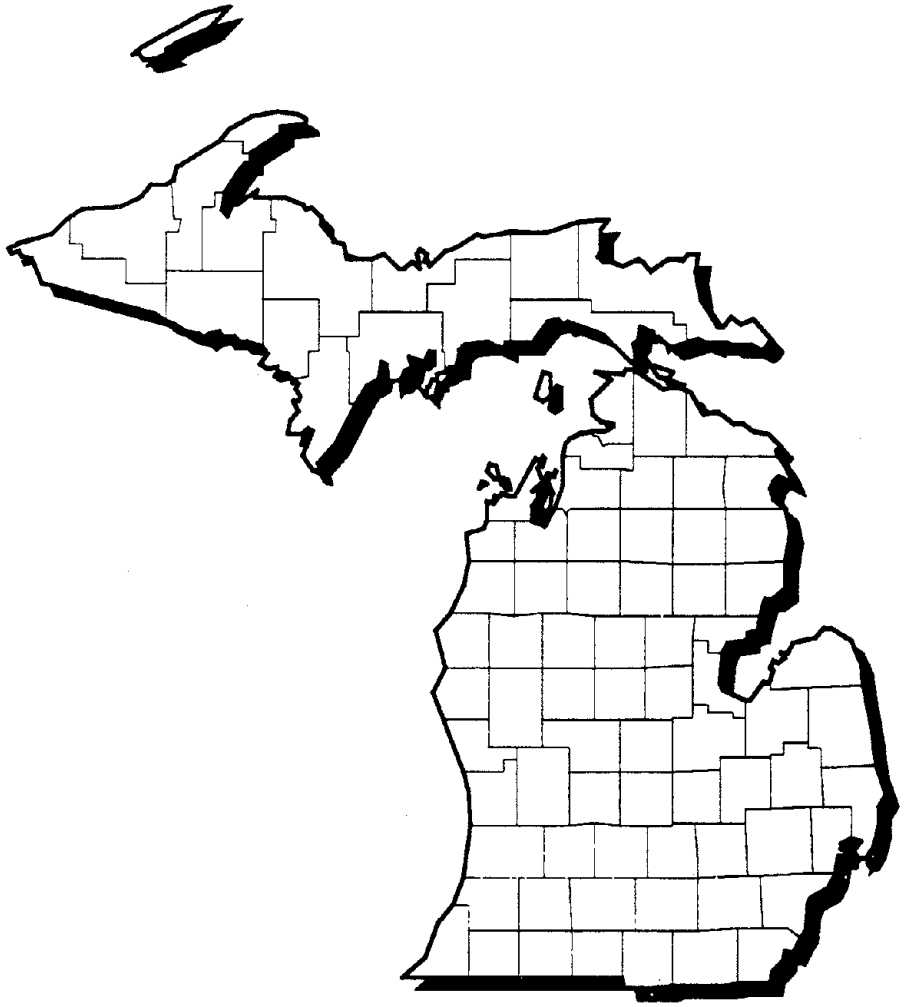
EPA

United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(5102 G)

PB93-963222

# SUPERFUND: Progress at National Priority List Sites



# MICHIGAN 1992 UPDATE

# REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188



| 1. AGENCY USE ONLY (Leave blank) | 2. REPORT DATE | 3. REPORT TYPE AND DATES COVERED |
|---|---|---|
| | December 1992 | Publication |

**4. TITLE AND SUBTITLE**

National Priorities List Sites: Michigan
9200.5-723B EPA540-R-93-021

**5. FUNDING NUMBERS**

**6. AUTHOR(S)**

USEPA/OERR

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**

Environmental Protection Agency
Office of Solid Waste and Emergency Response
401 M Street SW
Washington, DC 20460

**8. PERFORMING ORGANIZATION REPORT NUMBER**

**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**

Environmental Protection Agency
Office of Emergency and Remedial Response
401 M Street SW
Washington, DC 20460

**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

**11. SUPPLEMENTARY NOTES**

PB93-963222 Program Policy and Administration
Supercedes PB92-963247 9200.5-723A NPL Sites: Michigan

**12a. DISTRIBUTION / AVAILABILITY STATEMENT**

Open

**12b. DISTRIBUTION CODE**

**13. ABSTRACT** *(Maximum 200 words)*

This publication provides general Superfund background information and descriptions of activities at each State National Priorities List (NPL) site. Clearly describes what the problems are, what EPA and others participating in site cleanups are doing, and how the nation can move ahead insolving these serious problems. Compiles site summmary fact sheets on each State site being cleaned up under the Superfund program.

| 14. SUBJECT TERMS | 15. NUMBER OF PAGES |
|---|---|
| | 16. PRICE CODE |

| 17. SECURITY CLASSIFICATION OF REPORT | 18. SECURITY CLASSIFICATION OF THIS PAGE | 19. SECURITY CLASSIFICATION OF ABSTRACT | 20. LIMITATION OF ABSTRACT |
|---|---|---|---|
| | | | |

Publication #9200.5-723B
December 1992

# NATIONAL PRIORITIES LIST SITES:

## Michigan

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

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

National Technical Information Service (NTIS)
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
(703) 486-4650

The complete set of the 49 State reports may be ordered as PB93-963250.

# TABLE OF CONTENTS

# INTRODUCTION

## A BRIEF OVERVIEW OF SUPERFUND

During the second half of the Twentieth Century, the environmental consequences of more than 100 years of industrialization in the United States became increasingly clear. Authors such as Rachel Carson wrote passionately about the often-hidden environmental effects of our modern society's widespread use of chemicals and other hazardous materials. Their audience was small at first, but gradually their message spread. Growing concern turned to action, as people learned more about the environment and began to act on their knowledge

The 1970s saw environmental issues burst onto the national scene and take hold in the national consciousness. The first Earth Day was observed in 1970, the year that the U.S. Environmental Protection Agency (EPA) was founded. By the end of the 1970s, Love Canal in New York and the Valley of the Drums in

Kentucky had entered the popular lexicon as synonyms for pollution and environmental degradation.

### Superfund Is Established

The industrialization that gave Americans the world's highest standard of living also created problems that only a national program could address. By 1980, the U.S. Congress had passed numerous environmental laws, implemented by the EPA, but many serious hazardous waste problems were slipping through the cracks.

Responding to growing concern about public health and environmental threats from uncontrolled releases of hazardous materials, the U.S. Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Popularly known as Superfund, CERCLA had one seemingly simple job—to uncover and clean up hazardous materials spills and contaminated sites.

### A Big Job

Few in Congress, the EPA, the environmental community, or the general public knew in 1980 just how big the nation's hazardous materials problem is. Almost everyone thought that Superfund would be a short-lived program requiring relatively few resources to clean up at most a few hundred sites. They were quite mistaken.

As the EPA set to work finding sites and gauging their potential to harm people and the environment, the number of sites grew. Each discovery seemed to lead to another, and today almost 36,000 hazardous waste sites have been investigated as potential hazardous waste sites. They are catalogued in the EPA's computerized database, CERCLIS (for the Comprehensive Environmental Re-

sponse, Compensation, and Liability Information System).

The damage to public health and the environment that each site in CERCLIS might cause is evaluated; many sites have been referred to State and local governments for cleanup. The EPA lists the nation's most serious hazardous waste sites on the National Priorities List, or NPL. (These Superfund sites are eligible for federally-funded cleanup, but whenever possible the EPA makes polluters pay for the contamination they helped create.) The NPL now numbers 1,275 sites, with 50 to 100 added each year. By the end of the century, the NPL may reach as many as 2,100 sites.

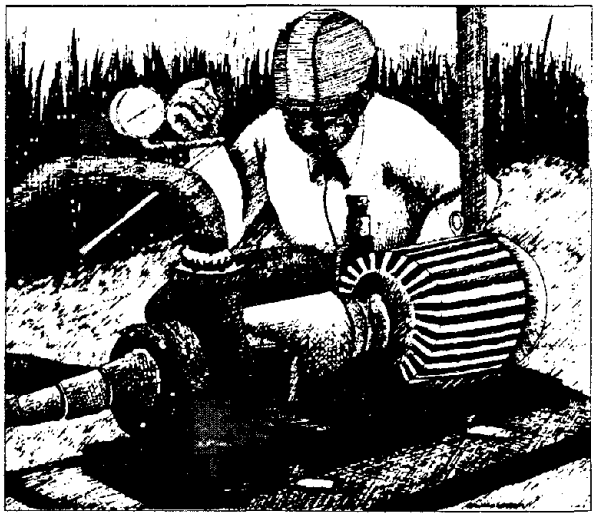
Superfund faces some of the most complex pollution problems ever encountered by an environmental program. Improperly stored or disposed chemicals and the soil they contaminate are one concern. More difficult to correct are the wetlands and bays, and the groundwater, lakes, and rivers often used for drinking water that are contaminated by chemicals spreading through the soil or mixing with storm water runoff. Toxic vapors contaminate the air at some sites, threatening the health of people living and working near by.

Superfund aims to control immediate public health and environmental threats by tackling the worst problems at the worst sites first. Wherever possible, Superfund officials use innovative treatment techniques—many developed or refined by the EPA—to correct hazardous materials problems once and for all. Many of the treatment techniques they use did not exist when the program was created.

The EPA Administrator had challenged Superfund to complete construction necessary for cleanup work at 130 NPL sites by the end of the 1992 federal fiscal year. By September 30, 1992, the end of fiscal year 1992, construction had been completed at a total of 149 NPL sites. Superfund is well on its way of meeting the Administrator's goal of completing construction at 200 NPL sites by the end of fiscal year 1993, and 650 sites by the end of fiscal year 2000.

## Quick Cleanup at Non-NPL Sites

Long-standing hazardous waste sites are not Superfund's only concern. The EPA also responds to hazardous spills and other emergencies, hauling away chemicals for proper treatment or disposal. Superfund teams perform or supervise responses at rail and motor vehicle accidents, fires, and other emergencies involving hazardous substances. They also evacuate people living and working near by, if necessary, and provide clean drinking water to people whose own water is contaminated. Removal crews also post warning signs and take other precautions to keep people and animals away from hazardous substances.



