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**NATIONAL PRIORITIES LIST SITES:  
Michigan**

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

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

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## INTRODUCTION:

### WHY THE SUPERFUND PROGRAM?

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

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

### After Discovery, the Problem Intensified

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

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

### EPA Identified More than 1,200 Serious Sites

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

## A BRIEF OVERVIEW

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

### THE NATIONAL CLEANUP EFFORT IS MUCH MORE THAN THE NPL

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



## INTRODUCTION

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

### EPA IS MAKING PROGRESS ON SITE CLEANUP

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

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

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

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

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

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

### EPA MAKES SURE CLEANUP WORKS

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

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

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

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

### CITIZENS HELP SHAPE DECISIONS

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

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

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

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

### USING THE STATE AND NATIONAL VOLUMES IN TANDEM

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

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

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

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

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

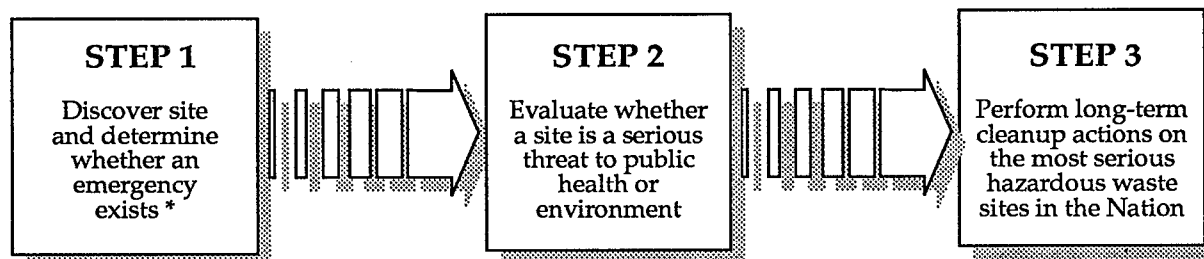


## SUPERFUND:

### HOW DOES THE PROGRAM WORK TO CLEAN UP SITES?

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

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



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

FIGURE 1

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

**How does EPA learn about potential hazardous waste sites?**

**What happens if there is an imminent danger?**

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

## STEP 1: SITE DISCOVERY AND EMERGENCY EVALUATION

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

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

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

## STEP 2: SITE THREAT EVALUATION

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

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

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

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

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

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

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

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

How does EPA use the results of the site inspection?



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

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

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

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

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

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

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



### STEP 3: LONG-TERM CLEANUP ACTIONS

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

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

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

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

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

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

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

**How are cleanup alternatives identified and evaluated?**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

**Can EPA make parties responsible for the contamination pay?**



## HOW TO:

## USING THE STATE VOLUME

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

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

### Icons in the *Threats and Contaminants* Section



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



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



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

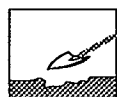


**Contaminated Soil and Sludges** on or near the site.



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

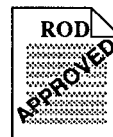
### Icons in the *Response Action Status* Section



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



**Site Studies** at the site are planned or underway.



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



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



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



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

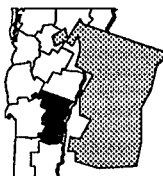
### Site Responsibility

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

#### SITE NAME

STATE

EPA ID# ABC00000000



EPA REGION  
CONGRESSIONAL DIST  
County Name  
Location

Aliases:

#### Site Description

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### NPL Listing History

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

Site Responsibility: \_\_\_\_\_

NPL LISTING HISTORY

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Threats and Contaminants



\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Cleanup Approach

\_\_\_\_\_  
\_\_\_\_\_

#### Response Action Status



\_\_\_\_\_  
\_\_\_\_\_



\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Site Facts:

\_\_\_\_\_  
\_\_\_\_\_

#### Environmental Progress



\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Environmental Progress

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



## WHAT THE FACT SHEETS CONTAIN

### Site Description

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

### Threats and Contaminants

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

### Cleanup Approach

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

### Response Action Status

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

### Site Facts

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

# How To

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

## HOW CAN YOU USE THIS STATE BOOK?

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

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

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

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

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

# NPL Sites in State of Michigan



The Lower Peninsula of Michigan is bordered by Indiana and Ohio to the south, Canada and Lake Huron in the east, and Lake Michigan to the west. The Upper Peninsula is surrounded by Lakes Superior and Michigan and bounded by Wisconsin to the west. Michigan covers 58,527 square miles consisting of low rolling hills which give way to northern tableland of hilly belts in the Lower Peninsula. In the Upper Peninsula, level land with swamps gives way to a rugged western region. The State experienced a 0.2 percent decrease in population during the 1980s and currently has approximately 9,240,000 residents, ranking 8th in U.S. populations. Principal State industries include agriculture, manufacturing, services, mining, and tourism. Michigan manufacturing produces transportation equipment, machinery, fabricated and primary metals, food products, rubber, and plastics.

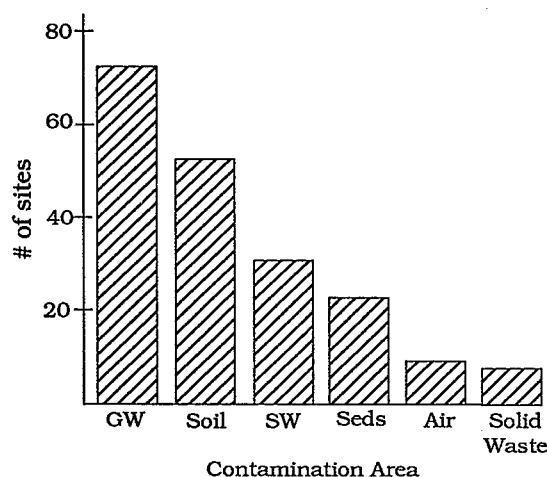
## How Many Michigan Sites Are on the NPL?

Proposed Sites	3
Final Sites	75
Deleted Sites	<u>1</u>
	79

## Where Are the NPL Sites Located?

Cong. District 01, 08, 16, 19	1 site
Cong. District 02, 07	2 sites
Cong. District 12	4 sites
Cong. District 04	6 sites
Cong. District 03, 06, 10, 11	8 sites
Cong. District 05	11 sites
Cong. District 09	18 sites

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



**Groundwater:** Volatile organic compounds (VOCs) and heavy metals (inorganics).



**Soil and Solid Waste:** Volatile organic compounds (VOCs), heavy metals (inorganics), polychlorinated biphenyls (PCBs), and pesticides.



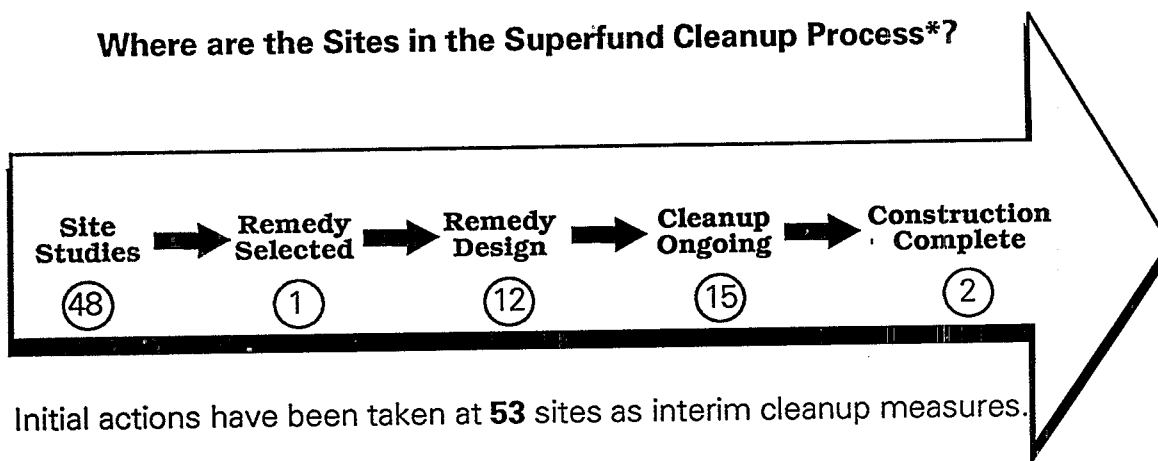
**Surface Water and Sediments:** Heavy metals (inorganics), volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs).



**Air:** Volatile organic compounds (VOCs), heavy metals (inorganics), polychlorinated biphenyls (PCBs), and plastics.

\*Appear at 11% or more sites

### Where are the Sites in the Superfund Cleanup Process\*?



### Who Do I Call with Questions?

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

Michigan Superfund Office	(517) 373-8448
EPA Region V Superfund Office	(312) 886-7456
EPA Region V Public Relations Office	(312) 353-2072
EPA Superfund Hotline	(800) 424-9346
EPA Public Information Office	(202) 477-7751

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



# The NPL Progress Report

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

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

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

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

## Progress Toward Cleanup at NPL Sites in the State of Michigan

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
1	ADAMS PLATING	INGHAM	Final	03/31/89		➡				
3	ALBION-SHERIDAN TOWNSHIP LDFL	CALHOUN	Final	10/04/89	➡	➡				
5	ALLIED PAPER/PORTAGE/KALAMAZOO	KALAMAZOO	Prop.	05/05/89	➡	➡				
7	AMERICAN ANODCO, INC.	IONIA	Final	03/31/89	➡	➡				
9	ANDERSON DEVELOPMENT COMPANY	LENAWEE	Final	09/08/83	➡	➡				
11	AUTO ION CHEMICALS, INC.	KALAMAZOO	Final	09/08/83	➡	➡	➡	➡		
13	AVENUE "E" GW CONTAMINATION	GRAND TRAVERSE	Final	06/10/86	➡	➡	➡	➡	➡	
15	BARRELS, INC.	INGHAM	Final	10/04/89	➡	➡				
17	BENDIX CORP./ALLIED AUTOMOTIVE	BERRIEN	Final	02/21/90		➡				
19	BERLIN AND FARRO	GENESEE	Final	09/08/83	➡	➡	➡	➡	➡	
22	BOFORS NOBEL, INC.	MUSKEGON	Final	03/31/89	➡	➡				
24	BURROWS SANITATION	VAN BUREN	Final	09/21/84	➡	➡	➡	➡	➡	
26	BUTTERWORTH #2 LANDFILL	KENT	Final	09/08/83	➡	➡				
28	CANNELTON INDUSTRIES, INC.	CHIPPEWA	Prop.	06/24/88	➡	➡				
30	CARTER INDUSTRIALS, INC.	WAYNE	Final	03/31/89	➡	➡				
33	CEMETERY DUMP	OAKLAND	Final	09/08/83		➡	➡	➡	➡	
35	CHARLEVOIX MUNICIPAL WELL	CHARLEVOIX	Final	09/08/83	➡	➡	➡	➡	➡	➡
37	CHEM CENTRAL	KENT	Final	09/08/83	➡	➡				
39	CLARE WATER SUPPLY	CLARE	Final	09/21/84		➡				

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
41	CLIFF/DOW DUMP	MARQUETTE	Final	09/08/83	➡	➡	➡	➡		
43	DUELL & GARDNER LANDFILL	MUSKEGON	Final	09/08/83	➡	➡				
45	ELECTROVOICE	BERRIEN	Final	09/21/84		➡				
47	FOLKERTSMA REFUSE	KENT	Final	03/31/89		➡				
49	FOREST WASTE PRODUCTS	GENESEE	Final	09/08/83	➡	➡	➡	➡	➡	
51	G & H LANDFILL	MACOMB	Final	09/03/83	➡	➡				
53	GRAND TRAVERSE OVERALL SUPPLY	LEELANAU	Final	09/08/83	➡	➡				
55	GRATIOT COUNTY GOLF COURSE	GRATIOT	Delete	09/03/83	➡					➡
57	GRATIOT COUNTY LANDFILL	GRATIOT	Final	09/08/83	➡	➡	➡	➡		
59	H. BROWN CO., INC.	KENT	Final	06/10/86		➡				
61	HEDBLUM INDUSTRIES	IOSCO	Final	09/08/83		➡	➡	➡		
63	HI-MILL MANUFACTURING COMPANY	OAKLAND	Final	02/21/90	➡	➡				
66	IONIA CITY LANDFILL	IONIA	Final	09/08/83	➡	➡	➡	➡		
68	J & L LANDFILL	OAKLAND	Final	03/31/89		➡				
70	K & L AVENUE LANDFILL	KALAMAZOO	Final	09/08/83	➡	➡				
72	KAYDON CORPORATION	MUSKEGON	Final	02/21/90	➡	➡	➡	➡	➡	
74	KENT CITY MOBILE HOME PARK	KENT	Final	07/21/87	➡					
76	KENTWOOD LANDFILL	KENT	Final	09/08/83		➡				
78	KYSOR INDUSTRIAL CORP.	WEXFORD	Final	10/04/89		➡	➡	➡		

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
80	LIQUID DISPOSAL, INC.	MACOMB	Final	09/08/83	➡	➡	➡	➡		
83	MASON COUNTY LANDFILL	MASON	Final	09/08/83	➡	➡	➡	➡		
85	MCGRAW EDISON CORP.	CALHOUN	Final	09/08/83	➡	➡	➡	➡	➡	
87	METAL WORKING SHOP	BENZIE	Final	02/21/90		➡				
89	METAMORA LANDFILL	LAPEER	Final	09/21/84		➡	➡	➡	➡	
91	MICHIGAN DISPOSAL SERVICE	KALAMAZOO	Final	02/21/90	➡	➡				
93	MOTOR WHEEL, INC.	INGHAM	Final	06/10/86	➡	➡				
95	MUSKEGON CHEMICAL CO.	MUSKEGON	Final	02/21/90	➡	➡				
97	NORTH BRONSON INDUSTRIAL AREA	BRANCH	Final	06/10/86		➡				
99	NORTHERNAIRE PLATING	WEXFORD	Final	09/08/83	➡	➡	➡	➡	➡	
101	NOVACO INDUSTRIES	MONROE	Final	09/08/83		➡	➡	➡		
103	ORGANIC CHEMICALS, INC.	KENT	Final	09/08/83	➡	➡				
105	OSSINEKE GROUND WATER CONTAMIN	ALPENA	Final	09/08/83	➡	➡				
107	OTT/STORY/CORDOVA CHEMICAL CO.	MUSKEGON	Final	09/08/83	➡	➡	➡	➡		
109	PACKAGING CORP. OF AMERICA	MANISTEE	Final	09/08/83		➡				
111	PARSONS CHEMICAL WORKS, INC.	EATON	Final	03/31/89	➡	➡				
113	PEERLESS PLATING CO.	MUSKEGON	Prop.	06/24/88	➡	➡				
115	PETOSKEY MUNICIPAL WELL FIELD	EMMET	Final	09/08/83	➡	➡				
117	RASMUSSEN'S DUMP	LIVINGSTON	Final	09/08/83	➡	➡				

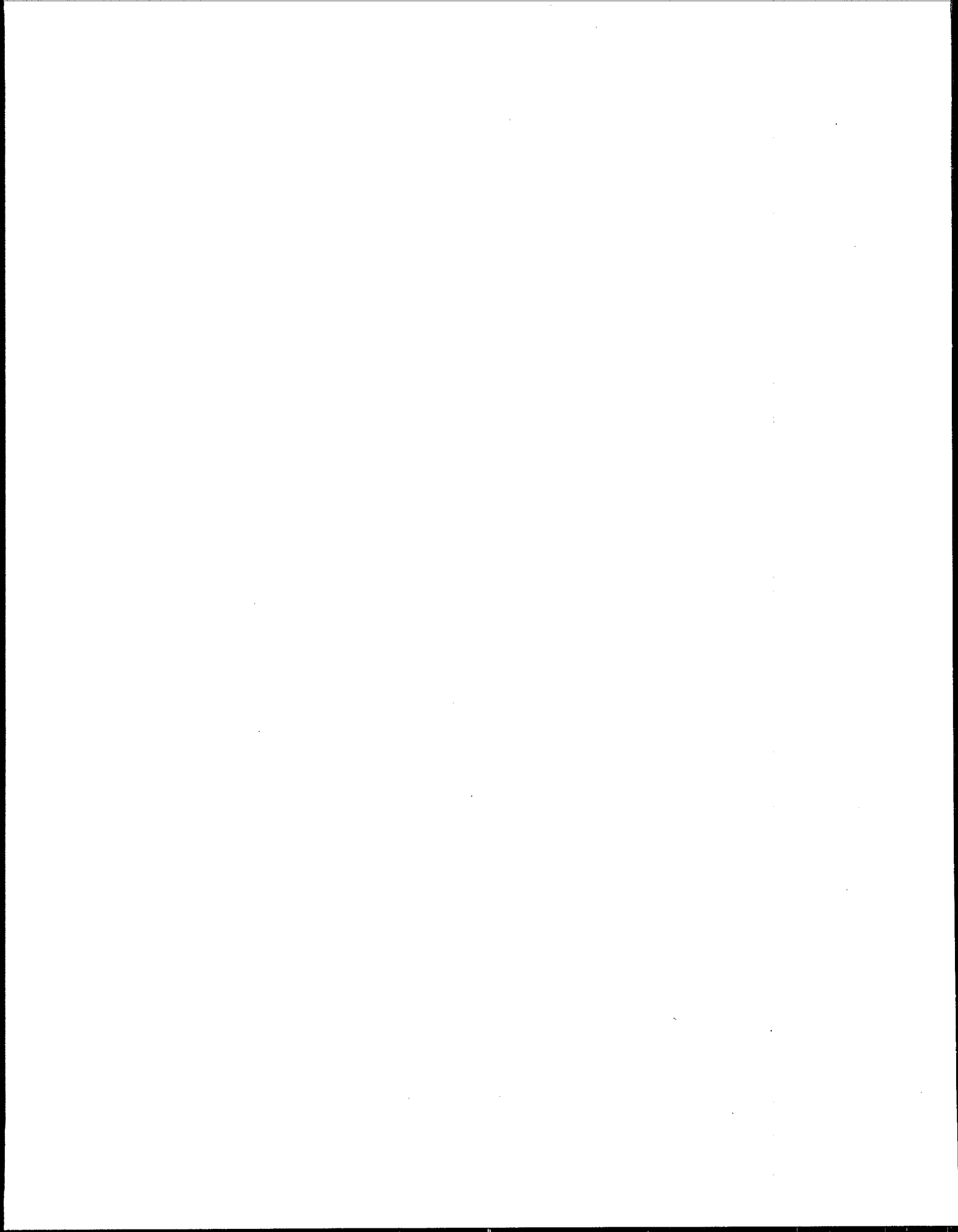


Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
119	ROCKWELL INTL CORP. (ALLEGAN PLT)	ALLEGAN	Final	09/08/83	➡	➡				
121	ROSE TOWNSHIP DUMP	OAKLAND	Final	07/21/87	➡	➡	➡	➡		
123	ROTO-FINISH CO., INC.	KALAMAZOO	Final	06/10/86		➡				
125	SCA INDEPENDENT LANDFILL	MUSKEGON	Final	09/08/83		➡			➡	
127	SHIAWASSEE RIVER	LIVINGSTON	Final	09/08/83	➡	➡				
129	SOUTH MACOMB DSPL AUTHORITY	MACOMB	Final	06/10/86	➡	➡				
131	SOUTHWEST OTTAWA COUNTY LDFL	OTTAWA	Final	09/08/83		➡	➡	➡	➡	
133	SPARTA LANDFILL	KENT	Final	09/08/83	➡	➡				
135	SPARTAN CHEMICAL COMPANY	KENT	Final	09/08/83		➡	➡	➡	➡	
137	SPIEGELBERG LANDFILL	LIVINGSTON	Final	09/08/83	➡	➡	➡	➡	➡	
139	SPRINGFIELD TOWNSHIP DUMP	OAKLAND	Final	09/08/83	➡	➡				
141	STATE DISPOSAL LANDFILL, INC.	KENT	Final	02/21/90	➡	➡				
143	STURGIS MUNICIPAL WELLS	ST. JOSEPH	Final	09/21/84		➡				
145	TAR LAKE	ANTRIM	Final	09/08/83		➡				
147	THERMO-CHEM, INC.	MUSKEGON	Final	06/10/86	➡	➡				
149	TORCH LAKE	HOUGHTON	Final	06/10/86		➡				
151	U.S. AVIEX	CASS	Final	09/08/83	➡	➡	➡	➡		
153	VELSICOL CHEMICAL (MICHIGAN)	GRATIOT	Final	09/08/83		➡	➡	➡	➡	
155	VERONA WELL FIELD	CALHOUN	Final	09/08/83	➡	➡	➡	➡	➡	

Page	Site Name	County	NPL	Date	Initial Response	Site Studies	Remedy Selected	Remedy Design	Cleanup Ongoing	Construction Complete
157	WASH KING LAUNDRY	LAKE	Final	09/08/83	➡	➡				
159	WASTE MGMT OF MICHIGAN	OTTAWA	Final	06/10/86		➡				
161	WHITEHALL MUNICIPAL WELLS	MUSKEGON	Final	09/21/84		➡	➡			

NPL:

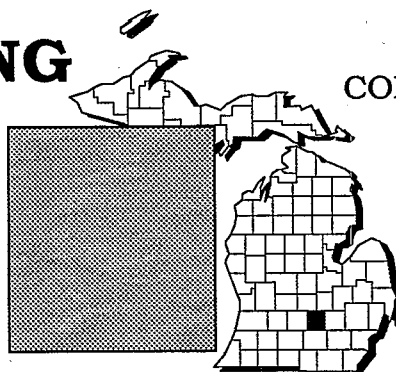
SITE  
FACT  
SHEETS



# ADAM'S PLATING

## MICHIGAN

EPA ID# MID006522791



**REGION 5**  
CONGRESSIONAL DIST. 03  
Ingham County  
Lansing

### Site Description

The 1-acre Adams Plating site has been used for electroplating operations since 1964. Before electroplating operations began, the site was used by a dry cleaning company. In the mid-1950s, an underground storage tank containing solvents was discovered to be leaking and was removed. Wastewaters from the electroplating operations were discharged to the storm sewers until 1971, when the site was connected to the municipal sanitary sewers. Wastewaters were discharged directly into the municipal sewers until the mid-1970s. Subsequently, wastewaters were collected, stored, and treated prior to discharge into the sewers. Wastewaters were first stored on site in a partially buried tank, which was removed when it was discovered to be leaking. Currently, wastewater storage is in an underground storage tank in the southwestern corner of the site. Evidence that a contaminant release may have occurred was first observed in 1980. While removing a tree on a neighboring property, an old tile drain was broken and residents observed "green water" entering the hole. Later, this "green water" flooded the basement of a nearby home and was pumped into the yard. This pumping system continued until the flooding problem was reported to the Ingham County Health Department in 1981. The Michigan Department of Natural Resources (MDNR) found that wastewater with a high chromium content was saturating soils. In 1981, the MDNR found *trichloroethylene* (TCE), a dry cleaning solvent, in the soil as well. Approximately 185,600 people depend on drinking water from municipal wells within 3 miles of the site.

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

#### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

### Threats and Contaminants



The soil is contaminated with TCE and chromium. Touching or accidentally ingesting contaminated soil is a potential health threat.

## Cleanup Approach

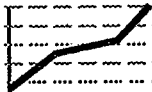
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The EPA is currently conducting an investigation to determine the extent and nature of contamination and to select final methods for site cleanup. The investigation is expected to be completed in late 1991.

## Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Adam's Plating site while studies are taking place and cleanup activities are being planned.



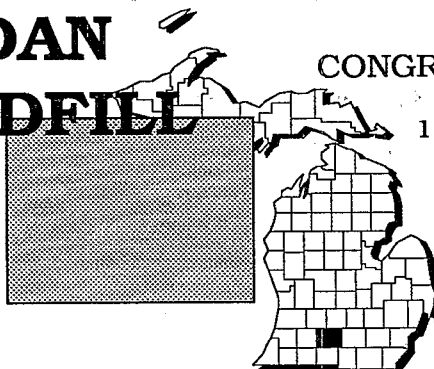
# ALBION-SHERIDAN TOWNSHIP LANDFILL

MICHIGAN

EPA ID# MID980504450

REGION 5  
CONGRESSIONAL DIST. 02

Calhoun County  
1 mile east of Albion



## Site Description

From 1966 to 1981, the 30-acre Albion-Sheridan Township Landfill site accepted municipal refuse and industrial wastes from the City of Albion and nearby Sheridan Township. According to the owner, the *landfill* accepted 200 to 300 cubic yards of *sludges* from the Union Steel Products plant prior to 1981. Tests conducted by the Michigan Department of Natural Resources (MDNR) in 1984 and 1986 indicated that the sludges contain various heavy metal contaminants. In 1986, the EPA found approximately 40 drums on the surface, some filled with what appeared to be oil and grease wastes. The landfill is covered with sand and gravel, and there are signs of burning. Some vegetation has grown on the cover. Approximately 13,500 people obtain drinking water from public and private wells within 3 miles of the site. The north branch of the Kalamazoo River is 300 feet from the site.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/89

Final Date: 10/04/89

## Threats and Contaminants



The groundwater is contaminated with sodium, calcium, ammonia, and heavy metals including iron, potassium, lead, and magnesium. Cyanide and heavy metals including nickel, lead, cadmium, and chromium are contained in the soil. The sludge also is contaminated with heavy metals as well as chloride and cyanide. Possible health threats include touching or accidentally ingesting contaminated soils, sludges, or groundwater.

## Cleanup Approach

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

### Response Action Status



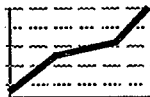
**Initial Actions:** In 1990, under EPA monitoring, a potentially responsible party began sampling, *overpacking*, and disposing of leaking drums on the landfill surface.



**Entire Site:** The EPA will conduct an investigation to determine the nature and extent of contamination at the site and to recommend alternative methods for site cleanup. The investigation is expected to begin in 1990.

**Site Facts:** A *Unilateral Administrative Order* was issued to four potentially responsible parties in 1990 to perform site cleanup work.

### Environmental Progress



The sampling, overpacking, and disposing of leaking drums are reducing the potential of exposure to contaminants at the Albion Sheridan Township Landfill site while studies and cleanup activities are being planned.

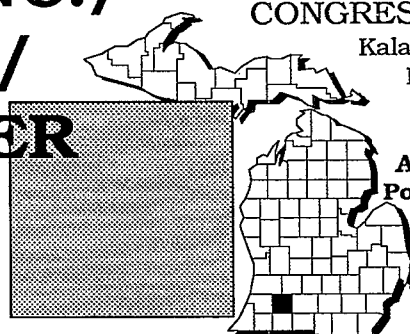




# ALLIED PAPER, INC./ PORTAGE CREEK/ KALAMAZOO RIVER

MICHIGAN

EPA ID# MID006007306



**REGION 5**  
CONGRESSIONAL DIST. 03  
Kalamazoo County  
Kalamazoo

Aliases:  
Allied Paper  
Portage Creek

## Site Description

The Allied Paper, Inc./Portage Creek/Kalamazoo River site involves *polychlorinated biphenyl* (PCB) contamination of an Allied Paper, Inc. property, a 3-mile stretch of Portage Creek where the creek meets the Kalamazoo River, and a 35-mile stretch of the Kalamazoo River. Allied Paper, Inc. has operated paper mills on this 80-acre site since 1925. The company recycled paper from 1957 to 1971. In 1986, the Michigan Department of Natural Resources (MDNR) detected PCBs in several places along an 80-mile stretch of the Kalamazoo River between Kalamazoo and Lake Michigan. Contamination is found primarily in the *sediments*, although the surface water and fish also are contaminated. The contamination begins at the point where Allied's Bryant Mill Pond discharges to Portage Creek. MDNR tests conducted in 1985 also found PCBs in monitoring wells around a *landfill* on the Allied property, two *seeps* from a *sludge* disposal area, and a discharge to Portage Creek. Approximately 142,000 people obtain drinking water from public wells within 3 miles 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: 05/05/89

## Threats and Contaminants



Sediments, surface water, and fish are contaminated with PCBs. Touching or accidental ingestion of contaminated surface water and sediments could be a potential health threat. In 1977, the Michigan Department of Public Health issued an advisory warning people against eating fish from the Kalamazoo River because of PCB contamination.

## Cleanup Approach

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

### Response Action Status

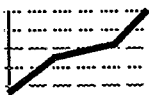


**Initial Action:** The State and the parties potentially responsible for site contamination have completed some sampling of the site. Allied is designing the technical plans for diverting Portage Creek to prevent further contamination.



**Entire Site:** The EPA will begin an investigation to determine the nature and extent of contamination in late 1990. The results of this study will yield recommendations from which the EPA will select the final cleanup remedy.

### Environmental Progress



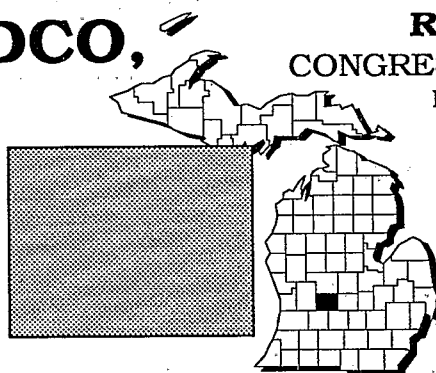
Diversion of Portage Creek will limit the spread of contamination from the Allied Paper, Inc. site while studies and cleanup activities are being planned.



# AMERICAN ANODCO, INC.

MICHIGAN

EPA ID# MID006029102



REGION 5  
CONGRESSIONAL DIST. 05  
Ionia County  
Ionia

## Site Description

Since 1962, aluminium parts for the automotive industry have been cleaned on the 8-acre American Anodco, Inc. site. In 1962, under an agreement with the State, process wastewaters and spent chemicals from the site were discharged directly to the on-site *seepage lagoon*. The waste streams contained heavy metals which *leached* from metal parts during the anodizing process. In order to promote wastewater infiltration, lagoon *sludge* and *sediments* were dredged in 1972 and 1978 and placed near the lagoon. In 1978, American Anodco received approval from the State to continue discharging wastewater into the lagoon. The company also disposed of process and cooling water in an unlined seepage lagoon. According to analyses conducted by the EPA, the water placed in the lagoon contains nitric *acid* and chromium. In 1986, American Anodco began to phase out the use of the seepage lagoon, and in 1987, began discharging process wastewaters to a new public sewer system. Approximately 1,100 people reside within 1 mile of the area. The glacial drift *aquifer* underlying American Anodco supplies public and private wells within a 3-mile radius that serve over 10,000 people. Grand River, which is within 3 miles of the site, is used for fishing and recreation.

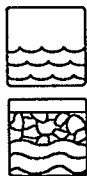
**Site Responsibility:** This site is being addressed through Federal and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 03/31/89

## Threats and Contaminants



Water samples collected from the lagoon by the MDNR in 1978 identified several contaminants including phosphorus and heavy metals such as aluminum, chromium, copper, and lead. Because contaminants have been removed from the lagoons, direct contact with hazardous materials is unlikely. Prairie Creek, which borders the site area on the east, joins the Grand River 1 mile south of the site. Because the groundwater is contaminated with phosphates, movement of contaminants to the creek is possible. The contamination *plume* does not reach any private wells.

## Cleanup Approach

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

### Response Action Status



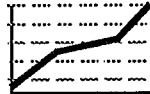
**Immediate Actions:** In 1987, American Anodco *dewatered* the lagoon, removed the sludge, and disposed of it in an off-site *landfill*. The lagoon then was filled with clean soil.



**Entire Site:** In 1987, the parties potentially responsible for site contamination began an investigation to determine the extent and nature of contamination and to identify alternatives for site cleanup. The investigation is scheduled for completion in 1990.

**Site Facts:** An *Administrative Order On Consent* was signed in 1987 for an investigation of site contamination.

### Environmental Progress



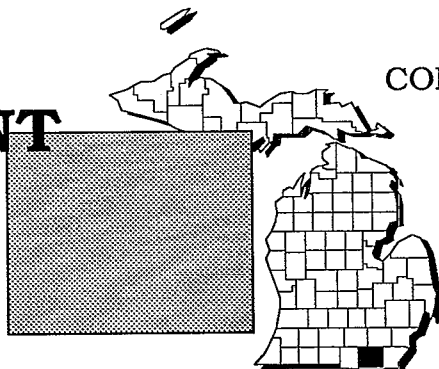
The dewatering and removal of sludge from the lagoon have greatly reduced the potential for exposure to contaminated materials at the American Anodco site while studies are taking place and final cleanup activities are being planned.



# ANDERSON DEVELOPMENT COMPANY

MICHIGAN

EPA ID# MID002931228



**REGION 5**  
CONGRESSIONAL DIST. 02

Lenawee County  
Adrian

## Site Description

On a 12 1/2-acre site in Adrian, the Anderson Development Company (ADC) manufactures specialty organic chemicals and sells the products to other manufacturers. ADC began production of the chemical MBOCA in 1970 under the trade name of Curene 442. MBOCA is used as a curing agent for polyurethanes and epoxy resins. It is considered to be a highly toxic compound and can be absorbed through the skin. MBOCA was discharged to the environment through surface water and airborne routes. MBOCA contamination was found in *sediments* and soil within a 2-mile radius of the ADC facility in 1979. Contamination was also found in East Side Drain sediments, in the Raisin River, and in Adrian Wastewater Treatment Plant *sludges* and residues. Production of the chemical was stopped after the contamination problems were discovered. All surface water *runoff* flows to the East Side Drain, which empties into the Raisin River 2 miles north of the site. In 1980 and 1981, the Michigan Department of Natural Resources (MDNR), ADC, and the Michigan State Toxic Substance Control Commission conducted an extensive cleanup and monitoring program that involved sampling of nearby surface soil and home carpet vacuum dust testing. The ADC is surrounded by a fence, although there is unlimited site access to employees, vehicles, and visitors. Approximately 25,000 people live within 3 miles of the site. The City of Adrian draws its water from the Raisin River upstream of the East Side Drain junction.

