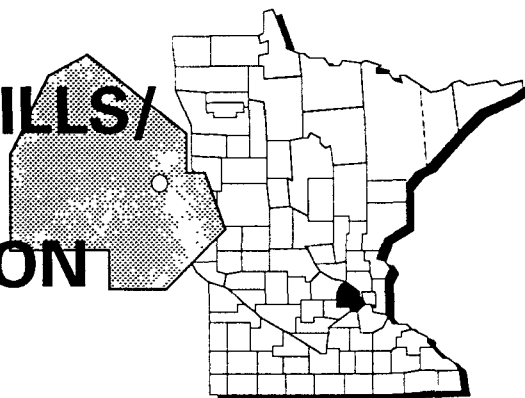
Environmental Progress



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 potentially responsible parties are being identified and the studies leading to the selection of final site cleanup actions are taking place.

GENERAL MILLS/ HENKEL CORPORATION MINNESOTA

EPA ID# MND051441731



EPA REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
Minneapolis

Other Names:
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 three 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.

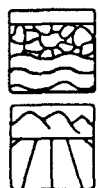
Site Responsibility: This site is being addressed through a combination of Federal, State, and potentially responsible parties' actions.

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 come in direct contact with or accidentally ingest contaminated groundwater or soil may be at risk. Access to the site is restricted.

Cleanup Approach

The site is being addressed in three stages: interim actions and two long-term remedial phases 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 conducted an investigation of the groundwater and soil contamination. The EPA chose pumping and treatment of the groundwater as the method for cleanup; the efforts are currently underway. Soil contamination is planned to be addressed as leachate passes through the soil and into the contaminated groundwater, which is being addressed through the pump and treat technology.



Groundwater: In 1991, the State is expected to make a decision on expanding the groundwater pump and treat system that was installed as an interim action.

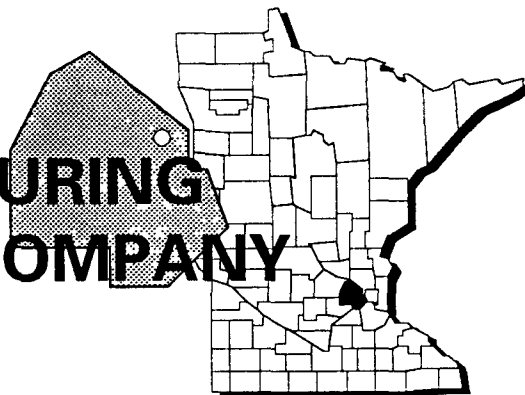
Environmental Progress _____



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 the final site cleanup remedies are conducted.

JOSLYN MANUFACTURING & SUPPLY COMPANY MINNESOTA

EPA ID# MND044799856



EPA REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
Brooklyn Center

Other Names:
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, about 216,000 gallons of oil were discharged into the lagoon. Waste sludge also was 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. Sampling of the lakes has confirmed this. Area drinking water is 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 bioremediation. 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 began 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.

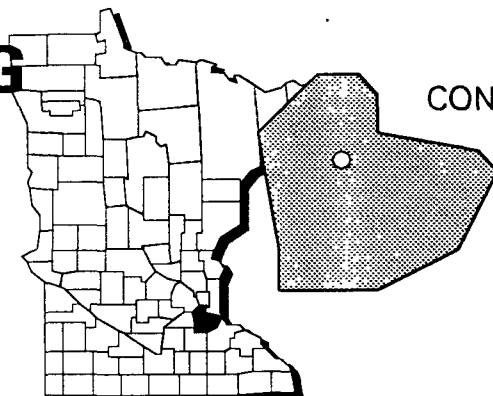
Environmental Progress _____



The removal of the most highly contaminated soils, operation of the groundwater pump and treat system, and installation of the fence 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/ N-REN CORP. MINNESOTA

EPA ID# MND000686071



EPA REGION 5
CONGRESSIONAL DIST. 03
Dakota County
Rosemount

Site Description

The Koch Refining Company/N-Ren Corp. site covers 1,200 acres in the Pine Bend 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; the crude oil is then refined into gasoline, jet fuel, 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 to be 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 directly contact or accidentally ingest contaminated soils may be at risk.



Cleanup Approach

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

Response Action Status



Groundwater: Koch, under state supervision, completed an investigation on the type and extent of contamination at the site. Initial remedies recommended for cleanup include gradient control (groundwater extraction and treatment) and product recovery. A final decision on cleanup remedies will be made in late 1991.



Vadose Zone Soils: Koch, under state supervision, is conducting an investigation to determine the type and extent of soil contamination in the Vadose Zone at the site. The Vadose Zone is the layer of subsurface water just above the groundwater table. Once the investigation is completed, planned for 1992, alternatives will be selected 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.

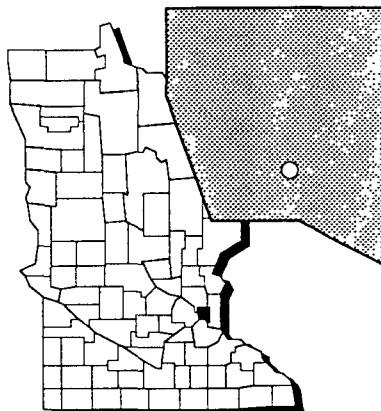
Environmental Progress



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



EPA REGION 5
CONGRESSIONAL DIST. 03
Ramsey County
St. Paul

Other Names:
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 and naphtha and benzene wash has 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 occasionally are used for lawn and garden irrigation. There is a potential for people to be exposed to contaminants by eating vegetables that have been irrigated 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 and additional clean fill, and a second layer of clay was installed.



Entire Site: Koppers began an investigation to determine the type 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 remedy. The EPA expects to reach a decision on final cleanup actions in 1992.

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

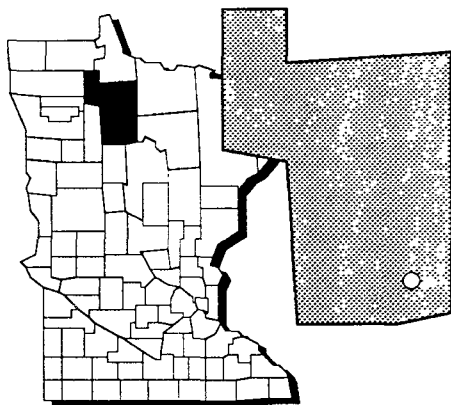
Environmental Progress



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 underway that will result in the selection of the final cleanup actions for the site.

KUMMER SANITARY LANDFILL MINNESOTA

EPA ID# MND980904049



EPA 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 of the landfill. There are numerous wetlands and lakes in the area of the site, including Lake Bemidji, which is a mile away.

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



Groundwater underlying the site contains VOCs including vinyl chloride, xylenes, carbon tetrachloride, and naphthalene from landfill wastes. 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. The well installation and distribution system was completed in 1990. The State connected the affected residences to the municipal water supply. However, some residents 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) establishing deed restrictions to limit 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 designed the technical specifications for the cleanup actions, and the cleanup activities began in 1990. Cleanup activities are expected to be completed in 1993.