*Superfund employee prepares equipment for groundwater treatment.*

Quick Cleanups, or Removals, are not limited to emergencies. When cleanup crews at contaminated sites find hazardous substances that immediately threaten people or the environment, they act right away to reduce the threat or to remove the chemicals outright. As the EPA implements the Superfund Accelerated Cleanup Model (SACM), more and more sites will undergo quick cleanups, and many of these will be cleaned up completely without ever being included on the NPL. (See "Streamlining Superfund: The Superfund Accelerated Cleanup Model.")

Some of Superfund's most significant gains in public health and environmental protection have been won by the removal program. As of March 31, 1992, the Emergency Response Program had logged more than 2,300 removal completions since Superfund was established.

*Superfund employee removing drums from a Superfund site.*

## The Public's Role

Superfund is unique among federal programs in its commitment to citizen participation. Although the EPA is responsible for determining how dangerous a site is and how best to clean it up, the Agency relies on citizen input as it makes these decisions.

Community residents are often invaluable sources of information about a hazardous waste site, its current and previous owners, and the activities that took place there. Such information can be crucial to experts evaluating a site and its potential dangers.

Residents also comment on EPA cleanup plans by stating their concerns and preferences at public meetings and other forums and in formal, written comments to Agency proposals. The EPA takes these comments and concerns seriously, and has modified many proposals in response to local concerns. For, ultimately, it is the community and its citizens that will live with the results of the EPA's decisions and actions; it is only fair that citizens participate in the process.

## A Commitment to Communication

The Superfund program is very serious about public outreach and communication. Community relations coordinators are assigned to each NPL site to help the public understand the potential hazards present, as well as the cleanup alternatives. Local information repositories, such as libraries or other public buildings, have been established near each NPL site to ensure that the public has an opportunity to review all relevant information and the proposed cleanup plans.

The individual State volumes contain summary fact sheets on NPL sites in each State and territory. Together, the fact sheets provide a concise report on site conditions and the progress made toward site cleanups as of March 1992. The EPA revises these volumes periodically to provide an up-to-date record of program activities. A glossary of key terms relating to hazardous waste management and Superfund site cleanup is provided at the back of this book.

# INTRODUCTION

Superfund is, of course, a public program, and as such it belongs to everyone of us. This volume, along with other State volumes, comprises the EPA's report on Superfund progress to the program's owners for the year 1992.

# STREAMLINING SUPERFUND: THE SUPERFUND ACCELERATED CLEANUP MODEL

Historically, critics and supporters alike have measured Superfund's progress by the number of hazardous waste sites deleted from the NPL. Although easy enough to tally, this approach is too narrow. It misses the major gains Superfund makes by reducing major risks at the nation's worst hazardous sites long before all clean-up work is done and the site deleted. It also ignores the Removal Program's contributions to meeting Superfund's twin mandates of maximizing public health and environmental protection.

Renewing Superfund's commitment to rapid protection from hazardous materials, the EPA is streamlining the program. The Superfund Accelerated Cleanup Model, or SACM, will take Early Actions, such as removing hazardous wastes or contaminated materials, while experts study the site. SACM also will combine similar site studies to reduce the time required to evaluate a site and its threats to people and the environment. This way, immediate public health and environmental threats will be addressed while long-term cleanups are being planned.

Emergencies such as train derailments and motor vehicle accidents will continue to be handled expeditiously. Teams of highly trained technicians will swing into action right away, coordinating the cleanup and removal of hazardous substances to ensure public safety as quickly as possible.

## Breaking With Tradition

The traditional Superfund process begins with a lengthy phase of study and site assessment, but SACM will save time by combining separate, yet similar, activities. Each EPA Region will form a Decision Team of site managers, risk assessors, community relations coordinators, lawyers, and other experts to monitor the studies and quickly determine whether a site requires Early Action (taking less than five years), Long-term Action, or both.

While the site studies continue, the Decision Team will begin the short-term work required to correct immediate public health or environmental threats from the site. Besides removing hazardous materials, Early Actions include taking precautions to keep contaminants from moving off the site and restricting access to the site. Early Actions could eliminate most human risk from these sites, and Superfund will further focus its public participation and public information activities on site assessment and Early Action.

## Long-Term Solutions

While Early Actions can correct many hazardous waste problems—and provide the bulk of public health and environmental protection—some contamination will take longer to correct. Cleanups of mining sites, wetlands, estuaries, and projects involving incineration of contaminants or restoration of groundwater can take far longer than the three to five years envisioned for Early Actions. Under SACM, these sites will be handled much as they are now.

Also under SACM, the EPA will continue its pursuit of potentially responsible parties who may have caused or contributed to site contamination. Expedited enforcement and procedures for negotiating potentially responsible party settlements will secure their participation. Superfund personnel will continue to oversee clean-up work performed by potentially responsible parties.

# HOW SUPERFUND WORKS

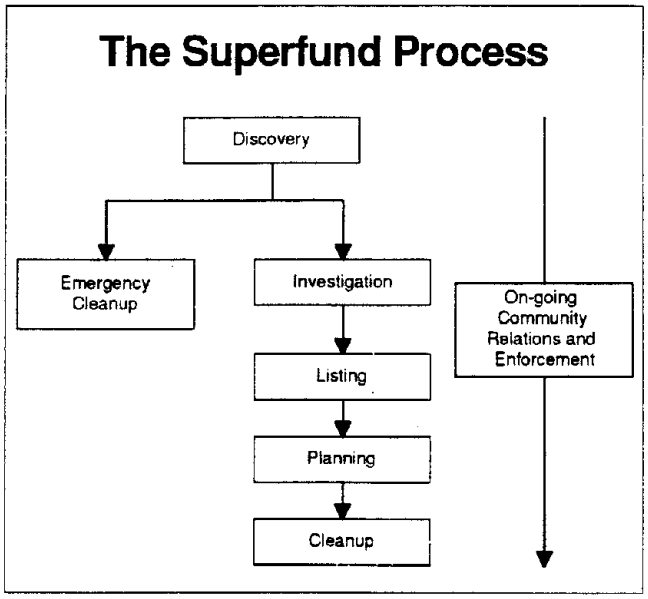
Each Superfund site presents a different set of complex problems. The same hazardous materials and chemicals often contaminate many sites, but the details of each site are different. Almost always, soil is contaminated with one or more chemicals. Their vapors may taint the air over and around the site. Contaminants may travel through the soil and reach underground aquifers which may be used for drinking water, or they may spread over the site to contaminate streams, ponds, and wetlands. The contaminating chemicals may interact with each other, presenting even more complicated cleanup problems.

Superfund's cleanup process is arduous and exacting. It requires the best efforts of hundreds of experts in science and engineering, public health, administration and management, law, and many other fields.

The average NPL site takes from seven to ten years to work its way through the system, from discovery to the start of long-term cleanup. Actual cleanup work can take years, decades if contaminated groundwater must be treated. Of course, imminent threats to public health or the environment are corrected right away.

The diagram to the right presents a simplified view of the cleanup process. The major steps in the Superfund process are:

- Site discovery and investigation to identify contaminants and determine whether emergency action is required;
- Emergency site work such as removing contaminants for proper treatment or disposal, and securing the site to keep people and animals away, if warranted by conditions at the site;
- Site evaluation to determine how people living and working nearby, and the environment, may be exposed to site contaminants;
- Detailed studies to determine whether conditions are serious enough to add the site to the National Priorities List of sites eligible for federally funded cleanup under Superfund;
- Selection, design, and implementation of a cleanup plan, after a thorough review of the most effective cleanup options, given site conditions, contaminants present, and their potential threat to public health or the environment.
- Follow-up to ensure that the cleanup work done at the site continues to be effective over the long term.




From the earliest stages, EPA investigators work hard to identify those responsible for the contamination. As their responsibility is established, the EPA negotiates with these "responsible parties" to pay for cleaning up the problem they helped create. This "enforcement first" policy saves Superfund Trust Fund monies for use in cleanups where the responsible parties cannot be identified, or where they are unable to fund cleanup work.