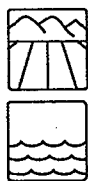
**Site Responsibility:** This site is being addressed through Federal, State, and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



The soil, sludge, and surface water are contaminated with MBOCA, a known carcinogen that can be absorbed through the skin. Breathing contaminated dust and ingesting contaminated food from gardens where soil is contaminated also are considered to be health risks. MBOCA has been detected in the urine samples from ADC workers and preschool children living near ADC.

## Cleanup Approach

This 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



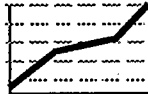
**Immediate Actions:** Lenawee County initiated a free cleanup effort to aid local homeowners whose residences were contaminated with MBOCA.

This included the interior and exterior cleaning of homes in the Sunnyside area. Homes with private wells in the vicinity of ADC were given connections to a clean water supply system funded by the Farmers Home Administration.



**Entire Site:** The parties potentially responsible for site contamination, under EPA monitoring, performed an investigation to assess the type of contaminants present, to identify the degree of contamination, and to characterize potential risks to the community. This investigation was completed in 1990, with the selection of the cleanup remedy also expected in 1990.

### Environmental Progress



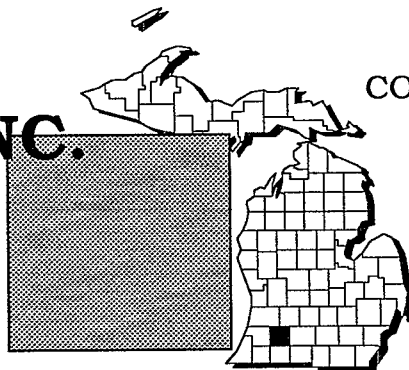
The cleanup of residences and provision of an alternate water supply have greatly reduced the potential of exposure to MBOCA-contaminated materials at the Anderson Development Company site while studies are being completed and final cleanup actions are being selected.



# AUTO ION CHEMICALS, INC.

MICHIGAN

EPA ID# MID980794382



**REGION 5**  
CONGRESSIONAL DIST. 03  
Kalamazoo County  
Kalamazoo

## Site Description

Between 1963 and 1973, chromium plating wastes were treated at the 1 1/2-acre Auto Ion Chemicals, Inc. site. Liquid waste was stored in an open air *lagoon* and in five process storage tanks in an on-site building's basement. Approximately 122,000 gallons of liquid plating wastes and *sludges* were stored in various other locations on site. During the plant's operation, the Michigan Department of Natural Resources (MDNR) documented numerous pollution discharges to the soil, groundwater, and surface water of the adjacent Kalamazoo River. The MDNR stopped operations at Auto Ion in 1973. Two city wells are located within 2 miles of the site. The wells are part of the Kalamazoo municipal system that provides water to over 100,000 residents. The only residence in the immediate vicinity of the site is located approximately 500 feet north of the site. The population within 1/2 mile of the site is approximately 2,300.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) including vinyl chloride and the heavy metal arsenic. Chromium, nickel, chloride, and cyanide were found in surface water and *sediment* samples taken from the Kalamazoo River between 1964 and 1973. Soil is contaminated with chromium, arsenic, and cyanide. Potential health risks may exist if contaminated groundwater is accidentally ingested or dusts from contaminated soils are inhaled.

## Cleanup Approach

This site is being addressed in three stages: immediate actions and two *long-term remedial phases* focusing on soil cleanup and groundwater cleanup.

### Response Action Status



**Immediate Actions:** Under EPA monitoring, the parties potentially responsible for the contamination removed contaminants from the surface of the site in 1985. An abandoned building was torn down in 1986, and the debris was removed.



**Soil:** The EPA has outlined the following remedies to clean up the soil: excavation, *stabilization*, and off-site treatment of approximately 7,200 cubic yards of contaminated soil; disposal of the treated soils at a federally approved facility; and replacement of the excavated soil with clean fill.

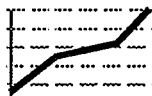
The parties potentially responsible for site contamination, under EPA monitoring, are in the process of designing the technologies to be used in the cleanup. Cleanup activities are scheduled to begin in 1991.



**Groundwater:** In 1988, the potentially responsible parties began an investigation to determine the extent and type of groundwater contamination and to identify alternative cleanup technologies. The investigation is scheduled for completion in 1991.

**Site Facts:** In 1990, the EPA and nine potentially responsible parties signed a *Consent Decree* to perform the technical design for the soil cleanup remedy.

## Environmental Progress



The removal of contaminants and debris has greatly reduced the potential for exposure to contaminated materials at the Auto Ion Chemicals site while studies are taking place and cleanup activities are being planned.





# AVENUE "E" GROUND WATER CONTAMINATION

MICHIGAN

EPA ID# MID980791461



**REGION 5**  
CONGRESSIONAL DIST. 10  
Grand Traverse County  
Traverse City

Alias:  
**East Bay Township Residential Wells**

## Site Description

The 435-acre Avenue "E" Ground Water Contamination site consists of two areas: the 115-acre U.S. Coast Guard Air Station and a 320-acre area bounded on the north by the East Arm of Grand Traverse Bay. In 1980, residents along Avenue "E" in East Bay Township complained of odors and foaming of water drawn from domestic wells. Investigations by the State showed that wells were contaminated with organic substances. Additional investigations indicated that the origin of the contamination was in the vicinity of the U.S. Coast Guard Air Station on land formerly owned and operated by the U.S. Navy. An old Navy waste dump, located east of the Coast Guard property, was suspected to be a contributor to the problem. During the past 40 years, spills of fuels and solvents used during aircraft maintenance at the facility may have *leached* through the soil and contaminated the underlying groundwater. In 1969, a spill of aviation fuel from an underground storage tank occurred. Surface disposal of liquid organic chemicals reportedly occurred in the northeastern corner of the station. An area north of the current Hangar and Administration building may have served in part as a waste oil pit. Drums of solvents and other chemicals were stored in an area near the northwestern corner of the building. Aircraft maintenance also was conducted in this general area. This site is adjacent to Traverse City, which has a population of approximately 16,000. Grand Traverse Bay is used as a water source for the Traverse City public water system. The Bay also is used for recreational activities.

**Site Responsibility:** This site is being addressed through Federal activities.

### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) and phthalates. Soils are contaminated with the major components of jet fuel, mostly VOCs and phthalates. The greatest potential health threat to people is through drinking or touching contaminated groundwater. Although most residences have been connected to the public water system, a few homes may still be using private wells. Recreational use of East Bay poses a potential health risk. Soil excavations in highly contaminated areas are a potential health concern for on-site workers who could be exposed to high concentrations of soil and airborne contaminants.

## Cleanup Approach

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

### Response Action Status



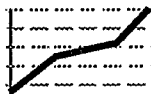
**Immediate Action:** In 1982, the U.S. Coast Guard extended public water lines from Traverse City to residences affected by the contaminated groundwater.



**Entire Site:** In 1983, the U.S. Coast Guard completed its investigation into the nature and extent of contamination at the site. In 1985, the Coast Guard installed two well fields to pump groundwater and prevent further contamination from leaving the property. Following treatment to remove contaminants, the groundwater is discharged to the Traverse City sanitary sewer system. Also in 1985, the Coast Guard began *bioremediation* of soils using microorganisms to break down soil contaminants. The soil bioremediation was first installed in 1987, and expansion of the method is scheduled to begin in 1990.

**Site Facts:** In 1985, the U.S. Department of Justice and the Coast Guard signed a *Consent Order* requiring the Coast Guard to study contamination at the site and to recommend cleanup alternatives.

### Environmental Progress



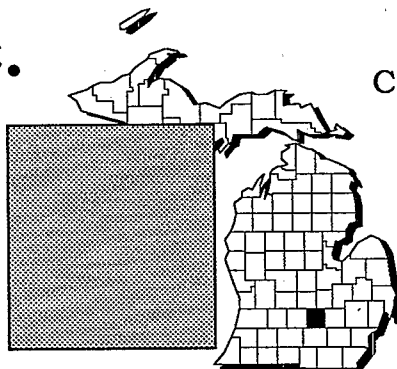
The extension of public water lines has eliminated the potential of exposure to contaminated drinking water and will continue to protect residents near the Avenue "E" Ground Water Contamination site. The Coast Guard has taken steps to limit the further spread of contamination and has commenced soil cleanup actions. These actions will continue until site contamination has been reduced to safe levels.



# BARRELS, INC.

MICHIGAN

EPA ID# MID017188673



**REGION 5**  
CONGRESSIONAL DIST. 06

Ingham County  
Lansing

## Site Description

From 1964 to 1981, Barrels, Inc. recycled drums on this 1 3/4-acre site. Waste residues were allegedly dumped from drums directly onto the ground as an initial step in recycling drums. The State detected lead and zinc in the shallow groundwater in 1983. Approximately 9,000 people live within 1 mile of the site. Three schools are located within 1/2 mile of the site. The shallow and deeper *aquifers* provide drinking water to the 133,000 residents of the cities of Lansing and Holt. The Grand River is 1,800 feet from the site and is used for fishing. The areas along the river serve as a habitat for the endangered Indiana Bat.

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

### NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 10/04/89

## Threats and Contaminants



Air is polluted with *volatile organic compounds* (VOCs). Groundwater is contaminated with VOCs and heavy metals including lead and zinc. *Polychlorinated biphenyls* (PCBs) and heavy metals including chromium and lead are contaminating the soil. The greatest health threats to people include touching or accidental ingestion of contaminated soils or groundwater.

## 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

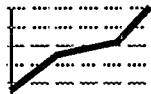


**Immediate Actions:** All drums, 1,000 cubic yards of contaminated soil, and nine underground tanks were removed and sent by the State to a federally approved disposal facility in 1986. The contents of one underground tank and two tanks in the building have been pumped out by the State.



**Entire Site:** The EPA is planning to conduct an investigation into the nature and extent of contamination of the site and to identify alternative cleanup technologies.

### Environmental Progress



The excavation of drums and contaminated soil and the removal or draining of tanks have significantly reduced the potential for exposure to contaminants at the Barrel, Inc. site while investigations are being planned.



# BENDIX CORPORATION/ ALLIED AUTOMOTIVE

MICHIGAN

EPA ID# MID005107222

**REGION 5**  
CONGRESSIONAL DIST. 04  
Berrien County  
St. Joseph



## Site Description

Bendix Corporation/Allied Automotive manufactures automotive brake systems at this 36-acre site. From 1966 to 1975, a *seepage lagoon* on site was used for the disposal of machine shop process wastewater. Chlorinated organic solvents, wastewater from electroplating operations, plating bath solutions, chromium, and lead were reportedly placed in the seepage lagoon. The lagoon was closed and *capped* in 1978. A private well located 750 feet from the site was closed in 1982 because of contamination. Approximately 4,300 people obtain drinking water from private wells within 3 miles of the site.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

## Threats and Contaminants



Groundwater is contaminated with various *volatile organic compounds* (VOCs). People may be at risk if they drink or touch contaminated water.

## Cleanup Approach

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

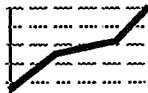
## Response Action Status



**Groundwater:** The potentially responsible party, Bendix Corporation/Allied Automotive, is conducting an investigation into the nature and extent of groundwater contamination at the site. The investigation will define the contaminants and recommend alternatives for the final groundwater cleanup. The investigation is planned to be completed in late 1991.

**Site Facts:** In 1989, the EPA entered into an *Administrative Order* with Bendix Corporation/Allied Automotive requiring the company to conduct an investigation of site contamination.

## Environmental Progress



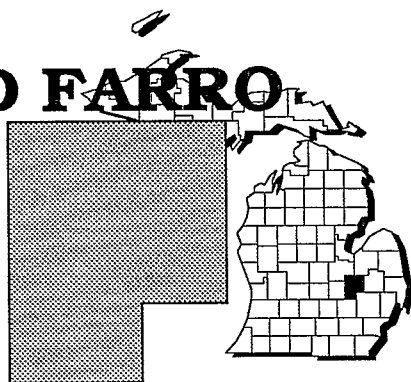
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Bendix Corporation/Allied Automotive site while studies are taking place and cleanup activities are being planned.



# BERLIN AND FARRO

MICHIGAN

EPA ID# MID000605717



## REGION 5

CONGRESSIONAL DIST. 07

Genesee County

3 1/2 miles south of Swartz Creek

### Alias:

Berlin and Farro Liquid Incinerator

## Site Description

The 40-acre Berlin and Farro site was licensed to operate as an industrial liquid waste incinerator from 1971 to 1975. During operations, liquid wastes were incinerated, stored in open *lagoons* and underground tanks, and poured into an agricultural drain. Crushed and empty drums were disposed of on site in a *landfill*. In 1975, the State ordered the incinerator to shut down due to a lack of emission controls and an open lagoon that posed a health threat. Subsequently, the State ordered the parties potentially responsible for site contamination to clean up the site. In 1978, the site owners submitted a work plan for site cleanup to the State. Before filing for bankruptcy and abandoning the site in 1980, the owners initiated some of the activities in the work plan. However, approximately 10,000 drums, five buried tanks, and four lagoons containing contaminated *sludges* were left on site. The Berlin and Farro site is located in a rural area where residents depend on private wells for their drinking water supply.

**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



Air is contaminated with pesticides. Groundwater and soil contain *volatile organic compounds* (VOCs) and *polychlorinated biphenyls* (PCBs). Surface water located in Slocum Drain and Swartz Creek is contaminated with pesticides. PCBs and paint solvents are present in the sludge. Residents could be exposed to site-related contaminants when touching contaminated surface water in Slocum Drain and Swartz Creek. In addition, on-site workers could be exposed to contaminants if they drink or touch contaminated groundwater.

## Cleanup Approach

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

### Response Action Status



**Immediate Actions:** A series of immediate actions began in 1981, when the State removed and disposed of 15,300 cubic yards of sludges. The EPA constructed a fence around the site, excavated and disposed of contaminated soils and drums, and strengthened an earthen underflow dam to prevent contaminated *runoff* from *migrating* off site. In 1982, the contents of four buried liquid storage tanks containing pesticides were pumped out by the State and reburied, and sampling and analysis were undertaken by the Michigan Department of Natural Resources (MDNR). The EPA took the following actions in 1982: (1) installed a security fence and upgraded a siphon dam; (2) removed 3,600 cubic yards of contaminated soil and landfilled 4,000 barrels of flammable sludge; (3) removed 1,919,195 pounds of PCB-contaminated wastes and 11 tons of soil and sludge waste to an EPA-approved hazardous waste storage facility; (4) dug trenches throughout the site to locate buried drums and contaminated soil layers; (5) located a total of 33 drums, which were sampled and combined for disposal; and (6) excavated an additional 120 cubic yards of contaminated soil and shipped it to a storage facility. In 1983, the EPA opened drums, removed their contents, mixed them with soil, and transported the mixture off site for disposal.



**Source Control:** The cleanup actions selected for source control include: (1) excavating the existing drum landfill, paint sludge trench, agricultural drains, and miscellaneous contaminated areas; (2) separating PCB solid wastes from non-PCB solid wastes and transporting these materials to an off-site disposal facility; (3) transporting PCB liquid wastes to an off-site incinerator; (4) pumping non-PCB liquid wastes from the drum landfill and transporting the wastes to an off-site incinerator; and (5) *backfilling* the areas with uncontaminated soils and, if necessary, installing a temporary layer of soil over the excavated areas. In 1984, the potentially responsible parties installed the equipment necessary to complete these cleanup activities. The parties removed 75,000 tons of contaminated soil and sludges and 10,745 tons of other waste. The landfill was excavated, and drums and contaminated soils were removed. Once excavated, the deteriorated drums were crushed and mixed with contaminated soils. Liquids from the drums were then drained into a *sump*, pumped to a tanker truck, and transported off site. The North-South agricultural drain and the paint sludge trench also were excavated. The excavated areas were backfilled with clean soil, and the equipment was demobilized.



**Entire Site:** The potentially responsible party is scheduled to complete an investigation into the nature and extent of remaining contamination at the site in 1990. At the conclusion of the investigation, recommendations for cleanup methods will be presented.

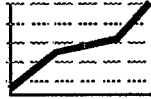
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## Response Action Status, Continued

**Site Facts:** A *Consent Decree* was signed among the parties potentially responsible for site contamination, under which they agreed to conduct cleanup activities at the site.

### Environmental Progress



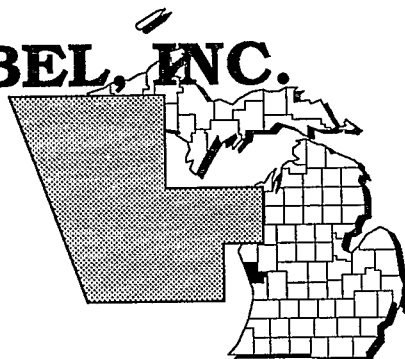
The numerous cleanup actions including the removal of contaminated soil, wastes, and drums have greatly reduced the potential for exposure to contaminated materials at the Berlin and Farro site while additional cleanup activities are being planned.



# BOFORS NOBEL, INC.

MICHIGAN

EPA ID# MID006030373



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Muskegon

Alias:  
**Bofors Lakeway Chemical, Inc.**

## Site Description

Bofors Nobel, Inc. manufactured various chemicals including benzidines, pesticides, herbicides, and other aromatics at this 50-acre site from 1960 to 1987. During this time, the plant's operators disposed of process water into unlined lagoons. In 1975, the dikes around the lagoons failed, and 2 million gallons of wastewater were released to Big Black Creek, which is used for recreation. Bofors Nobel operated a groundwater treatment system from 1976 until 1987, when it filed for bankruptcy. The property was sold to Lomac, Inc. in 1987, and they continue to operate the treatment system, while use of the lagoons for wastewater was discontinued. Approximately 6,400 people obtain drinking water from private wells within 3 miles of the site. Approximately 200 people live within 1 mile of the site.

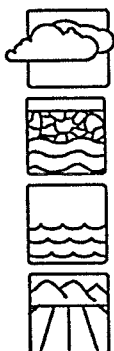
**Site Responsibility:** This site is being addressed through Federal and State actions.

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

## Threats and Contaminants



Air, groundwater, surface water, soil, and *sediments* contain various *volatile organic compounds* (VOCs). People could be exposed to contaminants by ingesting or touching contaminated groundwater, surface water, or soil. The site is entirely fenced, and a pumping system keeps contaminants from flowing into the creek.

## 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

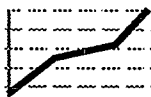


**Initial Actions:** Since 1976, site owners have been treating contaminated groundwater. The use of unlined lagoons for wastewater treatment has been stopped.



**Entire Site:** In 1988, the State began studying the extent of contamination in the groundwater, surface water, soil, and air on and off site. The lagoon phase of the study is expected to be finished in 1990, and the groundwater and plant phase in 1991.

### Environmental Progress



Treatment of contaminated groundwater is reducing the potential for pollutants to reach wells or the nearby creek. After adding this site to the NPL, the EPA performed preliminary investigations and determined that no additional immediate actions were required at the Bofors Nobel, Inc. site while studies are taking place and cleanup activities are being planned.



# BURROWS SANITATION

MICHIGAN

EPA ID# MID980410617



## REGION 5

CONGRESSIONAL DIST. 04

Van Buren County  
1 mile northeast of Hartford

### Site Description

From 1970 to 1977, the 15-acre Burrows Sanitation site was used for the disposal of plating *sludges*, waste coolants, and oils. Wastes were dumped into six unlined *lagoons*, onto an area of the site known as the "Cyanide Trail," and two other spill areas on the site. The lagoons have overflowed during heavy rains. Groundwater samples have shown contamination; however, private water wells are not contaminated. In 1984, the Burrows Group, a group consisting of the owners and three firms that disposed of wastes at the site, excavated contaminated soils and sludges from the four disposal areas. Orchards are located within the site boundaries, and raspberries, mushrooms, and flowers grow wild on the property. Two *wetland* areas are located on the edges of the site. These areas are interconnected and are drained by the Doyle Drain, a canal that flows along the edge of the site. A *berm* is located north of the disposal area to prevent site *runoff* from directly entering Doyle Drain, which enters the Paw Paw River 3/4 mile from the site. The river is used for sport fishing. Approximately 150 people live within a 3/4-mile radius of the site and obtain water from private wells.

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

#### NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

### Threats and Contaminants



Groundwater, surface water, and *sediments* are contaminated with heavy metals such as chromium, lead, and nickel. Soils also contained these contaminants before cleanup occurred. The lagoons contain several *volatile organic compounds* (VOCs) as well as *polychlorinated biphenyls* (PCBs). Health threats to people who trespass on the site include touching and accidental ingestion of contaminated groundwater, sediments, and surface water. Wetland areas may also be threatened.

## 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



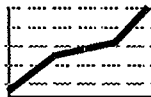
**Immediate Actions:** In 1984, the Burrows Group, under EPA monitoring, excavated 8,600 cubic yards of waste sludges and contaminated soils from four waste disposal areas on site. The wastes were transported to a federally approved facility. In addition, a fence was constructed and warning signs were posted to prohibit access to the site.



**Entire Site:** In 1986, the EPA selected a remedy that included removal of the remaining contaminated soils, lowering the surface water level in the northwest wetland, and groundwater extraction, treatment, and discharge. By 1989, the removal of contaminated soils and sediment and drainage of the northwest wetland were completed.

**Site Facts:** In 1984, the EPA issued an *Administrative Order* requiring the parties potentially responsible for site contamination to clean up the site. In 1989, Du-Wel Products, Inc., a potentially responsible party, entered into a *Consent Decree* with the EPA for the party to conduct a groundwater investigation and, if necessary, cleanup of the contaminated groundwater.

### Environmental Progress



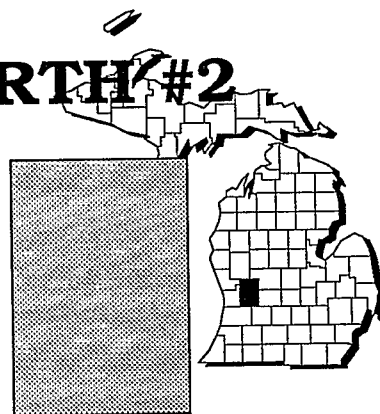
The cleanup standards for soil at the Burrows Sanitation site have been fully achieved. Therefore, no further soil cleanup actions are required. Cleanup of groundwater, surface water, and sediments is under way.



# BUTTERWORTH #2 LANDFILL

MICHIGAN

EPA ID# MID062222997



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Grand Rapids

**Aliases:**  
Grand Rapids City Landfill  
Grand Rapids Gypsum Company (SIA)

## Site Description

The Butterworth #2 Landfill site covers 100 acres in Grand Rapids. The City of Grand Rapids owned and operated the *landfill* as an open dump from the 1950s until 1967. The site was operated as a sanitary landfill from 1967 to 1973, when the State closed it for improper operations. The landfill received municipal, solid, and industrial waste including plating waste, paint waste, and organic solvents. Much of the industrial waste was buried in 55-gallon drums or dumped in liquid form on the site's surface. In 1982, the EPA sampled the groundwater and found it to be contaminated with organic and inorganic chemicals. Approximately 1,300 people live within 1/2 mile of the landfill. The closest residence is about 200 yards away. The landfill is bordered by I-196, a Coca Cola bottling plant, a bread factory, and the Grand River. All the residences in the area are connected to the Grand Rapids municipal water system, which draws primarily from Lake Michigan, and, on occasion, from an *intake* on the Grand River upstream from the landfill. The river is used for recreational activities. Groundwater drains from the landfill into the river immediately downstream from a State-owned public access site. A transmitter for a radio station is located in the middle of the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) including benzene and vinyl chloride and the heavy metals iron, manganese, silver, and lead. Soils are contaminated with *polychlorinated biphenyls* (PCBs), pyrene, chrysene, and heavy metals including chromium and cadmium. Because all the residences in the vicinity of the landfill are on a public water supply system, there is little chance that people would drink or touch contaminated groundwater. People who trespass on the site and touch or accidentally ingest the contaminated soil may be at risk. Contaminants are *leaching* into the Grand River. People who accidentally swallow the water while swimming may be harmed. If the pollutants *bioaccumulate* in fish, the fish may pose a health hazard to those who eat them.

## 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



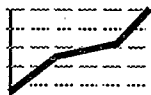
**Immediate Actions:** In 1989, the potentially responsible party excavated approximately 1,000 cubic yards of PCB-contaminated soil. A 6-foot-high chain-link fence was installed to prevent access to the site. In 1990, the EPA found a *hot spot* of PCB contamination in the landfill. During sampling, other highly contaminated areas were found. The potentially responsible parties are excavating soil from these hot spots and transporting the waste to a federally approved facility.



**Entire Site:** The potentially responsible parties are studying the type and extent of the contamination at the landfill. Once the study is completed in 1990, measures will be recommended for cleaning up the site.

**Site Facts:** In 1986, the EPA, the City of Grand Rapids, General Motors Corporation, Wickes Manufacturing Company, Michigan Waste Systems, Inc., and Organic Chemicals, Inc. entered into a *Consent Decree* to conduct contamination studies at the site.

### Environmental Progress



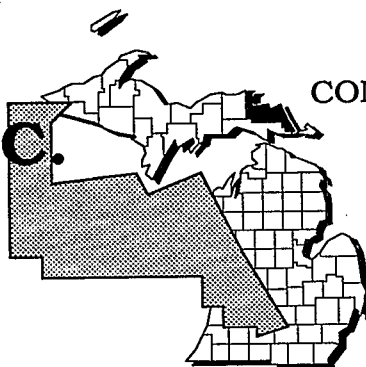
The removal of the most highly contaminated soil from the Butterworth #2 Landfill site has greatly reduced the potential for exposure to hazardous materials while studies leading to the selection of the final cleanup remedies are taking place.



# CANNELTON INDUSTRIES, INC.

MICHIGAN

EPA ID# MID980678627



**REGION 5**  
CONGRESSIONAL DIST. 11  
Chippewa County  
Sault Sainte Marie

**Aliases:**  
Northwestern Leather  
Algoma Tube

## Site Description

The Cannelton Industries, Inc. site covers 75 acres along the St. Mary's River in Sault Sainte Marie. From 1900 to 1958, the Northwestern Leather Company operated a tannery at the site and processed animal hides. Waste materials from the tannery operations were discharged through three drains to a low-lying shoreline area. Barrels and general wastes were burned and disposed of along the river. Between 1955 and 1958, the Fiborn Limestone Company, a subsidiary of Algoma Steel Corp., bought the property with the intention of constructing a manufacturing plant. In the fall of 1958, a fire damaged many of the tannery's buildings, nearly all of which have since been torn down by Algoma. The site has been unused since the tannery closed in 1958 and is presently vacant. In 1964, the property was transferred to Cannelton Industries, another Algoma subsidiary. In 1978, the Michigan Department of Natural Resources sampled St. Mary's River and found it, as well as soil and groundwater, contaminated with heavy metals. In 1988, the City fire department became concerned over recurring fires in a limited area at the site. The EPA assisted with efforts to reduce the fire potential. Approximately 1,200 people obtain drinking water from private wells within 3 miles of the site, with the nearest well about 1 mile away. Sault Sainte Marie, Ontario, draws drinking water from the St. Mary's River about 2 miles downstream of the old tannery disposal site. The site itself is located within the 100-year flood plain of the St. Mary's River.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88



## Threats and Contaminants

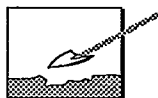


Groundwater, soils, and *sediments* in the St. Mary's River are contaminated with heavy metals including chromium, lead, manganese, arsenic, and iron. Sediments and soils also contain copper, cyanide, and mercury. The St. Mary's River is contaminated with heavy metals. People who drink or touch contaminated groundwater from water wells may suffer adverse health effects. Trespassers touching the soil or wastes on the site may be at risk. Those who use the St. Mary's River for recreational activities may be exposed to contaminants if they accidentally ingest the water. If pollutants have *bioaccumulated* in fish, they may pose a health hazard if eaten by people. The Bald Eagles that feed and nest near the site may come into direct contact with hazardous substances.

## Cleanup Approach

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

## Response Action Status

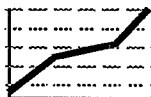


**Immediate Actions:** In 1986, Algoma Steel agreed informally with the State to construct a wall along the shore of the St. Mary's River to prevent wave and ice action from eroding the site, as well as a clay cover to limit rainwater from contacting the site contaminants. In 1988, the EPA excavated five trenches to disperse heat build-up and to reduce gas accumulation to decrease the potential for additional fires. Algoma constructed a chain-link fence and padlocked it to limit access to the site. In 1989, Algoma installed a sprinkler system to prevent dry conditions from contributing to fires.



**Entire Site:** In 1988, the EPA began a study to determine the type and extent of the contamination at the site. Various treatment methods are being evaluated, and a remedy will be selected for site cleanup when the study is completed, expected in 1991.

## Environmental Progress



By covering the site, constructing a wall to prevent erosion, reducing the potential for additional fires, and constructing a security fence to restrict site access, the possibility of people coming in direct contact with hazardous materials on the Cannelton Industries, Inc. site has been greatly reduced while plans for site cleanup are formulated.



# CARTER INDUSTRIALS, INC.

MICHIGAN

EPA ID# MID980274179



**REGION 5**  
CONGRESSIONAL DIST. 01  
Wayne County  
Detroit

**Alias:**  
Carter Salvage Corporation

## Site Description

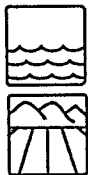
The Carter Industrials, Inc. site is a former industrial scrap metal yard covering approximately 3 1/2 acres in Detroit. From 1971 to 1986, the metal salvaging operation handled a wide variety of materials that included electrical transformers and capacitors containing *polychlorinated biphenyl* (PCB)-contaminated oil. Oil was drained from the transformers and the copper component was removed for on-site processing. The facilities included furnaces for melting aluminum and copper, a brick warehouse, and an office building. Numerous piles of scrap metal and equipment were lying uncovered throughout the yard. In 1984, a fire broke out in an area of wooden pallets and scrap iron mounds. During an investigation by the Michigan Department of Natural Resources and the City fire marshal, oil was found near the fire area and near the base of three large transformers. The soil was sampled and found to contain PCBs. During another investigation in 1986, the State found barrels of used PCB-contaminated oil in and around scrap metal piles. Oil leaking from the barrels contained as much as 50% PCBs. Additional sampling found the contamination had spread into the backyards of neighboring residences, the sewer leaving the site, and the sewer *outfall* in the Detroit River. The area surrounding the scrap yard is urban, with 34,000 people living within 1 mile of the site. Three schools, 7 churches, a playground, and a post office are located within 1/2 mile of the site.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88  
Final Date: 03/31/89

## Threats and Contaminants

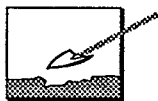


*Sediments* in the sewer lines and soils are contaminated with PCBs and heavy metals including arsenic, cadmium, and lead. The streets surrounding the scrap yard are contaminated with PCBs. People who trespass on the site may be exposed to PCBs by touching or accidentally ingesting contaminated soil or sediments. Cleanup activities, such as repaving the streets and vacuuming yards and alleys, have eliminated the human health threat in the residential areas. There is a possibility that PCBs may *bioaccumulate* in fish in the Detroit River and pose adverse health effects if the fish are eaten.

## 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



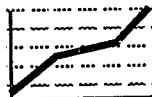
**Immediate Actions:** Beginning in 1986, the EPA excavated the off-site contaminated soil and cleaned the streets and alleys with a pressure sprayer and steel-wire brushes. Alleys and streets that could not be cleaned by the pressure sprayer were repaved with 2 feet of asphalt. Approximately 10,000 cubic yards of soil were removed from backyards, parkways, and vacant lots surrounding the facility. The excavated soil was stored on site. During excavation, some residents were temporarily relocated. A system was installed to control drainage and treat the collected *runoff*. In addition, the site was fenced to prevent access. In 1988, the EPA *overpacked*, or placed in sturdy containers, several hundred leaking PCB capacitors and 30 to 40 drums containing PCB-contaminated oil. About 600 cubic yards of PCB-contaminated debris, the capacitors, and transformers were disposed of at federally approved facilities. Approximately 45 tons of scrap metal were decontaminated and removed by a local salvage company. The EPA also repaired and upgraded the fence, which had been damaged by vandals. In 1989, the parties potentially responsible for the site contamination were ordered by the EPA to undertake interim safety measures at the site. The parties have completed covering the site with a geotextile material to prevent rainwater from coming into contact with contaminants, and the site has been seeded.



**Entire Site:** In 1986, the EPA began studying the extent of soil contamination at the site. The study is addressing exposure to contaminated soils on site; potential risks from the threat of contaminants *migrating* off the site; and maintaining the runoff collection system to prevent the discharge of runoff or contamination of municipal facilities. Upon completion of the study, scheduled for late 1990, the most effective measures for site cleanup will be selected. The EPA plans to break up the cleaning of the site into various phases, including the previously mentioned soil decontamination, controlling the sources of the contamination, assessing the effectiveness of the cleanup, and studying the alleys and sewer lines to ensure there is no threat of residual contamination discharge into the Detroit River.

**Site Facts:** In 1989, the EPA issued an *Administrative Order* to several parties potentially responsible for site contamination requiring them to undertake interim measures to clean up the site. This involved posting 24-hour security guards at the site; laying a geotextile cover over the waste piles to prevent rainwater from coming into contact with buried wastes; hydroseeding the site; and maintaining the runoff collection and treatment system, as well as all utilities and services at the site. The State conducted a neighborhood blood testing program to determine if people had been exposed to PCBs. Results from the 21 residents living in 9 homes next to Carter Industrials indicated that the residents had not absorbed any more PCBs than the amount found in the population of the State of Michigan.