Groundwater: The State conducted an investigation to determine the extent of the on-site migration of contaminants into the groundwater. In 1990, the State chose pumping of groundwater and removal of organic chemicals by air stripping followed by their destruction in a catalytic incinerator. Incinerated waterborne organics and inorganics will be removed by lime-soda-softening. An agreement is expected in 1991, under which the potentially responsible party will conduct the design and cleanup activities.

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.

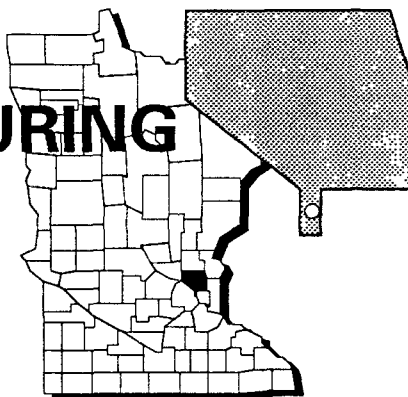
Environmental Progress



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, currently are underway at the Kummer Sanitary Landfill.

KURT MANUFACTURING COMPANY MINNESOTA

EPA ID# MND059680165



EPA 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 a 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 directly contact 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, and additional pump-out wells may be required.

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 to develop and implement a cleanup plan.

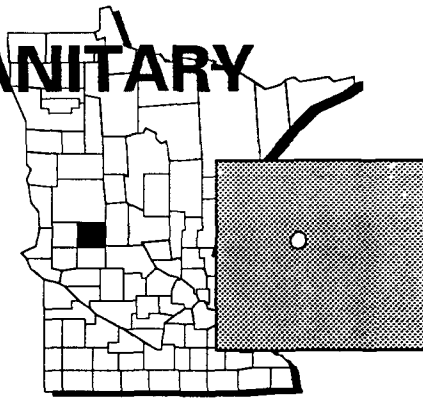
Environmental Progress _____



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 currently is under re-evaluation. Once this phase is completed, final cleanup activities will begin.

LAGRAND SANITARY LANDFILL MINNESOTA

EPA ID# MND981090483



EPA 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 non-compliance 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 a 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; however, no contamination of private wells near the site has been found. 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. Groundwater, soil, surface water, and sediment sampling have been conducted. A methane migration study and an investigation to determine the effectiveness of the soil cover are planned. Once the investigation is completed in 1992, the final cleanup remedy will be selected.

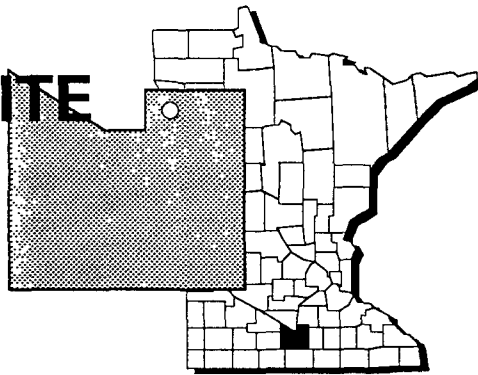
Environmental Progress _____



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 SITE MINNESOTA

EPA ID# MND980792469



EPA REGION 5
CONGRESSIONAL DIST. 01
Blue Earth County
Mankato

Other Names:
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. 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 a 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, deeper 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 pumping the contaminated groundwater and treating it by using an air stripping technique that removes contaminants by exposure to air. The cleanup plan includes constructing eight groundwater wells and two new extraction wells; extending the LeHillier community water system to affected residences and businesses not currently serviced; and properly closing individual wells formerly used for drinking water supplies. The pump and treat system will be continued until 1999.

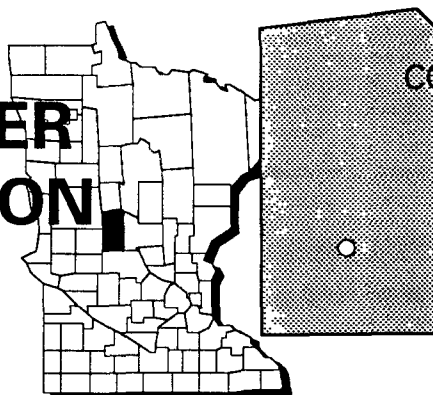
Environmental Progress



The immediate action of providing LeHillier residents with an alternate water supply has significantly reduced the threat of exposure from contaminated drinking water. The cleanup actions currently are underway and will continue to reduce contamination.

LONG PRAIRIE GROUND WATER CONTAMINATION MINNESOTA

EPA ID# MND980904072



EPA REGION 5
CONGRESSIONAL DIST. 07
Todd County
Long Prairie

Site Description

The Long Prairie Ground Water Contamination 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. Contaminated municipal wells have been taken out of service. 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 city residents receive water from municipal water supplies; the remaining 1/3 use private wells. Seven wells still are 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 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 granular activated carbon (GAC); (3) discharge treated groundwater from the GAC unit to the Long Prairie River; and (4) treat contaminated soil with an active soil venting system. The technical design of the remedy was completed in spring of 1991, with cleanup expected to begin in late 1991.

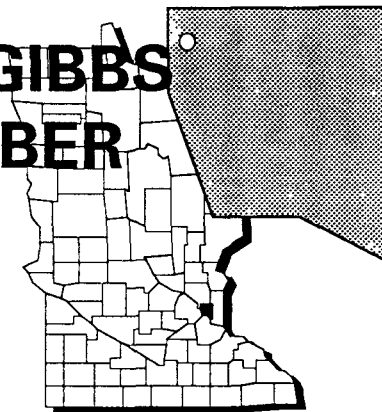
Environmental Progress



After listing the site on the NPL, the EPA performed preliminary evaluations and determined that no immediate actions are necessary at the Long Prairie Ground Water Contamination site while final cleanup actions are being planned.

MACGILLIS & GIBBS CO./BELL LUMBER & POLE CO. MINNESOTA

EPA ID# MND006192694



EPA REGION 5
CONGRESSIONAL DIST. 04
Ramsey County
New Brighton

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 a 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. Individuals having direct contact with sediments or water may be exposed to chemicals. Wetland 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 four stages: immediate actions and three long-term remedial phases directed at cleanup of disposal area soils, the process and storage areas, and the remaining 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 1992, final cleanup remedies will be selected.



Process and Lumber Yard Storage Areas: In 1990, the EPA 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.



Remaining Areas: An investigation to determine the extent of remaining soil contamination on the site and potential contamination of off-site wetlands, streams, and lakes is scheduled to begin in late 1991.

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

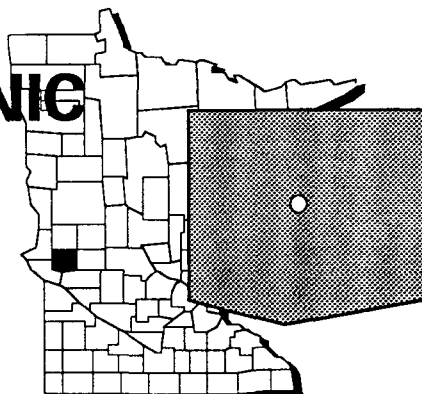
Environmental Progress



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 currently are underway and will lead to the final selection of remedies for the MacGillis & Gibbs Co. /Bell Lumber & Pole Co. areas of the site.