# THE VOLUME

## How to Use the State Book

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

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

## How Can You Use This State Book?

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

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

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

**NPL LISTING HISTORY**

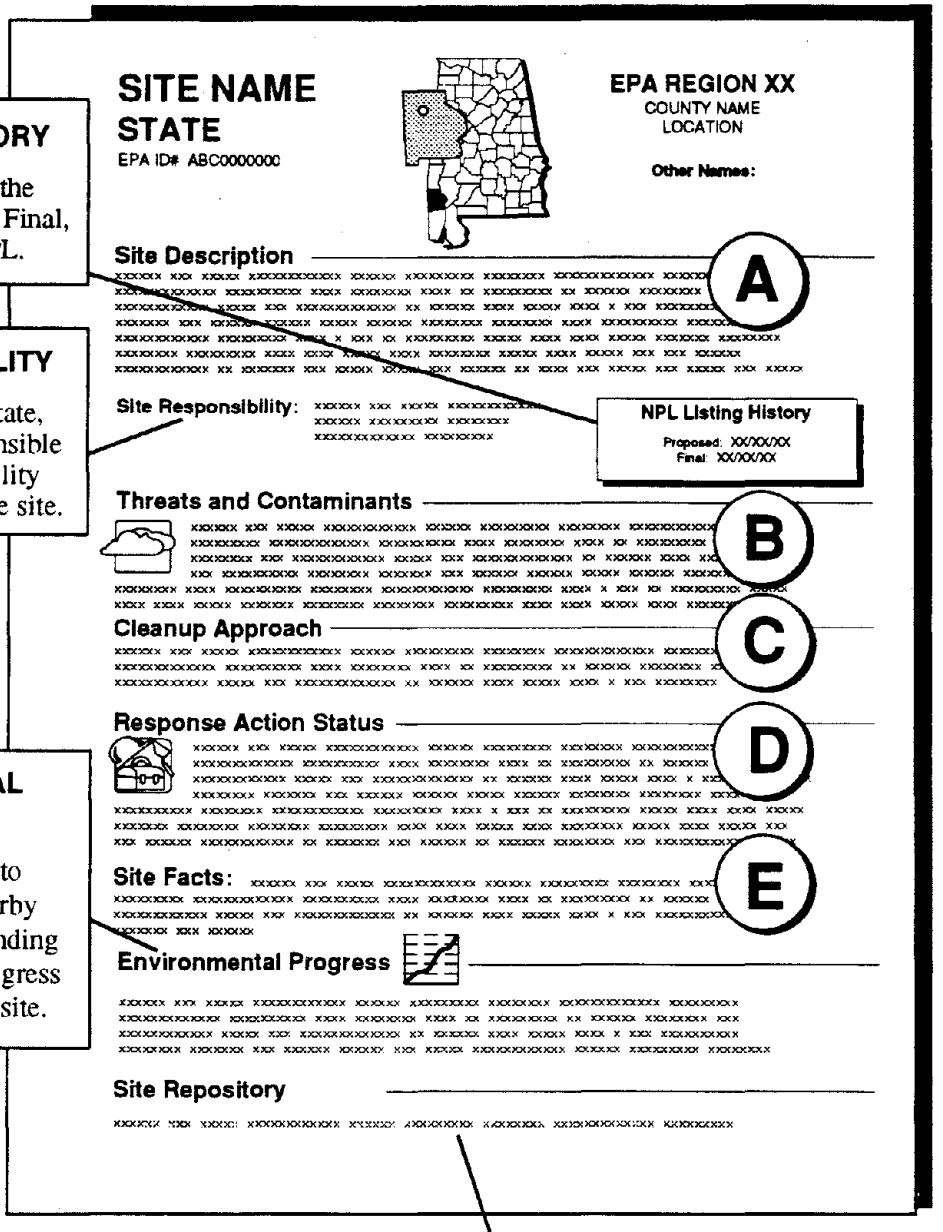
Provides the dates when the site was Proposed, made Final, and Deleted from the NPL.

**SITE RESPONSIBILITY**

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

**ENVIRONMENTAL PROGRESS**

Summarizes the actions to reduce the threats to nearby residents and the surrounding environment and the progress towards cleaning up the site.




**SITE REPOSITORY**

Lists the location of the primary site repository. The site repository may include community relations plans, public meeting announcements and minutes, fact sheets, press releases, and other site-related documents.

A

### SITE DESCRIPTION

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

B

### THREATS AND CONTAMINANTS

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

C

### CLEANUP APPROACH

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

D

### RESPONSE ACTION STATUS

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

E

### SITE FACTS

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

# THE VOLUME

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

## Icons in the Threats and Contaminants Section

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

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

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

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

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

## Icons in the Response Action Status Section

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

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


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

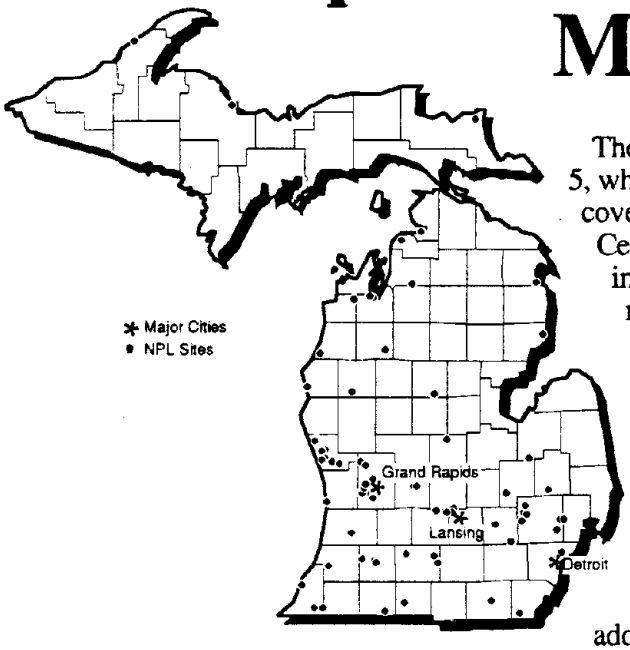
*Remedy Design* means that engineers are preparing specifications and drawings for the selected cleanup technologies.

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

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

# A SUMMARY OF THE STATE PROGRAM

# Superfund Activities in Michigan

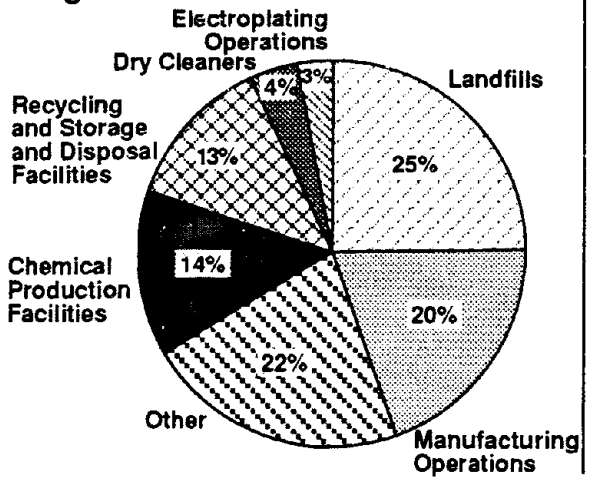



The State of Michigan is located within EPA Region 5, which includes the six midwestern States. The State covers 58,527 square miles. According to the 1990 Census, Michigan experienced a minimal increase in population between 1980 and 1990, and is ranked eighth in U.S. population with approximately 9,295,000 residents.

The Michigan Environmental Response Act of 1982, most recently amended in 1990, grants the State the authority to clean up abandoned hazardous waste sites. The 1990 amendment to the Act provided the State with enforcement, liability, and cost recovery authorities. In addition, 10 related pollution control acts supplement cleanup program authorities. In addition to the 10 percent contribution from the State required by the Federal Superfund program, the Environmental Protection Bond Fund may be used for site investigations, study and design activities, emergency response and removal actions, long-term cleanup actions, operation and maintenance activities, grants to local governments, and administrative costs. In practice, the State will use its funds after attempted negotiations with polluters have failed and Federal funds have been sought. Public hearings are held when sites are listed on the State priority list and prior to the selection of final cleanup remedies. Currently, 77 sites in the State of Michigan have been listed as final on the NPL; two sites have been deleted. No new sites have been proposed for listing in 1992.

**The Department of Natural Resources**
implements the Superfund Program in the State of Michigan

### Activities responsible for hazardous waste contamination in the State of Michigan include:




### Facts about the 79 NPL sites in Michigan:

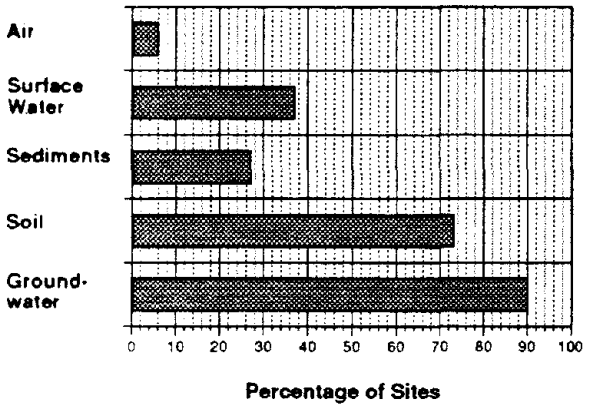
Immediate Actions (such as removing hazardous substances or restricting site access) were performed at 57 sites.

Nineteen sites endanger sensitive environments.

Seventy-three sites are located near residential areas.

# Most Sites Have Multiple Contaminants and Contaminated Media:

## *Media Contaminated at Sites*




## *Contaminants Found at Sites*

| | Percentage of Sites |
|---|---|
| Pesticides/Herbicides | 89% |
| VOCs | 81% |
| Plastics | 76% |
| Heavy Metals | 61% |
| PCBs | 23% |
| Other* | 16% |
| Creosotes | 14% |
| Cyanide | 9% |
| Dioxin | 1% |

*Other contaminants include phosphorous, nitrate, bromoform, chloroform, naphthalene, cupric ammonium carbonate, sulfate, chloride, aluminum, and ammonia.

## The Potentially Responsible Party Pays...

In the State of Michigan, potentially responsible parties are paying for or conducting cleanup activities at 53 sites.

## For Further Information on NPL Sites and Hazardous Waste Programs in the State of Michigan Please Contact:

| | | |
|---|---|---|
| EPA Region 5 Office of Public Affairs | For information concerning community involvement | (312) 353-2072 |
| National Response Center | To report a hazardous waste emergency | (800) 424-8802 |
| Department of Natural Resources: Environmental Response Division | For information about the State's responsibility in the Superfund Program | (517) 373-9837 |
| EPA Region 5 Waste Management Division | For information about the Regional Superfund Program | (312) 353-9419 |
| EPA Superfund Hotline | For information about the Federal Superfund Program | (800) 424-9068 |