*continued*

***Environmental Progress***

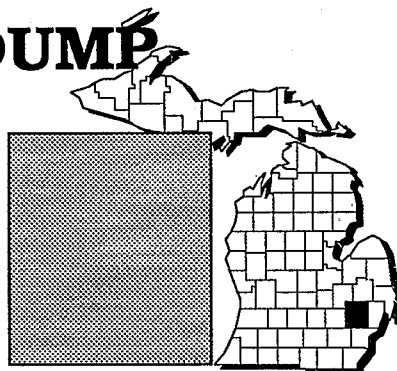
The numerous immediate actions taken to remove the contaminants from the area and to repave streets and alleyways in the area of the site have significantly reduced the potential for exposure to hazardous substances at the Carter Industrials, Inc. site while the investigations leading to the final selection of cleanup alternatives are taking place.



# CEMETERY DUMP

## MICHIGAN

EPA ID# MID980794663



**REGION 5**  
CONGRESSIONAL DIST. 06

Oakland County  
Rose Township  
Rose Center

**Alias:**  
**Rose Township Cemetery Dump**

### Site Description

The 4-acre Cemetery Dump site, once used as a sand and gravel pit, has been *backfilled* and cleared. Approximately 300 to 600 barrels containing unknown industrial wastes were believed to be illegally dumped and buried on site in the late 1960s or early 1970s. In 1981, the Michigan Department of Natural Resources (MDNR) excavated a test pit and removed 20 to 30 drum fragments from the site. The fragments were taken to a federally approved facility. Analysis of the barrel contents indicated the presence of paint *sludges*, solvents, *polychlorinated biphenyls* (PCBs), and oils. Approximately 4,400 people live within 3 miles of the site. The closest residence is 300 feet away. All of the residences in the area use domestic wells for drinking water.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

### Threats and Contaminants



The drum fragments and soil on the site contained *volatile organic compounds* (VOCs), PCBs, and heavy metals including arsenic, cadmium, and lead. Groundwater is contaminated with low levels of zinc and lead. People who touched or accidentally ingested contaminated groundwater, soil, or drum contents may have been at risk.

## Cleanup Approach

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

### Response Action Status

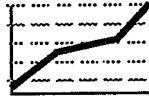


**Source Control:** In 1985, the State selected a remedy to control the source of the contamination by excavating approximately 250 drums and contaminated soils. These drums were disposed of at a federally approved facility. The State completed the cleanup activities in 1989.



**Entire Site:** In 1989, the State, after extensive sampling and analysis, determined the removal of the source of contamination had corrected the situation. Therefore, no further actions are planned. The State will monitor the groundwater for five years to ensure there are no health threats to the public or the environment.

### Environmental Progress



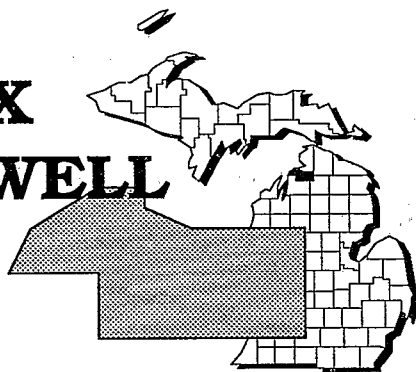
The removal of drums and contaminated soils has eliminated the potential for exposure to contaminated materials at the Cemetery Dump site. The State will continue to monitor the site to ensure the protection of nearby residents and the environment.



# CHARLEVOIX MUNICIPAL WELL

MICHIGAN

EPA ID# MID980794390



**REGION 5**  
**CONGRESSIONAL DIST. 11**  
Charlevoix County  
Charlevoix

## Site Description

The Charlevoix Municipal Well site consists of a municipal well system made up of a shallow well connected to a horizontal flume buried beneath the beach of Lake Michigan. The flume collects groundwater and channels it into the well, where it is pumped to the distribution system. Approximately half of the water entering the system comes from Lake Michigan and half from shallow groundwater sources. The City's water system is interconnected with the South Charlevoix Township water supply, which is served by two uncontaminated wells. In 1981, the City of Charlevoix was notified by the Michigan Department of Public Health that its water system was contaminated. The City subsequently installed four monitoring wells near its municipal well with the assistance of the Michigan Department of Natural Resources (MDNR). The EPA became involved with the site in 1982 when it installed nine groundwater monitoring wells throughout the city. In 1982 and 1983, the MDNR conducted several soil boring studies to locate the source of contamination. The City installed a system to introduce oxygen into the municipal supply in 1982; however, this *aeration* system has been only partially effective in removing contaminants from the water. To date, the source of contamination of the City's municipal water system has not been fully identified despite extensive investigations conducted by the EPA and the MDNR. It is likely that there is no current source of contamination but that groundwater was contaminated by a single spill or by a source that was later removed. The off-season population of 3,500 in Charlevoix increases to approximately 10,000 people during the summer months.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants

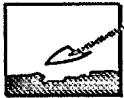


Groundwater and soil are contaminated with various *volatile organic compounds* (VOCs). Area residents using contaminated private wells could be exposed to site-related contaminants when drinking or using water.

## Cleanup Approach

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

### Response Action Status

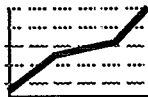


**Initial Actions:** The EPA constructed a new water *intake* system and filtration plant using water from Lake Michigan as its source. A buried intake pipe was constructed that connects to the existing City pumphouse. A chlorine diffuser, anchored inside and running the entire length of the intake pipe, disinfects the ground. The EPA built a water filtration treatment plant in 1985. The plant became operational in 1987. The intake system and water treatment plant successfully provide potable water to meet the City's water demand.



**Entire Site:** In 1985, after completing an extensive study attempting to identify the source of site contamination the EPA selected the following cleanup methods to address site contamination: (1) allow the contaminant *plumes* to discharge under natural flow conditions to Lake Michigan; (2) continue long-term monitoring of the plumes during the natural purging period; and (3) impose restrictions on the installation of private wells to be enforced by local health officials. The implementation of the selected remedies was completed in 1989.

### Environmental Progress



By providing an alternative water supply, the potential of exposure to contaminated drinking water was eliminated. The restrictions on the installation of private wells and long-term monitoring will continue to protect nearby residents of the Charlevoix Municipal Well site.

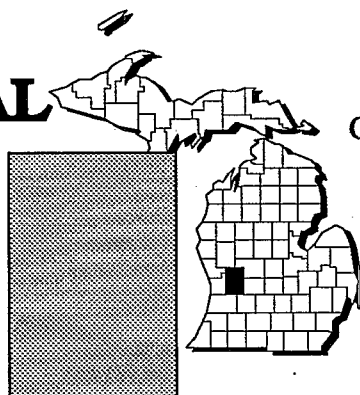




# CHEM CENTRAL

## MICHIGAN

EPA ID# MID980477079



### REGION 5

CONGRESSIONAL DIST. 05

Kent County  
Wyoming Township  
Grand Rapids

**Alias:**  
**Wolverine Chemical**

### Site Description

Since 1957, Chem Central has distributed industrial chemicals both in bulk from tank trucks and repackaged in smaller units on a 2-acre site in Grand Rapids. Between 1957 and 1962, hazardous wastes entered the ground at the facility through a construction flaw in a pipe used to transfer liquids between rail cars and bulk storage tanks. The flaw was repaired after losses were noted in chemical inventories. The Michigan Department of Natural Resources (MDNR) found toxic contaminants in *sediments* in a ditch 1,000 feet from the site in 1977. The State dammed the ditch and restricted access by fencing and posting signs. The EPA excavated *sludge* from the ditch in 1978, and with the State, continued to sample soil and groundwater that *seeped* into a pit. In 1984, the State ordered Chem Central to clean up the site. Approximately 15,000 people live within 1 mile of the site. All businesses and residences are on the Grand Rapids municipal water supply, which draws from Lake Michigan and the Grand River. Surface water *runoff* from the site drains into Cole Drain, which also drains other industrial sites nearby. Cole Drain flows into Plaster Creek, 1/2 mile north of the site. Numerous fish kills have occurred along the creek in recent years.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

### Threats and Contaminants



Groundwater contains various *volatile organic compounds* (VOCs). Soil is contaminated with phthalates, VOCs, and *polychlorinated biphenyls* (PCBs). Plaster Creek receives runoff from the site through Cole Drain. Because all businesses and residences in the area use the municipal water system, the only threat of exposure is by accidentally ingesting or touching contaminated soils or water in Cole Drain or Plaster Creek.

## 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



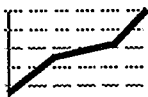
**Immediate Actions:** In 1984, Chem Central designed and constructed a purge well and underdrain system to capture contaminants originating on site. The company also constructed an *air stripping* operation to treat the extracted water for discharge into the municipal waste treatment system. VOCs removed from the extracted water were passed through a carbon filtering process prior to being released. In addition, Chem Central excavated, removed, and disposed of contaminated soil and water from the pit in a federally approved facility. The pit was filled with clean soil.



**Entire Site:** In 1987, Chem Central, under EPA monitoring, began a study to determine the extent of groundwater and surface water contamination and to determine if any soil contamination remains. Once the study is completed in 1991, cleanup methods will be recommended.

**Site Facts:** In 1987, the EPA and Chem Central signed an *Administrative Order on Consent* under which the company agreed to study and further clean up the site.

### Environmental Progress



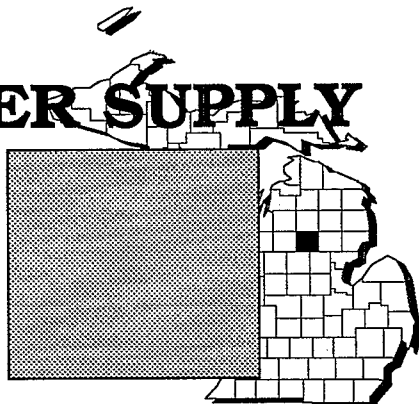
The immediate actions have *contained* contaminated groundwater underlying the site and removed the immediate sources of contamination. These actions have greatly reduced the potential for exposure to hazardous materials at the Chem Central site while studies are taking place and cleanup activities are being planned.



# CLARE WATER SUPPLY

## MICHIGAN

EPA ID# MID 980002273



**REGION 5**  
CONGRESSIONAL DIST. 10

Clare County  
Clare

**Alias:**  
**Clare Municipal Well Field**

### Site Description

The Clare Water Supply site consists of three production wells (Wells #2, #5, and #6) and their related water treatment and storage facilities. The wells are contaminated with various *volatile organic compounds* (VOCs). Pumping from Well #5 was limited in 1982, and the city water supply has since been provided mainly by the blending of water from Wells #2 and #5 with the uncontaminated water from Well #6. The City uses an *aeration* system to remove the iron, which also results in volatilization of the contaminants in the other two wells. Several industrial areas bordering the site are believed to be the sources of contamination. Approximately 4,300 people live within 3 miles of the site. The nearest residence is located less than 1/4 mile from the site. Public potable wells within the vicinity of the site are contaminated.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/21/84

### Threats and Contaminants



Groundwater and soil are contaminated with VOCs. Soil also is contaminated with *polychlorinated biphenyls* (PCBs). Potential health threats to people include accidentally ingesting or touching contaminated groundwater or soil.

### Cleanup Approach

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

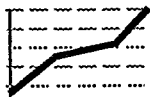
## Response Action Status



**Entire Site:** The parties potentially responsible for site contamination, under EPA and State monitoring, are conducting an investigation into the nature and extent of contamination at the site. The investigation will define the contaminants and recommend alternatives for the final cleanup. The investigation is planned to be completed in late 1990.

**Site Facts:** In 1985, the EPA and several potentially responsible parties entered into an *Administrative Order on Consent* that requires the parties, under EPA and State monitoring, to investigate site contamination.

## Environmental Progress



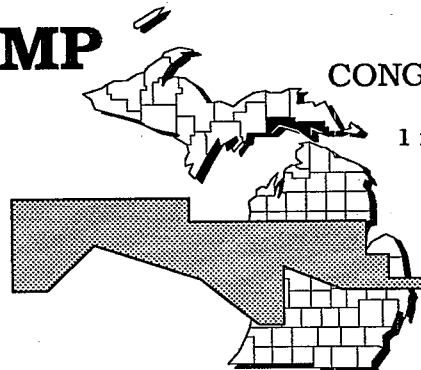
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Clare Water Supply site while studies are taking place and cleanup activities are being planned.



# CLIFF/DOW DUMP

MICHIGAN

EPA ID# MID980608970



REGION 5

CONGRESSIONAL DIST. 11

Marquette County  
1 mile north of Marquette

## Site Description

The 2-acre Cliff/Dow Dump site is an abandoned waste disposal area. Between 1954 and the early 1960s, the site was used for the disposal of waste materials generated by a nearby charcoal manufacturing facility. Wood tars generated during the production process were burned at the plant, although some of the tar solids were disposed of at the site. The City of Marquette has a population of 23,000. Four residences are located within 1/2 mile of the site. The Dead River, located 2,000 feet southeast of the site, is considered a good sport fishing area. The City of Marquette obtains its drinking water from Lake Superior.

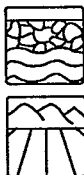
**Site Responsibility:** This site is being addressed through Federal and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Off-site groundwater is contaminated with *volatile organic compounds* (VOCs), *phenols*, and naphthalene. The surface soil in the *landfill* area contains elevated levels of VOCs and naphthalene. The health risks to people include touching or accidentally ingesting contaminated soil.

## Cleanup Approach

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

### Response Action Status



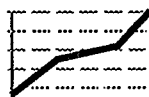
**Immediate Action:** In 1984, the parties potentially responsible for site contamination installed a fence around the site.



**Entire Site:** Based on a comprehensive investigation into site contamination, the selected cleanup activities include: (1) excavation and incineration of 200 cubic yards of uncovered tar; (2) excavation and biological treatment of 9,200 cubic yards of contaminated fill material; (3) topsoil cover and revegetation of the fill material; (4) deed restrictions preventing the installation of drinking water wells within the vicinity of the contaminated groundwater boundaries and disturbance of fill materials; and (5) groundwater and air monitoring. The potentially responsible parties are preparing the technical plans for implementing the selected remedy. Construction is scheduled to begin in 1991, when the design is approved.

**Site Facts:** In 1984, the potentially responsible parties signed a *Consent Order* agreeing to conduct a study into the nature and extent of contamination at the site.

## Environmental Progress

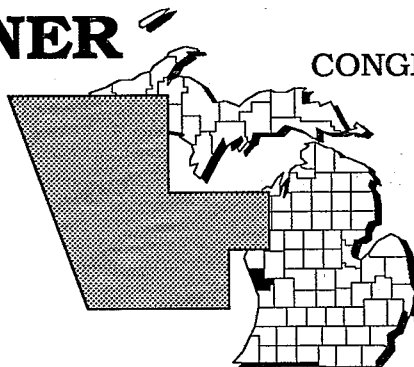


The installation of a fence has reduced the potential for exposure to contaminated materials at the Cliff/Dow Dump site while cleanup plans are being developed.



# DUELL & GARDNER LANDFILL MICHIGAN

EPA ID# MID980504716



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Dalton Township

## Site Description

The 40-acre Duell & Gardner Landfill site was an operating municipal *landfill* from the 1940s to 1975. Indications are that local chemical companies disposed of chemical waste at the landfill until the late 1960s. Before 1969, industrial waste and general refuse were accepted at the site. Materials found on site included approximately 500 drums in various stages of deterioration, hundreds of lab bottles, areas of refuse and debris, and piles of lime. Wastes apparently were deposited on the soil surface and in ground depressions. From 1969 to 1973, the landfill was operated as a licensed solid waste disposal facility. Specific areas were excavated and waste was placed in unlined trenches. In 1971, the Michigan Department of Public Health (MDPH) stipulated that no liquid waste was to be disposed of in the landfill; however, in 1973, the Muskegon County Health Department noticed that liquid waste disposal was still occurring. The landfill ceased operations in 1975. Approximately 1,200 people live within a 2-mile radius of the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



*Volatile organic compounds (VOCs)* have been detected in an on-site groundwater monitoring well. *Polychlorinated biphenyls (PCBs)*, arsenic, cobalt, chromium, and cyanide were detected in 1986 in on-site soils. Potential health risks may exist for individuals who touch or accidentally ingest contaminated groundwater or soil.

## 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



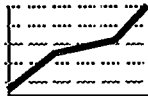
**Immediate Actions:** In 1986, the EPA constructed an access road to the first drum site. Drums were staged and empty drums were crushed.

Contaminated soil under the drums was removed, and the drums and soil were covered. Thirty cubic yards of contaminated soil and drums were transported for disposal. The site also was fenced.



**Entire Site:** The State initiated an investigation in 1987 to determine the type and extent of contamination remaining at the site and to identify alternative technologies for the cleanup. The investigation is scheduled to be completed in 1991.

### Environmental Progress



The excavation, covering, and removal of drums and contaminated soil and site fencing have greatly reduced the potential for exposure to contaminated soil and drums at the Duell & Gardner site while studies are taking place and cleanup activities are being planned.

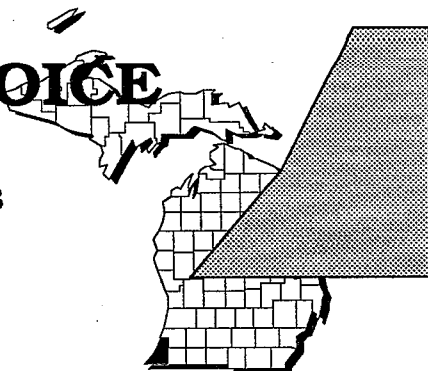




# ELECTROVOICE

## MICHIGAN

EPA ID# MID005068143



### REGION 5

CONGRESSIONAL DIST. 04

Berrien County  
Buchanan

## Site Description

Several manufacturing companies have occupied the Electrovoice site since the 1920s. Campbell Transportation Company operated at the site in the early 1930s. Dry Zero Corporation produced insulating materials at the site from the mid-1930s to 1940. From 1940 to 1946, Clark Equipment leased the property to manufacture transmissions for large equipment. In 1946, Electrovoice, Inc. purchased the property and has since used the location to manufacture electronic sound reproduction equipment. Refuse from demolitions was deposited into a natural land depression located on site from the 1920s to the early 1950s. The depression was filled in until it was approximately the level of the remaining Electrovoice property. Portions of the Electrovoice property are built upon this fill material. In 1952, Electrovoice built two *lagoons* to dispose of liquid electroplating waste produced at its plant on the site. The north lagoon was continuously filled with water, but the south lagoon, which was built to hold overflow from the first lagoon, never received waste. Electrovoice took the lagoons out of service and, in 1962, installed a wastewater treatment facility on site. In 1979, the Michigan Department of Natural Resources (MDNR) inspected the spill *containment* system that Electrovoice installed after a drain pipe spilled liquid wastes into the north lagoon. Other potential sources of contamination at the site include a dry well that was used for the disposal of liquid wastes from the plant's paint and glue shop, and an underground tank that was used to store oil for fuel. Approximately 7,900 people live within a 3-mile radius of the site and 10,000 people are supplied with water from nearby municipal wells. McCoy Creek, located 3 miles downstream of the site, used for recreation.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/21/84

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) and lead. Soil also contains VOCs. Samples of lagoon *sludge* and standing water showed elevated levels of heavy metals and cyanide in the water. Possible health threats include touching or accidentally ingesting contaminated groundwater, surface water, sludge, or soil.

## Cleanup Approach

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

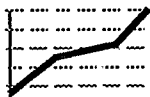
### Response Action Status



**Entire Site:** In 1987, the MDNR began an investigation into the nature and extent of contamination at the site. Electrovoice took over the study in 1988. Once the study is completed, scheduled for late 1990, final cleanup remedies will be selected.

**Site Facts:** In 1987, the EPA and Electrovoice entered into a *Consent Order* that required the company to carry out a study of site contamination.

## Environmental Progress

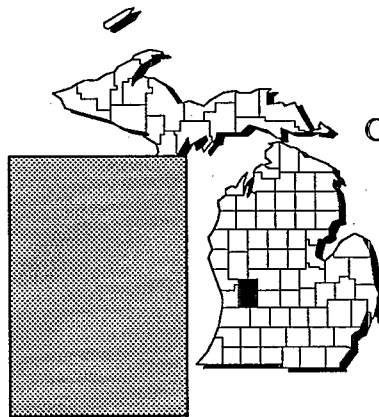


After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Electrovoice site while studies are taking place and cleanup activities are being planned.



# FOLKERTSMA REFUSE MICHIGAN

EPA ID# MID980609366



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Grand Rapids  
Walker

## Site Description

The 8-acre Folkertsma Refuse site was operated as a licensed *landfill* accepting mostly foundry sand and some construction debris. The property was sold in 1969, and operated as an industrial disposal site until the former owner repurchased it in 1972. Between 1969 and 1972, additional foundry sand and other unidentified wastes were deposited at the site. A pallet repair and manufacturing company erected a pole building and started a pallet manufacturing business that is currently in operation. The EPA was notified of past waste disposal activities at the site in 1981. In 1983, the EPA examined information that described the disposal activities on the property and determined that an on-site investigation of possible contamination should be conducted. The investigation was conducted in 1984. The Michigan Department of Natural Resources (MDNR) also investigated the property in 1985 and found 40,000 cubic yards of landfilled waste consisting of foundry sand, chemical products, construction debris, and other industrial wastes from heavy manufacturing operations. Approximately 8,000 people live within a mile of the site.

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

### NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 03/31/89

## Threats and Contaminants



Groundwater is contaminated with arsenic. *Sediment* from a drainage ditch on the property and *sludges* contain *polynuclear aromatic hydrocarbons* (PNAs) and heavy metals including arsenic, cadmium, chromium, and lead. Possible health threats include touching or accidentally ingesting contaminated groundwater, sediments, or sludges.

## 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 EPA initiated an investigation in 1988 to determine the type and extent of contamination at the site and to identify alternative technologies for the cleanup. The study is scheduled to be completed in 1990, at which time final cleanup remedies will be selected.

## Environmental Progress



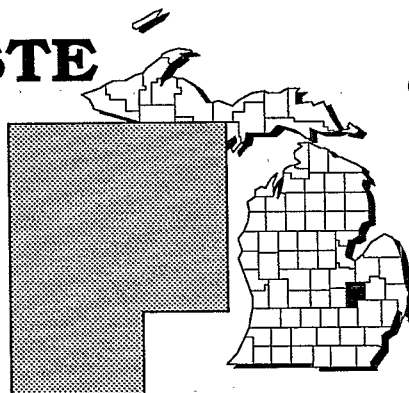
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Folkertsma Refuse site while investigations are taking place and cleanup activities are being planned.



# FOREST WASTE PRODUCTS

MICHIGAN

EPA ID# MID980410740



REGION 5  
CONGRESSIONAL DIST. 07

Genesee County  
2 miles northwest of Otisville

Alias:  
Forest Waste Disposal Landfill

## Site Description

The 112-acre Forest Waste Disposal site is composed of a 15-acre *landfill* with nine *lagoons*. It was licensed from 1972 to 1978 to receive general refuse and wastes. Drummed wastes from various sources were disposed of, and waste oils, *sludges*, paint and resin wastes, and sulfuric *acid* were placed in the lagoons. In 1974, the site accepted sludge and waste from an Agrico Chemical Warehouse fire, while in 1975, the site accepted *polychlorinated biphenyl* (PCB)-contaminated roofing material and contaminated cattle feed. Trenches were dug randomly, industrial wastes were buried with general refuse, and liquid wastes were discharged into the landfill and onto the ground. *Wetlands* near the site drain into Butternut Creek, which eventually discharges into the Flint River. The site is underlain by two drinking water *aquifers*. There are 50 residences near the site, and the area around the site is used for hunting.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs). The lagoon subsurface soils showed significant concentrations of lead, PCBs, and VOCs. The landfill soil is contaminated with lead, chromium, phthalates, and *polycyclic aromatic hydrocarbons* (PAHs). Heavy metals, including arsenic and lead, have been found in surface water east of the lagoons. Potential risks may exist for individuals who touch or accidentally ingest contaminated groundwater, surface water, or soil. However, the site is fenced, thereby reducing potential entry by unauthorized individuals. Wetlands also may be threatened.

## Cleanup Approach

This site is being addressed in three stages: an immediate action and two *long-term remedial phases* focusing on cleanup of the lagoons and cleanup of the landfill and groundwater.

### Response Action Status



**Immediate Action:** Under EPA monitoring, the parties potentially responsible for the contamination installed a fence around the site in 1984.



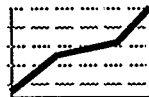
**Lagoons:** The EPA selected the following cleanup actions for the lagoons: (1) excavation, treatment, and disposal of 4,000 cubic yards of contaminated sludges, *sediments*, and soils in an off-site landfill; and (2) extraction, treatment, and disposal of 110,000 gallons of liquid wastes at a licensed treatment facility. The EPA completed the technical specifications to clean up the lagoon in 1988. Under EPA monitoring, the potentially responsible parties initiated the cleanup activities in 1988. The work is scheduled to be completed in 1990.



**Landfill and Groundwater:** The EPA has selected the following actions for cleanup of the landfill: (1) excavation and off-site incineration of approximately 4,000 drums and 1,000 cubic yards of associated contaminated soils; (2) installation of a *containment* system including a cover, a *slurry wall*, a *dewatering* system, and a *leachate* collection system; and (3) treatment and disposal of collected leachate. The groundwater remedy includes: (1) deed restrictions to prevent the use of the groundwater as a drinking water source; (2) access restrictions; and (3) groundwater monitoring to ensure that the system is containing the pollutants. The EPA is currently in the process of designing the technologies to be used in the landfill cleanup work and began monitoring the groundwater in 1989. The State is scheduled to take over the 30-year monitoring program in 1991.

**Site Facts:** The EPA issued an *Administrative Order on Consent* requiring the potentially responsible parties to clean up the lagoons.

## Environmental Progress



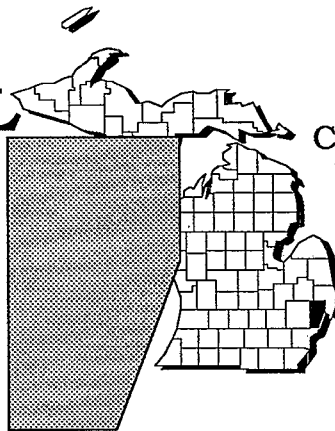
The installation of a fence and the treatment and disposal of sludges, soils, and liquids in the lagoons have greatly reduced the potential for exposure to contaminated materials at the Forest Waste Products site while the design and implementation of the cleanup actions are taking place.



# G & H LANDFILL

## MICHIGAN

EPA ID# MID980410823



### REGION 5

CONGRESSIONAL DIST. 12

Macomb County  
Between Utica and Rochester

### Site Description

The 55-acre G & H Landfill site operated as a waste oil recovery facility from 1955 to 1967 and as a municipal refuse disposal site until 1974. During operations, large amounts of waste oil were dumped into two unlined storage ponds. In addition, solvents, paint thinners, and other compounds were disposed of in "paint pits" located throughout the *landfill*. The Rochester-Utica State Recreational Area borders the site, and a series of interconnected shallow ponds formed by past gravel mining exist in this area. Some of the ponds are contaminated with waste oil and *polychlorinated biphenyls* (PCBs). Approximately 54,000 people live within 3 miles of the site.

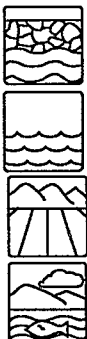
**Site Responsibility:** This site is being addressed through Federal actions.

#### NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/03/83

### Threats and Contaminants



Groundwater, surface water, soil, and *sediments* are contaminated with *volatile organic compounds* (VOCs), phthalates, *polycyclic aromatic hydrocarbons* (PAHs), PCBs, and heavy metals. People who accidentally touch or ingest contaminated groundwater, surface water, soil, or sediments may suffer adverse health effects. Residents who use the off-site ponds for fishing may be harmed by touching or ingesting contaminated surface water or fish. In addition, the pollutants may be harmful to wildlife living in or near the *wetlands*.

## 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



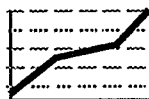
**Immediate Actions:** In 1982, the EPA installed 18 monitoring wells for groundwater sampling. A fence was constructed to prevent the recreation area users from coming into contact with the hazardous waste *seeps*.

Three overflow dams were also installed. When the oily seeps extended beyond the fenced area, the EPA installed a skimmer to prevent the floating oils from *migrating*. In 1983, the EPA installed clay barriers in the path of the seepages to restrict the movement of PCB-contaminated oil. The existing fence was extended to encircle the new seepages. By 1986, the clay barrier and fence had deteriorated in the swampy areas. The EPA blocked all recreational vehicle trails with earthen mounds to prevent access to the site. In addition, a main entrance gate was established, warning signs were posted, and security guards were hired to discourage trespassers. The EPA also began preparing for the site cleanup by constructing a road and a barn to contain three storage tanks of recovered wastes. Drains and *culverts* were constructed to restrict the flow of PCB-contaminated oil. In 1987, an access road collapsed, blocking the drains carrying *runoff* from the site. The drain was cleared, and the roadway was *stabilized*. In 1988, the EPA installed a fence around the entire site. A water treatment and *leachate* collection system also is being maintained in the oil seep area.



**Entire Site:** The EPA is studying the site to determine the extent of the contamination. Once the study is completed in 1990, various methods will be evaluated to clean up the site.

### Environmental Progress



The numerous immediate actions described above have greatly reduced the potential for exposure to contaminated materials at the G & H Landfill site while studies are taking place and final cleanup activities are being planned.

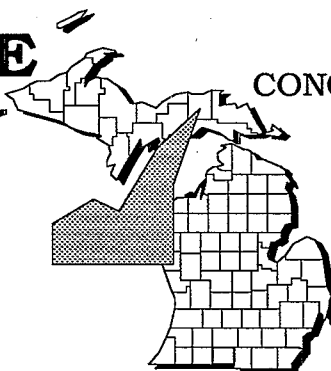




# GRAND TRAVERSE OVERALL SUPPLY COMPANY

MICHIGAN

EPA ID# MID017418559



**REGION 5**  
CONGRESSIONAL DIST. 09  
Leelanau County  
Greilickville

## Site Description

The Grand Traverse Overall Supply Company (GTOS) site is a commercial laundering facility covering 1 acre in Greilickville. The facility was built in 1953, and dry-cleaning machines were installed in 1968 and 1973. The facility is no longer used for dry cleaning, and the machines were removed in the early 1980s. A dry well was used to collect waste until 1955, but *seepage lagoons* were constructed in 1955, 1961, and 1968 and collected wastes until 1977, when the facility began discharging waste to the sanitary sewer system. In 1978, the Michigan Department of Natural Resources discovered that groundwater in the area was contaminated with *volatile organic compounds* (VOCs). At least 10 wells were found to be contaminated, including a well used by an elementary school adjacent to the facility. The school and other residences used bottled water until new wells in a deeper confined *aquifer* were installed. The contaminated wells were *capped* when the new wells were drilled. In the late 1970s, the lagoons on the site were drained and filled with gravel, and contaminated soils around the dry well and barrels of waste *sludge* were removed. Approximately 1,200 people live within 3 miles of the site. The nearest residence is 250 feet south of the facility. Cedar Lake, Cedar Lake Outlet, and Grand Traverse Bay are all less than 1/4 mile away from the site. Cedar Lake and Grand Traverse Bay are used for swimming and other recreational activities.

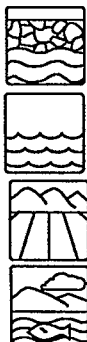
**Site Responsibility:** This site is being addressed through Federal actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



VOCs have been found in the groundwater. Lagoon *sediments*, dry cleaning waste sludges, soil from the dry well, and wastewater and cooling water potentially are contaminated with *trichloroethylene* (TCE) and perchloroethylene. Cedar Lake, Cedar Lake Outlet, and Grand Traverse Bay potentially are contaminated with TCE. People who touch or accidentally ingest contaminated groundwater, soil, or surface water may be at risk. If the contaminated groundwater *plume migrates* towards Grand Traverse Bay, the wildlife living in or around the Bay may be exposed to pollutants. Cooling water and wastewater from the facility were discharged directly into Cedar Lake Outlet; in 1978, biological organisms in the Outlet were found to be seriously depleted.

## Cleanup Approach

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

### Response Action Status



**Initial Actions:** Contaminated wells have been replaced by new, deeper wells. In addition, the lagoons were drained in the late 1970s, and some sludge and contaminated soils were removed.



**Entire Site:** In 1988, the EPA began a study to determine the type and extent of the groundwater, soil, and surface water contamination at the site. Once this study is completed, scheduled for 1991, the appropriate actions for site cleanup will be selected.

### Environmental Progress

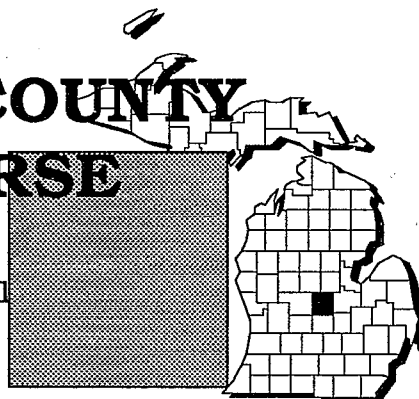


Replacement of contaminated wells and removal of contaminated soils have reduced the potential for exposure to site-related contaminants. After adding this site to the NPL, the EPA performed preliminary investigations and determined that no other immediate actions were required at the Grand Traverse Overall Supply site while investigations are taking place and cleanup activities are being planned.