MORRIS ARSENIC DUMP MINNESOTA

EPA ID# MND980792287



EPA 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

Deleted 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 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 cleanup actions were deemed to be necessary. The site was deleted from the NPL in 1986.

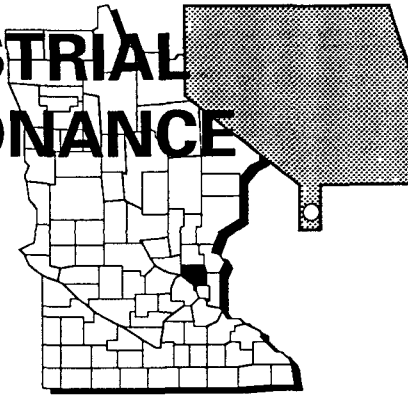
Environmental Progress _____



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 NPL.

NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT MINNESOTA

EPA ID# MN3170022914



EPA REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Fridley

Other Names:
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 wastes 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 NPL in 1983. Over 200,000 people live within 3 miles of the site. The Mississippi River is about 700 feet to the west. The water supply intake for Minneapolis is located approximately 1,500 feet 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 exist for individuals who ingest contaminated groundwater or soil.

Cleanup Approach

The site is being addressed in three stages: initial actions and two long-term remedial phases directed at cleanup of the entire site and cleanup of the contaminated soils on 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, the 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 was installed to gather information on patterns of groundwater flow and contaminant concentrations. The study was completed in 1988. The EPA decided to place hydraulic barriers to pump and treat groundwater for the cleanup. Design of the cleanup method chosen is to be completed in 1991, with actual cleanup to begin soon thereafter.



Soil: An investigation of contaminated soils on site is scheduled to begin in 1991. Recommendations for cleanup are scheduled to be submitted in 1993.

Site Facts: The site is being cleaned up as part of the Installation Restoration Program, a program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities.

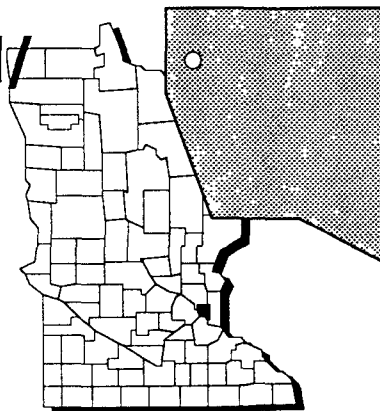
Environmental Progress



Initial actions to remove contaminated soil and other materials reduced the threat of exposure to pollutants at the Naval Industrial Reserve Ordnance Plant while studies and design of the cleanup remedies are being completed.

NEW BRIGHTON/ ARDEN HILLS MINNESOTA

EPA ID# MN7213820908



EPA REGION 5
CONGRESSIONAL DIST. 04
Ramsey County
Arden Hills

Other Names:
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 to the north of St. Paul and Minneapolis, comprises the northeastern 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 its three Prairie Du Chien/Jordan Aquifer wells, one of which was shut down early in 1984. Since contaminants first were discovered, the levels have increased in the remaining undepended 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 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, soil, contamination source control, 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 now are using either uncontaminated 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 study shows no threat to public health. The Army cleaned the sewer line and is storing the removed wastes on site until further disposal is required.



Groundwater: In 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 was constructed to connect St. Anthony wells 3, 4, and 5 to the GAC treatment facility. Once the city takes possession of the plant, long-term operation and maintenance will begin.



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 was completed in 1991. The U.S. Army soon will 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 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.



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. Certificates of destruction of the ash waste were submitted in 1990, completing this action.



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. Operation of this system is expected to continue until the entire site cleanup is complete.



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. The study is expected to be completed in late 1992. Initial results have identified three areas as the major sources of organic solvents contaminating local groundwater. The report also suggested possible steps for cleanup.

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

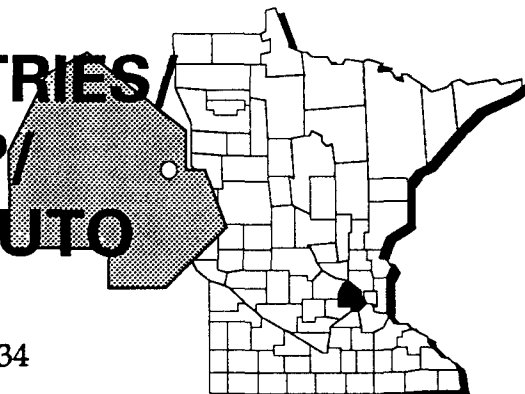
Environmental Progress



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 currently are taking place and will lead to the selection of final remedies for the entire site.

NL INDUSTRIES/ TARACORP/ GOLDEN AUTO MINNESOTA

EPA ID# MND097891634



EPA REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
St. Louis Park

Other Names:
Northwestern Metal Works
Taracorp Ind.
National Lead Taracorp

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 in 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 a mile away, and the Mississippi River is approximately 3 miles northwest of the site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

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 had 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. Health risks may have existed for individuals who ingested or came into direct contact with the contaminated soils or groundwater.

Cleanup Approach

The site is being 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. Results to date indicate no measurable movement of contaminants from the soils into the groundwater. 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 does 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.

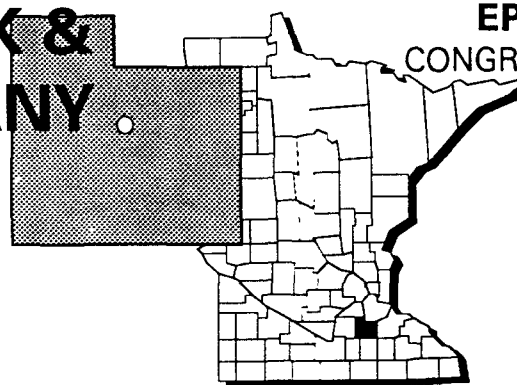
Environmental Progress



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 exceed standards. The NL Industries 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



EPA 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 was 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. The 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 presently is 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 also was detected in the groundwater directly under the disposal pit. Potential health threats include drinking or coming in direct contact with contaminated groundwater.

Cleanup Approach

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

Response Action Status



Interim Actions: The potentially responsible parties placed two pump-out wells in the aquifer, and the contaminated water is being treated by a passive aeration system before being discharged to a nearby creek.



Entire Site: The company completed an investigation of groundwater contamination in 1986. As part of site investigations, a groundwater monitoring system also was put in place. Monitoring of TCE levels is 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 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



EPA 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, paint, 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) and metals. Subsequent resampling did not detect these compounds. In 1985, lime sludge was used as a cover for part of the landfill. Approximately 330 people live within a 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 the 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 upper 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 exist from ingestion or direct contact of the contaminated soil, sediments, or leachate. Drinking contaminated groundwater also may pose health risks. However, the lower aquifer, which is used for residential drinking water, has shown very little contamination.

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 has completed designing the cleanup technologies and expects to begin cleanup activities in mid-1991.