# THE NPL REPORT

## PROGRESS TO DATE

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

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

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

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

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

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

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

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

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

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

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

| Site Name | County | NPL | Date | Initial Response | Site Studies | Remedy Selected | Remedy Design | Cleanup Ongoing | Construction Complete | Deleted |
|---|---|---|---|---|---|---|---|---|---|---|
| ADAM'S PLATING | INGHAM | Final | 03/31/89 | | ⇨ | | | | | |
| ALBION-SHERIDAN TOWNSHIP LANDFILL | CALHOUN | Final | 10/04/89 | ⇨ | ⇨ | | | | | |
| ALLIED PAPER INC/PORTAGE CREEK/ KALAMAZOO RIVER | KALAMAZOO/ ALLEGAN | Final | 08/30/90 | ⇨ | ⇨ | | | | | |
| AMERICAN ANODCO, INC. | IONIA | Final | 03/31/89 | ⇨ | ⇨ | | | | | |
| ANDERSON DEVELOPMENT COMPANY | LENAWEE | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| AUTO ION CHEMICALS, INC. | KALAMAZOO | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| AVENUE "E" GW CONTAMINATION | GRAND TRAVERSE | Final | 06/10/86 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| BARRELS, INC. | INGHAM | Final | 10/04/89 | ⇨ | ⇨ | | | | | |
| BENDIX CORPORATION/ALLIED AUTOMOTIVE | BERRIEN | Final | 02/21/90 | | ⇨ | | | | | |
| BERLIN AND FARRO | GENESEE | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| BOFORS NOBEL, INC. | MUSKEGON | Final | 03/31/89 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| BURROWS SANITATION | VAN BUREN | Final | 09/21/84 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| BUTTERWORTH #2 LANDFILL | KENT | Final | 09/08/83 | ⇨ | ⇨ | | | | | |
| CANNELTON INDUSTRIES, INC. | CHIPPEWA | Final | 08/30/90 | ⇨ | ⇨ | | | | | |
| CARTER INDUSTRIALS, INC. | WAYNE | Final | 03/31/89 | ⇨ | ⇨ | ⇨ | | | | |
| CEMETERY DUMP | OAKLAND | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | |
| CHARLEVOIX MUNICIPAL WELL | CHARLEVOIX | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | |
| CHEM CENTRAL | KENT | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| CLARE WATER SUPPLY | CLARE | Final | 09/21/84 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| CLIFF/DOW DUMP | MARQUETTE | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| DUELL & GARDNER LANDFILL | MUSKEGON | Final | 09/08/83 | ⇨ | ⇨ | | | | | |
| ELECTROVOICE | BERRIEN | Final | 09/21/84 | | ⇨ | | | | | |
| FOLKERTSMA REFUSE | KENT | Final | 03/31/89 | | ⇨ | ⇨ | | | | |
| FOREST WASTE PRODUCTS | GENESEE | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| G & H LANDFILL | MACOMB | Final | 09/03/83 | ⇨ | ⇨ | ⇨ | | | | |

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

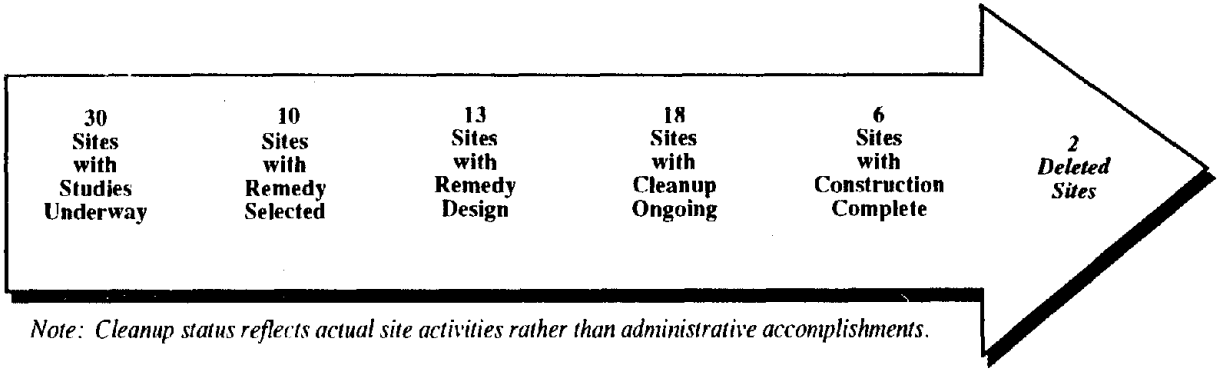
| Site Name | County | NPL | Date | Initial Response | Site Studies | Remedy Selected | Remedy Design | Cleanup Ongoing | Construction Complete | Deleted |
|---|---|---|---|---|---|---|---|---|---|---|
| GRAND TRAVERSE OVERALL SUPPLY | LEELANAU | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | | | ⇨ | |
| GRATIOT COUNTY GOLF COURSE | GRATIOT | Deleted | 09/03/83 | ⇨ | | | | | ⇨ | ✓ |
| GRATIOT COUNTY LANDFILL | GRATIOT | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| H. BROWN CO., INC. | KENT | Final | 06/10/86 | ⇨ | ⇨ | | | | | |
| HEDBLUM INDUSTRIES | IOSCO | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | | | |
| HI-MILL MANUFACTURING COMPANY | OAKLAND | Final | 02/21/90 | ⇨ | ⇨ | | | | | |
| IONIA CITY LANDFILL | IONIA | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| J & L LANDFILL | OAKLAND | Final | 03/31/89 | | ⇨ | | | | | |
| K & L AVENUE LANDFILL | KALAMAZOO | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | | | | |
| KAYDON CORPORATION | MUSKEGON | Final | 02/21/90 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| KENT CITY MOBILE HOME PARK | KENT | Final | 07/21/87 | ⇨ | | | | | | |
| KENTWOOD LANDFILL | KENT | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | | | |
| KYSOR INDUSTRIAL CORP. | WEXFORD | Final | 10/04/89 | | ⇨ | ⇨ | ⇨ | | | |
| LIQUID DISPOSAL, INC. | MACOMB | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| MASON COUNTY LANDFILL | MASON | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| MCGRAW EDISON CORP. | CALHOUN | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| METAL WORKING SHOP | BENZIE | Final | 02/21/90 | | ⇨ | ⇨ | | | ⇨ | |
| METAMORA LANDFILL | LAPEER | Final | 09/21/84 | | ⇨ | ⇨ | ⇨ | ⇨ | | |
| MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL) | KALAMAZOO | Final | 02/21/90 | ⇨ | ⇨ | ⇨ | | | | |
| MOTOR WHEEL, INC. | INGHAM | Final | 06/10/86 | ⇨ | ⇨ | ⇨ | | | | |
| MUSKEGON CHEMICAL CO. | MUSKEGON | Final | 02/21/90 | ⇨ | ⇨ | | | | | |
| NORTH BRONSON INDUSTRIAL AREA | BRANCH | Final | 06/10/86 | ⇨ | ⇨ | | | | | |
| NORTHERNAIRE PLATING | WEXFORD | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| NOVACO INDUSTRIES | MONROE | Final | 09/08/83 | | ⇨ | ⇨ | | | ⇨ | |
| ORGANIC CHEMICALS, INC. | KENT | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| OSSINEKE GROUNDWATER CONTAMINATION | ALPENA | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | | | | |

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

| Site Name | County | NPL | Date | Initial Response | Site Studies | Remedy Selected | Remedy Design | Cleanup Ongoing | Construction Complete | Deleted |
|---|---|---|---|---|---|---|---|---|---|---|
| OTT/STORY/CORDOVA CHEMICAL CO. | MUSKEGON | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| PACKAGING CORP. OF AMERICA | MANISTEE | Final | 09/08/83 | | ⇨ | | | | | |
| PARSONS CHEMICAL WORKS, INC. | EATON | Final | 03/31/89 | ⇨ | ⇨ | | | | | |
| PEERLESS PLATING CO. | MUSKEGON | Final | 08/30/90 | ⇨ | ⇨ | | | | | |
| PETOSKEY MUNICIPAL WELL FIELD | EMMET | Final | 09/08/83 | ⇨ | ⇨ | | | | | |
| RASMUSSEN'S DUMP | LIVINGSTON | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | | | | |
| ROCKWELL INTERNATIONAL CORP. (ALLEGAN PLANT) | ALLEGAN | Final | 07/27/87 | ⇨ | ⇨ | | | | | |
| ROSE TOWNSHIP DUMP | OAKLAND | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| ROTO-FINISH CO., INC. | KALAMAZOO | Final | 06/10/86 | | ⇨ | | | | | |
| SCA INDEPENDENT LANDFILL | MUSKEGON | Final | 09/08/83 | | ⇨ | | | | | |
| SHIAWASSEE RIVER | LIVINGSTON | Final | 09/08/83 | ⇨ | ⇨ | | | | | |
| SOUTH MACOMB DSPL AUTHORITY | MACOMB | Final | 06/10/86 | ⇨ | ⇨ | | | | | |
| SOUTHWEST OTTAWA COUNTY LANDFILL | OTTAWA | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | ⇨ | | |
| SPARTA LANDFILL | KENT | Final | 09/08/83 | ⇨ | ⇨ | | | | | |
| SPARTAN CHEMICAL COMPANY | KENT | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | ⇨ | | |
| SPIEGELBERG LANDFILL | LIVINGSTON | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | ⇨ | | |
| SPRINGFIELD TOWNSHIP DUMP | OAKLAND | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | | | |
| STATE DISPOSAL LANDFILL, INC. | KENT | Final | 02/21/90 | ⇨ | ⇨ | | | | | |
| STURGIS MUNICIPAL WELLS | ST. JOSEPH | Final | 09/21/84 | | ⇨ | ⇨ | ⇨ | | | |
| TAR LAKE | ANTRIM | Final | 09/08/83 | | ⇨ | | | | | |
| THERMO-CHEM, INC. | MUSKEGON | Final | 06/10/86 | ⇨ | ⇨ | ⇨ | | | | |
| TORCH LAKE | HOUGHTON | Final | 06/10/86 | ⇨ | ⇨ | | | | | |
| U.S. AVIEX | CASS | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| VELSICOL CHEMICAL CORPORATION (MICHIGAN) | GRATIOT | Final | 09/08/83 | | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | |
| VERONA WELL FIELD | CALHOUN | Final | 09/08/83 | ⇨ | ⇨ | ⇨ | ⇨ | ⇨ | | |
| WASH KING LAUNDRY | LAKE | Final | 09/08/83 | ⇨ | ⇨ | | | | | |

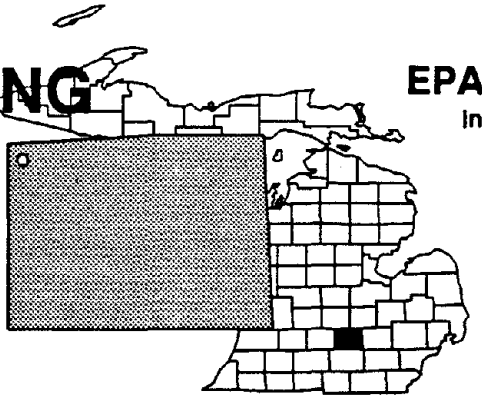
## Progress Toward Cleanup at NPL Sites in the State of Michigan (Continued)

| Site Name | County | NPL | Date | Initial Response | Site Studies | Remedy Selected | Remedy Design | Cleanup Ongoing | Construction Complete | Deleted |
|---|---|---|---|---|---|---|---|---|---|---|
| WASTE MANAGEMENT OF MICHIGAN (HOLLAND LAGOONS) | OTTAWA | Final | 06/10/86 | ⇨ | ⇨ | | | | | |
| WHITEHALL MUNICIPAL WELLS | MUSKEGON | Deleted | 02/11/91 | | ⇨ | ⇨ | | | ⇨ | ✓ |




*Note: Cleanup status reflects actual site activities rather than administrative accomplishments.*

# ADAM'S PLATING
## MICHIGAN
EPA ID# MID006522791



**EPA REGION 5**
Ingham County
Lansing

## Site Description

The 1-acre Adam's 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, first, were 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 first was 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. Direct contact with or accidental ingestion of contaminated soil poses a potential health threat.