# GRATIOT COUNTY GOLF COURSE MICHIGAN

EPA ID# MID980794531



**REGION 5**  
CONGRESSIONAL DIST. 10

Gratiot County  
St. Louis

**Alias:**  
**Edgewood Farms Golf Course Site**

## Site Description

The Gratiot County Golf Course site covered 3 acres in St. Louis. From 1956 until 1970, the Michigan Chemical Corporation, later purchased by the Velsicol Chemical Corporation, burned and disposed of industrial waste, including the pesticide DDT, on site. Approximately 2,000 to 3,000 gallons of hazardous waste were disposed of on the site. Waste seeped from the site into the Pine River, which is used for recreational activities. In 1982, Velsicol, under State supervision, cleaned up the site and agreed to clean up two other sites for which it is potentially responsible: the Gratiot County Landfill and the Velsicol Plant in St. Louis. Approximately 2,500 people live within 1 mile of the site. About 5,500 people use groundwater for drinking water within 3 miles of the golf course. Two municipal water wells are located within 3 miles of the site.

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

### NPL LISTING HISTORY

Final Date: 12/01/82

Deletion Date: 09/08/83

## Threats and Contaminants



Groundwater was contaminated with *volatile organic compounds* (VOCs) and heavy metals. Surface water was contaminated with benzene. All cleanup actions have been completed, and the site no longer poses a threat to human health or the environment.

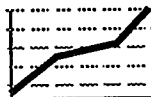
## Cleanup Approach

The site was addressed through immediate actions.

**Response Action Status**

**Immediate Actions:** Contaminated *sediments* were removed to the Velsicol Plant and disposed of in accordance with the cleanup plan for that site. Additionally, contaminated groundwater underlying the golf course area is continuous with contamination at neighboring sites and was addressed as part of their cleanup strategy.

**Site Facts:** In November 1982, Velsicol agreed to a combined settlement for cleanup of this site and two others in Michigan, the Gratiot County Landfill and the Velsicol Plant in St. Louis.

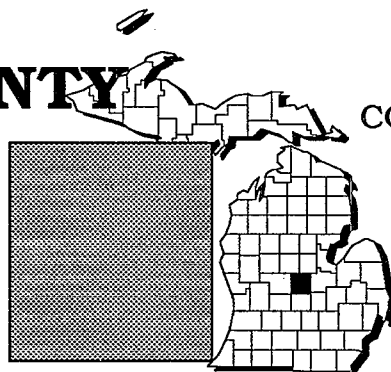
**Environmental Progress**

The immediate actions performed have removed the sources of contamination and eliminated any potential threats at the site. Site evaluations have determined that no additional cleanup work was required, and the Gratiot County Golf Course site was deleted from the National Priorities List in 1983. The site continues to be used as a recreational golf course while cleanup actions continue at the related NPL sites in the area.



# GRATIOT COUNTY LANDFILL MICHIGAN

EPA ID# MID980506281



**REGION 5**  
CONGRESSIONAL DIST. 10  
Gratiot County  
1/2 mile southeast of St. Louis

## Site Description

The Gratiot County Landfill site covers 40 acres southeast of St. Louis. Prior to 1977, the Michigan Chemical Corporation (later purchased by Velsicol Chemical Corporation) disposed of various plant wastes, including 269,000 pounds of polybrominated biphenyls (PBBs), at the *landfill*. The landfill also accepted general refuse. In 1977, the State discovered elevated levels of contaminants in shallow *aquifers* and in several nearby ponds. In addition, the State learned that in at least one, and possibly two, places the wastes were in direct contact with the immediately underlying aquifer. The potential existed for contamination of the deeper aquifers supplying drinking water for the region. Approximately 5,300 people live within 3 miles of the landfill; about 1,500 people are located within 1 mile. Municipal water wells serving 4,100 people are located within 3 miles of the site. The Pine River is located approximately 1 1/2 miles west of the site.

**Site Responsibility:** The 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 and surface water contain PBBs. Potential health risks include accidental ingestion or direct contact with contamination groundwater and surface water.

## Cleanup Approach

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

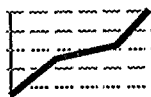
## Response Action Status



**Entire Site:** In 1984, the State took action to minimize the *migration* of contaminants from the landfill. This included regrading the surface to direct *runoff* from the landfill area, covering the waste with clay to prevent rainwater from coming into contact with the buried wastes, and constructing a *slurry wall* along the property boundary to *contain* contaminated groundwater. A groundwater purge system was constructed and a 5-acre evapo-transpiration bed was installed to dispose of water from the purge wells. However, the groundwater purge system was never used. In 1989, the State began an investigation to determine the effectiveness of the slurry wall in stopping the migration of groundwater and contaminants from the landfill. The results of the investigation will determine if additional cleanup activities are necessary.

**Site Facts:** In November 1982, Velsicol agreed to a combined settlement for cleanup of this site and two others in Michigan, the Gratiot County Golf Course and the Velsicol Plant in St. Louis.

## Environmental Progress



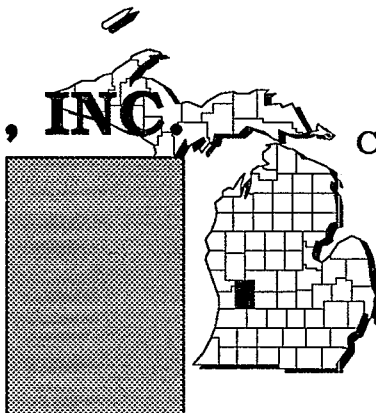
The surface regrading, covering of the waste, and construction of a slurry wall have reduced the potential for exposure to hazardous materials at the Gratiot County Landfill while studies are taking place to determine whether further cleanup activities will be required.



# H. BROWN CO., INC.

## MICHIGAN

EPA ID# MID017075136



## REGION 5

CONGRESSIONAL DIST. 09

Kent County  
Grand Rapids  
Walker

### Site Description

The 3 1/2-acre H. Brown Co., Inc. site is an active automobile and forklift battery recycling facility. The site and surrounding area may have been used as a municipal waste disposal *landfill* before the H. Brown Company began operations on the property in 1961. Initially, the company's operations involved buying, dismantling, processing, and selling scrap metal and junk. Later, the company focused on reclaiming lead from used batteries. Until 1978, the lead reclamation process involved dismantling batteries and draining battery *acid* onto an area of the site. Between 1961 and 1978, 170,000 to 460,000 gallons of battery acid may have been drained. The company discontinued its lead reclamation activities in 1982, but continues to collect used batteries and sell them to other businesses. Responding to a request by the Michigan Department of Natural Resources (MDNR), the company installed liquid collection pans and stainless steel storage tanks on the site in 1978 to collect and contain drummed battery acids instead of draining them on the ground. Acid that was stored in the tanks later was taken to an off-site facility for disposal. Surface water from the site drains through a ditch to a *wetland*, which then empties into the Grand River 1/4 mile east of the site. Approximately 3,000 people live within a 3-mile radius of the site. The source of municipal water is Lake Michigan, with supplementary water drawn from the Grand River each summer. The site and surrounding properties are in the flood plain of the Grand River.

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

#### NPL LISTING HISTORY

Proposed Date: 04/10/85

Final Date: 06/10/86

### Threats and Contaminants



Lead and *volatile organic compounds* (VOCs) are contaminating the air, groundwater, and soil. Wastewaters on the property contain heavy metals including chromium, copper, nickel, lead, and chromium. Potential health threats include accidentally ingesting or touching contaminated groundwater, soil, or wastewater or breathing contaminated air. The Grand River and nearby wetlands are threatened by contaminants from the site.

## Cleanup Approach

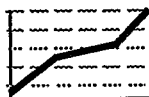
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The EPA initiated an investigation in 1988 to determine the extent of contamination at the site and to identify alternative cleanup remedies. The investigation is scheduled to be completed in late 1991.

## Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the H. Brown Company, Inc. site while studies are taking place and cleanup activities are being planned.

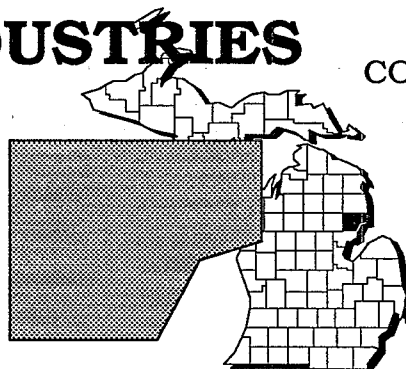




# HEDBLUM INDUSTRIES

MICHIGAN

EPA ID# MID980794408



REGION 5

CONGRESSIONAL DIST. 11

Iosco County

Near Oscoda

## Site Description

The Hedblum Industries site is situated on 10 acres in a mixed-use, industrial, and residential area near Oscoda. From 1958 through 1985, the site was leased to a series of industrial firms that manufactured automobile parts. The Hedblum Industries site first came to the attention of the Michigan Department of Natural Resources (MDNR) Water Quality Division during a routine inspection of the facility in 1972. At that time, Thompson Industries was engaged in the assembly of anti-rattling devices for the automotive industry. Cooling and rinse waters were discharged from the plant onto the ground. The MDNR received a complaint from a resident near the plant regarding a contaminated well in 1973. During another inspection, the MDNR was informed that every 2 weeks from 1968 to 1972, Thompson had dumped approximately 40 gallons of *trichloroethylene* (TCE) from a *degreaser* onto the ground. The State estimates that 4,000 gallons of TCE were dumped over this 4-year period. Samples from several residential wells indicated that two of them were contaminated with TCE. As a result, the State recommended that local residents not use their wells. The affected residents replaced their contaminated wells with deeper ones in an attempt to tap an uncontaminated water supply. Two more wells that were found to be contaminated in the Au Sable Heights area in 1975 were replaced with deeper ones. In 1977, the local health department received a complaint about a strong odor from one of the replacement wells, and sampling indicated that the well also had become contaminated with TCE. By 1978, Oscoda had extended water lines into the Au Sable Heights subdivision and began providing an alternate water supply to the subdivision. Some property owners in the subdivision elected not to be connected to the Oscoda water system. The Oscoda County Health Department continued to assess conditions at the site and sampled liquids contained in an underground storage tank near the northeast side of the site in 1980. In 1981, the State installed seven monitoring wells, determined that the groundwater flow beneath the site was to the northeast, and confirmed solvent contamination. In 1985, the Hedblum Industries property was purchased by Aircraft Tool Supply, which currently produces aircraft parts at the site. The population of the area is approximately 13,700. The closest residence is about 350 feet from the site. An industrial park is located less than a mile north of the site. Most of the population of the towns of Oscoda and Au Sable live within a 3-mile radius of the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater and soil are contaminated with *volatile organic compounds* (VOCs) including TCE. *Sediments* in the bayou contain VOCs. Surface waters of the bayou northeast of the Au Sable Heights Subdivision are contaminated with VOCs including TCE and vinyl chloride. Residents of the Au Sable Heights subdivision who use private wells may be exposed to contaminants when drinking or using groundwater. Sampling of residential wells in early 1990 found no VOC contaminants above detection limits. Since groundwater flow from the site is to the northeast in the direction of the bayou, area residents who fish there may be exposed to site-related contaminants when coming into direct contact with surface water and sediments. Contaminants could *migrate* into the Au Sable River through sediments and surface waters of the bayou and a creek that feeds into the river.

## Cleanup Approach

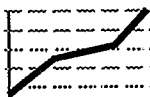
The site is being addressed in a single *long-term remedial phase* directed at cleanup of the entire site.

## Response Action Status



**Entire Site:** After a careful evaluation of several alternatives, the EPA chose the following methods to address site contamination in 1989: (1) extraction and treatment of contaminated groundwater; (2) monitoring of groundwater in the Au Sable Heights subdivision during groundwater treatment; (3) abandonment of six groundwater monitoring wells; and (4) collection and analysis of on-site soil samples. A potentially responsible party began designing the groundwater treatment system in 1990.

## Environmental Progress



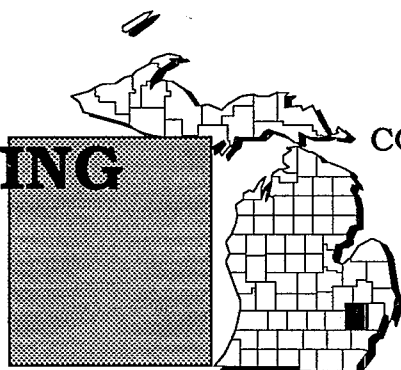
The EPA has selected the technologies for the cleanup of the Hedblum Industries site, and the potentially responsible parties are designing the treatment methods. While these activities are taking place, the EPA has determined that the site poses no immediate danger to the surrounding communities or the environment.



# HI-MILL MANUFACTURING COMPANY

MICHIGAN

EPA ID# MID005341714



**REGION 5**  
**CONGRESSIONAL DIST. 19**  
Oakland County  
Highland Township

## Site Description

The Hi-Mill Manufacturing site is located on 2 1/2 acres in a sparsely populated area approximately 1 1/2 miles from the town of Highland. The Hi-Mill Manufacturing Company began making tubular aluminum, brass, and copper parts in 1946. Operations at Hi-Mill consisted of two main processes: anodizing, a process used to brighten metals, and *degreasing*, a process to clean them. Metals were bathed in tanks containing *acids* that were periodically emptied into a clay-lined *lagoon*. The Michigan Department of Natural Resources (MDNR) received complaints from Hi-Mill employees of the potential contamination of the plant's drinking water supply in 1972, and subsequent sampling of on-site wells and an adjacent marsh detected contamination from heavy metals. In 1976, Hi-Mill built a second, smaller lagoon south of the original lagoon to *contain* overflow. On two separate occasions in 1976 and 1977, the big lagoon overflowed into the marsh bordering the site. Hi-Mill applied for a National Pollutant Discharge Elimination System Permit (NPDES) to cover such overflows. The EPA did not concur with a permit being issued to Hi-Mill by the State. As a result, the MDNR ordered the company to stop discharging untreated wastewaters into the lagoon and requested that Hi-Mill design a wastewater recycling program. Although the firm implemented the recycling system in 1981, the already contaminated lagoons remained a problem, and Hi-Mill filled in the small lagoon in 1983. In an attempt to clean up the big lagoon, liquid was evaporated in the lagoon using a spray evaporation technique. Particles were carried by the wind and deposited downwind of the plant onto State land around Waterbury Lake. The MDNR ordered Hi-Mill to stop this practice in 1983. The immediate area surrounding the site is sparsely populated and rural. The nearest homes are located approximately 2,000 feet southeast of the site, along Waterbury Road. Approximately 13,600 people obtain drinking water from private wells within 3 miles 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: 06/24/88

Final Date: 02/21/90

## Threats and Contaminants



Groundwater *downgradient* of the site contains heavy metals and *volatile organic compounds* (VOCs) including *trichloroethylene* (TCE) and benzene. Lagoon water, *sludge*, and pickling waste resulting from anodizing activities are contaminated with heavy metals. *Sediments* and surface water in Waterbury Lake and nearby *wetlands* are suspected to be contaminated with heavy metals. Area residents or workers at the Hi-Mill plant may be exposed to contaminants when drinking or using contaminated groundwater. Individuals who frequent the Highland State Recreation Area, Waterbury Lake, or the marshy area adjacent to the site could be exposed to site-related pollutants when coming into direct contact with contaminated sediments and surface water or by consuming fish in which contaminants have *bioaccumulated*. Contaminants that have *migrated* into the wetlands and Waterbury Lake could adversely affect the vegetation and wildlife of these environmentally sensitive areas.

## 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:** Hi-Mill, under MDNR supervision, removed 142 cubic yards of contaminated soil, 34,400 gallons of contaminated sludge, and 63,300 gallons of contaminated water from the big lagoon. Hi-Mill filled in the lagoon with sand and clay. A new well was installed on site in 1989 to provide Hi-Mill employees with safe drinking water. Before the new well was hooked up, Hi-Mill provided its employees with bottled water.

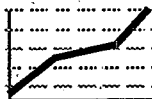


**Entire Site:** The Hi-Mill Manufacturing Company, under monitoring by the EPA and the MDNR, began conducting a long-term study to determine the nature and extent of contamination at the site in 1989. The study is expected to be completed in 1991. Based on the results of this study, the most effective cleanup methods will be selected by the EPA.

**Site Facts:** A *Consent Order* was signed in 1988 between Hi-Mill and the EPA requiring the company to conduct a long-term study of site contamination.

*continued*

## ***Environmental Progress***



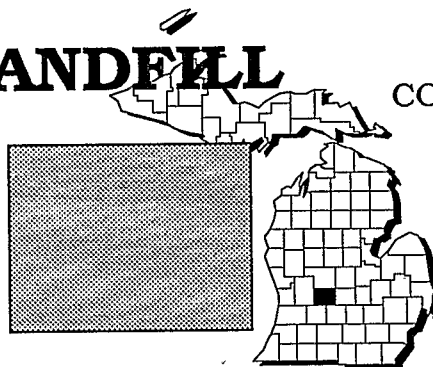
The initial cleanup performed by the Hi-Mill Manufacturing Company helped to reduce the spread of contamination and the possibility of direct contact with hazardous materials at the site while studies are being conducted to determine the most appropriate final cleanup methods for the site.



# IONIA CITY LANDFILL

MICHIGAN

EPA ID# MID980794416



**REGION 5**  
CONGRESSIONAL DIST. 05  
Ionia County  
Ionia

## Site Description

The Ionia City Landfill site is a former *landfill* covering 20 acres in Ionia. From the 1930s until 1968, the City owned and operated the site for the disposal of municipal wastes. A portion of the site later became a recreational area. In 1981, citizen concerns led to an investigation that discovered drums, both buried and on the surface of the landfill. Some drums were in the flood plain of the Grand River. An estimated 1,000 to 2,000 drums may be buried at the landfill. In 1981, the State excavated about 100 drums, many containing industrial liquids and some leaking. The City placed snow fences around the excavated drums. Approximately 6,000 people live within 1 mile of the site, and the nearest residence is about 50 feet away. The municipal well field is about 1 mile northwest of the site. A recreational park is located across the street from the landfill, and a tributary to the Grand River flows through the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants

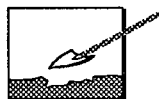


Groundwater is contaminated with *volatile organic compounds* (VOCs) including vinyl chloride and the heavy metal chromium. Heavy metals, including chromium, barium, and lead, were found in soil. Surface water contains vinyl chloride. People who touch or accidentally ingest contaminated groundwater, surface water, or soil may be at risk. The contaminants in the surface water on site may harm wildlife living in or around the water.

## 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

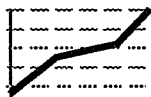


**Immediate Actions:** In 1985, the parties potentially responsible for site contamination constructed a security fence around the site, removed exposed surface drums, and posted warning signs. A partial clay covering was installed to prevent rainwater from coming into contact with buried wastes and to prevent contaminants from *migrating* off the site.



**Entire site:** In 1989, the EPA selected a remedy to clean up the site using in-situ vitrification (ISV). ISV melts the waste material and contaminated soils with an electric current to destroy, remove, or permanently immobilize hazardous substances. The EPA is designing the technical specifications for the ISV. The design phase is scheduled for completion in 1991.

### Environmental Progress



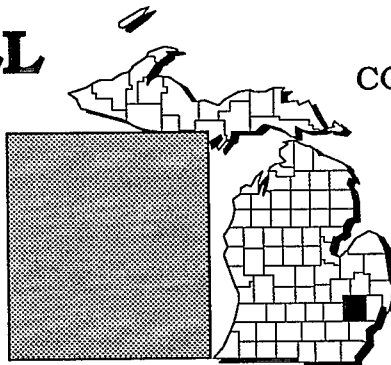
By constructing a security fence to restrict access to the Ionia City Landfill site and removing the exposed contaminated drums, the potential for exposure to hazardous materials has been greatly reduced. The selected final remedy for the site is currently in the design phase, with the cleanup activities scheduled to begin in 1991.



# J & L LANDFILL

## MICHIGAN

EPA ID# MID980609440



**REGION 5**  
**CONGRESSIONAL DIST. 12**  
Oakland County  
Rochester Hills

**Alias:**  
**Avon Township Landfill**

### Site Description

The J & L Landfill covers approximately 17 acres in Rochester Hills. From 1951 to 1980, approximately 1 1/2 million cubic feet of wastes were buried at the site at depths of up to 25 feet. Wastes included dusts from emission control devices in electric furnaces and alkaline slag from electric furnaces involved in stainless steel production. The *landfill* has no liner and is located in an area consisting of layers of sand and gravel extending between 18 and 35 feet below the surface. These materials facilitate the movement of contaminants into the groundwater. The area surrounding the landfill is residential and light industrial. Ten operating or closed disposal facilities are located in the vicinity. Approximately 1,500 people live within 1 mile of the site, with the nearest residence about 200 feet away. These residents depend on shallow wells, and the nearest drinking water well is less than 2,000 feet from the landfill. Ladd Drain borders the site and flows into the Clinton River. The river flows into the Rochester-Utica Recreation Area less than 1 mile from the landfill.

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

#### NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 03/31/89

### Threats and Contaminants



The emission control waste dusts at the landfill are contaminated with heavy metals including manganese, chromium, and nickel. People potentially could be exposed to contaminants in the dusts. Groundwater contamination is a significant threat, because it is very shallow and potentially can come into direct contact with the wastes.



## Cleanup Approach

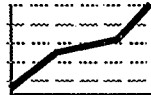
The site is being addressed in a single *long-term remedial phase* focusing on the cleanup of the entire site.

## Response Action Status



**Entire Site:** The EPA is conducting an investigation to determine the type and extent of contamination at the landfill. During this process, the EPA is thoroughly sampling and testing the groundwater, soil, surface water, and *sediments* in Ladd Drain. Once the investigation is completed, scheduled for 1991, the EPA will select final measures to clean up the site.

## Environmental Progress



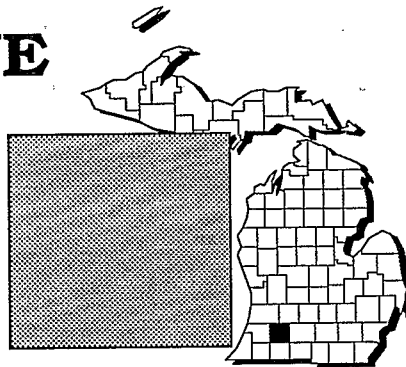
After listing the J & L Landfill site on the NPL, the EPA determined from preliminary evaluations that the site does not pose an immediate threat to the surrounding community or the environment while the investigations leading to the selection of a final site remedy are taking place.



# K & L AVENUE LANDFILL

MICHIGAN

EPA ID# MID980506463



## REGION 5

CONGRESSIONAL DIST. 03

Kalamazoo County

Oshtemo Township

7 miles west of downtown Kalamazoo

### Aliases:

West KL Landfill

Kalamazoo KL Landfill

Kalamazoo County Landfill

Oshtemo Township Landfill

## Site Description

The K & L Avenue Landfill is a former sanitary *landfill* covering 87 acres in Oshtemo Township. The site served as a local garbage dump for the township from the 1960s until 1968, when it became the county sanitary landfill. Approximately 5 million cubic yards of solid waste were disposed of at the site between 1968 and 1972. The landfill was closed in 1979, after contaminants were found in residential wells. The County provided bottled water to the residences affected and covered about 5 acres of the landfill to prevent the *migration* of contaminants. In 1980, 36 homes were connected to a new water main, and in 1981, ten deeper wells were installed to replace eight existing contaminated wells. Approximately 11,000 people live within 3 miles of the landfill. The area surrounding the site is rural residential. The nearest residence is 1/5 mile away. The landfill is about 300 feet southwest of Bonnie Castle Lake and one mile east of Dustin Lake. Both bodies of water are used for recreation, including fishing.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants

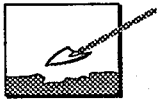


Groundwater is contaminated with *volatile organic compounds* (VOCs), *phenols*, and heavy metals. Soil in isolated areas shows low levels of *polychlorinated biphenyl* (PCB) contamination. All affected water wells have been replaced with deeper wells that draw from the lower, uncontaminated *aquifer* or with city water lines. Therefore, groundwater poses little present threat to human health.

## Cleanup Approach

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

### Response Action Status

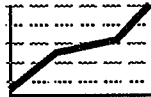


**Initial Actions:** New wells or connections to a public water supply were provided in 1980 and 1981 to residences affected by contaminants from the landfill.



**Entire site:** The EPA completed an investigation to determine the type and extent of contamination at the site. In March 1990, the EPA proposed a plan for cleanup activities and is awaiting public comment.

### Environmental Progress



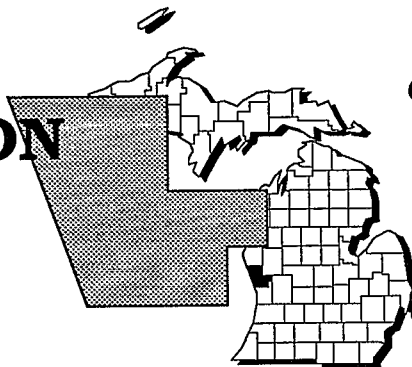
Replacement of contaminated water supplies is protecting nearby residents from site-related contaminants from the K & L Avenue Landfill while the selection of a final remedy is taking place.



# KAYDON CORPORATION

MICHIGAN

EPA ID# MID006016703



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Muskegon

## Site Description

The Kaydon Corporation has manufactured various bearings and bearing assemblies at this 40-acre site since 1941. Wastewater and *sludges* from plant processes were disposed of on site in seven unlined pits and in the south branch of Ruddiman Creek. In 1968, Kaydon began separating wastes, and now only cooling water is discharged into the creek. The process wastes are removed by waste haulers, discharged to the sanitary sewer, or discharged into two on-site ponds. The pond sludge is periodically removed to a federally approved facility for disposal. Approximately 5,000 people live within 1 mile of the site. The closest residence is 250 feet away. Although 700 people obtain drinking water from private wells within 3 miles, the majority of the homes in the area are connected to the municipal water supply, which uses Lake Michigan as its source. Several residences within 1 mile have private wells, but only one residence used the well as a potable water supply. Ruddiman Creek flows into Muskegon Lake and eventually into Lake Michigan. All of these bodies of water are used for recreational activities.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs), cyanide, and heavy metals such as chromium and lead. Soil and sludge contained heavy metals including chromium, copper, nickel, lead, and zinc. People who touched or accidentally ingested the contaminated soil, sludges, or groundwater may have been at risk.

## Cleanup Approach

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

### Response Action Status



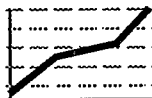
**Immediate Actions:** In 1986, Kaydon conducted a hydrological study to determine the extent of groundwater contamination, removed 1,500 cubic yards of contaminated soil and sludge, and disposed of it in a federally approved facility. The excavated area was *backfilled* with clean sand, graded to conform to existing land contours, and seeded.



**Groundwater:** In 1988, Kaydon installed two purge wells that discharge directly to the publicly owned treatment works. The wells will continue to operate until groundwater standards are reached.

**Site Facts:** Site activities and cleanup actions have been performed voluntarily by the Kaydon Corporation.

### Environmental Progress



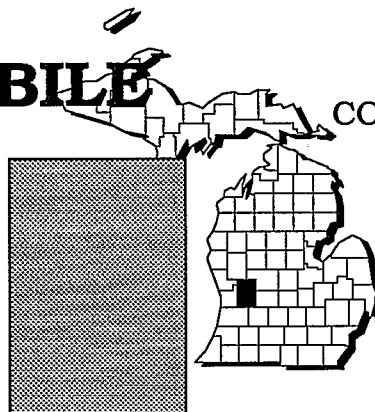
The removal of contaminated soil and sludge and the installation of purge wells have greatly reduced the potential for exposure to contaminated materials at the Kaydon Corporation site. The operation of the purge wells will continue to ensure the safety of nearby residents and the environment.



# KENT CITY MOBILE HOME PARK

MICHIGAN

EPA ID# MID981089915



REGION 5

CONGRESSIONAL DIST. 05

Kent County  
Kent City

## Site Description

In 1983, a water supply well at the Kent City Mobile Home Park site was found to be contaminated with chlorinated hydrocarbons. This well was replaced with a new well 500 feet uphill of the old one and draws on a deeper *aquifer*. The probable source of contamination was a buried storage drum approximately 20 feet from the wells. This drum collected floor drainage from a dry cleaning facility that formerly operated on the site. When the drum was discovered in 1984, the drum and the surrounding soil were removed, and the excavated area was filled with clean soil. The State detected *volatile organic compounds* (VOCs) in an oily substance *seeping* south into Ball Creek. Approximately 3,000 people live within 3 miles of the site. The majority of these residents use groundwater for a drinking water source; there is no municipal water supply in the area.

**Site Responsibility:** This site was addressed through Federal actions.

### NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 07/21/87

## Threats and Contaminants

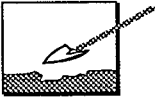


Groundwater and surface water were contaminated with VOCs. New wells have been drilled that tap the deeper uncontaminated aquifer; therefore, exposure to pollutants through the groundwater is unlikely. Ball Creek was only slightly contaminated, posing a risk to people who touched or accidentally ingested the water. Removal of the source of contamination has resulted in the natural reduction of the contaminants in groundwater and surface water.

## Cleanup Approach

This site was addressed through an immediate action.

## Response Action Status



**Immediate Action:** The EPA investigated the site in 1989 and did not find contamination. Monitoring by the Michigan Department of Natural Resources (MDNR) has found no contamination in monitoring wells, municipal wells, or private wells in the area. The EPA is evaluating the site for deletion from the National Priorities List.

## Environmental Progress



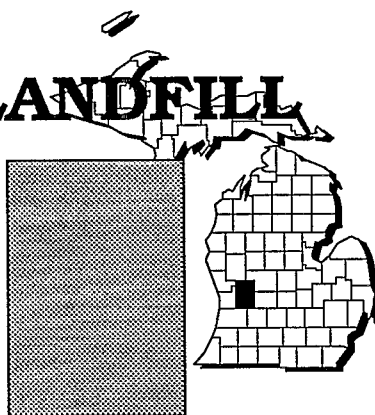
After adding this site to the NPL, the EPA performed further inspections of the Kent City Mobile Home Park site and found no contamination in any of the wells in the surrounding area. The site no longer poses a threat to human health or the environment.



# KENTWOOD LANDFILL

MICHIGAN

EPA ID# MID000260281



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Kentwood

**Alias:**  
**Kent County Landfill**

## Site Description

The 55-acre Kentwood Landfill site originated as the Paris Township dump in the early 1950s. Refuse was dumped into ravines at the *landfill* and burned. In 1966, the dump was licensed as a solid waste disposal facility; however, the license stipulated that the refuse be covered daily and burning cease. The site was inspected and surface *seeps* of *leachate*, open burning, and disposal of liquid factory wastes were found. The license was transferred to the City of Kentwood in 1968, and this license stipulated the site be operated as a sanitary landfill or closed. In 1969, the landfill was being operated as an open dump in violation of State law. In 1971, the Kent County Department of Public Works (KCDPW) obtained a license, took over operation of the site, and designed it as an engineered landfill. On many occasions, leachate was observed seeping from the landfill into nearby Plaster Creek. In 1975, the KCDPW obtained a license to operate a landfill on an extension of the original landfill. The County covered the landfill with clay and sand in 1975 and 1976 to prevent rainwater from coming into contact with the buried wastes. The landfill was closed in 1976. Approximately 35 residences are in the immediate area near the landfill. These residences and the City of Kentwood obtain their drinking water supply from a municipal water supply system tapping Lake Michigan. However, approximately 7,500 people living within 3 miles of the landfill depend on groundwater from private wells.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater, soil, and leachate are contaminated with *volatile organic compounds* (VOCs) and heavy metals such as arsenic and nickel. People who touch or accidentally ingest the contaminated groundwater, soil, or leachate may suffer adverse health effects. If the leachate continues to seep from the landfill, soil, surface water, and *sediments* in Plaster Creek may become contaminated and pose a threat to human health and the environment.



## Cleanup Approach

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

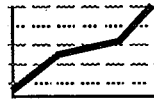
## Response Action Status



**Entire Site:** The City of Kentwood and Kent County, under EPA monitoring, are conducting an investigation to determine the type and extent of contamination at the landfill. The groundwater, soil, surface water, and sediments of Plaster Creek are being sampled and tested. The investigation is scheduled for completion in 1990 and methods will be selected for final site cleanup.

**Site Facts:** In 1985, the City of Kentwood and Kent County signed an *Administrative Order on Consent* to conduct a study of 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 Kentwood Landfill site while studies are taking place and cleanup activities are being planned.



# KYSOR INDUSTRIAL CORPORATION

MICHIGAN

EPA ID# MID043681840



**REGION 5**  
CONGRESSIONAL DIST. 10  
Wexford County  
Cadillac

Alias:  
**Kysor Cadillac**

## Site Description

The Kysor Industrial Corp. site covers approximately 1/10 acre in the Cadillac Industrial Park. The park consists of about 40 industrial facilities, two of which are Superfund National Priorities List (NPL) sites: Kysor Industrial Corporation and the Northernair Plating Company. Kysor Industrial manufactures temperature control systems for the automotive industry using a process involving stamping and machining metal parts. Prior to 1979, 665 cubic yards of liquid/sludge wastes containing solvents were disposed of in unlined earthen pits on the site. Sampling in 1980 found the groundwater to be contaminated with *volatile organic compounds* (VOCs). In 1981, Kysor excavated and removed 700 cubic yards of contaminated soil. The excavated areas were *backfilled* with clean material. All residences with affected and potentially affected water supplies were connected to the municipal water supply. Additional sampling in 1983 showed that the soils were still contaminated. The second NPL site, Northernair, also has contaminated soil and groundwater. The groundwater *plumes* have intermingled, so that the groundwater under both sites is contaminated with elements from Northernair and Kysor. Approximately 10,800 people live within 3 miles of the site; about 5,000 live within 1 mile. The Cadillac area municipal well field is 2,500 feet northeast of the facility. Lake Cadillac is 3,500 feet away, and the Clam River is within 5,000 feet. Both of these bodies of water are used for recreational activities, including fishing. For additional information, please see the separate listing for Northernair Plating Company.