Groundwater: In late 1990, the EPA selected a remedy, which includes long-term monitoring of the shallow and deep aquifers, surface waters, and sediments. In addition, institutional controls on the installation of drinking water wells around the landfill will be implemented and non-essential water wells will be closed. The State began designing the cleanup in late 1990.

Site Facts: The EPA sent Special Notice letters to the potentially responsible parties in March 1991 to conduct cleanup activities.

Environmental Progress

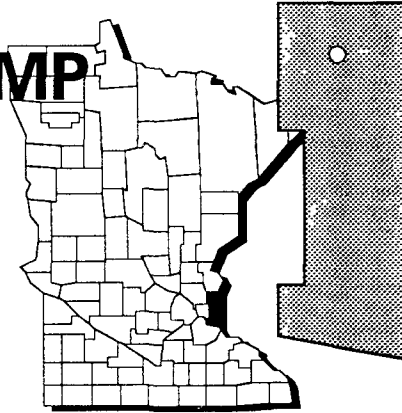


After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Oak Grove Sanitary Landfill site while cleanup activities are being planned and started.

OAKDALE DUMP

MINNESOTA

EPA ID# MND980609515



EPA REGION 5
CONGRESSIONAL DIST. 06
Washington County
Oakdale

Other Names:
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 later was 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 a mile of the site, and approximately 540 people live within a mile. More than 44,000 people live within 3 miles of the site.

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

NPL LISTING HISTORY

Proposed Date: 10/22/81

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 currently is being considered for deletion from the NPL.

Cleanup Approach

This site is being 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 and removal of concentrated waste deposits in 1984 and installation of a shallow groundwater pump-out system, and the establishment of a monitoring well network in 1985. Construction of cleanup techniques has been completed; the groundwater pump and treatment system continues to operate.

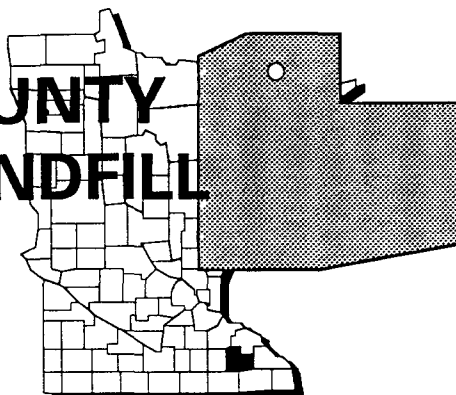
Environmental Progress _____



Cleanup goals for land have been fully achieved at the Oakdale Dump site. Removal of the source of contamination and continued operation of the groundwater pump and treatment system will serve to protect nearby residents and the environment. The site currently is being considered for deletion from the NPL.

OLMSTED COUNTY SANITARY LANDFILL MINNESOTA

EPA ID# MND000874354



EPA REGION 5
CONGRESSIONAL DIST. 01
Olmsted County
Oronoco

Other Names:
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. It is estimated that 1,200 private wells are located near the landfill.

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 started a study of contamination at the site in early 1991, which includes 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 conduct final cleanup activities.

Environmental Progress

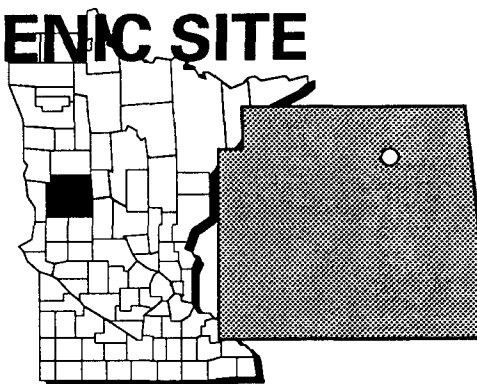


After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Olmsted County Sanitary Landfill site while further studies are taking place and cleanup activities are being planned.

PERHAM ARSENIC SITE

MINNESOTA

EPA ID# MND980609572



EPA REGION 5
CONGRESSIONAL DIST. 07
Otter Tail County
Perham

Other Names:
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. At that time, the USDA provided all midwestern states 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 are contaminated with arsenic. Potential health threats include ingesting or coming in direct contact with 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: Initial studies at the site in 1984 recommended additional monitoring to assess movement of contaminated groundwater, removal of contaminated soils, and capping of the site. These cleanup actions were undertaken, and in 1991 the State of Minnesota will begin a study into the nature and extent of groundwater and soil contamination and alternatives for cleaning up contamination at the site.

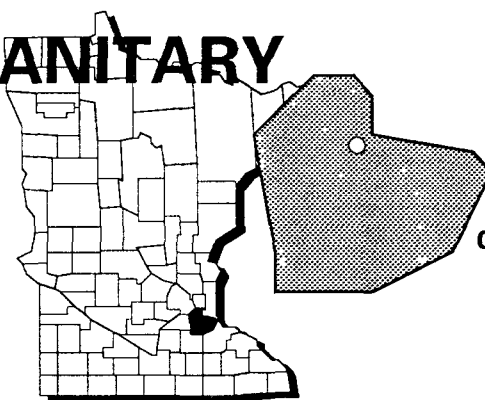
Environmental Progress



Excavation of contaminated soil, capping, and groundwater monitoring at the Perham Arsenic Site have 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



EPA REGION 5
CONGRESSIONAL DIST. 01
Dakota County
Inver Grove Heights

Other Names:
Crosby American 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. Through the intervening years, the landfill 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. Several 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 are check-in stations at the gates of the 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 contain arsenic, halogenated and non-halogenated organic compounds, and various chlorides. Groundwater is contaminated with VOCs and PAHs. People could be exposed to contaminants from the site through drinking or coming in direct contact with contaminated groundwater, or by eating crops grown in private gardens irrigated with contaminated well water.



Cleanup Approach

This site is being addressed in four stages: initial actions and three long-term remedial phases focusing on providing an alternate water supply, source control, and cleanup of groundwater.

Response Action Status



Initial Actions: The site owner is providing bottled water to eight residences until an alternate water supply can be provided.



Alternate Water Supply: The State of Minnesota is conducting a study in preparation for providing an alternate water supply to area residents and homes. The EPA expects to make a final selection of the water supply plan in 1991. Construction of the system is expected soon thereafter. Affected residents will continue to receive bottled water until the alternate water supply system is completed.



Source Control: The State of Minnesota has begun an extended study to determine the extent and nature of site contamination and to identify cleanup alternatives for the landfill areas and other sources of site contamination. It is expected to be completed in late 1991.



Groundwater: A State of Minnesota study is underway to determine the extent and nature of contamination and to identify cleanup alternatives. The study is expected to be completed in late 1991.

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. The EPA and the State of Minnesota are considering options to combine the source control and groundwater cleanup into a single site cleanup approach.