## Cleanup Approach

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

### Response Action Status

**Entire Site:** The EPA currently is conducting an investigation to determine the extent and nature of contamination and to select final methods for site cleanup. The investigation is being conducted in two phases. Phase 1 involved preliminary planning, including the development of a field sampling plan. Phase 2 will include the field work and studies leading to remedy selection. The investigation is expected to be completed in late 1993.

## 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.

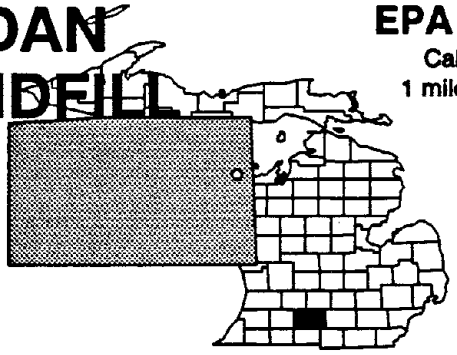
## Site Repository

Lansing Public Library, 401 South Capital Street, Lansing, MI 48933

# ALBION-SHERIDAN TOWNSHIP LANDFILL

## MICHIGAN

EPA ID# MID980504450



**EPA REGION 5**
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: 06/24/88
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 direct contact with or accidental ingestion of 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, two potentially responsible parties began sampling, overpacking, and disposing of leaking drums on the landfill surface. About 30 drums have been removed. Additionally, the site was partially fenced to restrict access.

**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 began in 1991 and is expected to be completed in 1994, at which time a final cleanup remedy will be selected.

**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 and partial fencing of the site have reduced the potential of exposure to contaminants at the Albion-Sheridan Township Landfill site while studies are being conducted and cleanup activities are being planned.

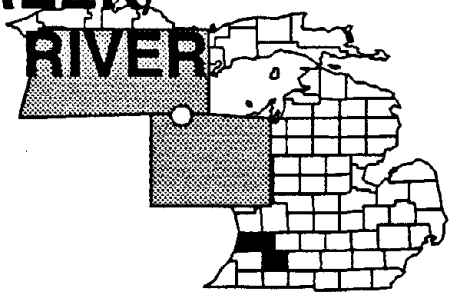
## Site Repository

Not established.

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

## MICHIGAN

EPA ID# MID006007306



**EPA REGION 5**

Kalamazoo and Allegan Counties
Kalamazoo

**Other Names:**
**Allied Paper**
**Portage Creek**

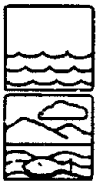
## Site Description

The Allied Paper, Inc./Portage Creek/Kalamazoo River site involves polychlorinated biphenyl (PCB) contamination of the 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. MDNR tests conducted in 1985 also found PCBs in monitoring wells around a landfill on the Allied Paper, Inc. 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 Federal, State, and potentially responsible parties' actions.

**NPL LISTING HISTORY**
Proposed Date: 05/05/89
Final Date: 08/30/90

## Threats and Contaminants



Sediments, surface water, and fish are contaminated with PCBs. Direct contact with or accidental ingestion of contaminated surface water or sediments could pose a 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 two stages: an initial action and a long-term remedial phase focusing on the cleanup of the entire site.

## Response Action Status

**Initial Action:** Highly contaminated areas of the Allied Paper, Inc. property were fenced in two stages: November 1990 and in March 1991. Additional fencing is being installed at this time.

**Entire Site:** The potentially responsible parties, under State supervision, have begun an investigation to determine the nature and extent of sediment, soil, groundwater, surface water, and biota contamination. The work plan is under review; sampling began in the summer of 1991. Although PCB contamination will receive most of the attention, the studies will screen various environmental media throughout the system to determine whether other chemicals need to be addressed. The results of this study will yield recommendations from which the State of Michigan and the EPA will select the final cleanup remedy.

## Environmental Progress

Fencing the contaminated areas has limited access to the Allied Paper, Inc./Portage Creek/Kalamazoo River site and has reduced the potential for exposure to hazardous materials while studies leading to a final selection of cleanup alternatives are being conducted.

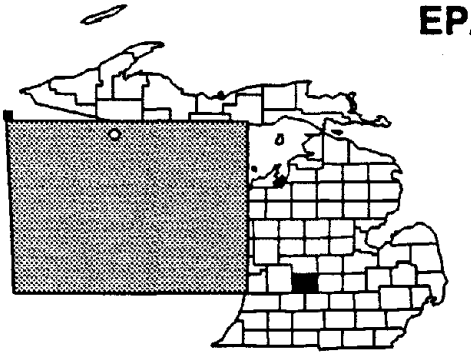
## Site Repository

Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007

# AMERICAN ANODCO, INC.

## MICHIGAN

EPA ID# MID006029102



**EPA REGION 5**

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 that 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 a mile of the area. The glacial drift aquifer underlying American Anodco supplies public and private wells within a 3-mile radius; these wells 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 Michigan Department of Natural Resources (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 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 groundwater and soil contamination beneath the former lagoon and to identify alternatives for site cleanup. Four additional monitoring wells were installed by the potentially responsible parties in 1992 to further characterize the groundwater conditions at the site. The investigation is scheduled for completion in 1993.

**Site Facts:** An Administrative Order on Consent was signed by the potentially responsible party in 1987 to conduct an investigation of site contamination.

## Environmental Progress

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

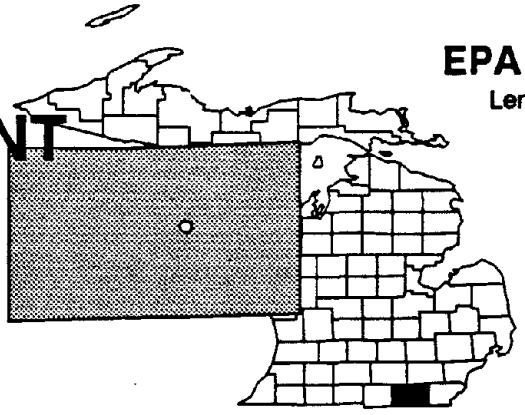
## Site Repository

Ionia Public Library, 126 East Main Street, Ionia, MI 48846

# ANDERSON DEVELOPMENT COMPANY

## MICHIGAN

EPA ID# MID002931228



**EPA REGION 5**

Lenawee County
Adrian

## Site Description

The Anderson Development Company (ADC) manufactures specialty organic chemicals on a 12 1/2-acre site in Adrian 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 also was found in East Side Drain and Raisin River sediments 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 surface soil, lagoon sludge, and clay underlying the lagoon are contaminated with MBOCA, a known carcinogen that can be absorbed through the skin. Inhaling contaminated dust also is considered to be a potential health risk. 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: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

**Initial Actions:** In 1981, 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 connected 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 that assessed the type of contaminants present, identified the degree of contamination, and characterized potential risks to the community. This investigation was completed in March 1990, and the cleanup remedy was selected in September 1990. Since no groundwater contamination was found during the study, the proposed remedy concentrates on soil contamination and recommends the use of in-situ vitrification technologies to decontaminate the site. A second technology, low-temperature thermal aeration, also will be tested for its ability to clean up the soil. The design and construction of the cleanup option began in 1992.

**Site Facts:** On April 30, 1986, Anderson Development Company entered into an Administrative Order on Consent with the EPA to study the nature and extent of site contamination.

## Environmental Progress

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

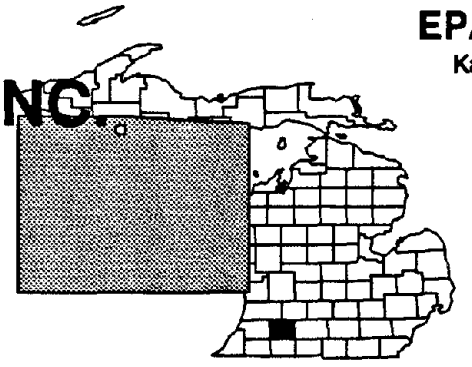
## Site Repository

Adrian City Library, 143 East Maumee Street, Adrian, MI 49221

# AUTO ION CHEMICALS, INC.

## MICHIGAN

EPA ID# MID980794382



**EPA REGION 5**

Kalamazoo County
Kalamazoo

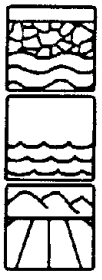
## Site Description

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 other various 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



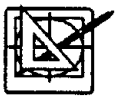
Groundwater is contaminated with volatile organic compounds (VOCs) including vinyl chloride and the heavy metal arsenic. Chromium, nickel, chloride, and cyanide were found in surface water and sediment samples taken from the Kalamazoo River between 1964 and 1973. Soil is contaminated with chromium, arsenic, and cyanide. Potential health risks exist if contaminated groundwater is accidentally ingested or dust from contaminated soils is 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. Additionally, the entire site was fenced to prevent access to the contaminated soil and groundwater.