**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: 10/04/89

## Threats and Contaminants



Groundwater contains VOCs including *trichloroethylene* (TCE), chloroform, toluene, and ethyl benzene. Soil is contaminated with VOCs, heavy metals, and *phenol*. People may be exposed to pollutants by accidentally ingesting or coming into direct contact with contaminated groundwater or soil.

## Cleanup Approach

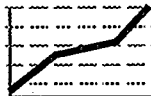
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** Because the groundwater has intermingled, the cleanup addresses both the Kysor and Northernair sites. In 1989, the EPA selected a remedy to clean the sites by constructing a groundwater extraction and treatment system. This system will consist of a number of extraction wells strategically located to intercept the contaminated groundwater. An underground piping system will connect the extraction wells and transport the extracted groundwater to the treatment facility where it will be treated by *air stripping*. The contaminants will be removed from the water by forcing air through it, causing the compounds to evaporate. The treated groundwater will be discharged into the Clam River. In addition, a vapor extraction system will be installed. The contaminants will be extracted by blowing clean air on the soil, which forces the contaminants out into a gas. The gases are further treated before release into the atmosphere. A fence will be constructed around the Kysor site to prevent trespassing. Appropriate action also will be taken to ensure that current or future landowners do not use the contaminated groundwater *aquifers* as a source of drinking water. The parties potentially responsible for the site contamination are designing the technical specifications for the cleanup at the site under state supervision. After the completion of the design phase, scheduled for 1991, the planned cleanup activities will begin.

## Environmental Progress



After adding the site to the National Priorities List, the EPA performed preliminary investigations and determined that no immediate actions were required at the Kysor Industrial site while it awaits final cleanup.



# LIQUID DISPOSAL, INC.

MICHIGAN

EPA ID# MID067340711



REGION 5

CONGRESSIONAL DIST. 12

Macomb County  
Shelby Township

## Site Description

The Liquid Disposal, Inc. (LDI) site covers approximately 7 acres in Shelby Township between Utica and Rochester. Prior to 1964, the LDI site area was used as a sand and gravel pit. *Landfilling* began in 1964. LDI began commercial incinerator operations at the site in 1968. The incinerators were designed for handling volatiles and semi-volatiles, including paint thinners, *sludges*, contaminated oils and greases, and any other liquid industrial wastes that did not contain chromium or cyanide. However, LDI did accept wastes containing these contaminants. Wastes were stored in a *lagoon*, underground and aboveground tanks, and numerous types of drums before incineration. A scrubber lagoon was used for incineration ash and stormwater *runoff*. LDI operated for 14 years and was cited for numerous violations, including fires and improper storage. LDI ceased operations and was permanently closed in 1982 after two people were killed in an industrial accident. Currently, several hundred sample jars, old incinerator parts, emptied tanks, wooden pallets, miscellaneous containers, and other debris are on site. The lagoons' contents have been removed or *stabilized*, and virtually all storage tanks and containers have been removed. A crude *leachate* collection system along the east side of the site is operational, with a *sump* pump circulating accumulated liquids back into the incinerator pit. The incinerator pit also continues to collect water from surface drainage and subsurface *seepage*. The Rochester-Utica State Recreational Area and the G & H Landfill National Priorities List site are about 1 mile away from the Liquid Disposal site. The site is surrounded by *wetlands*, the Clinton River, and the Shadbush Tract Native Study Area. Approximately 54,000 people reside in the rural area within 3 miles of the site. The local drinking water for 3,500 people comes from groundwater sources. About 3,200 people live within 1 mile of the site, with the nearest residence about 1,300 feet away.

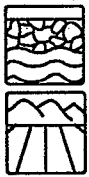
**Site Responsibility:** This site is being addressed through Federal, State, and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

## Threats and Contaminants

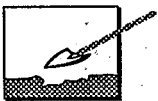


The groundwater is contaminated with *volatile organic compounds* (VOCs) and heavy metals. The soil contains VOCs, *polycyclic aromatic hydrocarbons* (PAHs), pesticides, *polychlorinated biphenyls* (PCBs) and heavy metals. Stored contaminants are a fire or explosion hazard. Direct contact with or accidental ingestion of contaminated groundwater, soil, or leachate could pose a health threat as well.

## 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:** The EPA responded to an accidental spill of hazardous waste chemicals in 1982 by shutting off equipment and performing initial cleanup actions. In 1982, heavy rains caused the lagoon level to rise above the liner, causing liquid to seep through the wall and threatening the stability of the dike that had been built around it. The EPA removed the PCB-contaminated soils outside the facility and secured them in another facility, lowered the lagoon level 2 feet from the top of the liner, and removed the oily layer. The waste was stored on site. Liquid was pumped from the incinerator pit, and the clay barrier preventing dike seepage from reaching the Clinton River was repaired. The dikes were regraded and repaired, and the tanks of flammable chemicals were secured. In 1983, the EPA drained the lagoons, removed sludge, *capped* the lagoons, and *overpacked* the drums. The waste oil lagoon caught fire during the solidification process, and as a result, 500 nearby residents were evacuated. Approximately 1,800,000 gallons of liquid and 2,800 cubic yards of sludges were removed from the waste oil lagoons. The EPA removed all the ash piles and *backfilled* and capped the waste oil lagoon. Eleven 15-gallon packs of *acids* and isocyanate were also disposed of. In 1985, the EPA removed 10,000 gallons of flammable liquids; however 15,000 gallons remain on site. All the underground tanks were uncovered, opened, and cleaned. Approximately 200 drums were incinerated or landfilled in early 1986.

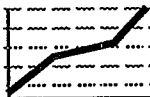


**Entire Site:** Based on the results of the site investigation by the Michigan Department of Natural Resources, the EPA selected the following methods for long-term remediation at the site: (1) on-site disposal of existing debris and equipment; (2) on-site solidification and fixation of soil and waste; (3) pump and treatment of groundwater using *air stripping* and ion exchange with discharge of the treated groundwater into the Clinton River; and (4) construction of a *slurry wall* and impermeable cap *containment* system. The design of the technical specifications is under way, and cleanup of the site is expected to begin in early 1991.

continued

**Response Action Status, Continued**

**Site Facts:** The Michigan Department of Natural Resources (MDNR), in February 1982, rejected LDI's application for a toxic waste handling permit. In April 1982, LDI was forced into involuntary bankruptcy. The company closed permanently in May 1982.

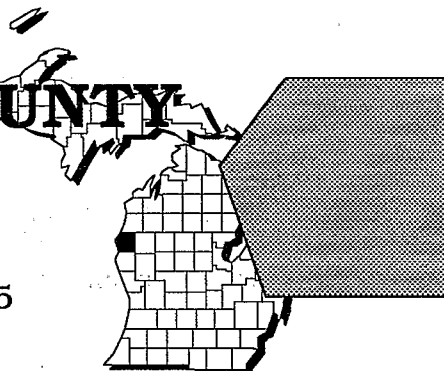
**Environmental Progress**

Removal of contaminated materials and repair of dikes on the LDI site have reduced the potential for contact with hazardous materials while design of cleanup actions is taking place and final site cleanup is being planned.



# MASON COUNTY LANDFILL MICHIGAN

EPA ID# MID980794465



**REGION 5**  
CONGRESSIONAL DIST. 09  
Mason County  
Pere Marquette Township  
3 miles south of Lundington

## Site Description

The Mason County Landfill site comprises 10 acres of an 18-acre parcel of land and is located 3 miles south of the town of Lundington in Pere Marquette Township. The landfill was operated by Acme Disposal for Mason County from 1972 through 1978 and accepted general refuse, garbage, industrial refuse, liquids, *sludges*, and industrial wastes. Acme Disposal was ordered to install additional groundwater wells on the site in 1978. Mason County covered the landfill with 2 feet of clay in 1979. Afterward, the site and adjacent land eroded and may have polluted groundwater and nearby Iris Creek. Two years after the landfill ceased to operate, nearby residents voiced concerns over water quality in Iris Creek. As a result, a plan was drafted by the Michigan Department of Natural Resources (MDNR) and the Mason County Department of Public Works (DPW) to control drainage, vent landfill gas, and monitor groundwater quality. The landfill is 1 mile east of Lake Michigan. A *wetlands* located less than 500 feet from the landfill drains into Babbin Pond, the headwaters of Iris Creek. The area surrounding the site is primarily rural, with a population of approximately 1,100 people within a 1/2-mile radius of the site who obtain drinking water from private wells. Twelve residential wells are located within 3 miles of the site.

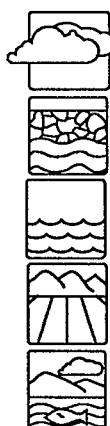
**Site Responsibility:** This site is being addressed through a combination of Federal, State, and County actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Air located in the landfill gas vents is contaminated with *volatile organic compounds* (VOCs) including vinyl chloride and benzene. Off-site groundwater in the monitoring wells contains VOCs and heavy metals including sodium and lead. *Sediments* are contaminated with arsenic. Soils, including those in the clay *cap*, are contaminated with lead and arsenic. Heavy metals are found in Iris Creek. Trespassers on site could be exposed to health risks through direct contact with contaminated soils and inhalation of airborne materials. Private wells could be contaminated by pollutants moving in the groundwater, exposing residents who use the water. People or wildlife may come in contact with contaminants that enter surface water and wetlands.

## Cleanup Approach

The site is being addressed in three stages: immediate actions and two *long-term remedial phases* directed at cleanup of the landfill portion of the site and cleanup of the groundwater.

### Response Action Status



**Immediate Actions:** In 1983 and 1984, Mason County covered the landfill with clay, graded the land so that it was terraced, constructed storm drains, installed two surface units in Babbins Pond to allow air into it, and placed 15 gas vents on the top of the landfill.



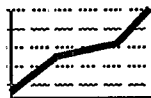
**Landfill:** The long-term cleanup action chosen by the EPA in 1989 to address the landfill portion of the site includes: (1) covering the landfill with soil and clay according to federal hazardous waste management regulations; (2) constructing a fence around the perimeter of the site; (3) placing deed restrictions on and near the site to prohibit the use of shallow groundwater; and (4) continued monitoring of groundwater to aid in the long-term cleanup action for the groundwater and to monitor the effectiveness of the clay and soil cover. Construction of the clay/soil cap is expected to begin in 1990.



**Groundwater:** The EPA is conducting an investigation into the nature and extent of groundwater contamination and the most effective methods of treatment. This study is expected to be completed in 1992, at which time cleanup alternatives will be recommended.

**Site Facts:** In 1978, Acme was ordered by the State to install additional monitoring wells, analyze water samples, and survey the site. A *Consent Order* was subsequently issued to cover the items that remained to be completed when Acme ceased to operate at the site in 1978. In 1981 and 1982, residents filed two suits against the County and Acme. The suits were settled when Mason County agreed to purchase both properties.

### Environmental Progress



The covering of the landfill, grading the land, constructing storm drains, and venting Babbins Pond and the landfill significantly reduced the potential for exposure to contaminants at the Mason County Landfill while final cleanup activities are being planned.

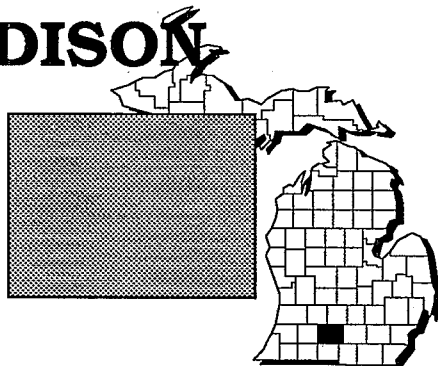




# MCGRAW EDISON CORP.

MICHIGAN

EPA ID# MID005339676



**REGION 5**  
CONGRESSIONAL DIST. 03  
Calhoun County  
Albion

**Alias:**  
**McGraw-Edison Air Comfort Division**

## Site Description

The McGraw Edison Corp. site covers 24 acres in Albion. The company manufactured air conditioners, humidifiers, and similar equipment from 1958 to 1980. From 1970 to 1980, 15,000 gallons of *stillbottoms* (an oil waste) contaminated with *trichloroethylene* (TCE) were spread on the site's roads to control dust. As a result, TCE has been found in two on-site wells and in 45 nearby residential wells. The Albion municipal wells also show TCE contamination. Extensive soil contamination was also detected. The plant closed in 1980, and the site is completely restricted. McGraw Edison was sold to Cooper Industries in 1985. Approximately 11,000 people reside within 3 miles of the site. Residents in the area depend on both municipal wells and private wells for drinking water. The Kalamazoo River is used for recreational activities such as swimming and fishing.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



The groundwater, stream *sediments*, surface water, and soils are contaminated with TCE. People may be exposed to site-related contaminants if they breathe airborne materials or ingest or come in direct contact with polluted groundwater, surface water, soils, or stream sediments. Air quality controls have been established to eliminate the potential for air contamination.

## Cleanup Approach

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

### Response Action Status



**Immediate Actions:** Affected residences were supplied with bottled water and later connected to the municipal water supply by McGraw Edison. The potentially responsible party removed and disposed of approximately 6,100 cubic yards of contaminated soils in an approved hazardous waste facility.



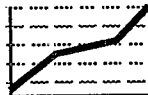
**Entire Site:** A deep *aquifer* groundwater recovery well has been operating on site since 1984. Contaminated groundwater is being treated with an air stripper. The groundwater treatment system for the shallow aquifer consists of 28 wells and a *carbon absorption* tank. The wells have been constructed and the system will be operational soon. The treated groundwater will be discharged under a federal permit into the Kalamazoo River. Groundwater monitoring is scheduled to begin in 1990 and last for 40 years.



**Soil:** Areas of soil containing greater than 10 parts per billion (ppb) of TCE still remain on site and will be cleaned up during this long-term soil phase. The selected remedy for soil cleanup is to flush contaminants from the soil into the shallow aquifer so contaminants can be recovered in the groundwater purge system. The system, including the temporary receiving ponds, has been constructed and is awaiting a State discharge permit.

**Site Facts:** The cleanup of this site falls under the 1984 *Consent Decree* signed with McGraw Edison. Since the facility's purchase by Cooper Industries, Cooper has re-evaluated and completed the site studies and assumed responsibility for the site cleanup.

### Environmental Progress



By supplying affected residences with a safe drinking water supply and removing much of the contaminated soil, the potential for direct exposure to hazardous materials at the McGraw Edison site has been significantly reduced. The final cleanup of the soil contamination is scheduled to begin in 1990, and the groundwater contamination is currently being treated and monitored.



# METAL WORKING SHOP

MICHIGAN

EPA ID# MID980992952



REGION 5

CONGRESSIONAL DIST. 09

Benzie County  
Lake Ann

## Site Description

The Metal Working Shop site covers approximately 1 acre on a hill between Lake View and Lake Ann. From 1974 to 1977, the owner of the property finished metals in the shop using iron phosphate. Two types of rinse waters were generated in an oxidizing phase of the operation: an *acidic* rinse (dilute hydrochloric acid), containing iron phosphate, and a caustic rinse (sodium hydroxide). From 1975 to 1977, *effluents* from these rinses were mixed to neutralize them and then dumped onto the ground. According to the owner, 400 gallons per day were disposed of for 8 to 10 days a month. In 1983, Lake Ann Manufacturing took over the site. Sampling by the State detected heavy metal salts in the rinses. Groundwater in the area occurs at shallow depths, and wells draw from the very permeable sand and gravel drift *aquifer*. The area residents depend on private wells for drinking water. Approximately 1,000 people reside within 3 miles of the site, and the nearest residence is 600 feet away. Many other lakes are within 3 miles of the site.

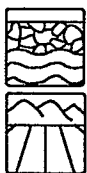
**Site Responsibility:** This site is being addressed through Federal actions.

### NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 02/21/90

## Threats and Contaminants



The groundwater and soils are contaminated with *volatile organic compounds* (VOCs) including toluene and with the heavy metal chromium. Direct contact with or accidental ingestion of contaminated groundwater, soils, or other waste materials may pose a health threat. Contamination of nearby lakes is possible due to site *runoff*.

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## Cleanup Approach

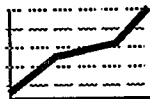
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** In 1988, the EPA began an investigation to determine the nature and extent of contamination and to identify alternatives for long-term site remediation. The investigation is expected to be completed in mid-1991.

## Environmental Progress



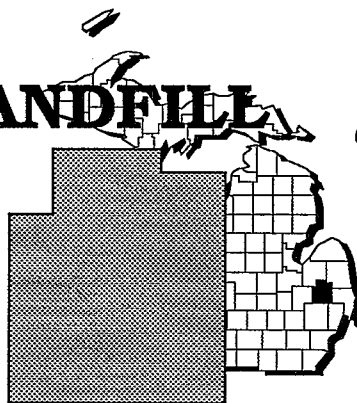
After adding the Metal Working Shop site to the NPL, the EPA performed preliminary evaluations and determined that the site does not pose an immediate threat to the surrounding communities or the environment while investigations leading to the selection of final cleanup remedies are taking place.



# METAMORA LANDFILL

MICHIGAN

EPA ID# MID980506562



## REGION 5

CONGRESSIONAL DIST. 08

Lapeer County

1/2 mile northeast of Metamora

### Site Description

The Metamora Landfill site consists of 50 acres on an 80-acre parcel of land located 1/2 mile northeast of Metamora and 20 miles southeast of Flint. The *landfill* operated from 1966 to 1980, first as a gravel mine and then as a privately owned, unregulated dump. The operators, amounts, and types of wastes disposed of at the site are not known. However, it is likely that the previous owner disposed of waste and drums in unlined pits, which were formerly used for gravel mining or *borrow* areas. Fires occurred at the site in 1972 and 1979. About 8 drums were unearthed in Area 1 of the site in 1981. A study conducted by the State in 1982 concluded that as many as 35,000 drums, some containing liquid waste, could be buried on site in 5 disposal areas. Two areas on site have been confirmed to contain an estimated 8,000 drums. It is estimated that 18,150 cubic yards of waste are buried at this site. The area surrounding the site is rural. The estimated population of Metamora is 595. Two residences are located 500 to 1,000 feet to the north of the site and are served by private wells.

**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



Buried waste materials and soils contain *volatile organic compounds* (VOCs) and *polychlorinated biphenyls* (PCBs). On-site groundwater is contaminated with heavy metals, including lead and arsenic, and VOCs. Although there is no evidence to suggest that on-site groundwater contamination has *migrated* off-site into private drinking wells, these wells are located within 1,000 feet *downgradient* of the site. Because VOCs found in on-site groundwater move readily and because of the potential for additional leakage from buried waste materials, private wells could be affected. If this should occur, area residents could be exposed to site-related contaminants when ingesting or using groundwater.

## Cleanup Approach

The site is being addressed in three *long-term remedial phases* focusing on source control, groundwater cleanup, and cleanup of the subsurface soils on the site.

### Response Action Status



**Source Control:** The cleanup method selected by the State and the EPA in 1986 involves excavating and incinerating approximately 18,000 drums in Areas 1 and 4. These actions are expected to be completed by late 1990.

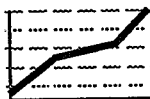


**Groundwater:** The State, with EPA assistance, is conducting an investigation into the extent and nature of contamination in the groundwater and the landfill area. This study is expected to be completed in 1990.



**Soil:** The State is conducting a study into the nature and extent of subsurface soil contamination. During this study, the State is investigating two additional drum burial areas on the site and is taking soil borings. It is scheduled for completion in late 1991.

### Environmental Progress



The ongoing removal and incineration of drums have greatly reduced the potential for exposure to hazardous material at the Metamora Landfill while further investigations to determine the most appropriate remedies for final groundwater and soil contamination are under way.



# MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL)

MICHIGAN

EPA ID# MID000775957



**REGION 5**  
CONGRESSIONAL DIST. 03  
Kalamazoo County  
Kalamazoo

**Aliases:**  
**Dispose-O-Waste and Transfer Station**  
**Cork Street Landfill**

## Site Description

The Michigan Disposal Service (Cork Street Landfill) site is a 68-acre *landfill* located in a predominantly industrial and commercial area of Kalamazoo. From 1925 to 1961, the site was operated as a waste disposal facility. In 1961, the City of Kalamazoo purchased the property and used it for municipal waste disposal until 1968. Prior to 1968, waste was burned in an on-site incinerator, and the ash was buried in the landfill. Since most waste disposal occurred prior to the development of local and State regulations, little is known about the exact types and amounts of wastes buried in the landfill. The City continued to use the site until 1981, when Dispose-O-Waste, now Michigan Disposal Service, Inc., purchased the facility. Michigan Disposal Service Inc. received a permit from the State of Michigan to operate the site as a Type III landfill and began operations in 1983. Type III facilities can dispose of wastes such as construction debris, demolition materials, and paper-mill waste and *fly ash*. The population within a 3-mile radius of the site is approximately 50,000 people. The closest residence is 1/2 mile from the site. There are approximately 30 private water wells and two City of Kalamazoo water wells within 2 miles of the landfill. The wells provide water for fire protection and are on stand-by status as drinking water sources. Davis Creek flows along a portion of the eastern site boundary and also flows into the Kalamazoo River, which is used for recreational purposes.

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

### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 02/21/90

## Threats and Contaminants



Volatile organic compounds (VOCs) including toluene, xylene, and benzene and the heavy metals arsenic and lead were detected in on-site monitoring wells. A creek adjacent to the site showed elevated levels of lead and iron. Davis Creek and the Kalamazoo River may be threatened by site contaminants. Potential health risks may exist for individuals who accidentally ingest the contaminated groundwater or surface water.

## 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:** The company placed a 2-foot thick clay *cap* on the site and installed monitoring wells and a *leachate* collection system.



**Entire Site:** Under the EPA's monitoring, the potentially responsible parties initiated an investigation in 1987 to determine the type and extent of contamination at the site and to recommend final cleanup activities. The study is expected to be completed in 1991.

**Site Facts:** A *Consent Decree* was signed by the EPA, the City of Kalamazoo, and Michigan Disposal Service, Inc. in October 1987. The order requires the City and the company to conduct an investigation of site contamination and additional studies as required by the EPA.

### Environmental Progress



By covering the landfill and installing a leachate collection system, the potential for exposure to contaminants on the Michigan Disposal Service site has been greatly reduced while studies are under way and site cleanup activities are planned.

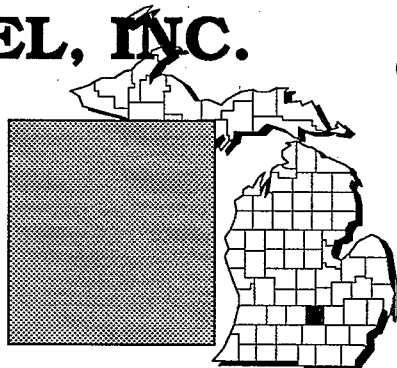




# MOTOR WHEEL, INC.

## MICHIGAN

EPA ID# MID980702989



### REGION 5

CONGRESSIONAL DIST. 06

Ingham County  
Lansing

### Site Description

The Motor Wheel, Inc. site is located on the northeastern side of Lansing. This 25-acre site was used by Motor Wheel from approximately 1938 until 1979 for disposal of paints, solvents, and other wastes generated in the manufacture of wheels for the automotive industry. Wastes were placed directly on the ground, disposed of in containers, and buried. A clay *cap* was placed over a portion of the site in the 1970s. The property was sold to MSV Associates in the late 1970s for the purpose of mining sand and gravel. During mining activities, the clay cap was broken at least once, exposing buried tanks and drums. The exposed material was analyzed, determined to be non-hazardous, and sent to a local licensed *landfill*. Paint *sludges* were removed from a pit, placed in two 10,000-gallon steel tanks, and reburied on the site. The nearest residences to the site are located approximately 1/4 mile to the west. The population within 1/2 mile of the site is 4,725. Located to the northwest of the site are the Granger and Paulson Street disposal areas, and W.R. Grace borders the site to the south. More than a dozen schools and as many churches, numerous recreational facilities, a hospital, nine parks, many small businesses, and an armory are located within a mile of the site. Approximately 128 municipal wells serve 147,000 people in Lansing.

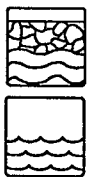
**Site Responsibility:** This site is being addressed through a combination of Federal, State, and *potentially responsible parties'* actions.

#### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

### Threats and Contaminants



*Volatile organic compounds (VOCs)*, including toluene and *pentachlorophenol (PCP)*, were detected in a shallow *aquifer*. The site is easily accessible to the public, and the deep pits created by sand and gravel mining activities present a significant physical hazard. Ponds also exist in the bottom of the pits. Potential health risks may exist for individuals who drink the contaminated groundwater.

## Cleanup Approach

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

### Response Action Status



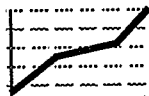
**Immediate Actions:** In 1982, before the site was listed on the NPL, two 10,000 gallon tanks, an additional tank, and some accompanying soil were removed from the site.



**Entire Site:** Under the supervision of the EPA and the Michigan Department of Natural Resources (MDNR), the potentially responsible parties initiated an investigation of the site in 1987. The investigation will determine the type and extent of contamination and identify alternative technologies for the cleanup. The investigation is scheduled for completion in 1991.

**Site Facts:** In October 1987, under the terms of an *Administrative Order on Consent*, Motor Wheel, Goodyear, and W.R. Grace agreed to conduct an investigation of the site and recommend alternative cleanup remedies.

### Environmental Progress



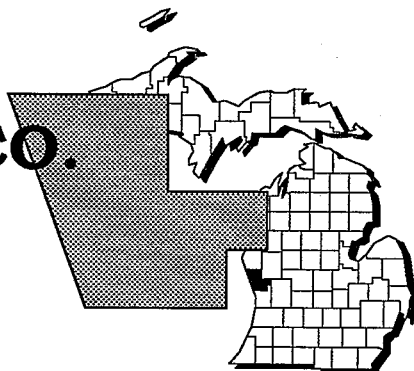
The removal of tanks and contaminated soil reduced the potential for exposure to hazardous waste at the Motor Wheel site while studies are taking place and cleanup activities are being planned.



# MUSKEGON CHEMICAL CO.

MICHIGAN

EPA ID# MID072569510



**REGION 5**  
CONGRESSIONAL DIST. 09

Muskegon County  
Whitehall

**Alias:**  
**Koch Chemical**

## Site Description

The Muskegon Chemical Company (MCC) site is used to produce a variety of specialty chemicals for pharmaceutical and other industries on 12 acres in Whitehall. The company operated from 1975 to 1986, when it sold the business to the Koch Chemical Company. In 1981, chemicals were identified in on-site wells. A *sump* pump and an outside holding tank, both badly corroded, were the potential sources. The groundwater *seeped* into Mill Pond Creek *downgradient* of the site. Over a period of 3 years, MCC installed 40 monitoring wells along the *plume* of contamination. Monitoring indicated that groundwater was contaminated. An 8,000-gallon pressurized tank of heptane and other chemical holding tanks are located on the northern side of the site. The surrounding area is zoned commercial but at present is primarily residential. Approximately 6,400 people obtain drinking water from public and private wells within 3 miles of the site. A private well is 1,250 feet north of the chemical company. Surface water within 3 miles downstream of the site is used for recreational activities. Mill Pond and Mill Pond Creek are 2,500 feet from the site, and White Lake is 7,000 feet away.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

## Threats and Contaminants



*Volatile organic compounds* (VOCs), including xylenes, entered the groundwater through on-site soils. A faulty sump pump circulated contaminants onto the grounds around the facility and *leaching* occurred. Groundwater contaminants seep onto the banks of Mill Creek and flow directly into Mill Pond or the creek. Potential health risks may exist for individuals who drink the contaminated groundwater. The municipal water systems draw from the *aquifer* affected by the groundwater contaminants; however, they draw from outside the present zone of contamination.

## Cleanup Approach

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

### Response Action Status

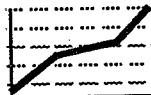


**Immediate Actions:** In 1985, MCC installed a system to pump contaminated groundwater to the surface, treat it by carbon filtration, and discharge the treated water to the Whitehall Water Treatment Plant.



**Entire Site:** The potentially responsible parties are conducting an investigation to reevaluate the groundwater treatment and develop an effective purge system. The study also is evaluating soils, particularly underneath the plant, and identifying sources of contamination stemming from the plant. The surface water is being evaluated to ensure that *bioaccumulation* of contaminants is not occurring.

### Environmental Progress



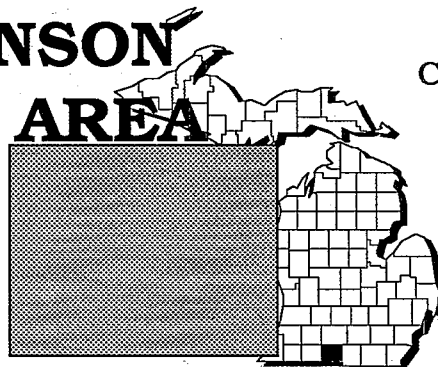
The pumping and treatment of contaminated groundwater is reducing the potential for exposure to contaminated water at the Muskegon Chemical Co. site while investigations to determine final cleanup alternatives for the groundwater, surface water, and the soils are taking place.



# NORTH BRONSON INDUSTRIAL AREA

MICHIGAN

EPA ID# MID005480900



REGION 5  
CONGRESSIONAL DIST. 04

Branch County  
North Bronson

Aliases:  
Bronson Plating Mfg Co.  
Bronson WWTP  
Bronson Residents Well

## Site Description

The North Bronson Industrial Area (NBIA) in Bronson covers approximately 400 acres. The actual areas of concern are the old and new *lagoons* and surrounding surface soils and *sediments*. Several industries in the North Bronson area discharged plating and other industrial wastes to *seepage* lagoons between 1939 and 1949. An industrial sewer system was used to transport plating wastes to both sets of lagoons, which were owned and maintained by the City of Bronson. In 1949, the lagoons became overloaded, and leaks of plating wastes were reported. New lagoons were constructed in 1949. In 1970, Bronson Plating purchased the new lagoons from the City of Bronson and discharged wastes into these lagoons until 1981. The seepage lagoons are no longer used for waste disposal; however, they still contain an estimated 3,000 to 5,000 cubic yards of *dewatered* metal hydroxide *sludges*. The majority of the City of Bronson is within a 1-mile radius of the old lagoons at the NBIA site. The area surrounding the site is mixed industrial and residential, and the area north of the site is primarily rural. The population of the City of Bronson is approximately 2,270, and the majority of the residents in the area of the site are connected to the municipal water supply system. An estimated 3,000 people use wells within 3 miles of the site as a source of drinking water. The primary supply wells are located approximately 5,000 feet east of the site and are screened in the upper *aquifer*.

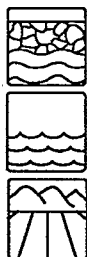
**Site Responsibility:** This site is being addressed through Federal actions.

### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

## Threats and Contaminants



Two on-site groundwater monitoring wells have shown detectable levels of *trichloroethylene* (TCE) and chloroform, elevated levels of heavy metals, and cyanide. *Polychlorinated biphenyls* (PCBs) have been found in sediment samples at two locations downstream of the old lagoons. Lagoon sludge contains heavy metals including cadmium, chromium, and lead. Because municipal wells are located *upgradient* of the site, there is only a remote chance of site contaminants reaching these wells. Accidental ingestion or direct contact with contaminated groundwater, sediment, and sludge could pose a health threat to people in the area.

## Cleanup Approach

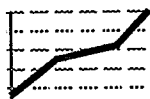
The site is being addressed in a single *long-term remedial phase* directed at cleanup of the entire site.

## Response Action Status



**Entire Site:** The EPA initiated an investigation in mid-1987 to determine the type and extent of contamination at the site and to identify alternative remedies for the cleanup. This investigation is expected to be completed in late 1991 or early 1992.

## Environmental Progress

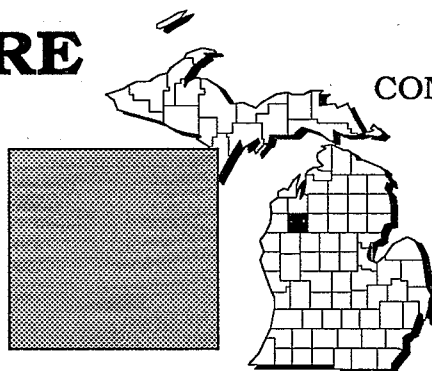


After listing the North Bronson Industries site on the NPL, the EPA reviewed the site conditions and the results of earlier sampling and determined that the site does not present an immediate danger to the surrounding communities or the environment while investigations leading to the selection of final cleanup remedies are taking place.



# NORTHERNAIRE PLATING MICHIGAN

EPA ID# MID020883609



**REGION 5**  
CONGRESSIONAL DIST. 10  
Wexford County  
Cadillac

## Site Description

The 13-acre Northernnaire Plating site began operations in 1971, manufacturing chrome, nickel, black oxide, and zinc. Problems first surfaced in 1978, when citizens became concerned over poor drinking water quality from two private wells near the site. The State Health Department found elevated levels of chromium in the water. The wells were taken out of service, and the City of Cadillac extended water service to the affected residents. The State requested that Northernnaire investigate the well contamination and resolve issues concerning possible sewer line leaks and waste *containment*. In 1978, the City revoked the company's wastewater discharge permit and plugged the connection to the City's sewer system. Subsequently, Northernnaire stored its wastewater in tanks, which were removed by truck for off-site disposal. The company ceased operations in 1981, leaving waste materials and drummed chemicals outside the building. In 1982, the unsecured waste materials burned two children playing at the unfenced site. The State immediately moved the drums into the building for safety. The area surrounding the site is primarily industrial, with a few private residences in the immediate area and the Kysor Industrial Corp. NPL site also located nearby. A mobile home park is approximately 500 feet from the site. Many private wells surround the facility. A municipal well field is 1/4 mile from the site. For additional information, please see the separate listing for Kysor Industrial Corp.