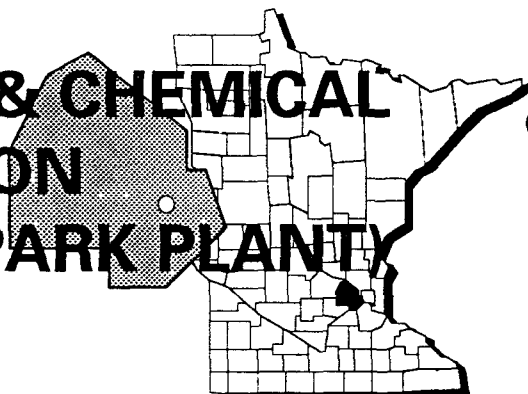
Environmental Progress



The provision of bottled water has reduced the threat of exposure to contaminants 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 (ST. LOUIS PARK PLANT) MINNESOTA

EPA ID# MND980609804



EPA REGION 5
CONGRESSIONAL DIST. 03

Hennepin County
St. Louis Park Plant

Other Names:
Reilly Tar & Chemical Republic
Creosoting Company

Site Description

The 80-acre Reilly Tar & Chemical (St. Louis Park Plant) 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 also were 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, municipal, 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 directly contacting groundwater, inhaling contaminated vapors, or coming into direct contact or ingesting contaminated soils and sludge.

Cleanup Approach

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



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 and prevent downgradient contamination of deeper aquifers; (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 the 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 the further migration of contaminants. Deed restrictions of future commercial and residential construction on the site were put in place in 1989. An existing municipal well in the Prairie du Chien Aquifer will be used as a gradient control well to prevent the spread of contamination. This well is expected to become operational in 1992.



St. Peter Aquifer: The potentially responsible parties, under EPA monitoring, conducted an investigation of the St. Peter Aquifer to determine whether a higher capacity well pump should be installed in an existing well or a new gradient control well should be constructed. The investigation was completed in 1990 and a remedy was selected, which involves pumping and treating groundwater from the aquifer. Initially, the water will discharge to a local treatment plant. This situation will be evaluated at a later date, and treated water may be discharged to a surface water body or the water may be treated with carbon adsorption on site. Cleanup activities began in early 1991.



Drift Platteville Aquifer: The potentially responsible parties, under EPA monitoring, are conducting an investigation into the nature and extent of aquifer contamination and will determine whether a higher capacity well pump should be installed in an existing well or a new gradient control well should be constructed. These investigations are expected to be completed and a remedy selected in late 1991.

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 & 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.

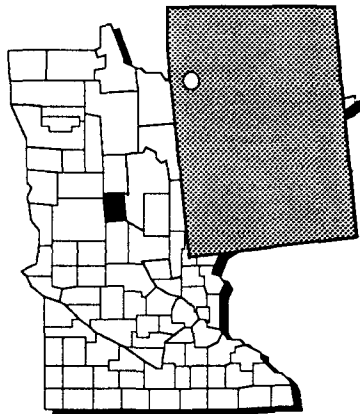
Environmental Progress



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 & Chemical (St. Louis Park Plant) site while further investigations and cleanup activities take place.

RITARI POST & POLE MINNESOTA

EPA ID# MND980904064



EPA 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 mile 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, phenols, and dioxin. 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. To date, soil and preliminary groundwater sampling have been conducted at the site. These early study results have revealed the presence of dioxins, requiring modification of the study plan to address new issues raised by this discovery. The investigation is scheduled to be completed in 1992.

Environmental Progress _____

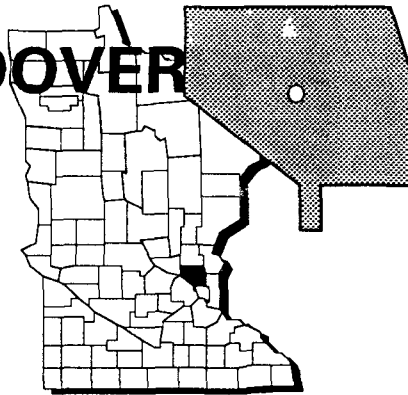


After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Ritari Post & Pole site while studies are taking place and cleanup activities are being planned.

SOUTH ANDOVER SITE

MINNESOTA

EPA ID# MND980609614



EPA REGION 5 CONGRESSIONAL DIST. 06

Anoka County
Andover, 16 miles northeast of Minneapolis

Other Names:
Heidelberger Cecil Musket Ranch
Pumpkin City Investments
Musket Ranch
Andover Sites

Site Description

The South Andover Site is 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 reportedly were 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.

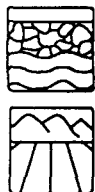
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater in three shallow drinking water 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 health threats of greatest concern to people are drinking, inhaling, or making direct contact with contaminated soil, groundwater, and contaminated vapors. Although residents who live on site and use the shallow groundwater have been advised by the State to use bottled water, recent sampling of groundwater indicates that no contaminants exist in the residents' potable 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 of 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 1992.



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, 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. The investigation is expected to be completed in late 1991.

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.

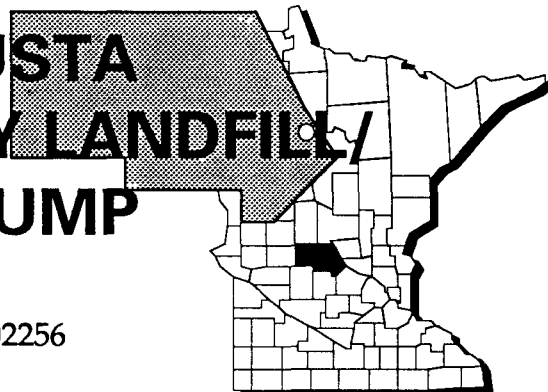
Environmental Progress



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 Site facility has been greatly reduced. Further studies leading to the selection of a permanent cleanup strategy currently are being conducted, and the design specifications for groundwater cleanup are being prepared.

ST. AUGUSTA SANITARY LANDFILL/ ENGEN DUMP MINNESOTA

EPA ID# MND981002256



EPA REGION 5
CONGRESSIONAL DIST. 07

Stearns County
1 mile from St. Augusta

Other Names:
St. Cloud Dump

Site Description

The 75-acre St. Augusta Sanitary 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 also was 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 northern 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. Health threats to people include coming in direct contact with and 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 began in 1991 and is scheduled for completion in 1993.

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 Sanitary Landfill/Engen Dump site while further investigations continue and cleanup activities are being planned.

ST. LOUIS RIVER SITE

MINNESOTA

EPA ID# MND039045430



EPA REGION 5
CONGRESSIONAL DIST. 03
St. Louis County
5 miles southwest of Duluth's central
business district

Other Names:
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 USX Duluth Works closed in 1979; however, the wire mill building was used by the lessee until 1987. There is extensive contamination of the sediments, soil, surface water, and groundwater with coke and tar products, which contain high concentrations of polycyclic aromatic hydrocarbons (PAHs). Demolition of most of the site buildings already has occurred, and some pipes and tanks used for storage in the past have already been cleaned and dismantled. The St. Louis River and associated wetlands run along the eastern and southern sides of the site. The Interlake/Duluth Tar area is located about three miles from Duluth. It occupies 230 acres of land and marina area. The site consists of the 54th Avenue Peninsula, a boat slip, the Hallett Peninsula, and the 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 1962. Zenith Furnace Company began operating a blast furnace on site in 1902 and added coke ovens in 1904. The Zenith facilities were acquired by Interlake Iron Corporation in 1930. Interlake continued to operate the coking ovens, and more ovens were added in 1939. Interlake operated the blast furnace until 1960 and the coke ovens until 1961. In 1962, the blast furnace was toppled and the coke ovens were emptied. Between 1904 and approximately 1916, Duluth Tar and Chemical Company and the Barrett Company produced tar paper from waste tar obtained from Interlake. Between 1924 and 1948, Dominion, and then American Tar and Chemical Companies, produced roofing paper and shingles using tar from Interlake. Most of the 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 four miles downstream of the site. Approximately 800 people live within a mile of the site. Contaminated groundwater is not used as a drinking water source. Drinking water is supplied from an intake several miles from the mouth of Lake Superior.