**Soil:** The EPA has outlined the following remedies to clean up the soil: excavation, stabilization, and 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. Design activities are scheduled for completion in 1993, at which time the cleanup will begin.

**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 late 1992.

**Site Facts:** In 1990, the EPA and 42 potentially responsible parties signed a Consent Decree to perform the technical design for the soil cleanup remedy.

## Environmental Progress

Removing contaminants and debris and fencing the site have reduced the potential for exposure to contaminated materials at the Auto Ion Chemicals, Inc. site while studies are taking place and cleanup activities are being planned.

## Site Repository

Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007

# AVENUE "E" GROUNDWATER CONTAMINATION

## MICHIGAN

EPA ID# MID980791461

**EPA REGION 5**

Grand Traverse County
Traverse City

**Other Names:**
**East Bay Township**
**Residential Wells**

## Site Description

The 435-acre Avenue "E" Groundwater Contamination site consists of two areas: the 115-acre U.S. Coast Guard Air Station and a 320-acre area bordered 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 to the 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 coming in direct contact with contaminated groundwater. Although most residences have been connected to the public water system, a few homes still may 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 to prevent further contamination from leaving the property. Following treatment to remove contaminants, the groundwater is discharged to the Traverse City sanitary sewer system. This pump and treat system currently remains in operation. Also in 1985, the Coast Guard began bioremediation of soils using microorganisms to break down soil contaminants. The soil bioremediation system first was installed in 1987; a third round of treatment began in 1990. In addition, pilot programs such as aerobic-bioremediation and anaerobic-bioremediation of two plumes and soil vapor extraction have been completed. The results from these pilot programs are in the process of being evaluated to determine the most effective remedy for final site cleanup.

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

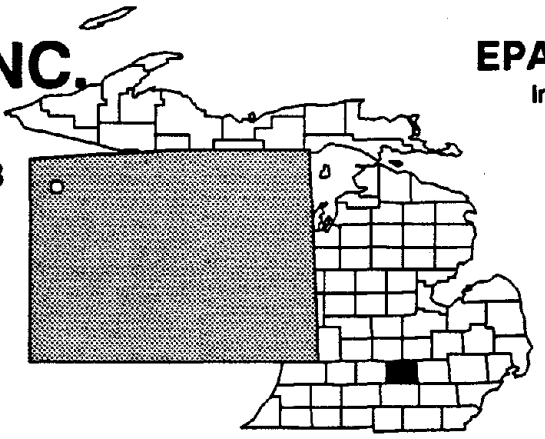
## Environmental Progress

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

## Site Repository

Not established.

# BARRELS, INC.
## MICHIGAN
EPA ID# MID017188673



**EPA REGION 5**
Ingham County
Lansing

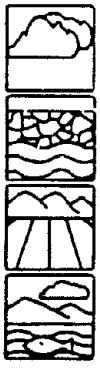
## Site Description

From 1964 to 1981, Barrels, Inc. recycled drums on this 1 3/4-acre site. Waste residues allegedly were 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 a 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.

**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 stem from direct contact with or accidental ingestion of contaminated soils or groundwater. The areas along the Grand River serve as a habitat for the endangered Indiana Bat.

## 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 and draining of tanks have reduced the potential for exposure to contaminants at the Barrel, Inc. site while investigations are being planned.

## Site Repository

Not established.

# BENDIX CORPORATION/ ALLIED AUTOMOTIVE

## MICHIGAN

EPA ID# MID005107222


## 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 may have been 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 have direct contact with contaminated water; however, no one is currently drinking contaminated groundwater.

## Cleanup Approach

This site is being addressed in a 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 is being conducted in two phases. Phase 1 consisted of groundwater, surface water, and sediment sampling and analysis. Phase 2 will consist of a soil gas survey and soil sampling and analysis to locate the source of the contamination. Both phases are expected to be completed in late 1992. The EPA plans to continue to evaluate various technologies throughout 1993 to address the contamination identified during the investigations. A decision on cleanup alternatives is scheduled for late 1993.

**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.

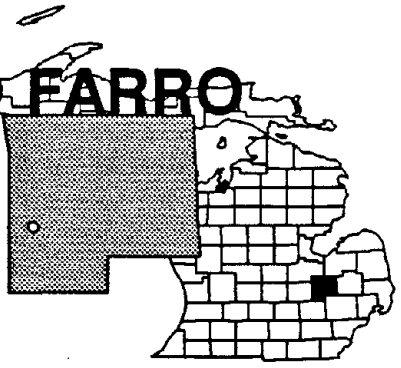
## Environmental Progress

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.

## Site Repository

Maud Preston Polenski Memorial Library, 500 Market Street, St. Joseph, MI 49085

# BERLIN AND FARRO
## MICHIGAN
EPA ID# MID000605717



**EPA REGION 5**
Genesee County
3 1/2 miles south of Swartz Creek

**Other Names:**
**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 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 sludge. Residents could be exposed to site-related contaminants through direct contact with contaminated surface water in Slocum Drain and Swartz Creek. In addition, on-site workers could be exposed to contaminants if they drink or have direct contact with 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 were re-buried, and sampling and analysis were undertaken by the Michigan Department of Natural Resources (MDNR). The EPA took the following actions in 1982: installed a security fence and upgraded a siphon dam; removed 3,600 cubic yards of contaminated soil and landfilled 4,000 barrels of flammable sludge; 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; dug trenches throughout the site to locate buried drums and contaminated soil layers; located a total of 33 drums, which were sampled and combined for disposal; and 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: excavating the existing drum landfill, paint sludge trench, agricultural drains, and miscellaneous contaminated areas; separating PCB solid wastes from non-PCB solid wastes and transporting these materials to an off-site disposal facility; transporting PCB liquid wastes to an off-site incinerator; pumping non-PCB liquid wastes from the drum landfill and transporting the wastes to an off-site incinerator; and 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 then were 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 parties conducted an investigation into the nature and extent of remaining contamination at the site. Based on study findings, the final cleanup remedy was selected in 1991 and includes on-site landfilling of contaminated material with some potential solidification prior to landfilling and treatment of contaminated groundwater through air stripping. Design activities will begin once negotiations with the potentially responsible parties have been completed.

**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 reduced the potential for exposure to contaminated materials at the Berlin and Farro site while additional cleanup activities are being planned and started.

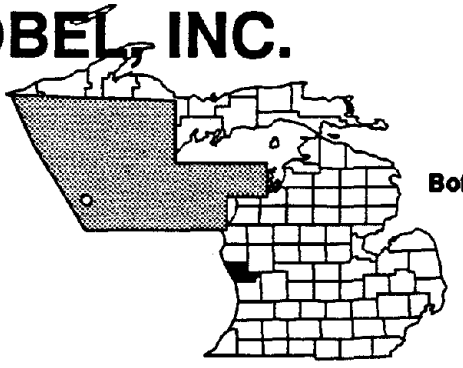
## Site Repository

Perkins Library, 8095 Civic Drive, Swartz Creek, MI 48473

# BOFORS NOBEL, INC.

## MICHIGAN

EPA ID# MID006030373



**EPA REGION 5**

Muskegon County
Muskegon

**Other Names:**
**Bofors Lakeway Chemical, Inc.**

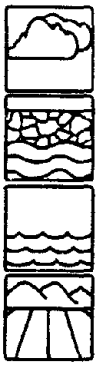
## Site Description

Bofors Nobel, Inc. manufactured various chemicals including benzidines, pesticides, and herbicides at this 85-acre site from 1960 to 1987. During this time, the plant's operators disposed of process water in 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, Inc. operated a groundwater treatment system from 1976 until 1987, when it filed for bankruptcy. The property was sold to Lomac, Inc. in 1987, who continued to operate the treatment system; 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 through ingestion of or direct contact with 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 three phases: initial actions and two long-term remedial phases focusing on cleanup of the lagoon and groundwater and cleanup of the operating facility soils.

### 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.

**Lagoon and Groundwater:** 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 was completed in 1990, and the groundwater phase in 1991. In fall 1990, the EPA selected three different techniques to address soil contamination at different areas of the site. The technologies include: landfilling, in accordance with Federal guidelines; low-temperature thermal desorption; and incineration. To continue to address the groundwater contamination, a groundwater treatment facility will be constructed. The State currently is developing the technology specifications for each of the techniques. These design activities are scheduled for completion in 1992.

**Operating Facility Soils:** In spring 1990, the State began studying the extent of soil contamination around the operating facility area. The study is expected to be completed in 1993.

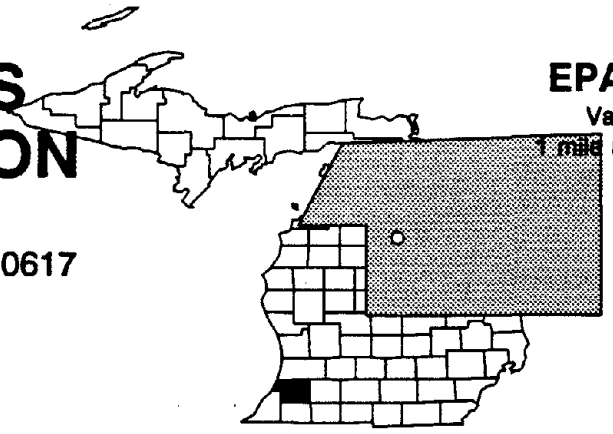
## Environmental Progress

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 designed.