**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 is contaminated with heavy metals such as cadmium and chromium. Soil contained heavy metals. *Sediments* were contaminated with cadmium, chromium, and *volatile organic compounds* (VOCs). People who trespassed on the site and accidentally ingested or came into direct contact with contaminated soil or sediment may have been exposed to pollutants. Drinking or touching contaminated groundwater also may pose a health threat.

## Cleanup Approach

This site is being addressed in three stages: emergency actions and two *long-term remedial phases* focusing on source control and groundwater cleanup.

### Response Action Status



**Emergency Actions:** In 1983, 3,450 gallons of *acid*, 5,402 gallons of cyanide-bearing wastes, 160 drums of cyanide wastes, and 5,000 gallons of waste hypochlorite used to treat cyanide contamination were removed from the site. Approximately 120 feet of the plating facility's sewer line were also removed. Equipment was removed from the building, and the building was steam cleaned.

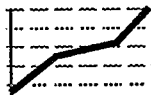


**Source Control:** In 1985, the EPA selected a remedy to clean up the source of the contamination by: (1) excavating soils and sewer line sediments and disposing of them at a federally approved facility; (2) cleaning the dust and residue off the floor of the facility; (3) breaking up an area of concrete floor and the drywall in the building, sampling the soil underneath, and excavating and disposing of it off site, if necessary; and (4) *backfilling* all excavated areas with clean soil. The State finished all the cleanup actions in 1989, except disposal of the concrete floor and pad. The remaining actions are scheduled for completion in 1990.



**Groundwater:** Because the groundwater has intermingled with another Superfund site, the Kysor Industrial Company, the groundwater cleanup will address both the Kysor and Northernnaire sites. In 1989, the EPA selected a remedy to clean the sites by constructing a groundwater extraction and treatment system. This system will consist of a number of extraction wells strategically located to intercept contaminated groundwater. An underground piping system will interconnect the extraction wells and transport the extracted groundwater to the treatment facility where it will be treated by *air stripping*. The treated groundwater will be discharged into the Clam River. Appropriate action will also be taken to ensure that current or future landowners do not use the contaminated groundwater *aquifers* as a source of drinking water. Kysor is designing the technical specifications for the groundwater cleanup. Once the design phase is completed in 1991, the cleanup activities will begin.

### Environmental Progress



The removal of hazardous wastes from the site have greatly reduced the potential for exposure to contaminated wastes and drums at the Northernnaire Plating Company site while further cleanup actions are taking place.





# NOVACO INDUSTRIES

MICHIGAN

EPA ID# MID084566900



REGION 5

CONGRESSIONAL DIST. 16

Monroe County  
Temperance

## Site Description

The 2 1/2-acre Novaco Industries site was an active tool and die manufacturing and repair facility that used chromic *acid* to plate auto parts molds. In 1979, a tank at the site leaked an unknown quantity of acid into the ground. Soon thereafter, chromium was discovered in the site's well and in the well used by the Veterans of Foreign Wars (VFW) Post 9656. A year later, chromium was detected in a residential well. Novaco began cleanup actions a month after the spill was detected. The site consists of Novaco Industries, the VFW post, and the Moyer residential property. Approximately 85 residences or businesses lie within 1/2 mile of the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater samples from the shallow *aquifer* contain chromium. Chromium contamination has not been found in monitoring wells or residential wells located in the deep aquifer. Ingestion of contaminated groundwater is the only health risk at the site, though this is considered unlikely. The two domestic wells that are located in the shallow aquifer have been abandoned.

## Cleanup Approach

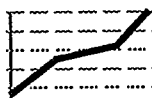
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** Following an investigation of groundwater contamination at the site between 1983 and 1986, the EPA selected the following remedy: (1) extraction and treatment of approximately 36 million gallons of groundwater; (2) discharge of treated water into Indian Creek; (3) groundwater monitoring for 30 years; and (4) *cap* and abandon 15 groundwater monitoring wells. The EPA began design of the remedy in 1987. In 1988, the Army Corps of Engineers conducted a pump test and collected groundwater samples as part of the design phase. Analysis of these samples indicated that the chromium concentrations had fallen below the Federal drinking water standard. The EPA stopped implementation of the original remedy but continues to monitor the groundwater. In 1989, the chromium levels were still below drinking water standards, and additional soil testing indicated levels below human health standards.

## Environmental Progress



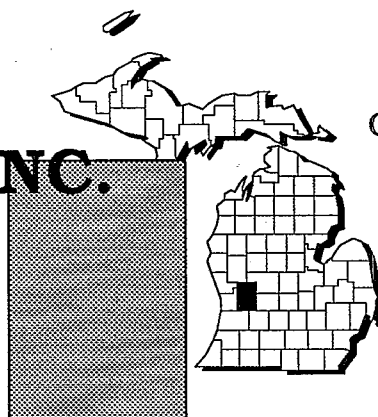
The groundwater and soil samples taken at the Novaco Industries site indicate that no contamination threats currently exist, and the site poses no threats to nearby residents and the environment. The EPA will continue to monitor the groundwater while considering the removal of the site from the NPL.



# ORGANIC CHEMICALS, INC.

MICHIGAN

EPA ID# MID990858003



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Grandville

## Site Description

Beginning in the early 1930s, the 20-acre Organic Chemicals, Inc. (OCI) site was used to refine, transport, and store petroleum. A succession of petroleum-related industries operated on the property until its purchase in 1968 by Spartan Chemical Company. Spartan bought the property to be used by its subsidiary, Organic Chemical Company (now Organic Chemicals, Inc.), and in 1979, OCI became the owner of the property. Current operations at the site include recycling approximately 100,000 gallons of used solvents each month and manufacturing small amounts of chemicals used in pharmaceuticals and industry. Process waste and cooling water from OCI's operations were discharged to a *seepage* pond from approximately 1968 to 1980. In 1979, OCI reported to the Michigan Department of Natural Resources (MDNR) that there had been chemical spills on the property. OCI closed the seepage pond in 1980 and installed a wastewater treatment facility, which discharges treated water into the city sewer system. The site is in a *wetlands* area, and there are lakes and ponds *downgradient* from the site. Approximately 2,850 people live within 1 mile from the site, and 9,000 people live within 3 miles of the site. All residents are connected to the Grandville city water system and use city water for drinking and cooking.

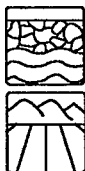
**Site Responsibility:** This site is being addressed through Federal and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



On-site groundwater contains *volatile organic compounds* (VOCs). Soil under a cooling pond showed slight contamination. People could be exposed to hazardous substances from the site by accidentally ingesting or touching contaminated groundwater and soil.

## Cleanup Approach

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

### Response Action Status



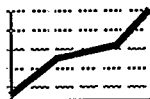
**Immediate Actions:** In 1981, OCI removed *sludges* that had accumulated at a former cooling water pond and filled the pond with clean material. In 1987, OCI excavated and removed approximately 150 drums from the site. OCI classified all wastes from the drums as paint sludges and disposed of them as hazardous waste.



**Entire Site:** The EPA is conducting an extensive study using the information that OCI collected during its initial site investigation. The EPA drilled and installed 23 monitoring wells on and off site as part of the study. Test pits dug on site revealed extensive oil contamination, probably due to the refinery operation and bulk storage terminal. As a result, another phase of the investigation, scheduled for completion in 1991, will assess the extent of oil contamination.

**Site Facts:** In 1986, the MDNR investigated a complaint that OCI personnel were illegally disposing hazardous wastes at the facility. As a result of this investigation, the EPA cited the company for violations regarding the handling and disposal of hazardous wastes. In 1987, OCI voluntarily conducted an investigation of the site in cooperation with the MDNR.

## Environmental Progress



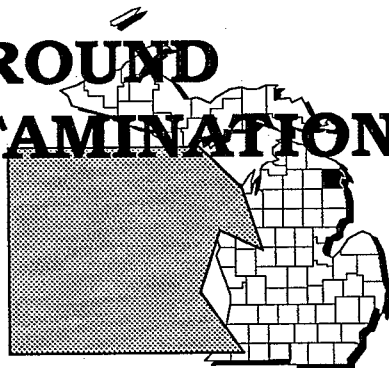
The removal of sludges and drums has reduced the potential for exposure to hazardous materials at the Organic Chemical, Inc. site while studies are taking place and cleanup activities are being planned.



# OSSINEKE GROUND WATER CONTAMINATION

MICHIGAN

EPA ID# MID980794440



**REGION 5**  
CONGRESSIONAL DIST. 11  
Alpena County  
Ossineke

## Site Description

The 11-acre Ossineke Ground Water Contamination site resulted from a series of unrelated spills and incidents that contaminated the groundwater of local residents within the LaBell subdivision. These incidents included leaking underground storage tanks, accidental spills of fuel on the ground, and suspected releases of fuel and other organic compounds into the ground. Contamination was first detected in 1977 when the Alpena District Health Department (ADHD) began receiving complaints of odors in the drinking water of residents near the site. The ADHD and the Michigan Department of Public Health (MDPH) discovered that five residential wells in the area were contaminated with petroleum and chlorinated hydrocarbons. These contaminated wells all drew water from the shallow *aquifer* below the site. Between 1979 and 1984, the MDPH and local residents replaced 14 wells that were contaminated and replaced them with ones that drew groundwater from a deeper aquifer under the site. In 1982, additional contamination problems surfaced when gasoline odors in the basements of two local businesses were reported. The Michigan Department of Natural Resources (MDNR) studied the site in 1984 to determine the potential source of contamination. Groundwater monitoring wells and soil gas surveys detected various petroleum products and chlorinated hydrocarbons in the shallow aquifer under the site. The study pinpointed three areas where the sources of groundwater contamination appear to be located: the Barn (a gas and convenience store), the Marathon Service Station, and southwest of the intersection of Alphonse and LaRose streets. A 5-acre *wetland* is located 1/2 mile from the site, while Devils River is 3/4 mile from the site. Approximately 1,140 people live within a 3-mile radius of the Marathon Gas Station.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater under the site contains *volatile organic compounds* (VOCs) and *phenol*. Currently, no residents are drinking contaminated water. However, people could be exposed to hazardous chemicals through accidental ingestion or direct contact with groundwater. Wetlands also may be threatened.



## Cleanup Approach

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

### Response Action Status

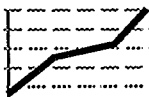


**Initial Actions:** Fourteen wells that showed contamination were replaced by the State and local residents from 1979 to 1984.



**Entire Site:** The EPA began field activities for a study of contamination at the site in 1989. The EPA is taking samples of the groundwater, surface water, *sediments*, air, and soil gases to define clearly the sources of contamination and the extent of the problem. Cleanup alternatives are expected to be selected in 1990.

### Environmental Progress



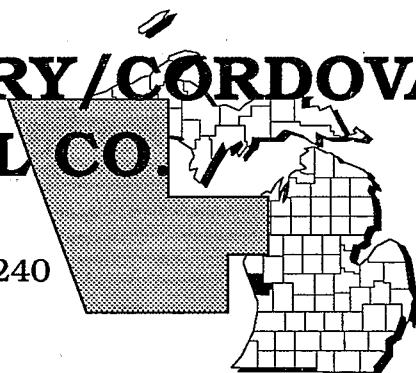
Replacement of contaminated wells has reduced the potential for exposure of nearby residents to site-related contaminants from the Ossineke Ground Water Contamination site while studies are taking place and cleanup activities are being planned.



# OTT/STORY/CORDOVA CHEMICAL CO.

MICHIGAN

EPA ID# MID060174240



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Dalton Township

**Aliases:**  
Ott Story & Corn Products Chemical Company  
Cordova Chemical Company of Michigan

## Site Description

The 20-acre Ott/Story/Cordova Chemical Co. site is a former chemical plant surrounded by wooded land. Since the 1950s, the Ott, Story, and Cordova chemical companies owned and operated three separate chemical plants on the same property. The chemical plants used various synthetic and organic chemicals to manufacture drugs, veterinary medicines, agricultural chemicals, and other similar materials. Wastes from the chemical manufacturing processes were placed in unlined *lagoons* and stored in drums on the property. Ott Chemical began producing chemicals at the site in 1957. In 1965, Ott Chemical contaminated the groundwater under the site with chlorides and *phenols*. The company's improper storage and handling of wastes resulted in contaminated on-site soils. Ott Chemical, under a license from the Michigan Water Resources Commission, also discharged purged water to Little Bear Creek, but discontinued the practice in 1967 when area residents noticed odors and adverse effects on aquatic life. Story Chemical took over the site in 1972, and by the time it went bankrupt in 1976, thousands of drums filled with chemical wastes were stockpiled on site. A *plume* of contaminants traveled 1 mile off site to an unnamed tributary of Little Bear Creek. The plume contaminated the tributary, the creek, and several private wells in the area. Story Chemical replaced the water supplies of all local residences and businesses whose wells were affected or threatened by the contamination plume. Cordova Chemical bought the property in 1977 and continued to produce a limited number of petroleum-based products, but ceased all chemical manufacturing operations in 1985. Approximately 3,500 people live within a 3-mile radius of the site and use groundwater as their source of potable water. A tributary of adjacent Little Bear Creek drains into Bear Creek, which flows into Muskegon Lake.

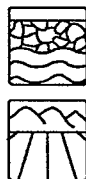
**Site Responsibility:** This site is being addressed through Federal and State actions.

### NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater and soil on and near the site contain various *volatile organic compounds* (VOCs). Surface water is contaminated with VOCs and heavy metals including copper and mercury. People could be exposed to site-related contaminants through ingestion or direct contact with contaminated groundwater, soil, and surface water.

## Cleanup Approach

This site is being addressed in three stages: immediate actions and two *long-term remedial phases* focusing on groundwater cleanup and cleanup of the *aquifers* and soil.

### Response Action Status



**Immediate Actions:** The Michigan Department of Natural Resources (MDNR) cleaned up the surface of the site in 1978, removing 2,000 containers, 8,000 cubic yards of *sludge*, and contaminated soils from waste ponds on the property. Further investigations in 1978 found tanks of highly toxic phosgene gas, which the State eventually neutralized and disposed of. VOCs also were found in residential wells near the site. A permanent water supply was installed. All aboveground drums were removed from the site and a municipal water line was extended to residents with wells that were contaminated or threatened with contamination. Unused buildings on the site were dismantled and properly disposed of at an off-site location.



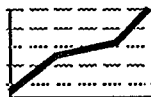
**Groundwater:** The EPA completed a study of the site and concluded that contamination of surface water and sediments near Little Bear Creek and its tributary resulted from groundwater *seeping* into these surface water bodies. The EPA selected the following alternatives for cleanup of the site: (1) installing groundwater extraction wells near Little Bear Creek and the unnamed tributary; (2) constructing a groundwater treatment plant on site to treat the groundwater pumped from the well; (3) treating the groundwater; and (4) discharging the treated groundwater to Little Bear Creek. The EPA is designing the technical specifications for the groundwater remedy and expects to complete the design in 1991.



**Aquifers and Soil:** The EPA completed a study to address aquifer restoration, soil *hot spot* areas on the old chemical plant grounds, and the Little Bear Creek contaminated groundwater intercept. The EPA is reviewing the results of the study and is in the process of developing recommendations for cleanup of these areas.

**Site Facts:** In 1968, the State ordered Ott Chemical to stop all direct discharges of process wastewaters into the groundwater and to treat its wastewater before discharge into the Muskegon River. In 1977, the MDNR ordered Story Chemical to clean up the site, control pollution to the groundwater, and replace water supplies for 50 households. Cordova Chemical entered into a *Consent Order* with the State after it purchased the property in 1977.

### Environmental Progress



By removing drums and providing an alternate water supply, exposure to contamination at the Ott/Story/Cordova Chemical Co. site has been greatly reduced while final cleanup activities are being planned.

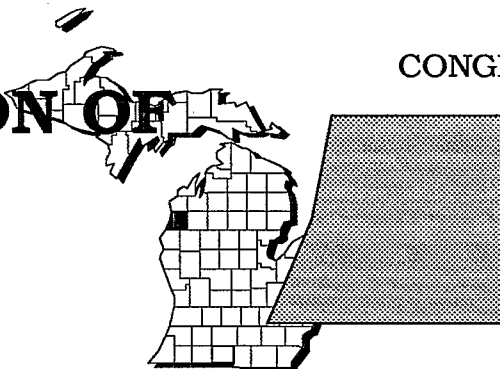




# PACKAGING CORPORATION OF AMERICA

MICHIGAN

EPA ID# MID980794747



**REGION 5**  
CONGRESSIONAL DIST. 09  
Manistee County  
Filer City

## Site Description

The 50-acre Packaging Corporation of America (PCA) site was a waste disposal area that contained eight *lagoons*. PCA and its prior owner, American Box Board Company (ABBCo), operated a pulping mill for producing materials for corrugated boxes. ABBCo first began this pulping process in 1949 and directly discharged spent cooking liquor into the Manistee Lake. This dumping severely reduced the level of oxygen in the lake and killed fish before the discharge was stopped in 1951. ABBCo then began discharging the spent cooking liquor into a series of unlined *seepage* lagoons located on the side of Manistee Lake. ABBCo operated the lagoons through 1974. Wastes from the lagoons *percolated* into the underlying shallow *aquifer*, discoloring and contaminating the groundwater. In 1972, PCA took over the property and, by 1974, completely phased out using the lagoons to store waste products. In 1972, PCA began operating a secondary wastewater treatment plant to treat wastes before discharging them into Lake Michigan. Of the eight lagoons that remain at the site, PCA is using one as a *landfill* for solid waste. Approximately 10,200 people live within a 3-mile radius of the lagoons. A Martin Marietta plant is located west of the site over the *plume* of contaminated water and uses groundwater for drinking and industrial uses. The contaminant plume discharges into Manistee Lake. The Manistee River connects the lake with Lake Michigan, 3 miles from the plume.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater contains *volatile organic compounds* (VOCs) and heavy metals including iron and lead. People in the area of the site could be exposed to hazardous contaminants through the groundwater. Manistee Lake is receiving and will continue to receive most of the contaminant plume from the PCA site if no further action is taken to protect the lake. The lake supports a fishery. There is evidence the *dewatered* lagoons and their surrounding areas are used for hunting and by recreational vehicles. Wildlife potentially could come in direct contact with chemicals in the lagoon area.

## Cleanup Approach

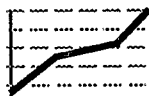
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** In 1984, the EPA began an investigation of the site. PCA took over the investigation in 1985 and is characterizing the materials in the lagoons, defining the geology around the site to determine the extent of the contamination, and outlining contaminant plumes *migrating* from the lagoons using groundwater monitoring wells. PCA is expected to complete the investigation in 1991.

## Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Packaging Corporation of America site while studies are taking place and cleanup activities are being planned.



# PARSONS CHEMICAL WORKS, INC.

MICHIGAN

EPA ID# MID980476907



**REGION 5**  
CONGRESSIONAL DIST. 10

Eaton County  
Grand Ledge

Alias:  
**Parsons/ETM Enterprises**

## Site Description

The Parsons Chemical Works, Inc. site covers 6 1/2 acres of land in Oneida Township, near Grand Ledge. Parsons Chemical Works engaged in mixing, manufacturing, and packaging agricultural chemicals from 1945 until 1979, when the plant was closed. In the mid-1950s, Parsons installed a septic tank and tile field system to handle its sewage and wastewaters. A floor drain discharged wastewater from the building to the soils outside. The tank/tile system was connected to a storm drain on site, which discharged to an unnamed stream that merges with the Grand River. Materials handled during Parsons' operation included pesticides, herbicides, solvents, and mercury-based compounds. Concerns arose in 1979 and 1980, when the Michigan Department of Natural Resources (MDNR) collected *sediment* samples from a creek on site and the Grand Ledge ditch, located on the northern boundary of the site. The MDNR analyzed the water from these samples and found lead, mercury, arsenic, and pesticides including chlordane and DDT. ETM Enterprises, a manufacturer of fiberglass, purchased the property in 1979 and carried out a study to determine the source of contamination at the site. The septic tank and *leach* field, which lead from the site to a catch basin in the county drain system, were identified as the source of contamination. In 1983, ETM excavated the area and disposed of the septic tank and the soil in the leach field. As part of the National Dioxin Study, the EPA targeted the Parsons site for dioxin screening in 1984. Samples collected in this study revealed the presence of various dioxins in sediments of the Grand Ledge ditch and in the sediments that were discharged to the drainage tile on the site. In 1985, the MDNR and the Michigan Department of Health fenced off the areas that were contaminated. ETM continues to operate the facility, but the fenced and unused areas of the site have extensively eroded. Contaminants in this area have continued to *migrate* from the site to the unnamed creek and Grand River. About 11,000 people obtain drinking water from three Grand Ledge municipal wells or private wells within 3 miles of the site. Groundwater near the site is shallow, and geologic conditions there make it easy for contaminants to move into the groundwater. People in the area use the river for recreational activities.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

## Threats and Contaminants



Sediments and soils contain dioxin, heavy metals including lead, mercury, and arsenic, and pesticides including DDT and chlordane. The continued migration of contaminants presents a threat to public health and the environment. In 1983, studies conducted by the MDNR and the EPA attributed low levels of dioxin and chlordane in fish collected from the creek and Grand River to the site. Also, the possibility exists that the food chain in the Grand River is contaminated, because of contaminants found in the fish.

## Cleanup Approach

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

### Response Action Status

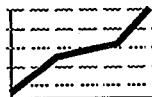


**Initial Actions:** In response to discovery of dioxin contamination in 1985, the MDNR and the Michigan Department of Health fenced the contaminated areas.



**Entire Site:** In 1989, the EPA began a detailed study of the nature and extent of contamination at the site. This study is examining alternative methods for addressing contamination at the site. Currently, the EPA is considering six methods for removing the contamination at the site: (1) incinerate contaminated soils/sediments with a rotary kiln; (2) remove contaminated soils/sediments to an off-site incinerator; (3) vitrify contaminated soils/sediments in place; (4) build a *landfill* on site to dispose of contaminated media; (5) send the contaminated materials to an off-site landfill; and (6) biologically treat the contaminants. The EPA currently recommends in-place vitrification, whereby the contaminants in the soils and sediments are immobilized by mixing them with binding compounds or heat fusing them. The EPA has worked closely with the MDNR to develop this solution and is conducting pilot studies and tests to determine if the alternative is feasible. The EPA will select a final remedy after initial study is completed.

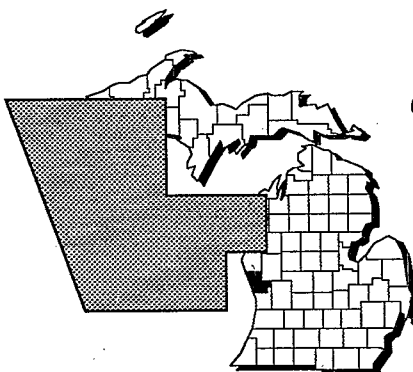
## Environmental Progress



Fencing contaminated areas of the site has reduced the potential for exposure to site-related contaminants from the Parson Chemical Works site while investigations are taking place and cleanup activities are being planned.



**PEERLESS  
PLATING CO.**  
MICHIGAN  
EPA ID# MID006031348



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Muskegon

### **Site Description**

The Peerless Plating Co. site covers 1 acre of an abandoned electroplating facility located in Muskegon. Electroplating operations were carried out at the plant from 1937 to 1983. Toxic, corrosive, reactive, and flammable chemicals were used in the electroplating process. The plant discharged its wastewaters into three unlined *seepage lagoons* at the back of the facility. The wastewaters dumped into the lagoons contained heavy metals and were highly *acidic* or *basic*. When the plant closed in 1983, it was abandoned and plating solutions, raw materials, and drummed waste remained throughout the facility. In 1983, the Michigan Department of Natural Resources (MDNR) discovered that drains inside one of the buildings did not connect with the site's sanitary sewer or wastewater treatment system; instead, the wastes drained directly on the ground. The State also discovered drums on site. In 1983, the Michigan Department of Public Health detected hydrocyanic acid gas in the facility's atmosphere. The owner's failure to take immediate action to remove the gas prompted the State to contact the EPA to assist in reducing the threat to human health caused by the gas. The surrounding area is mixed residential, commercial, and light industrial development. Approximately 3,350 people live within a 3-mile radius of the site. Seven schools, a hospital, and a correctional facility are located within 1 mile. The nearest residence is within 600 feet of the site, and a mobile home park is located 1/2 mile to the southwest. Approximately 1,500 people obtain drinking water from private wells within a 3-mile radius. The shallow *aquifer* the city uses is the only groundwater alternative to the municipal water supply that draws from Lake Michigan. By 1988, all private wells within a 1/2-mile radius were abandoned and replaced by the municipal water main. Little Black Creek is to the southeast and empties into Mona Lake, which is 2 miles downstream from the site. The EPA found site-related contaminants in these surface waters.

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

**NPL LISTING HISTORY**

Proposed Date: 06/24/88

## Threats and Contaminants



The shallow groundwater on site contains heavy metals including cadmium and chromium; *volatile organic compounds* (VOCs) including trichloroethylene (TCE), benzene, and xylene; and cyanide. Sediments in streams and surface waters on and off site are contaminated with cadmium. People could be exposed to hazardous chemicals from the site through direct contact or accidental ingestion of contaminated groundwater or sediments.

## Cleanup Approach

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

### Response Action Status



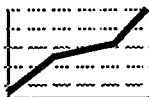
**Immediate Actions:** Between September and October 1983, the EPA removed 37,000 gallons of sulfuric, nitric, and chromic acids, cyanide plating solution, chromium plating solution, hydrochloric acid, and trichloroethene. The EPA also took the following actions at the site: (1) the lagoons were drained; (2) soil was removed from the lagoon areas; (3) the interior of the building was cleaned; (4) vats, lines, and tanks were decontaminated; (5) sewer lines were sealed; (6) cyanide and nitric acid were neutralized on site; and, (7) hazardous materials were removed to a federally regulated facility. Approximately 7,000 gallons of cyanide/metal *sludges* and liquids remain stored in enclosed tanks on site.



**Entire Site:** In 1989, the EPA began a study of the nature and extent of contamination at the site, especially the groundwater and the effect of site-related contaminants on surface waters. The results of the field investigations will be used to evaluate the methods that best address site contamination. The EPA expects to complete its studies by late 1991.

**Site Facts:** In June 1983, State and local authorities took regulatory action against the owner of the facility, which resulted in its closing.

## Environmental Progress



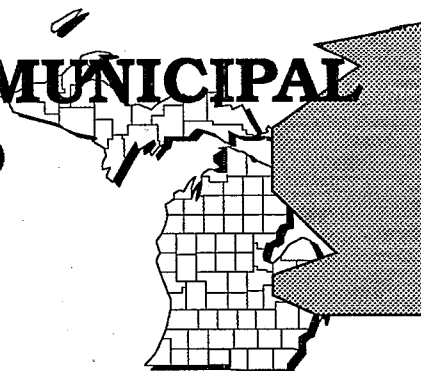
The draining of the lagoon and removal of hazardous liquids and soils have reduced the potential for direct exposure to contaminants on the Peerless Plating site while investigations leading to the selection of cleanup alternatives for the site are taking place.



# PETOSKEY MUNICIPAL WELL FIELD

MICHIGAN

EPA ID# MID006013049



**REGION 5**  
CONGRESSIONAL DIST. 11  
Emmet County  
Petoskey

**Alias:**  
**Petoskey Manufacturing Co., Inc.**

## Site Description

The Petoskey Municipal Well Field was the only source of drinking water for the residents of Petoskey. The well field is located about 200 yards northwest of the Petoskey Manufacturing Company, the suspected source of contamination of the well field. The company has operated a die casting plant at this location since 1946 and a painting operation since the mid- to late 1960s. The Michigan Department of Natural Resources (MDNR) suspected the company of dumping solvents and paint *sludges* onto the ground adjacent to the west side of its building. The MDNR collected soil samples at the plant in 1982 and found high levels of organic chemicals. In 1982 and 1983, the MDNR conducted a monitoring program for groundwater in the well field and found low levels of *volatile organic compounds* (VOCs). A *plume* of contaminated groundwater had *migrated* 600 feet northwest of the plant to one of the municipal wells in the field. The plume also is within 100 feet of Little Traverse Bay. There are approximately 7,000 people within a 3-mile radius of the site. The population during the summer months increases to about 11,000. A high school, college, and hospital receive water from the municipal supply system. Three to four private wells are about 1/2 mile west of the contaminated municipal well. The nearest residence is less than 250 feet from the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater and soils at the site contain VOCs including *trichloroethylene* (TCE). People have been exposed to hazardous chemicals from the site by drinking and touching contaminated water from the municipal well.



People could be exposed to hazardous chemicals at the Petoskey Manufacturing by touching contaminated soil.

## 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



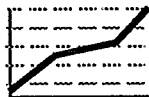
**Immediate Actions:** Petoskey Manufacturing Company commissioned an extensive study of the groundwater geology in and around the site to address its responsibility for contaminating the well field. The company also removed the most highly contaminated soils on its property in 1982. Petoskey Manufacturing carried out additional studies of the groundwater in 1984. As a result of these findings, Petoskey Manufacturing excavated the contaminated area and filled it with clean soil and sand. The company also covered the area with a synthetic liner and 6 inches of gravel.



**Entire Site:** Petoskey Manufacturing Company began a study of the nature and extent of contamination at the well field in 1987. When the EPA completes the study due to Petoskey's bankruptcy, the agency will use the results to identify various methods to address contamination of the well field.

**Site Facts:** Petoskey Manufacturing Company removed the most highly contaminated soils after negotiating with the MDNR. The EPA issued Petoskey Manufacturing Company an *Administrative Order* in 1984, which required the company to carry out additional *hydrogeologic* studies near its property. The company signed a *Consent Order* in 1987 to carry out a complete study of the site; however, Petoskey Manufacturing has filed for bankruptcy, and the EPA has taken over the investigation.

### Environmental Progress



The removal of contaminated soil from the Petoskey Manufacturing property has reduced the potential for continued contamination of the Petoskey Municipal Well Field, while investigations are under way leading to the selection of the final remedy for site cleanup.

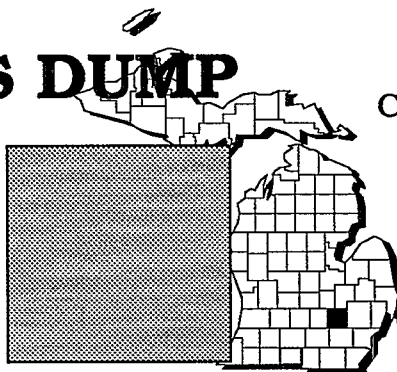




# RASMUSSEN'S DUMP

MICHIGAN

EPA ID# MID095402210



REGION 5

CONGRESSIONAL DIST. 06

Livingston County  
Green Oak Township

## Site Description

The Rasmussen's Dump site, which was previously a sand and gravel pit area used as a *landfill*, is located on 35 acres in Green Oak Township. The landfill was unlicensed and was known to have accepted both domestic and industrial solid and liquid wastes. The landfill operated from the 1960s until 1972, when the Livingston County Health Department closed the site. During the 1970s, the northwestern section of the site was used as a gravel mine. In 1979, mining operations uncovered drums buried in an old dump area. In 1983, two piles of 1,500 to 2,000 drums were observed on site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



A *plume* of contaminated groundwater extends to the northwest from the landfill. *Sediment* sampling by the State revealed *polychlorinated biphenyl* (PCB) contamination near a drum pile on the eastern side of the site. Soil near the drums showed high concentrations of PCBs and organics. People may face health risks from accidental ingestion and direct contact with contaminated groundwater, sediments, and soil.

## Cleanup Approach

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

### Response Action Status



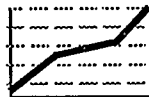
**Immediate Actions:** In 1984, the EPA constructed an access road to aid in site cleanup actions. Drums were excavated and transferred to a staging area on the site, where they were opened and sampled. Soil that was mixed in with the excavated drums was stockpiled in a lined area. Wastes were separated, and all liquid wastes were bulked and transported off site for disposal at federally approved disposal facilities. Solid and semi-solid drummed waste was shredded. All solids and shredded solids were stockpiled, and the former drum pile and staging areas were resampled. All contaminated soils were removed and clean fill was spread over a large portion of the landfill to eliminate the drifting and blowing debris problem created by excavation of the landfill's surface *cap*. Approximately 344 tons of PCB solids, 400 gallons of *base-neutral* liquids, 800 gallons of flammable liquids, 1,720 cubic yards of contaminated soils and solids, and 3,000 empty drums were disposed of off site at EPA-approved facilities. Under EPA monitoring, 11 of the potentially responsible parties are excavating, analyzing, and disposing of surface and buried drums, associated wastes, and contaminated soils. These actions are expected to be completed in 1990.



**Entire Site:** The State, with EPA assistance, is conducting an investigation into the nature and extent of the contamination at the site. The investigation will define the contaminants of concern and will recommend alternatives for final cleanup. The investigation is scheduled for completion in 1990.

**Site Facts:** Under the terms of an EPA *Administrative Order*, the potentially responsible parties are performing immediate actions at the site.