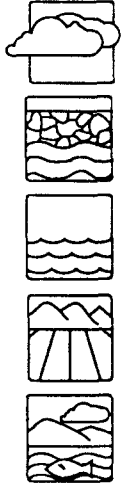
Site Responsibility: This site is being addressed through
Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Air at the site may contain 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 Interlake/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 are accidentally swallowed or touched, health hazards could ensue. The site also could contaminate the wetlands adjacent to the U.S. Steel site 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 two site areas.

Cleanup Approach

This site is being addressed in four stages: initial actions and three long-term remedial phases focusing on cleanup of the Interlake/Duluth area, cleanup of the U.S. Steel area and cleanup of the tar seeps at the Interlake/Duluth area.

Response Action Status



Initial Actions: Several initial actions have been completed to remove contaminated materials at the site. Most buildings at both areas of the site have been demolished, and tanks and pipes have been cleaned and dismantled at the U.S. Steel area.



Interlake/Duluth Area: The State has completed an investigation into the nature and extent of contamination on the Interlake/Duluth portion of the site. A final study focusing on the cleanup alternatives for the soil, sediments, groundwater, and surface water is expected to be completed in 1992.



U.S. Steel Area: The State has selected the following remedy to clean up 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 State has begun site cleanup activities; the EPA currently is evaluating the remedy selection to determine if the technologies and cleanup methods will adequately address site contamination.



Tar Seeps at the Interlake/Duluth Area: In early 1991, the EPA selected a remedy to excavate the four tar seeps present on the soil surface and to burn the tar as fuel at a coal-powered power plant, steel blast furnace, or other suitable facility. The design of these cleanup activities is being undertaken by the parties potentially responsible for the contamination and are expected to be completed by 1992.

Environmental Progress

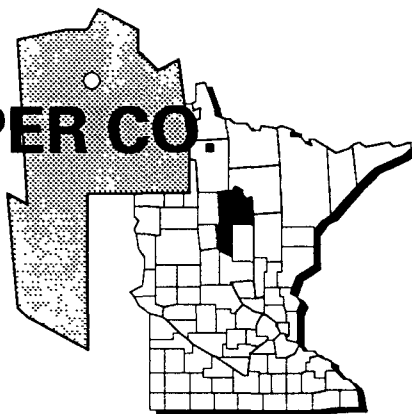


The demolition of contaminated buildings and the cleanup and dismantling of contaminated tanks and pipes have reduced the potential for exposure to hazardous materials at the St. Louis River Site while further studies and cleanup activities are taking place.

ST. REGIS PAPER CO.

MINNESOTA

EPA ID# MND057597940



EPA REGION 5
CONGRESSIONAL DIST. 07

Cass County
Chippewa National Forest

Other Names:
Wheeler's 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 the Great Northern Railroad. In 1957, pressure treatment of lumber with creosote was being used in 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 reportedly was 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), 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 PAHs and phenolic compounds. The contaminated soil and groundwater could have adverse health effects if accidentally ingested or directly contacted. Seepage from the site most likely flows into the nearby wetlands and could be harmful to the 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 adsorption method before being discharged to the surface water. This treatment system has been operative for the last four years and will continue until contamination is reduced to cleanup levels.

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.

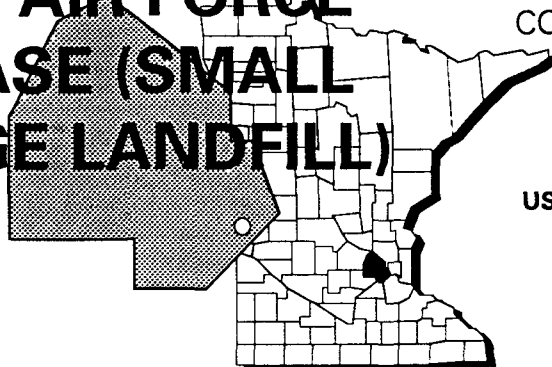
Environmental Progress



The ongoing groundwater treatment program and soil excavation have significantly reduced the potential for exposure to soil contaminants at the St. Regis Paper Co. site. The groundwater treatment is planned to continue until cleanup goals are met.

TWIN CITIES AIR FORCE RESERVE BASE (SMALL ARMS RANGE LANDFILL) MINNESOTA

EPA ID# MN8570024275



EPA REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
Minneapolis-St. Paul
International Airport Complex

Other Names:
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 (Small Arms Range Landfill) 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 also were disposed of at the landfill. The site is within the 100-year flood plain 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.

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 are contaminated with paint by-products and petrochemicals. People who accidentally ingest or have direct contact with contaminated groundwater, soil, or sludge may suffer adverse health effects. The northern boundary of the Minnesota Valley National Wildlife Refuge lies 500 feet from the landfill.

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.



Entire Site: The Air Force currently is conducting an investigation of the site to determine the extent of contamination. A final evaluation of the alternative cleanup remedies has been submitted, and the selection of cleanup approaches for the site is expected in 1991.

Site Facts: The Twin Cities Air Force Reserve Base is participating in the Installation Restoration Program a specially funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities.

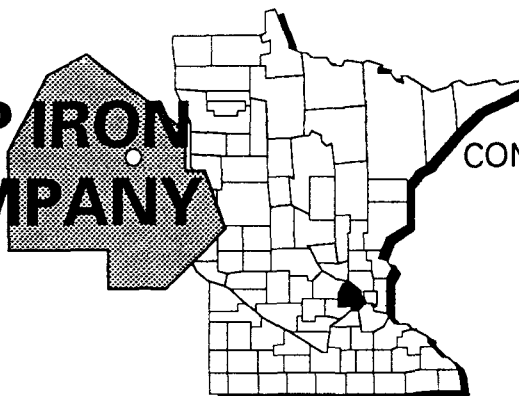
Environmental Progress _____



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 Air Force Reserve Base site while final cleanup remedies are selected.

UNION SCRAP IRON & METAL COMPANY MINNESOTA

EPA ID# MND022949192



EPA 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 were on the site. According to the State, airborne lead levels adjacent to the site were significantly high. There was also a 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 was contaminated with lead. The soil and sludge were 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 existed 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 also was 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. The EPA, therefore, determined in 1990 that no further action would be taken at this site.