## Site Repository

Muskegon County Library, Egelston Township Branch, 5384 Apple Avenue, Muskegon, MI 49440

# BURROWS SANITATION
## MICHIGAN
EPA ID# MID980410617



**EPA REGION 5**
Van Buren County
1 mile northeast of Hartford

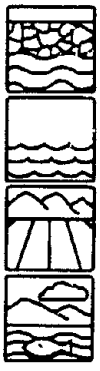
## Site Description

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 at 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 to the 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). Health threats to people who trespass on the site stem from direct contact with or 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 includes removing the remaining contaminated soils, lowering the surface water level in the northwest wetland, and extracting, treating, and discharging groundwater. By 1989, the removal of contaminated soils and sediments and drainage of the northwest wetland were completed. Cleanup of contaminated groundwater began in 1991.

**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 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 the groundwater began in 1991.

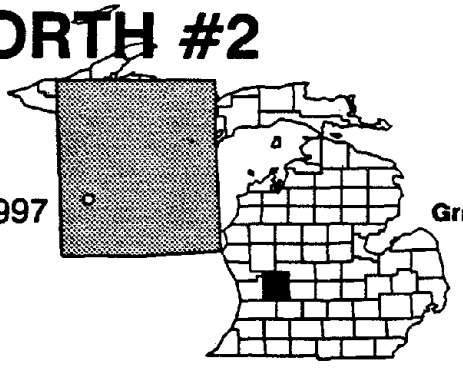
## Site Repository

Hartford Public Library, 15 Franklin Street, Hartford, MI 49057

# BUTTERWORTH #2 LANDFILL

## MICHIGAN

EPA ID# MID062222997



**EPA REGION 5**

Kent County
Grand Rapids

**Other Names:**
**Grand Rapids City Landfill**
**Grand Rapids Gypsum Company (SIA)**

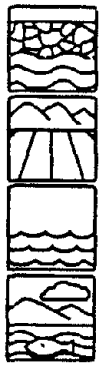
## Site Description

The Butterworth #2 Landfill site covers 120 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 wastes 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 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.

**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), pesticides, 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 come in direct contact with contaminated groundwater. People who trespass on the site and have direct contact with or accidentally ingest the contaminated soil may be at risk. Contaminants are leaching into the Grand River. 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 EPA found a hot spot of PCB contamination in the landfill. The potentially responsible parties excavated approximately 1,100 cubic yards of PCB-contaminated soil. A 6-foot-high chain-link fence was installed to prevent access to the site. During sampling, other highly contaminated areas were found. The potentially responsible parties excavated soil from these hot spots and transported the waste to a federally approved facility.

**Entire Site:** The potentially responsible parties are studying the nature and extent of the contamination at the landfill. Once the study is completed in 1992, 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 and construction of a fence around the site have reduced the potential for exposure to hazardous materials while studies leading to the selection of the final cleanup remedies are taking place.

## Site Repository

Grand Rapids Public Library, West Side Branch, 713 Bridge Street, N.W., Grand Rapids, MI 49504

# CANNELTON INDUSTRIES, INC.
## MICHIGAN
EPA ID# MID980678627

**EPA REGION 5**
Chippewa County
Sault Sainte Marie

**Other Names:**
**Northwestern Leather**

## 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 presently is 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, to be contaminated with heavy metals. In 1988, the City fire department became concerned over recurring fires in a 1- to 2-acre 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 a 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. A portion of the site is located within the 100-year flood plain of the St. Mary's River.

**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: 08/30/90

## 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 and mercury. Some chromium was detected in the St. Mary's River. Trespassers coming in direct contact with 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 pollutants bioaccumulate in fish, they may pose a health hazard if eaten. Bald eagles, which 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 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 to limit access to a 1- to 2-acre portion of the site. In 1989, Algoma installed a sprinkler system to prevent dry conditions from contributing to fires. Under an order from the EPA, Algoma constructed a stone wall along part of the shoreline of the site to prevent wave and ice action from eroding the site. The EPA completed further stabilization and security actions during the fall of 1991, including fencing a greater area of the site, repairing existing fences, and further stabilizing the shoreline area.

**Entire Site:** In 1988, the EPA began a study to determine the nature and extent of the contamination at the site. Field work has been completed, and the investigative report was finalized in late 1991. Various treatment methods are being evaluated, and a final remedy will be selected for site cleanup when the study is completed, expected in late 1992.

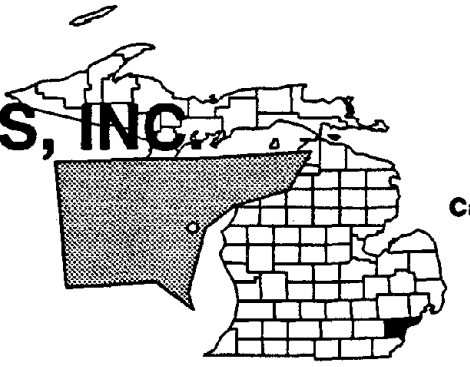
## Environmental Progress

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

## Site Repository

Gayliss Public Library, 541 Library Drive, Sault Sainte Marie, MI 49783

# CARTER INDUSTRIALS, INC.
## MICHIGAN
EPA ID# MID980274179



**EPA REGION 5**
Wayne County
Detroit

**Other Names:**
**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 marshall, 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 percent 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 a mile of the site. Three schools, seven churches, a playground, and a post office are located within 1/2 mile of the site.

**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: 03/31/89

## Threats and Contaminants

Sediments in the sewer lines and on-site 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 through direct contact with or ingestion of contaminated soils or sediments. Cleanup activities, such as repaving streets and vacuuming yards and alleys, have reduced the public 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 relocated temporarily. A system was installed to control drainage and to 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 1989, the EPA began studying the extent of soil contamination at the site. The study was completed in 1991, and final cleanup measures were selected. The EPA's selected plan for cleanup involves concentrating the PCBs through low temperature thermal desorption; transporting the condensed PCB material off site for incineration; and disposing of the residuals resulting from the treatment of soil in an on-site containment solid waste cell. The EPA plans to divide the cleanup of the site into various phases, including the decontaminating the soil, 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 nine homes next to Carter Industrials indicated that the residents had not absorbed any more PCBs than the amount normally found in the population of the State of Michigan.

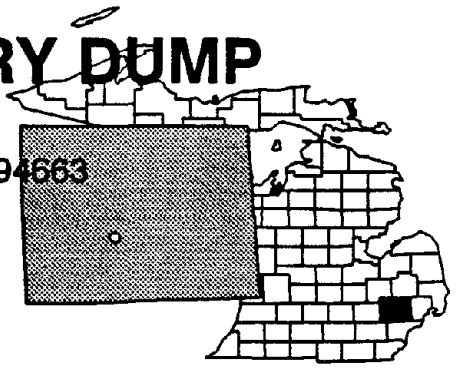
## Environmental Progress

The numerous immediate actions taken to remove the contaminants from the area, including fencing the area and repaving streets and alleyways in the area of the site, have reduced the potential for exposure to hazardous substances at the Carter Industrials, Inc. site while cleanup activities are taking place.

## Site Repository

Main Library, Reference Department, Detroit Public Library System, 5201 Woodward Avenue, Detroit, MI 48202

# CEMETERY DUMP
## MICHIGAN
EPA ID# MID980794663



**EPA REGION 5**
Oakland County
Rose Township
Rose Center

**Other Names:**
**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 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 was contaminated with low levels of zinc and lead. People who had direct contact with or accidentally ingested contaminated groundwater, soil, or drum contents may have been at risk.

## Cleanup Approach

This site is being addressed in a long-term remedial phase focusing on controlling the source of contamination.

## 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. A fence was installed in 1987. The State completed the cleanup activities in 1989.

**Entire Site:** In 1989, the State, after extensive sampling and analysis, determined that the removal of the source of contamination had corrected the soil and groundwater contamination; therefore, no further actions are planned. The State will monitor the groundwater for 5 years to ensure there are no health threats to the public or the environment. No contaminants were detected in the last groundwater sampling.

## Environmental Progress

The removal of drums and contaminated soils and the fencing of the site have eliminated the potential for exposure to contaminated materials at the Cemetery Dump site. The State will continue to monitor the groundwater to ensure the protection of nearby residents and the environment. In mid-1991, the EPA initiated the process for deleting this site from the NPL.

## Site Repository

Holly Township Library, 1116 North Saginaw Street, Holly, MI 48442

# CHARLEVOIX MUNICIPAL WELL
## MICHIGAN
EPA ID# MID980794390

**EPA REGION 5**
Charlevoix County
Charlevoix

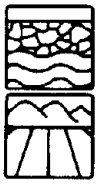
## Site Description

The Charlevoix Municipal Well site is located on the shore of Lake Michigan and consists of a municipal well system made up of a shallow well connected to a horizontal flume buried beneath the beach of Lake Michigan. This well is no longer in use. The flume collected groundwater and channeled it into the well, where it was pumped to the distribution system. Approximately half of the water entering the system came from Lake Michigan and half from shallow groundwater sources. The City's water system was 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 and concluded that part of the contamination may have originated on a local school property. The City installed a system to introduce oxygen into the municipal supply in 1982; however, this aeration system was only partially effective in removing contaminants from the water. This problem was subsequently solved. To date, the sources of contamination of the City's water system have not been fully identified despite 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 one or more spills 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 until established cleanup levels are met.

## 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 water. 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.

**Entire Site:** In 1985, after completing an extensive study to identify the source of site contamination, the EPA selected the following cleanup methods to address site contamination: allow the contaminant plumes to dilute under natural flow conditions to Lake Michigan; continue long-term monitoring of the plumes during the natural purging period; and 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. To solve the problem caused by blockage of water intake by drifting lake sand, the EPA and the State added additional intake piping to improve the water capacity.