## Environmental Progress



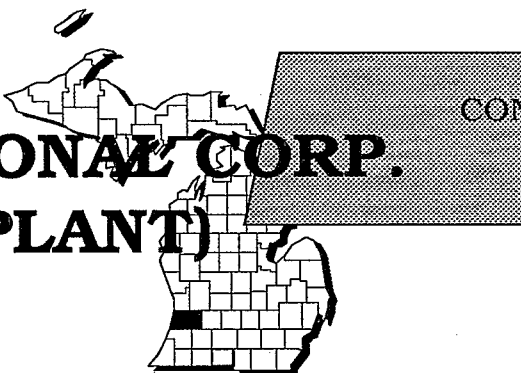
By removing most of the contaminated soils, solids, and drums of hazardous materials and taking them off site, the potential for exposure to contaminants at the Rasmussen's Dump site has been greatly reduced, while investigations leading to the selection of final cleanup remedies are taking place.



# ROCKWELL INTERNATIONAL CORP. (ALLEGAN PLANT)

MICHIGAN

EPA ID# MID006028062



REGION 5

CONGRESSIONAL DIST. 09

Allegan County  
Allegan

## Site Description

The 30-acre Rockwell International Corporation (Allegan Plant) site has been used to manufacture universal joints for heavy trucks and construction equipment since the early 1900s. From 1910 to 1920, the Allegan Mirror and Plate Glass Company manufactured glass products at what is now known as the Rockwell International Plant site. In 1920, the site was purchased by the Blood Brothers Machine Company and the production of universal joints began. From 1910 to 1960, wastewater containing *sludge*, heavy metals, process wastes, and oils were discharged into the Kalamazoo River. Later these waste streams were discharged into three unlined settling ponds that discharged to the Kalamazoo River. In the late 1960s, when these ponds reached a saturation point in terms of sludge depth, the ponds were abandoned and buried, and three new unlined ponds were constructed. In 1971, oil *seeps* were detected along the river bank adjacent to the new wastewater ponds. A 3-foot-deep clay dike constructed between the ponds and the Kalamazoo River in the early 1970s was effective for about a year. In 1972, a water treatment system was installed and included six concrete underground storage tanks. Three new treatment ponds were also constructed to contain treated water, untreated non-contact cooling water, and sludge. The original collection pond, with the sludge still in it, was filled in and built over. In 1976, it was determined that the seepage to the river from groundwater originated from six leaking underground storage tanks; the leakage has since been eliminated. There are an estimated 8,150 people living within 3 miles of the site. The area is served by a public water supply system. About 6,900 people within 3 miles of the site depend on the shallow groundwater as a source of drinking water. The closest residential well is 1,500 feet from the site.

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

### NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

## Threats and Contaminants



On-site groundwater potentially is contaminated with heavy metals including lead, arsenic, and cyanide. River *sediment* contains heavy metals. It is believed that the three abandoned ponds contain cyanide from used quenching fluids. Heavy metals and *polycyclic aromatic hydrocarbons* (PAHs) have been detected in the Kalamazoo River. People may be exposed to health risks through direct contact with contaminated water while using the river for recreational purposes. The threat of exposure to residents from site contaminants has been minimized by site security. However, the estimated 80 workers at the plant may be exposed to chemicals through direct contact with contaminated surface soil and air particles.

## 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



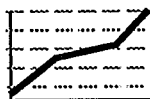
**Immediate Actions:** Three oil recovery wells were installed in the late 1970s to control the movement of the oil. These wells are still operating and return contaminated groundwater to the wastewater treatment system for reprocessing. Cutting fluid waste is treated before being discharged to the settling ponds. In 1978, 3,700 cubic yards of sludge from Pond Number Two were removed and disposed of off site in a State-approved *landfill*.



**Entire Site:** Rockwell, the party potentially responsible for the site contamination, currently is conducting an investigation into the nature and extent of contamination at the site with guidance from the EPA. Six potential contamination sources are being investigated: (1) the oil/water wastewater treatment facility; (2) the three active treatment ponds; (3) the former collection pond that was filled in 1972; (4) the former Allegan city dump upon which a parking lot was built; (5) the Allegan city wastewater treatment plant; and (6) sediments in the Kalamazoo River. The investigation will define the contaminants of concern and will recommend alternatives for the final cleanup. The investigation is planned to be completed in 1991.

**Site Facts:** In 1988, Rockwell and the EPA signed a *Consent Order* requiring the company to conduct a study of the nature and extent of site contamination.

## Environmental Progress



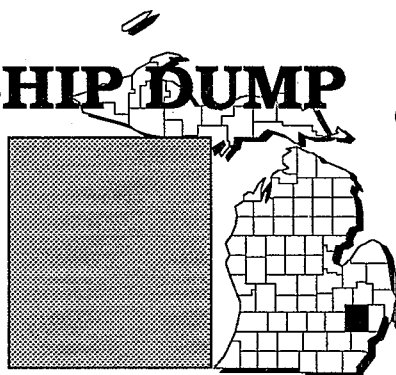
The oil recovery wells installed to direct contaminated water to the treatment system and the removal of a substantial amount of sludge have reduced the potential of direct exposure to hazardous materials at the Rockwell International site. Investigations are currently being conducted to select the final cleanup remedies for the various areas of the site.



# ROSE TOWNSHIP DUMP

## MICHIGAN

EPA ID# MID980499842



**REGION 5**  
CONGRESSIONAL DIST. 06  
Oakland County  
Rose Township

**Alias:**  
**Dorsey Dump**

### Site Description

The 110-acre Rose Township Dump site was once used for the disposal of paint *sludges* and other wastes on surface soils, in buried drums, and in *lagoons*. Unregulated dumping of industrial wastes, including solvents, paint sludges, and *polychlorinated biphenyls* (PCBs), occurred at the site between 1966 and 1968. The wastes were buried in a 12-acre portion of the site. Bulk wastes were also discharged to the surface or into shallow lagoons or pits in the area. Liquid wastes from an unknown number of tank trucks were dumped onto the ground and approximately 5,000 drums were disposed of on the site. In 1980, the State removed the 55-gallon drums and scraped PCB-contaminated soil into three large piles. The area is fenced, and warning signs have been posted. The total population of Rose Township is about 4,600 people. The site is surrounded primarily by *wetlands* and woods. There is an abundance of wildlife on site. Surface water *runoff* drains into marshes and wetlands that border the site. Less than a dozen residences are adjacent to the site. A road borders the site on the north, and there is a concentration of buildings northeast of the site, near Buckhorn Lake. Some nearby lakes are used for recreation and the marshes are unfenced. Approximately 4,600 residents depend on local groundwater for domestic uses. Residents use local *aquifers* for potable water; the nearest residential well is located 1,600 feet from the site. Two apparently distinct *plumes* of groundwater contamination are emanating from the site, but there are no residential wells within the contaminant plumes.

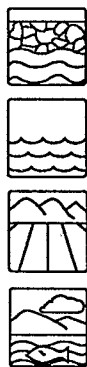
**Site Responsibility:** This site is being addressed through a combination of Federal, State, and *potentially responsible parties'* actions.

#### NPL LISTING HISTORY

Proposed Date: 04/10/85

Final Date: 07/21/87

### Threats and Contaminants



Groundwater, surface water, and soils are contaminated with heavy metals and *volatile organic compounds* (VOCs) including toluene, *trichloroethylene* (TCE), and benzene. PCBs were detected in off-site *sediment* samples. Soil also is contaminated with phthalates and DDT. The potential health risks to people at this site include direct contact with or accidental ingestion of contaminated groundwater, surface water, soil, and sediment. Hunting and fishing are known activities in the area; therefore, eating fish and wildlife could present a health threat. Wetlands also may be threatened. A natural gas pipeline underlies the site and could affect excavation cleanup operations.

## Cleanup Approach

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

### Response Action Status



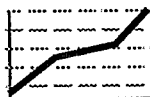
**Immediate Actions:** In 1980, the Michigan Department of Natural Resources (MDNR) removed approximately 5,000 drums of liquid wastes from the site. In 1985, the EPA identified, segregated, staged, and sampled drums for disposal purposes. Two areas of the site were fenced to restrict contact with PCB- and lead-contaminated surface soils. A heavy-duty vehicle gate was installed at the access road entrance. Warning signs were posted along all newly fenced areas. In 1986, 31 drums were *overpacked*, labeled, and shipped off site for disposal. One load of bulk wastes totaling 20 cubic yards was also shipped for disposal.



**Entire Site:** The selected cleanup technologies addressing site contamination include: (1) excavation of as much as 25,000 cubic yards of contaminated surface soil, incinerating the excavated soils, and returning them to the site or disposing of them in an off-site *landfill*; (2) installation of a groundwater extraction and treatment system to clean contaminated groundwater prior to discharging it to the wetlands adjacent to the site; (3) installation of groundwater monitoring wells on and near the site and monitoring groundwater underneath the site for the next 30 years; (4) installation of a fence around the site; (5) collection and analysis of samples from the wetlands adjacent to the site; and (6) testing the potential effectiveness of soil-flushing technology to clean up contaminated subsurface soil. The potentially responsible parties are preparing the technical specifications and design for the selected cleanup remedies. Cleanup activities are scheduled to begin once the design phase is completed in 1991.

**Site Facts:** As of 1986, 28 potentially responsible parties had been identified and notified of liability. In 1987, the EPA and the State began negotiating cleanup responsibilities with these parties. In 1988, the EPA and nine parties signed a *Consent Decree* requiring the parties to implement and pay for cleanup activities.

## Environmental Progress



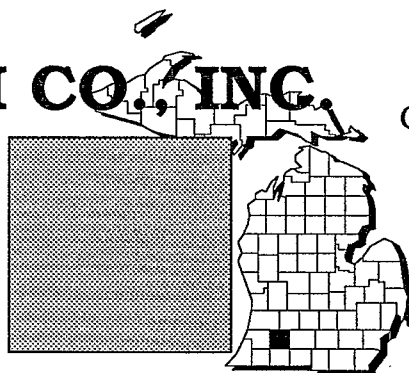
Removal of the contaminated drums and surrounding soils and fencing in the area resulted in the Rose Township Dump site no longer posing an immediate threat to the surrounding communities or the environment while the final cleanup remedies are being planned.



# ROTO-FINISH CO., INC.

MICHIGAN

EPA ID# MID005340088



REGION 5

CONGRESSIONAL DIST. 03

Kalamazoo County  
Portage

## Site Description

The 7 1/2-acre Roto-Finish Company, Inc. site is an abandoned specialty plastics manufacturing facility that operated from approximately 1950 until 1988. The company designed and manufactured specialized equipment to debur and polish castings, mechanical parts, and similar objects requiring smooth finishes. The site contains two buildings where plant operations were conducted, a large building along the west side of the site and a smaller building to the east. Three *seepage lagoons* were located on the eastern side of the site. Manufacturing and processing wastes were pumped into two unlined, settling lagoons. The lagoons often overflowed. An estimated 83,000 gallons of waste were pumped into these lagoons. Two stormwater retention basins on site were used to collect surface water *runoff*, which subsequently evaporated into the air or infiltrated and *percolated* through the soils. The site also contains several paved parking areas. In 1980, the lagoons were abandoned and the company began discharging all wastes to the municipal sewer system. In 1981, drums containing formaldehyde, sodium chromate, and MOCA (an organic chemical compound used as a curing agent in the fabrication of plastic molds) were observed on site. In 1982, lagoon *sludges* and surrounding soils were removed and filled with clean soil. Approximately 45,000 to 50,000 people live within 3 miles of the site. Groundwater from an unconfined *aquifer* in the area is used as a municipal, industrial, and domestic water source. Municipal wells within a mile of the site provide water for an estimated 100,000 residents. Davis Creek, also located within 1 mile of the site, leads into the Kalamazoo River, more than 3 miles downstream of the site. The Kalamazoo River is used for recreational activities including fishing and swimming.

**Site Responsibility:** This site is being addressed through Federal 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 *trichloroethylene* (TCE) and chromium. Soil may be contaminated with MOCA and *volatile organic compounds* (VOCs). Potential health risks to people include accidental ingestion of and direct contact with contaminated groundwater and soils. The site is bordered by a chain link security fence with locking access gates.

## Cleanup Approach

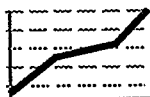
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The party potentially responsible for the site contamination currently is conducting an investigation into the nature and extent of contamination at the site. The investigation will define the contaminants of concern and will result in recommendations for the final cleanup. The investigation is planned to be completed in 1991.

## Environmental Progress



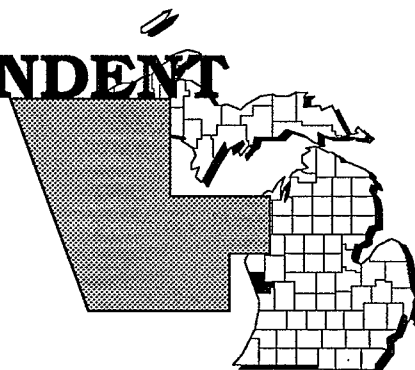
After listing the Roto-Finish site on the NPL, the EPA conducted preliminary evaluations of the site conditions and determined that the site does not present an imminent threat to the surrounding population or the environment while investigations leading to selection of the final cleanup remedies are taking place.





# SCA INDEPENDENT LANDFILL MICHIGAN

EPA ID# MID000724930



**REGION 5**  
**CONGRESSIONAL DIST. 09**  
Muskegon County  
Muskegon Heights

**Alias:**  
**Independent Landfill**

## Site Description

The 100-acre SCA Independent Landfill site operated as a domestic and industrial waste *landfill* from 1965 until the late 1970s. The landfill, which occupies about 1/3 of the site, closed in 1987. Two unlined refuse *cells* are spread over 10 1/2 acres of the site. Two inadequately lined cells occupy an additional 20 acres, and a 5-acre cell, which closed in 1987 and was covered with 3 feet of clay, is situated directly on top of the southern half of the two unlined cells. All of the lined waste cells have been vented to prevent the buildup of gases. There are approximately 10,000 people living within 3 miles of the site. There are also 6 schools and 7 churches within 3 miles of the site. The landfill is located in a swampy area about one-eighth of a mile south of Black Creek, a coldwater stream. The groundwater flow apparently empties into *wetlands* that border Black Creek, a stream that has been restocked successfully with trout since 1987. A mobile home park consisting of 315 home sites is under construction less than 1 1/2 miles from the site.

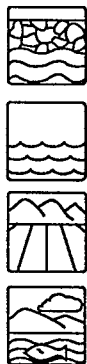
**Site Responsibility:** This site was addressed through Federal and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with heavy metals and *volatile organic compounds* (VOCs) including xylene, benzene, and toluene. Surface water potentially is contaminated with VOCs. Potential health threats to people include direct contact or ingestion of contaminated groundwater and surface water. Because the landfill is in a flood plain, flood waters could expose the landfill contents and spread the pollutants to the stream and low-lying areas. The landfill portion of the site is not completely fenced. The northern boundary of the landfill also is unfenced, permitting unimpeded entry into the landfill through the marsh. Wetland areas also may be threatened.

## Cleanup Approach

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

## Response Action Status

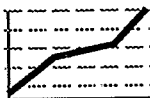


**Entire Site:** The *closure* plan implemented in 1983 by SCA Services, the potentially responsible parties, included a *leachate* management plan, groundwater monitoring, gas vents, a final cover, and seeding of the site. In 1985, SCA Services completed a *hydrogeologic* study. In 1986, the

State concluded that site contamination was minor and that no groundwater cleanup activities were required.

**Site Facts:** In 1983, SCA Services and the State signed a *Consent Agreement* to provide for the closure of the 2 unlined cells.

## Environmental Progress



While the EPA determined that no groundwater cleanup was necessary at the SCA Industries Landfill, the site is being closely monitored to ensure that contaminant levels do not exceed State and Federal guidelines.



# SHIAWASSEE RIVER

## MICHIGAN

EPA ID# MID980794473



**REGION 5**  
CONGRESSIONAL DIST. 06  
Livingston County  
Howell

### Site Description

The Shiawassee River flows through the communities of Byron, Vernon, and Corunna. All three of these communities are located downstream of the Cast Forge Company, which has manufactured aluminum cast products since 1969. Until 1973, wastewater contaminated by hydraulic fluids containing *polychlorinated biphenyls* (PCBs) was discharged to the South Branch of the Shiawassee River. From 1973 to 1977, wastewater was discharged into an on-site *lagoon*. Both the site property and the river contain PCBs at elevated levels. Approximately 1,380 people within 3 miles of the Cast Forge Company are served by the deeper *aquifer* beneath the site. Discharges from the on-site lagoon, as well as periodic overflows, have contaminated *wetlands* located near the site. Subsequently, the Shiawassee River has been contaminated. The river is used for many forms of recreation. PCBs have been found in fish as far as 52 miles downstream.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

### Threats and Contaminants



PCBs have been detected in fish, *sediments*, and soil. Wetland contamination has been identified. The health threat of greatest concern is eating PCB-contaminated fish. Other health threats include direct contact with contaminated river sediments and soils.

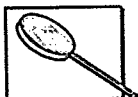
## Cleanup Approach

This 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

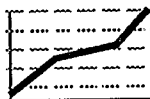


**Immediate Actions:** Cast Forge Company removed the lagoon and cleaned up the PCB-contaminated soil and sediment from the property. In 1982, dredging of the South Branch of the Shiawassee River began. The first mile of the river, downstream from the plant, was vacuumed, removing 2,600 pounds of PCBs.



**Entire Site:** The State, with EPA assistance, is conducting an investigation into soil and sediment contamination at the site. The investigation will define the contaminants and recommend alternatives for final cleanup. The investigation is planned to be completed in 1991.

## Environmental Progress



The removal of the lagoon and PCB-contaminated soil and sediments reduced the potential for exposure to contaminants from the Shiawassee River site while studies are taking place and cleanup activities are being planned.



# **SOUTH MACOMB DISPOSAL AUTHORITY (LANDFILLS #9 AND #9A)**

**MICHIGAN**

EPA ID# MID069826170

**REGION 5**  
CONGRESSIONAL DIST. 12  
Macomb County  
Macomb Township



## **Site Description**

The 159-acre South Macomb Disposal Authority site is made up of two adjacent municipal *landfills*, Landfills #9 and #9a, that have been inactive since 1975. In the early 1960s, municipal officials formed the South Macomb Disposal Authority to help in the management and disposal of municipal refuse. Between 1968 and 1975, the landfills received approximately 1,880,000 cubic yards of municipal refuse. Reportedly, no hazardous wastes were disposed of in the landfills; however, hazardous chemicals have been detected on and around the site. Prior to 1968, the site was used as an excavation pit and for agricultural purposes. Landfill #9 reached capacity in 1971 and was subsequently covered with a soil *cap* and vegetation. Investigations in 1971 concluded that *leachate* was discharging from Landfill #9 to the McBride Drain. Landfill #9a stopped receiving municipal refuse in 1975 and also was covered with a soil cap and vegetation. In 1975, the State inspected the site and concluded that leachate was *migrating* from Landfill #9a. From 1977 through 1981, the South Macomb Disposal Authority implemented various activities to stop leachate *seepage* from the landfills which included improving erosion controls, tilling, regrading, covering the surface of the site, and installing a leachate collection tank. Two leachate collection systems are in operation on site. Surface erosion of the landfills is evident around the perimeter of the site. Water sampling of residential wells near the site in 1983 and 1984 indicated contamination. The site is partially fenced. Approximately 75 homes are located within a 1-mile radius of the site. Three contaminated *aquifers* are present beneath the site. The residents of 12 homes near the site have been advised not to use water from their wells and have been connected to the City of Detroit Municipal Water Supply System. McBride Drain, an open channel, receives *runoff* from the site and flows to the North Branch of the Clinton River, 1 1/2 miles from the site. Both McBride Drain and the Clinton River are used for recreational and agricultural purposes.

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

### **NPL LISTING HISTORY**

Proposed Date: 10/15/84

Final Date: 06/10/86

## Threats and Contaminants



Groundwater monitoring wells have detected the presence of *volatile organic compounds* (VOCs), heavy metals, and nitrate. Surface soils are contaminated with heavy metals and VOCs. The primary potential health risk to people includes drinking or touching contaminated water. Other potential health threats include accidental ingestion of or direct contact with contaminated soil.

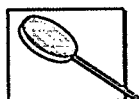
## Cleanup Approach

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:** Leachate controls have been implemented, including erosion control measures, covering the landfill, and installing a collection system and holding tank. Residences with contaminated wells were connected to the municipal water supply.



**Entire Site:** The EPA completed its investigation into the nature and extent of site contamination and potential effects on human health and the environment in 1990. The investigation included soil gas testing, air sampling, surface soil sampling and testing, leachate sampling, groundwater sampling, and subsurface soil sampling. Currently, alternatives for site cleanup are being evaluated.

## Environmental Progress



Early actions including capping the landfills, installing leachate collection systems, and providing an alternate water supply to affected residents have substantially reduced the potential of exposure to contaminants from the South Macomb Disposal Authority site while plans for final cleanup are being formulated.



# SOUTHWEST OTTAWA COUNTY LANDFILL

MICHIGAN

EPA ID# MID980608780



**REGION 5**

CONGRESSIONAL DIST. 09

Ottawa County  
Park Township

**Alias:**

South Ottawa Disposal Corporation

## Site Description

The 43-acre Southwest Ottawa County Landfill site operated as a *landfill*, under license by the State, until its *closure* in 1981. The landfill was constructed by Ottawa County in 1968 and received solvents, heavy metals, *sludge*, oils, municipal refuse, and drums containing unspecified wastes. When the State closed the site in 1981, it required the County to cover the landfill and to provide residences with potentially affected wells hookups to the municipal water system. Approximately 100 people live within 1/2 mile of the site. Lake Michigan also is approximately 1/2 mile from the site, while Lake Macatawa is approximately 2 miles from the site. Most private residences with wells potentially affected by the landfill *leachate* have been connected to the City of Holland water supply.

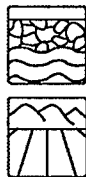
**Site Responsibility:** This site is being addressed through Federal, State, and *potentially responsible parties'* actions.

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



The groundwater is contaminated with *volatile organic compounds* (VOCs), *polychlorinated biphenyls* (PCBs), heavy metals, *phenol*, and chloroform. The contamination of the subsurface soil below the landfill is contributing to the groundwater contamination. The primary health threat of concern is drinking contaminated groundwater or eating plants irrigated with contaminated groundwater. Except for a gate across the main entrance to the site, there is no fencing to prevent access.

## Cleanup Approach

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

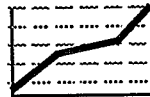
### Response Action Status



**Groundwater:** Most of the private residences with wells potentially affected by the landfill leachate have been connected to the City of Holland water supply. The County installed a series of extraction wells and an activated *carbon adsorption* system. The groundwater restoration system became operational in 1987. Two purge wells were installed by the County near the landfill, and an additional five wells were installed 1/2 mile from the site to capture residual groundwater contamination. All treated water is discharged under a State permit.

**Site Facts:** Under a *Consent Order*, the landfill was closed in 1981. In 1984, a Groundwater Restoration Agreement between the County and the State resulted in the subsequent installation of extraction wells and a carbon adsorption water treatment system.

## Environmental Progress



The provision of an alternate water supply by Ottawa County has eliminated the potential for exposure to contaminated groundwater near the Southwest Ottawa County Landfill site. The operation of the groundwater restoration system will continue to reduce groundwater contamination levels until site goals are achieved.

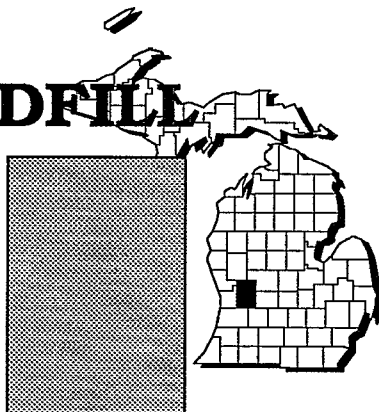




# SPARTA LANDFILL

MICHIGAN

EPA ID# MID000268136



**REGION 5**  
CONGRESSIONAL DIST. 05

Kent County  
Sparta Township

## Site Description

The 27-acre Sparta Landfill site operated as a *landfill*, accepting municipal refuse, foundry sand, and industrial waste until 1977. Prior to 1965, Sparta Township and a private company operated the landfill. The landfill was purchased by Kent County, the current owner, in 1970. Kent County installed deep wells to replace four contaminated residential wells and provided bottled water for other affected homes. Nine monitoring wells have been installed at the site. There is a large *sludge* disposal area containing approximately 8,000 cubic yards of waste that is suspected of contaminating the groundwater with heavy metals. Approximately 8,600 people live within 3 miles of the site, and 200 residences are within a 1/2-mile radius. Approximately 80 of these 200 residences are using the shallow *aquifer* for their water supply. The Rogue River is 1/5 mile from the site. The City of Rockford municipal water supply *intake* is 5 miles downstream from the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs). Potential health threats to people include drinking or touching contaminated water and breathing contaminated water vapors related to household uses.

## 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

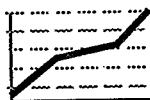


**Emergency Actions:** At the request of the State, Kent County installed deep wells for two nearby affected residences and provided bottled water for other affected homes.



**Entire Site:** The EPA will conduct an investigation into the nature and extent of contamination at the site. The investigation will define the contaminants and recommend alternatives for final cleanup. The investigation is scheduled to begin in late 1990.

### Environmental Progress



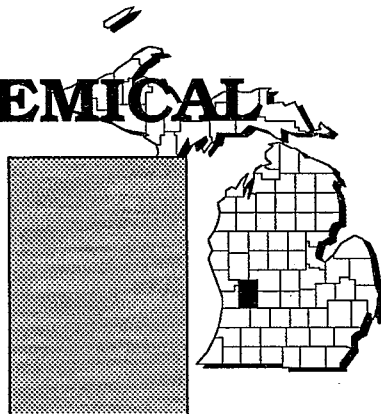
Providing an alternate source of water to affected residences eliminated the potential of exposure to contaminated drinking water from the Sparta Landfill site and will continue to protect residents near this site while investigations are under way and cleanup activities are being planned.



# SPARTAN CHEMICAL COMPANY

MICHIGAN

EPA ID# MID079300125



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Wyoming

## Site Description

The 2-acre Spartan Chemical Company site repackages, reblends, and distributes liquid industrial chemicals. Chemicals currently are not manufactured on site. Prior to 1963, the company discharged its wastewater to the groundwater. In 1981, five residential wells near the site were found to be contaminated with *volatile organic chemicals* (VOCs). These wells have been abandoned, and all five residences have been connected to the public water supply. An underlying clay layer has prevented contamination of deeper *aquifers*. When contamination was discovered in 1975, explosive conditions existed in the storm sewer into which the groundwater discharged during the *dewatering* activities. In 1986, an underground storage tank containing toluene was found to be leaking. The tank has been emptied and is no longer in use. Approximately 7,200 people, some of whom use private wells, live within 3 miles of the site. The closest residence is 1/4 mile from the site. There are no public water supply wells in this area, public supplies are drawn from Lake Michigan.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with VOCs, primarily from solvent and chemical discharge spills and leaks. Soils are suspected of being contaminated with VOCs. It is believed that there are currently no potential health threats to people at this site because disposal to groundwater stopped in 1963 and all aboveground storage tanks rest on concrete pads surrounded by *containment* walls.

## Cleanup Approach

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

### Response Action Status



**Groundwater:** The potentially responsible party conducted a study to identify the location of groundwater contamination. The party constructed a purge well and an *air stripping* groundwater treatment system. The purge well has been operational since 1987, with a noticeable effect in reducing groundwater contamination. The State currently is considering investigating the installation of a second purge well off site to assure that groundwater contamination within the *plume* is contained and treated.



**Soils:** The State, with EPA assistance, is planning to conduct a study to address on-site soil contamination. Preliminary information suggests that cleanup activity may involve the use of vapor extraction of VOCs in the soil. The study is expected to be completed in 1991.

**Site Facts:** A *Consent Order* was signed by a potentially responsible party requiring the party to conduct a site investigation.

## Environmental Progress

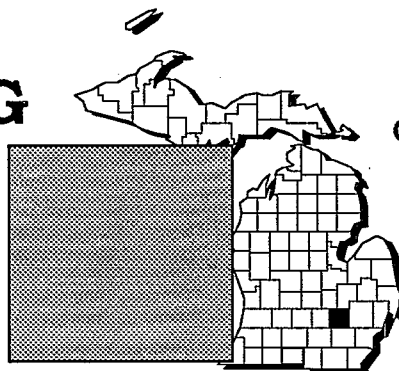


The groundwater treatment system has greatly reduced the potential for exposure to contaminated materials at the Spartan Chemical Company site while studies leading to the selection of final soil remedies and ongoing groundwater cleanup activities are taking place.



# SPIEGELBERG LANDFILL MICHIGAN

EPA ID# MID980794481



**REGION 5**  
**CONGRESSIONAL DIST. 06**  
Livingston County  
Green Oak Township

## Site Description

The 115-acre Spiegelberg Landfill site is a waste disposal pit that is currently being mined for sand, gravel, and peat deposits. From 1966 to 1977, the site was used for the disposal of domestic waste, with the main disposal area located in an abandoned sand and gravel pit. From 1967 to 1978, paint *sludge* was dumped near the surface water portion of the gravel pit. The pit is now covered with gravel and only private domestic wastes have been disposed of at the site since 1978. The paint sludge area is thought to be the site's major source of contamination. In 1986, wastes were covered with a plastic liner, and a layer of sand was placed over the liner and wastes. The Spiegelberg site is adjacent to Rasmussen's Dump, another NPL site. Several hundred people live within 1 mile of the site. More than 18,000 people live within 3 miles of the landfill and use groundwater as a drinking water source. There are approximately 250 wells within 1 mile of the site. The site is used for recreational purposes including hunting and snowmobiling.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Air is contaminated with styrene and *volatile organic compounds* (VOCs). *Polychlorinated biphenyls* (PCBs), heavy metals including chromium and lead, and VOCs are present in the groundwater and soil. Potential health threats to people include accidentally ingesting or touching contaminated groundwater or soil.

## Cleanup Approach

This site is being addressed in two stages: initial actions and two *long-term remedial phases* focusing on source control and groundwater cleanup.

### Response Action Status



**Initial Actions:** In 1984, the EPA removed drums and approximately 250 cubic yards of contaminated soil. In 1986, the State constructed a fence around most of the site. In 1987, the owner of the property allowed the 7,000 cubic yards of sand to be removed from the fenced area for commercial purposes.



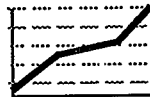
**Source Control:** The selected cleanup remedy to address the source of the contamination includes: (1) excavation of 15,000 cubic yards of waste material; (2) off-site incineration of approximately 5,000 cubic yards of excavated waste material; and (3) disposal of the remaining 10,000 cubic yards of waste into a *landfill*. The potentially responsible party, under EPA monitoring, completed excavation, separation, and incineration of wastes and landfilling of the residue in 1989.



**Groundwater:** The State, under EPA monitoring, completed an investigation into the nature and extent of groundwater contamination at the site and recommended alternative remedies for the final groundwater cleanup. The EPA currently is evaluating the results of the investigation and is planning to select the final technology and standards for groundwater cleanup in 1990.

**Site Facts:** The EPA, the State, and a potentially responsible party reached an agreement requiring the party to clean up the liquid and solid wastes at the site.

### Environmental Progress



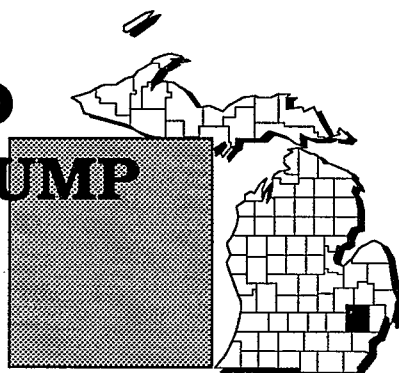
The removal of drums and contaminated soil has greatly reduced the potential for exposure to contaminated materials at the Spiegelberg Landfill site while studies are taking place and cleanup activities are being planned.



# SPRINGFIELD TOWNSHIP DUMP

MICHIGAN

EPA ID# MID980499966



**REGION 5**  
CONGRESSIONAL DIST. 06  
Oakland County  
35 miles northwest of Detroit

**Alias:**  
**Oakland County Landfill**

## Site Description

The 4-acre Springfield Township Dump was used for chemical waste disposal from 1966 to 1968. Liquid wastes and *sludges* were dumped into a disposal pit at the site. During this same period, approximately 1,500 drums of waste materials also were dumped at the site. Drums of waste materials were stored at various locations throughout the dump. By 1980, 1,500 drums and 711 tons of contaminated soil were removed from the site by the Michigan Department of Natural Resources (MDNR). There are 25 residences located within 1 mile of the site, with the nearest residence located 800 feet from the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) and heavy metals including arsenic and lead. Soil contains *polychlorinated biphenyls* (PCBs), VOCs, phthalates, pesticides, and heavy metals including arsenic, barium, cadmium, and lead. PCBs and dieldrin were detected in sludge. Health threats to people include touching contaminated soils and sludge, breathing of contaminated dusts or vapors, and accidental ingestion of contaminated soil or groundwater.

## Cleanup Approach

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

### Response Action Status



**Initial Actions:** A locked gate blocking the access road, warning signs, and a security fence were installed at the site. Also, the state removed 1,500 drums and 711 tons of polluted soil from the site by 1980.



**Entire Site:** The EPA and the State have completed an investigation into soil and groundwater contamination at the site and recommended alternative remedies for final cleanup. The EPA is currently evaluating the results of the investigation to choose the final remedy. Remedy selection is expected in 1990.

### Environmental Progress



Removing drums and contaminated soil and installing a fence have significantly reduced the potential for exposure to contaminated materials at the Springfield Township Dump site while cleanup activities are being planned.