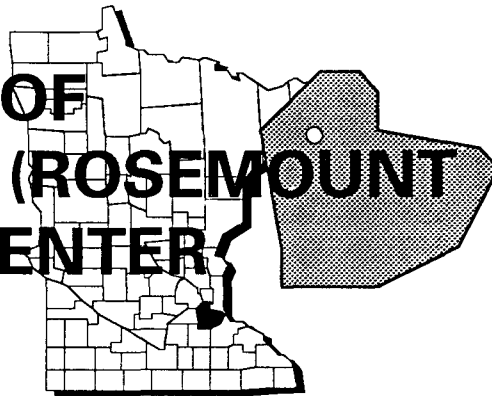
Environmental Progress _____



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 site has been designated for unrestricted use, and no further monitoring is necessary. The EPA is now in the process of deleting the site from the NPL.

UNIVERSITY OF MINNESOTA (ROSEMOUNT) RESEARCH CENTER MINNESOTA

EPA ID# MND980613780



EPA REGION 5
CONGRESSIONAL DIST. 03
Dakota County
Rosemount

Other Names:
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 and salvaging of electrical equipment and lead batteries and for disposal of polychlorinated biphenyl (PCB)-contaminated oil. Two incinerators also were 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 that now receive 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 from the used equipment area.

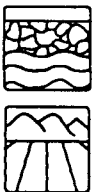
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

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 including chloroform; 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 directly contacted or ingested.

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 University 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 1991. The wells in the area no longer exceed the State's Recommended Allowable Limit for chloroform; however, the University is continuing construction of the water supply system on its own.



Entire Site: The EPA and the State have completed an investigation into the soil contamination at the site. In 1990, lead-contaminated soil was removed and disposed of off site in a federally approved landfill. Soil heavily contaminated with PCBs will be treated on site using either a thermal desorption/fume incineration process or an on-site incineration process. The cleanup actions, including restricting access with manmade barriers around the site, are scheduled to begin in late 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

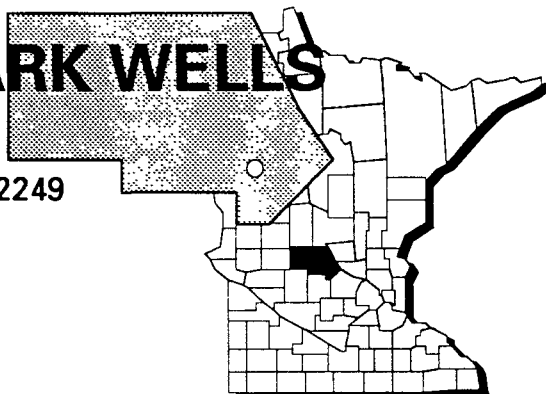


The provision of an alternative water supply to affected families and the ongoing cleanup activities described above have greatly reduced the potential for exposure to hazardous substances in the drinking water. Final cleanup activities are being initiated for on-site contaminated soils at the University of Minnesota site.

WAITE PARK WELLS

MINNESOTA

EPA ID# MND981002249



EPA 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 Electric Machinery plant 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, State, and municipal 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 face a health risk if they ingest contaminated water or directly contact contaminated soil.

Cleanup Approach

This site is being addressed in three stages: 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 still are 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. To date, the sandblast sands have been sampled. The studies of this area are expected to be completed in 1992.

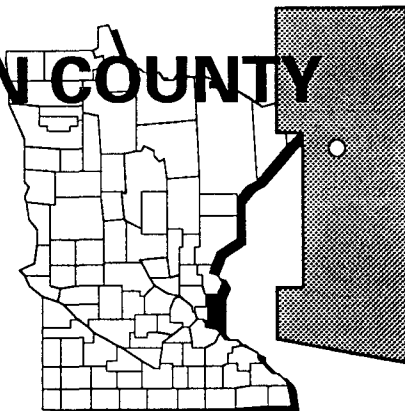
Environmental Progress



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 at the Waite Park Wells site.

WASHINGTON COUNTY LANDFILL MINNESOTA

EPA ID# MND980704738



EPA 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, County, 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 face a health risk from ingesting or directly contacting contaminated groundwater.

Cleanup Approach

This site is being addressed in three stages: an immediate action and two long-term remedial phases focusing on cleanup of the entire site and provision of a safe drinking water source.

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) installing and operating a groundwater gradient control operation at the site; (2) providing safe drinking water supplies for affected residences; (3) monitoring 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. The potentially responsible parties will be conducting a five-year review of the remedy in 1991. The remedy will be evaluated for effectiveness and adjustments will be made, as necessary.



Drinking Water: In September 1990, a remedy was selected to supply drinking water to residents of 10 homes in Lake Elmo who have received Minnesota Department of Health advisories against using their existing well water for drinking or cooking. The remedy provides for these 10 homes to be connected to the city of Oakdale public water supply system by late 1991. Designs for the connection are completed and construction of the connections is underway.

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

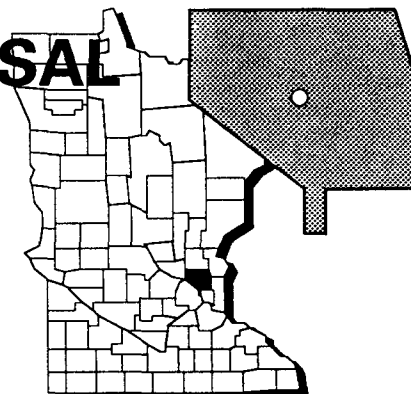
Environmental Progress _____



The immediate and continuing actions to supply alternative water to affected residences have 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 MINNESOTA

EPA ID# MND980609119



EPA REGION 5
CONGRESSIONAL DIST. 06
Anoka County
Andover

Site Description

The 114-acre Waste Disposal Engineering 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 and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 07/16/82
Final Date: 09/08/83

Threats and Contaminants



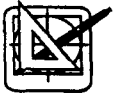
Groundwater, soil gas, and Coon Creek contain VOCs from wastes deposited in the landfill. Individuals may be exposed to contaminants through accidental ingestion, inhalation, or direct contact with groundwater, soil gas, or surface water.



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, planned for 1991, the final site cleanup will begin.

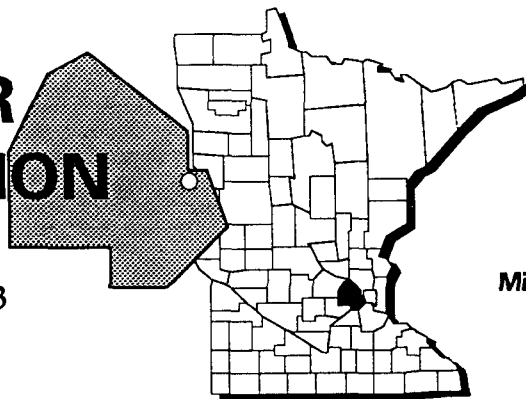
Environmental Progress _____



An initial evaluation by the EPA of the Waste Disposal Engineering 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



EPA REGION 5
CONGRESSIONAL DIST. 05
Hennepin County
Minneapolis

Other Names:
Minneapolis Coatings & Chemical Division

Site Description

The 1-acre Whittaker Corporation site is located within a 10-acre tract of land. 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 of 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). Ingestion of or direct contact with contaminated groundwater or soil could pose adverse health effects.

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.

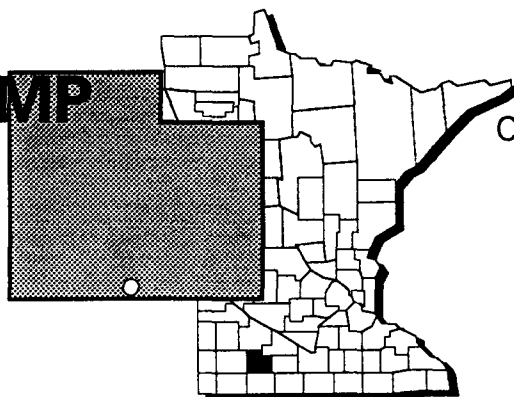
Environmental Progress _____



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 DUMP MINNESOTA

EPA ID# MND980034516



EPA REGION 5
CONGRESSIONAL DIST. 02
Cottonwood County
Windom

Site Description

Prior to the 1930s, the 11-acre Windom 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 also were 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) graded the site to control erosion; (2) covered the site with compacted clay and other materials which are impermeable to water; (3) provided a drainage layer; and (4) installed 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 was installed. Groundwater pumping and treating will continue until cleanup levels are met. Otherwise, all planned cleanup activities have been completed.

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 the groundwater pumping and treating continue to lower contamination levels.

**Glossary:
Terms Used
in the
Fact Sheets**

Terms Used in the NPL Book

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

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

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

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

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Carbon Treatment: [see Carbon Adsorption].

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

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

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

GLOSSARY

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

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

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

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

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

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

Community Relations: The EPA effort to establish and maintain two-way communication with the public. Goals of community relations programs include creating an understanding of EPA programs and related actions, assuring public input into decision-making processes related to affected commu-

nities, and making certain that the Agency is aware of, and responsive to, public concerns. Specific community relations activities are required in relation to Superfund cleanup actions [see Comment Period].

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

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

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

Consent Order: [see Administrative Order on Consent].

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GLOSSARY

and willingness to perform a site study or cleanup.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Mill Tailings: [See Mine Tailings].

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

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

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

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

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

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

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

GLOSSARY

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

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

RCRA: [See Resource Conservation and Recovery Act].

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

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

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

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

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

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

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

widespread industrial use, they are commonly found in soil and groundwater.

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

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

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

Water Table: The upper surface of the groundwater.

Weir: A barrier to divert water or other liquids.

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

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

**Information
Repositories
for
NPL Sites
in Minnesota**

Information Repositories for NPL Sites in the State of Minnesota

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

Site Name	Site Repository
ADRIAN MUNICIPAL WELL FIELD	Adrian Public Library, 214 Maine Avenue, Adrian, MN 56110
AGATE LAKE SCRAPYARD	Brainerd Public Library, 416 South 5th Street, Brainerd, MN 56401
ARROWHEAD REFINERY CO.	Duluth Public Library, 520 West Superior Street, Duluth, MN 55802
BOISE CASCADE/ONAN/MEDTRONICS	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
BURLINGTON NORTHERN	Brainerd Public Library, 206 North 7th Street, Brainerd, MN 56401
DAKHUE SANITARY LANDFILL	Cannon Falls Library, 306 West Mill Street, Cannon Falls, MN 55009
EAST BETHEL DEMOLITION LANDFILL	East Bethel City Hall, 2241-221st Avenue, Northeast, Cedar, MN 55011
FMC CORP. (FRIDLEY PLANT)	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
FREEWAY SANITARY LANDFILL	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
GENERAL MILLS/HENKEL CORP.	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
JOSLYN MFG & SUPPLY CO.	Southdale Public Library, 7001 York Avenue, South, Edina, MN 55435
KOCH REFINING COMPANY/N-REN CORP.	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
KOPPERS COKE	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
KUMMER SANITARY LANDFILL	Northern Township Town Hall, 445 Town Hall Road, Northwest, Bemidji, MN 56601
KURT MANUFACTURING CO.	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
LAGRAND SANITARY LANDFILL	Alexandria Public Library, 7th & Fillmore Streets, Alexandria, MN 56308
LEHILLIER/MANKATO SITE	Minnesota Valley Regional Library, 100 East Main Street, Mankato, MN 56002
LONG PRAIRIE GROUND WATER CONT.	City Hall, City of Long Prairie, 42 Third Street, North, Long Prairie, MN 56347
MACGILLIS & GIBBS CO./BELL LUMBER	Ramsey County Library, Arden Hills Branch, 1941 West County Road, Arden Hills, MN 55112
MORRIS ARSENIC DUMP	Deleted from the NPL
NAVAL INDUS. RES. ORDNANCE PLANT	Anoka County Public Library, Fridley Branch, 410 N.E. Mississippi Street, Fridley, MN 55432
NEW BRIGHTON/ARDEN HILLS	New Brighton City Hall, Vault Area, 803 Fifth Avenue, N.W., New Brighton, MN 55112
NL INDUSTRIES/TARACORP/GOLDEN AUTO	St. Louis Park City Hall, 5005 Minnetonka Boulevard, St. Louis Park, MN 55416
NUTTING TRUCK & CASTER CO.	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155

Information Repositories for NPL Sites in the State of Minnesota (Continued)

Site Name	Site Repository
OAK GROVE SANITARY LANDFILL	Oak Grove Township Board, 1990 Northwest Nightingale Street, Cedar, MN 55011
OAKDALE DUMP	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
OLMSTED COUNTY SANITARY LDFL	Rochester Public Library, 11 First Street, Southeast, Rochester, MN 55904
PERHAM ARSENIC SITE	Perham Public Library, 100 Third Street, Northeast, Perham, MN 56573
PINE BEND SANITARY LANDFILL	Contact the Region 5 Superfund Community Relations Office
REILLY TAR & CHEMICAL CORP.	St. Louis Park Library Branch, 3240 Library Lane, St. Louis Park, MN 55426
RITARI POST & POLE	Wadena Public Library, 304-First Street, Southwest, Wadena, MN 56482
SOUTH ANDOVER SITES	Andover City Hall, 1685 Crosstown Boulevard, Northwest, Andover, MN 55403
ST. AUGUSTA LDFL/ENGEN DUMP	Great River Regional Library, 405 St. Germain Street, St. Cloud, MN 56301
ST. LOUIS RIVER SITE	Duluth Public Library, 520 West Superior Street, Duluth, MN 55802
ST. REGIS PAPER CO.	Not Established
TWIN CITIES AIR FORCE RESERVE BASE	Southdale Hennepin Area Library, 7001 York Avenue, South, Edina, MN 55435
UNION SCRAP IRON & METAL CO.	Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, MN 55401
U. OF M. (ROSEMOUNT RESEARCH CTR)	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
WAITE PARK WELLS	Waite Park Branch Library, 612 North Third Street, Waite Park, MN 56387
WASHINGTON COUNTY LANDFILL	Washington County Library, 2150 Radio Drive, Woodbury, MN 55125
WASTE DISPOSAL ENGINEERING	Andover City Hall, 1685 Crosstown Boulevard, Andover, MN 55304
WHITTAKER CORPORATION	Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155
WINDOM DUMP	Windom Public Library, 904 4th Avenue, Windom, MN 56101