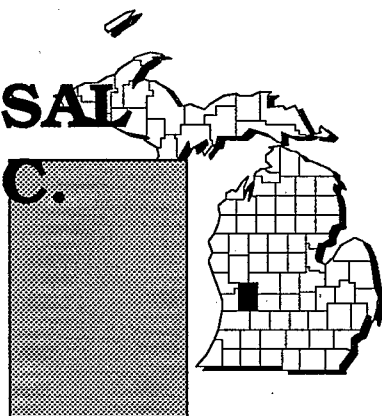




# STATE DISPOSAL LANDFILL, INC.

MICHIGAN

EPA ID# MID980609341



**REGION 5**  
CONGRESSIONAL DIST. 05  
Kent County  
Plainfield Township

## Site Description

The 30-acre State Disposal Landfill site operated from 1966 to 1972. From 1972 to 1976, the *landfill* was owned and operated by Waste Management, Inc. In 1975, the landfill received a permit from the Michigan Department of Natural Resources (MDNR) to accept general refuse. Since 1976, Waste Management has maintained the landfill. The landfill was closed in 1977 and now is covered with a layer of clay and equipped with methane gas vents. In 1985, MDNR detected *volatile organic compounds* (VOCs) and heavy metals in monitoring wells *downgradient* of the site. Local health officials warned some well owners near the site to seek an alternative drinking water source. In 1985, Waste Management conducted a *hydrogeological* investigation of the site and installed monitoring wells. Approximately 13,000 people obtain drinking water from public and private wells within 3 miles of the site. Municipal water wells supplying Plainfield Township, which are 2 miles from the site, have been affected; however, alternate wells are now being used.

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

### NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

## Threats and Contaminants



The groundwater is contaminated with VOCs and heavy metals including barium and nickel. The contaminated groundwater could be hazardous to the health of people if it is accidentally touched or swallowed.

## Cleanup Approach

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

### Response Action Status

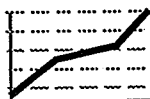


**Immediate Actions:** The State extended a permanent municipal water line to all affected residences in 1989. Some potentially affected residences are expected to be connected in 1990.



**Entire Site:** Waste Management of North America is conducting an investigation, under State monitoring, to determine the extent of contamination on the site. The State is conducting an off-site investigation of the contamination *plume*.

### Environmental Progress

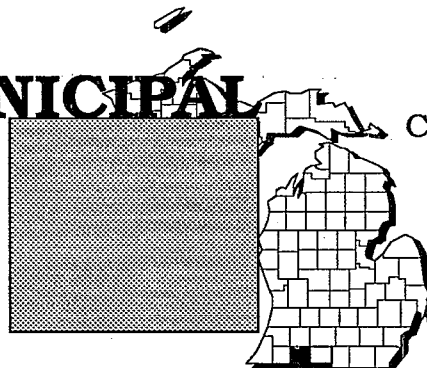


The extension of the municipal water line has eliminated the potential of residents being exposed to contaminated drinking water from the State Disposal Landfill site and will continue to protect nearby residents while investigations are under way and cleanup activities are being planned.



# STURGIS MUNICIPAL WELLS MICHIGAN

EPA ID# MID980703011



REGION 5  
CONGRESSIONAL DIST. 04  
St. Joseph County  
Sturgis

## Site Description

Routine sampling by the Michigan Department of Public Health (MDPH) in 1982 revealed that two of the four municipal wells serving the City of Sturgis were contaminated with *volatile organic compounds* (VOCs). These two wells (the Layne well and the Jackson well) are located on the west side of the City and supplied approximately 1/2 of the total city water at the time the contamination was detected. The MDPH advised the City of Sturgis to cease using these wells except during peak demands. Pumping capacity was increased on the two uncontaminated wells and the residents were advised to reduce their potable water usage. In 1983, two production wells at Ross Laboratories, located 2,000 feet northwest of the municipal wells, revealed VOC contamination. These wells were voluntarily removed from production and are now being solely used for cooling purposes. The Layne well was abandoned in 1985. The Jackson well was still used occasionally to verify whether it was functional for emergency use. In 1985, another municipal well, the Kirsch well, revealed VOC contamination. This well was subsequently shut down. Of the four original municipal wells, only the Oaklawn well remains uncontaminated. Approximately 10,000 people live within the City of Sturgis, the majority of whom are served by the municipal water distribution system. The City currently relies on the Oaklawn well and two new wells to meet its water needs.

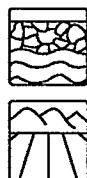
**Site Responsibility:** This site is being addressed through Federal and State actions.

### NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

## Threats and Contaminants



The groundwater is contaminated with *trichloroethylene* (TCE) and perchloroethylene (PCE) compounds. TCE, PCE, and other VOC compounds have been detected in the soil. Touching or accidentally ingesting the contaminated groundwater and soil are potential health threats to individuals.

## Cleanup Approach

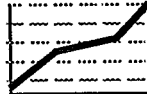
This site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The Michigan Department of Natural Resources (MDNR) is conducting an investigation to determine the nature and extent of contamination. The investigation consists of groundwater monitoring, well installation, groundwater quality sampling, and soil gas testing. The extent of contamination and three sources has been identified. Alternatives for site cleanup are being evaluated and remedy selection is scheduled for 1991.

## Environmental Progress



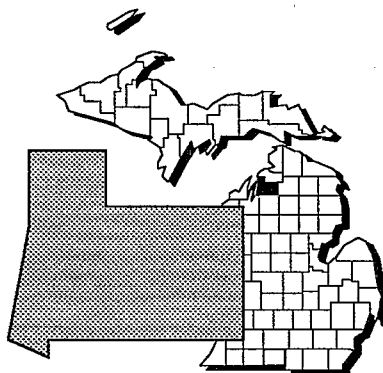
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Sturgis Municipal Wells site while studies are being completed and cleanup activities are being planned.



# TAR LAKE

## MICHIGAN

EPA ID# MID980794655



### REGION 5

CONGRESSIONAL DIST. 11

Antrim County  
Mancelona Township

#### Aliases:

Gulf and Western Antrim Property (Tar Lake)  
Antrim Iron Works

### Site Description

The 200-acre Tar Lake site contains the structural remains of various manufacturing companies that produced iron. A secondary manufacturing process produced a waste similar to *stillbottoms*, which was discharged into a depression on site. Operations ceased in 1944. As long ago as 1949, groundwater contamination by *phenolic* compounds had been documented as far as 3 miles from the site. A fence has been installed around the site. The total population served by well water in a 3-mile radius of the site is approximately 3,000; about 800 people are served by private wells, and the rest receive municipal water. The municipal wells are located 1 mile from the site.

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

#### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

### Threats and Contaminants



Phenols and lead have been detected in the groundwater. Phenols and heavy metals including iron, lead, nickel, chromium, and copper have been detected in the *sludge*. The contaminated groundwater could pose a health hazard if it is accidentally touched or swallowed.

## Cleanup Approach

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

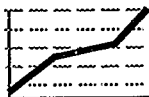
## Response Action Status



**Entire Site:** The Fifty-Sixth Century Antrim Iron Company is conducting a study to determine the nature and extent of site contamination. The study is expected to be completed in 1991.

**Site Facts:** In 1986, the EPA issued an *Administrative Order* to the Fifty-Sixth Century Antrim Iron Company to conduct the site study and identify steps necessary to clean up the site.

## Environmental Progress



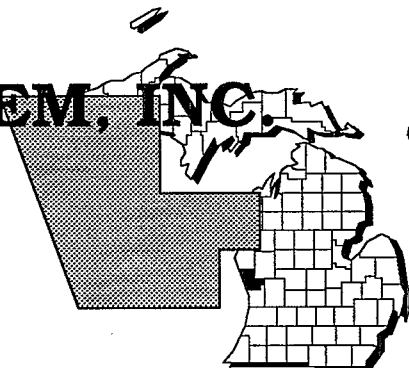
After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Tar Lake site while studies are taking place and cleanup activities are being planned.



# THERMO-CHEM, INC.

MICHIGAN

EPA ID# MID044567162



## REGION 5

CONGRESSIONAL DIST. 09

Muskegon County  
Egleston Township

### Site Description

Thermo-Chem, Inc. was involved in solvent reprocessing and liquid waste disposal on this 10-acre site near Muskegon. Thermo-Chem, Inc. began operating in 1969 and continued until 1980. The company received paint waste, antifreeze waste, and spent *halogenated* and non-halogenated solvents. Distillation was used to regenerate usable solvents, and resultant *sludges* and residues were incinerated at the site. In addition, materials that were unsuitable for processing were reportedly incinerated at the site. Wastewater generated during the distillation processes and equipment cleaning was discharged into a series of three interconnected *seepage pits*. Two of the seepage pits were unlined, and the other was lined with clay to *contain* spills and contaminated wastes. All drums and bulk liquid wastes were removed from the site by late 1982. There are no available records documenting on-site disposal of hazardous materials. The process used for disposition of incinerator ash is not known. Black Creek, which flows into Mona Lake, is only 2,000 feet away from the site. Approximately 10,000 people live within a 3-mile radius of Thermo-Chem. The entire population in this area is served by groundwater from either community wells or private wells. A new mobile home park is under construction less than 1/2 mile from the Thermo-Chem site. The water supply for the park will come from 4 wells drilled to a depth of 80 feet.

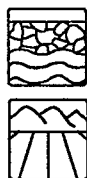
**Site Responsibility:** This site is being addressed through Federal and *potentially responsible parties'* actions.

#### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

### Threats and Contaminants



The groundwater and soil are contaminated with *volatile organic compounds* (VOCs) including *trichloroethylene* (TCE), toluene, and xylene. The contaminated groundwater and the soil could pose a health hazard to individuals if it is touched or accidentally ingested. Surface drainage from the site is poor, and the permeable sand that exists below the site facilitates the movement of contaminants into the groundwater. Contaminants from the site potentially may pollute Black Creek and Mona Lake.

## 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



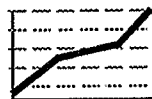
**Immediate Actions:** After a spill occurred in 1987, the EPA sampled, tested, and removed 50 to 100 barrels of contaminated soil.



**Entire Site:** The parties potentially responsible for the site contamination are carrying out an investigation to determine the nature and the extent of the contamination. The investigation, which is expected to be completed in 1991, also will evaluate the various engineering methods that can be used to clean up the site.

**Site Facts:** A *Consent Order* was signed in 1987 between the EPA and a committee composed of the potentially responsible parties. The committee assumed the responsibility of conducting a site investigation and recommending methods that could be used to clean up the site.

## Environmental Progress



By removing contaminated soil from the spill area, the potential for direct contact with hazardous materials has been greatly reduced while investigations leading to the final selection of permanent remedies for the groundwater contamination are taking place.

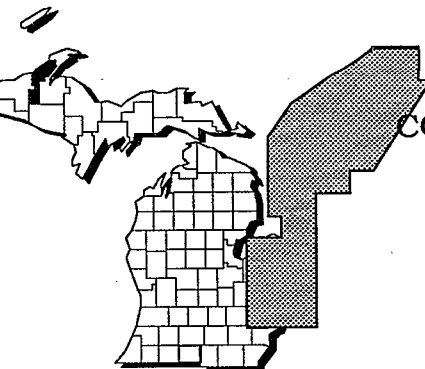




# TORCH LAKE

## MICHIGAN

EPA ID# MID980901946



**REGION 5**  
CONGRESSIONAL DIST. 11  
Houghton County  
Keweenaw Waterway

### Site Description

Torch Lake is a 2,700-acre lake located in the Keweenaw Waterway in Michigan's Upper Peninsula. Copper mining activities in the area from the 1890s until 1969 produced *mill tailings* that contaminated the lake *sediments* and shoreline. About 200 million tons of copper mill tailings were dumped into the lake. The contaminated sediments are believed to be 70 feet thick in some areas, and surficial sediments contain up to 2,000 parts per million (ppm) copper. The tailings deposited in the lake and on the shoreline were dredged up during the early part of the 1900s and were processed with flotation chemicals to reclaim copper. The tailings and much of the flotation chemicals were returned to the lake and the shoreline. The lake has also received mine pumpage, *leaching* chemicals, explosive residues and by-products, municipal and industrial trash, and sanitary wastes. In 1972, an estimated 27,000 gallons of cupric ammonium carbonate were released into the lake from storage vats. Barrels have been found at several sites along the shoreline of the lake. The only active industry on the Torch Lake shoreline is the Peninsula Copper Company, which reclaims copper oxide from scrap electronic circuit boards. During the early 1980s, the company dumped processing water containing 2,400 times the local sewage authority's allowable limits for copper and 100 times the limit for ammonia into the Tamarack *lagoon* system. Recently, the Michigan Department of Natural Resources (MDNR) funded a plan to monitor the lake and to restock fish populations. The population within 1 mile of the lake is approximately 4,000. Most of the drinking water in the area comes from springs or a municipal well located 1/4 mile north of the lake, near the Trap Rock River. A public boat launch, beach, and park have been built on the northern shore of Torch Lake near the Village of Lake Linden.

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

#### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

## — Threats and Contaminants —



The sediments and surface water are contaminated with copper and cupric ammonium carbonate. The contaminated sediments and surface water could pose a health hazard if touched or accidentally ingested. The Michigan Department of Health issued a fish consumption advisory, since the contaminants have already affected the lake's fish and aquatic vegetation. There is also concern about the physical hazards present on the site. These include abandoned buildings, old machinery and equipment, and other discarded metal objects such as rusting barrels, which can be found on the shoreline and in the water.

## Cleanup Approach

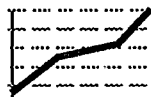
The site is being addressed through a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The EPA began field investigation activities in 1988 at Torch Lake to determine the nature and extent of contamination. A geophysical survey was conducted to locate drums buried in the tailings piles on the western shore of Torch Lake and at the bottom of the lake. Approximately 20 drums were located on the surface, and samples were taken to determine if the drums contain any toxic materials. In addition to this activity, the EPA also took nine samples from private wells around Lake Linden and Mason. A more detailed survey of the drum locations will be performed at a later date. The results of the investigation, expected to be completed in late 1991, will be used to evaluate various cleanup alternatives and to identify a final remedy.

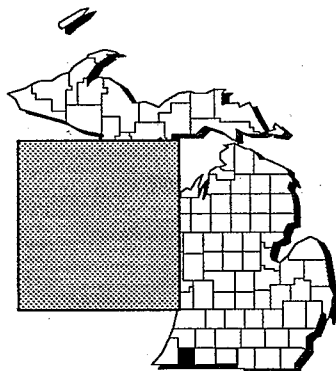
## Environmental Progress



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



**U.S. AVIEX**  
**MICHIGAN**  
EPA ID# MID980794556



**REGION 5**  
**CONGRESSIONAL DIST. 04**  
Cass County  
Howard Township

## Site Description

U.S. Avix manufactured non-lubricating automotive fluids at their 2-acre Huntly Road Plant in Howard Township from the early 1960s until 1978. Although the plant is no longer in operation, some buildings are used for storage purposes. In 1972, an underground pipeline containing diethyl ether (DEE) was broken during excavation on the southeastern side of the plant. Within three to four months, low levels of ether had been detected in nearby residential wells. A fire in 1978 also helped contribute to groundwater contamination in the area. Thousands of gallons of water were used to extinguish the fire over a 2-day period. Barrels and indoor tanks of stored chemicals ruptured during the blaze. Their contents were either consumed in the fire or washed from the plant into unpaved areas, and subsequently, into the groundwater. Following the fire, residential wells were found to contain low levels of the organic liquids believed to be released from the plant. Throughout the 1970s and early to mid-1980s, the Michigan Department of Natural Resources (MDNR) and the Michigan Department of Public Health (MDPH) collected samples from on-site and neighborhood wells. Numerous single-family homes are located near the plant. The nearest houses are located within 100 feet of the property. All residences have their own water supply wells. Farming and manufacturing are the major occupations in the area surrounding the site. The closest agricultural activity is located about 1/2 mile southeast of the site. About a mile west of the site are an airport, a sewage treatment lagoon, and various light industries. There are 3 schools located about 2 miles from the site.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



The groundwater and soil are contaminated with *volatile organic compounds* (VOCs). Touching or accidentally ingesting the contaminated groundwater and soil could pose a health hazard to people on or near the site. Inhaling contaminated vapors from the groundwater or soil could also cause adverse health effects.

## Cleanup Approach

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

### Response Action Status



**Immediate Actions:** Since 1973, U.S. Aviex has provided bottled water to 32 homes with contaminated drinking water wells. U.S. Aviex also installed two new wells. In 1982, a groundwater investigation and on-site groundwater treatment program began. This program involves pumping groundwater out of the contaminated *aquifer*, treating the water by *air stripping* and discharging the treated water into the St. Joseph's River system.



**Entire Site:** In 1988, the EPA selected the following methods to clean up the site: soil flushing of approximately 11,500 cubic yards of contaminated on-site soil and collection of on- and off-site groundwater and fluids from the soil flushing process with on-site treatment by air stripping. The entire cleanup process is expected to be completed in 1992.

**Site Facts:** In early 1982, the State filed a suit against U.S. Aviex. The company was ordered to conduct a pump test as a first step to investigate and clean the contaminated groundwater. In 1986, U.S. Aviex filed for bankruptcy. Funds had been initially set aside for the investigation; therefore, the bankruptcy action did not affect the investigation.

## Environmental Progress



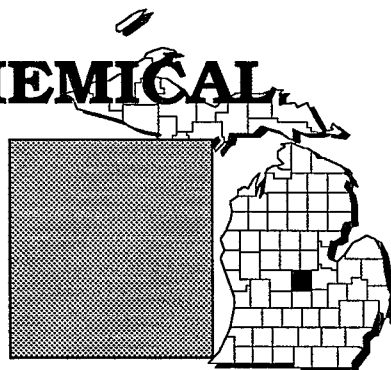
By providing local residents with a safe drinking water source and beginning to treat polluted groundwater, the potential for exposure to contaminated groundwater has been virtually eliminated. The operation of the groundwater treatment system will continue to protect nearby residents and the environment from the U.S. Aviex site while design activities for the cleanup of the contaminated soil are taking place.



# VELSICOL CHEMICAL (MICHIGAN)

MICHIGAN

EPA ID# MID000722439



**REGION 5**  
CONGRESSIONAL DIST. 10  
Gratiot County  
St. Louis

## Site Description

The Velsicol Chemical site consists of 50 acres in St. Louis. The site was used by other companies from the mid-1800s to 1936, but it is not known what activities took place on the site during that time. Located on the site were two injection disposal wells, a dredge pond, a *lagoon*, a radioactive waste disposal area, and one or more drum storage areas. In 1974, the Michigan Department of Public Health (MDPH) issued a fish consumption advisory for the Pine River downstream of the site. Fish kills occurred as late as 1979, and a red *leachate* was observed oozing into the river from the site. The population within 1 mile of the site is approximately 4,100. The nearest residence is less than 500 feet away. The Pine River is used for fishing, boating, swimming, and other recreational purposes. Water for drinking and other purposes is supplied from six municipal wells located to the east and southeast of the site with the nearest well being about 1,500 feet away. The site is located adjacent to the Pine River.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



On-site groundwater is contaminated with chloride, sulfate, *phenol*, and carbon tetrachloride. On-site soil samples revealed contamination with phenol and lead. Potential risks may exist for people who eat contaminated fish and wildlife from the area of the site.

## Cleanup Approach

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

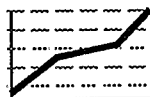
## Response Action Status



**Entire Site:** Between 1983 and 1984, *containment* activities, including *capping* the site and construction of a shallow groundwater cut-off wall, were conducted. In 1982, the following cleanup technologies were selected: (1) the demolition, salvage, and removal of building materials and scrap; (2) construction of a 2-foot-thick *slurry wall* groundwater containment system; (3) construction of a clay cap; (4) a groundwater collection system with deep well injection; and (5) a long-term maintenance and monitoring program. The State is overseeing maintenance and monitoring operations. In addition, the EPA plans to investigate the deep aquifer and will install six monitoring wells.

**Site Facts:** A *Consent Agreement* was signed in 1982 between the Michigan Department of Natural Resources and Velsicol for the company to conduct the site cleanup.

## Environmental Progress



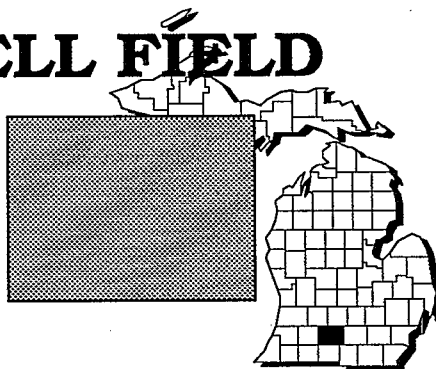
By capping the site and building a system to prevent the movement of contaminated groundwater off the site, the potential for direct exposure to hazardous materials from the Velsicol Chemical site has been significantly reduced. The site is being closely monitored to ensure the effectiveness of the cleanup remedies, while the EPA conducts studies into the extent of deep aquifer contamination.



# VERONA WELL FIELD

MICHIGAN

EPA ID# MID980793806



**REGION 5**  
CONGRESSIONAL DIST. 03  
Calhoun County  
Battle Creek

**Alias:**  
**Battle Creek Verona Well Field**

## Site Description

The Verona Well Field, in the northeastern corner of Battle Creek, covers 160 acres and consists of 30 wells. During 1981, the Calhoun County Health Department discovered that the Verona Well Field, which supplies potable water to an estimated 53,500 residents and a variety of businesses, was contaminated with *trichloroethylene* (TCE) and other volatile hydrocarbons. In 1984, the EPA undertook a program to halt the spread of contamination. Three additional drinking water wells were drilled north of the existing well field, and five of the existing wells were converted to pump the water to a treatment system in order to create a hydrologic barrier to the advancing contaminant *plume*. By fall 1984, the actions had raised the number of clean wells to 13, and a sufficient quantity of potable water to fulfill the maximum municipal demand was ensured. The population of Battle Creek is approximately 53,500.

**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 was contaminated with *volatile organic compounds* (VOCs) including TCE, toluene, xylene, and vinyl chloride. There presently is no potential of human exposure to VOCs from the site. The city's drinking water is supplied from wells that are not contaminated.

## Cleanup Approach

The site is being addressed in three stages: immediate actions and two *long-term remedial phases* focusing on cleanup of the southern plume and the eastern plume.

## Response Action Status



**Immediate Actions:** Bottled water and portable showers were provided to residences and businesses east of the Battle Creek River and west of the railroad yard until water main connections from the city system were completed. A temporary purge system was installed to prevent any further *migration* of contaminants into the northern portion of the field. A pump house was constructed, and safety lights and a high-water alarm were installed. Three additional drinking water wells were drilled north of the existing well field, and five of the existing wells were pumped to a waste treatment system. Water from these blocking wells was pumped to an *air stripper/carbon adsorption* system, which removed the VOCs prior to discharge of the treated water into the Battle Creek River.



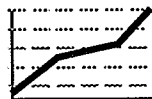
**Southern Plume:** The following cleanup methods were chosen for the southern contaminant plume: (1) construction of a groundwater extraction well system to *contain* and collect contaminated groundwater in the vicinity of the Thomas Solvent Company (Raymond Road facility); (2) pumping and treatment of contaminated groundwater at the existing well field air stripping facility; (3) installation of air extraction wells to enhance the vaporization of VOCs from the contaminated solids; and (4) continued maintenance. These activities are scheduled to be completed in 1991.



**Eastern Plume:** An investigation of the extent of contamination at two other potential sources of contamination is being conducted by the EPA. At the conclusion of the investigation, scheduled for 1990, recommendations will be made for final cleanup of the contaminant plume.

**Site Facts:** In March 1984, Thomas Solvent Company was ordered to immediately install and operate a purge well and treatment system. In April 1984, Thomas Solvent Company filed Chapter 11 bankruptcy.

## Environmental Progress



The provision of an alternate water supply and the installation of a groundwater treatment system significantly reduced the potential for exposure to contaminated groundwater from the Verona Well Field site while final cleanup actions are under way.

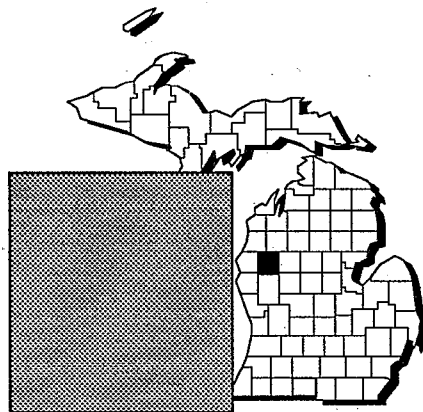




# WASH KING LAUNDRY

MICHIGAN

EPA ID# MID980701247



**REGION 5**  
CONGRESSIONAL DIST. 09  
Lake County  
Pleasant Plains Township

## Site Description

The Wash King Laundry is located on a 2-acre site in Pleasant Plains Township and has been in operation since 1962 as a coin-operated laundry. The operation eventually included dry cleaning. In 1962, Wash King Laundry was granted permission to discharge soapy laundry wastewater to nearby *seepage lagoons* that had been constructed for this purpose. During the 1960s and early 1970s, the area experienced increasing development, and many seasonal homes were constructed in the vicinity. Pollution of the groundwater by laundry detergent wastes was first detected in 1973. Dry cleaning solvents, particularly perchloroethylene (PCE), were discharged to the wastewater lagoons in the 1970s. In 1977, PCE contamination of groundwater was also detected, and in 1978, Wash King agreed to cease all dry cleaning operations. In 1979, it was determined that approximately 30 domestic water supplies northeast of the laundromat were contaminated with PCE. Housing in the area consists of mobile homes, trailers, and cottages, most of which are utilized on a seasonal basis. The population within a 3-mile radius of the site is approximately 4,000. Only three residences in the immediate vicinity of the site are occupied on a year-round basis.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

## Threats and Contaminants



Groundwater is contaminated with PCE, phosphorus, sodium, and chloride. Lagoons still in use for laundry discharge and minor amounts of *sludge* contain the same contaminants as the groundwater. Drinking or coming into direct contact with contaminated water may pose a health risk to people.

## 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



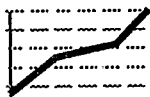
**Immediate Actions:** In 1984, the Wash King owner installed a public water supply system to serve the affected homes and commercial establishments in the area.



**Entire Site:** The State is conducting an investigation to determine the extent and source of contamination. At the conclusion of the investigation, expected in late 1990, a final remedy will be selected to clean up the site.

**Site Facts:** A 1978 court agreement was reached, under which Wash King agreed to cease all dry cleaning operations and to eliminate all sources of PCE at the facility.

### Environmental Progress



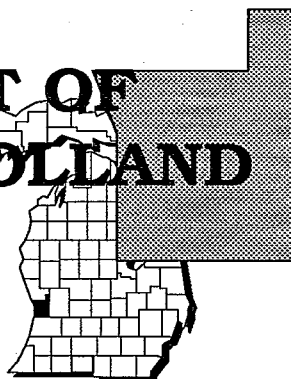
By providing a safe drinking water source to the affected homes and businesses near the Wash King Laundry site, the potential for exposure to contaminated groundwater has been reduced. Investigations leading to the selection of the final cleanup remedies are currently under way.



# WASTE MANAGEMENT OF MICHIGAN (HOLLAND LAGOONS)

MICHIGAN

EPA ID# MID060179587



**REGION 5**  
CONGRESSIONAL DIST. 09  
Ottawa County  
North of Holland

**Alias:**  
**Jacobusses Refuse Service**

## Site Description

The 160-acre Waste Management of Michigan site north of Holland was used from 1971 to 1979 as a *dewatering* site for liquid industrial wastes, including aluminum and metallic hydroxides and activated *sludge* residues. The dewatering *lagoons* occupied approximately 15 acres of the site. Forty-three 55-gallon drums of wastes were removed intact in 1980. All dewatering sludges and on-site contaminated soils have been transferred to the Southwest Ottawa County Landfill (SWOCL), an adjacent NPL site that is now closed. An active *landfill* was operated at the site in the late 1960s, and partially buried refuse is scattered across the surface. The estimated population living within 1/2 mile of the site is less than 50. However, the area is rapidly developing, and a new subdivision has been created near the site. Holland State Park, a popular summer vacation and recreation spot, lies less than 3 miles to the southwest of the site.

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

### NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

## Threats and Contaminants



Groundwater is contaminated with *volatile organic compounds* (VOCs) including toluene, benzene, *trichloroethylene* (TCE), vinyl chloride, and the heavy metal cadmium. People may be exposed to contaminants through accidental ingestion or direct contact with contaminated water.

## Cleanup Approach

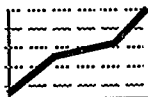
The site is being addressed in a single *long-term remedial phase* focusing on cleanup of the entire site.

## Response Action Status



**Entire Site:** The State and the potentially responsible parties are investigating the extent of contamination at the site. Once the investigation is completed, the EPA will select a final remedy for site cleanup.

## Environmental Progress

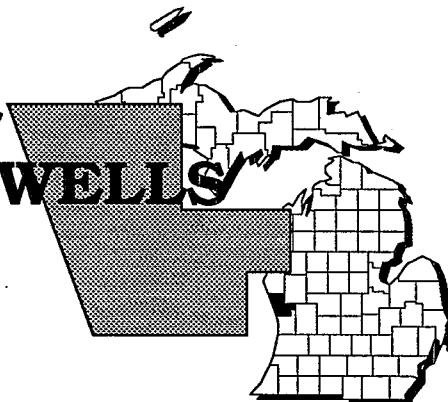


After adding the Waste Management of Michigan (Holland Lagoons) site to the NPL, the EPA performed a preliminary evaluation and determined that the site does not pose an immediate threat while investigations leading to the selection of final cleanup remedies are taking place.



# WHITEHALL MUNICIPAL WELLS MICHIGAN

EPA ID# MID980701254



**REGION 5**  
CONGRESSIONAL DIST. 09  
Muskegon County  
Northeast portion of Whitehall

**Aliases:**  
**Funnel Field Well #3**  
**Municipal Well #3**

## Site Description

The Whitehall Municipal Wells site is located in the northeastern section of Whitehall. The site is in Funnel Field, north of Colby Street and south of the ravine and backwaters of the White River. In 1980, as a result of a routine quarterly sampling of the city's water supply, an organic solvent was detected in the water. Further testing showed that the source of the contamination was Well 3. In early 1981, the City took Well 3 off line and increased pumpage rates in Wells 2, 4, and 5 in order to provide adequate water for the city. The City later brought Well 6 on line to increase the normal water supply and decided to permanently close Well 3. Sampling of residential wells in 1982 indicated contamination of those wells with *volatile organic compounds* (VOCs). Affected residences were connected permanently to the city water supply. Further investigation indicated that the source of the residential well and groundwater contamination was not related to Well 3. Approximately 3,000 people live in the City of Whitehall, and about 20 residences still rely on their private wells for potable water.

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

### NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/21/84

## Threats and Contaminants



Well 3 and surrounding monitoring wells have shown only minimal levels of contaminants, or none at all, since 1982. Contaminants found in the groundwater in the past have included perchloroethylene (PCE), *trichloroethylene* (TCE), and chloroform. Accidental ingestion, inhalation, or direct contact with contaminated water may pose a health threat to people.

## Cleanup Approach

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

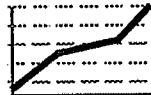
## Response Action Status



**Entire Site:** An investigation and risk assessment indicated there was no public health risk involved with the site. As a result of the closing of Well 3, no further cleanup action is recommended. The Michigan Department of Public Health will continue its routine sampling of the city water supply and investigate other areas of groundwater contamination.

**Site Facts:** In 1985, the EPA issued a *Consent Order* to Shellcast, Inc. and White Lake Landfill, Inc., requiring them to install and sample monitoring wells and to provide a potable water supply line to residents whose water supplies may be threatened by hazardous substances in the groundwater.

## Environmental Progress



The closing of Well 3 eliminated the potential for exposure to hazardous materials at the Whitehall Municipal Wells site. The State is continuing to sample and monitor the groundwater to ensure continued protection of nearby residents and the environment.



## GLOSSARY:

### TERMS USED IN THE FACT SHEETS

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

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

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

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

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

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

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

## GLOSSARY

**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.

**Arroyo:** A dry gully; a rivulet or streambed.

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

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

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

**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.

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

**Borehole:** A hole drilled into the ground used to sample soil and 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 is generally mounded or sloped so water will drain off.

**Carbon Adsorption:** A treatment system in which contaminants are removed from groundwater and surface water by forcing water through tanks containing activated



carbon, a specially treated material that attracts and holds or retains contaminants.

**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 its 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.

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

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

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

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

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

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

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

## GLOSSARY

**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 with prolonged exposure.

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

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

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

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

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

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

**Downslope:** [see Downgradient].

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

**Emulsifiers:** Substances that helps in mixing materials that don't normally mix; e.g., oil and water.

**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.

**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 that consists of a written proposal demonstrating a potentially responsible party's qualifications and willingness to perform a site study or cleanup.

**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.

**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.

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

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

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

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

## GLOSSARY

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

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

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

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

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

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

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

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

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

**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 are often toxic to humans and the environment.

**Phenols:** Organic compounds that are used in plastics manufacturing and are by-products of petroleum refining, tanning, textile, dye, and resin manufacturing. Phenols are highly poisonous and can make water taste and smell bad.

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

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

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

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is also known to bioaccumulate in fatty tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

**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.

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

**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, which is the gaseous form of radium, decays to form alpha particle radiation, which can be easily blocked by skin. However, it can be inhaled, which allows alpha particles to affect unprotected tissues directly and thus cause cancer. Uranium, when split during fission in a nuclear reactor, forms more radionuclides which, when ingested, can also cause cancer. Radiation also occurs naturally through the breakdown of granite stones.

**Remedial:** A course of study combined with actions to correct site contamination problems through identifying the nature and extent of cleanup strategies under the Superfund program.

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

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

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

**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.

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

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

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

**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.

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

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

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

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

**Upslope:** Upstream; often used relative to groundwater [see Upgradient].

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

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

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

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