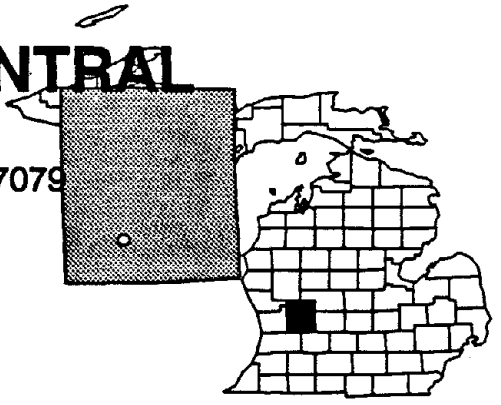
## Environmental Progress

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

## Site Repository

Charlevoix Public Library, 109 Clinroa Street, Charlevoix, MI 49720

# CHEM CENTRAL
## MICHIGAN
EPA ID# MID980477079



**EPA REGION 5**
Kent County
Wyoming Township
Wyoming

**Other Names:**
**Wolverine Chemical**

## Site Description

Since 1957, Chem Central has distributed industrial chemicals from this 2-acre site in Wyoming. 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. The State ordered Chem Central to clean up the groundwater and remove contaminated soils from the ditch. Approximately 15,000 people live within 1 mile of the site. All residences are connected to 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.

**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 and semi-volatile organic compounds (VOCs and SVOCs). Soil is contaminated with phthalates, VOCs, and polychlorinated biphenyls (PCBs). Plaster Creek receives runoff from the site through Cole Drain. Because all residences in the area use the municipal water system, the only threat of exposure is by accidentally ingesting contaminated groundwater or having direct contact with contaminated soils on the site property.

## 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 under drain system to capture contaminants seeping into the groundwater that originate from on site. The company also constructed an air stripping system to treat the extracted groundwater for discharge into the municipal waste treatment system. VOCs removed from the extracted groundwater 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 ditch in a federally approved facility. While the soil and water were being removed, a guard was posted in the area. The empty pit was filled with clean soil. These cleanup activities were completed in 1985.

**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. The study was completed in 1991 and a final cleanup remedy was selected. The remedy includes constructing a soil vapor extraction system to treat contaminated soil; extending the current pump and treat system; and collecting oil floating in the purge wells and disposing of the collected oil off site. The design of the remedy began in mid-1992 and is expected to be completed in 1994.

**Site Facts:** In 1987, the EPA and Chem Central signed an Administrative Order on Consent under which the company agreed to study and clean up the site. The EPA issued a Unilateral Administrative Order to Chem Central in April 1992 requiring the company to conduct the design and cleanup activities at the site.

## Environmental Progress

The immediate actions have contained most of the contaminated groundwater underlying the site and removed the threat of direct contact with the contaminated sediments and water in the ditch. These actions have reduced the potential for exposure to hazardous materials at the Chem Central site while further cleanup activities are being planned.

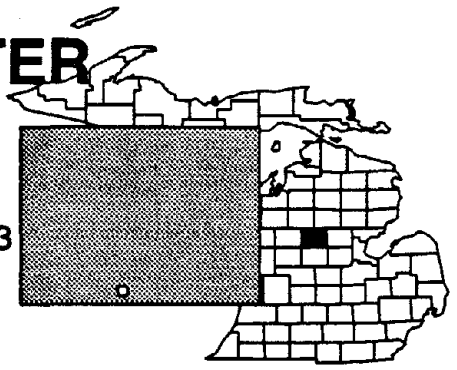
## Site Repository

Wyoming Public Library, 3350 Michael Street, Southwest, Wyoming, MI 49509

# CLARE WATER SUPPLY

## MICHIGAN

EPA ID# MID980002273



**EPA REGION 5**

Clare County
Clare

**Other Names:**
**Clare Municipal Well Field**

## Site Description

The Clare Water Supply site consists of four production wells (Wells #2, #5, #6, and #7) and their related water treatment and storage facilities. Two of the four wells are contaminated with bromoform and various volatile organic compounds (VOCs). Pumping from Well #5 was limited in 1982, and the city water supply since has 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 iron from the water supply, 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. Fourteen manufacturing and retail businesses operate in the area around the municipal well field. Historical operations at some of these businesses involved the use of solvents or degreasers. Approximately 4,300 people live within 3 miles of the site. The nearest residence is located less than 1/4 mile from the site.

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

**NPL LISTING HISTORY**
Proposed Date: 09/08/83
Final Date: 09/21/84

## Threats and Contaminants

Groundwater and soil are contaminated with bromoform and VOCs including vinyl chloride, trichloroethane, and dichloroethane. Surface water and sediment samples from a nearby drainage ditch contain VOCs. Potential health threats to people stem from accidentally ingesting or coming into direct contact with contaminated groundwater, surface water, or sediments.

## Cleanup Approach

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

### Response Action Status

**Immediate Actions:** In 1985, four companies located west of the well field were identified by the EPA and the Michigan Department of Natural Resources (MDNR) as being potentially responsible for the groundwater contamination. At the request of the MDNR, these companies reduced the source of contamination by removing contaminated soils from their property and by excavating underground storage tanks containing fuel and other contaminants.

**Entire Site:** In 1990, the EPA selected a remedy, which included air stripping Wells #2 and #5. The air stripper was constructed in early 1991 and has been in operation for 1 year. The MDNR and the EPA will continue to test the municipal water supply on a regular basis to ensure that it remains safe for use.


**Source Areas and Aquifer:** The potentially responsible parties, under EPA supervision, conducted a study of the source areas and the contaminated aquifer. The EPA evaluated the study findings and selected a final cleanup remedy in 1992 which includes soil vapor extraction and groundwater extraction and treatment using an ultraviolet photochemical oxidation treatment. Design activities are expected to begin in 1993.

**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.

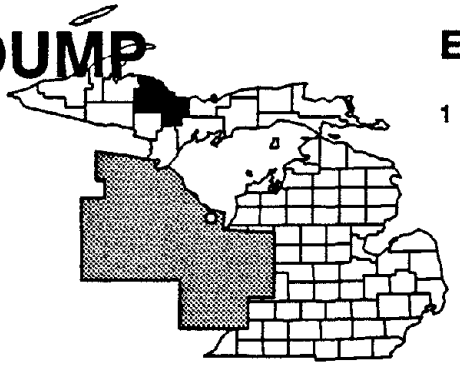
## Environmental Progress

The municipal water supply is now protected by an air stripping water treatment system. The implementation of this water treatment system and the removal of contaminated soils and underground storage tanks have reduced the potential for exposure to hazardous substances at the Clare Water Supply site while cleanup activities are being planned to address the source areas and the contaminated aquifer.

## Site Repository

Garfield Memorial Library, 4th and McEwan Streets, Clare, MI 48617

# CLIFF/DOW DUMP
## MICHIGAN
EPA ID# MID980608970



**EPA REGION 5**
Marquette County
1 mile north of Marquette

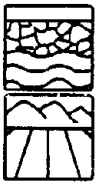
## Site Description

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 potential health risks to people stem from direct contact with or accidental ingestion of 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 to restrict access.

**Entire Site:** Based on a comprehensive investigation into site contamination, the cleanup activities were selected, which include: excavation and incineration of 200 cubic yards of uncovered tar; excavation and biological treatment of 9,200 cubic yards of contaminated fill material; construction of a topsoil cover and revegetation of the fill material; deed restrictions to prevent the installation of drinking water wells within the vicinity of the contaminated groundwater boundaries and the disturbance of fill materials; and groundwater and air monitoring. In June 1990, the potentially responsible parties excavated and incinerated 200 cubic yards of tar. The parties also are preparing the technical plans for implementing the remainder of the selected remedy. Construction is scheduled to begin in 1994, once the technical 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.

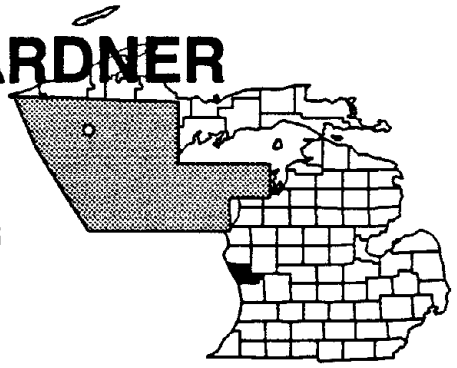
## Environmental Progress

The installation of a fence and the excavation and incineration of tar have reduced the potential for exposure to contaminated materials at the Cliff/Dow Dump site while additional cleanup remedies are being designed.

## Site Repository

Peter White Public Library, 217 North Front Street, Marquette, MI 49855

# DUELL & GARDNER LANDFILL
## MICHIGAN
EPA ID# MID980504716



**EPA REGION 5**
Muskegon County
Dalton Township

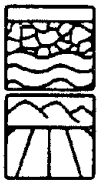
## Site Description

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 have direct contact with or 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 off the site for disposal. The site also was fenced.

**Entire Site:** The State initiated an investigation in 1987 to determine the type and extent of groundwater and soil contamination remaining at the site and to identify alternative technologies for the cleanup. Field work was completed in early 1992, during which a treatability study was conducted to determine the effectiveness of different technologies in treating aniline, N, N dimethylaniline, and crystal violet. The results from the investigations are currently being evaluated and distributed for public comment. The investigation is expected to be completed in 1993, at which time a final cleanup remedy will be selected.

## Environmental Progress 

Excavating, covering, and removing drums and contaminated soil and posting warning signs at the site have reduced the potential for exposure to contaminated soil and drums at the Duell & Gardner Landfill site while studies are taking place and cleanup activities are being planned.

## Site Repository 

Dalton Township Hall, 1616 East Riley Thompson Road, Muskegon, MI 49445

# ELECTROVOICE
## MICHIGAN
EPA ID# MID005068143

**EPA REGION 5**
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. Both lagoons were closed by Electrovoice in 1980 and subsequently backfilled. 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 1/2 mile downstream of the site, is used for recreation.

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

**NPL LISTING HISTORY**
Proposed Date: 09/08/83
Final Date: 09/21/84

## Threats and Contaminants

Groundwater is contaminated with volatile organic compounds (VOCs). Soils are contaminated with VOCs and inorganics. Samples of lagoon sludge and standing water showed elevated levels of heavy metals and cyanide in the water. Possible health threats stem from direct contact with or ingestion of contaminated groundwater, surface water, sludge, or soil.

## Cleanup Approach

This site is being addressed in a 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 investigation is completed, scheduled for late 1992, 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.

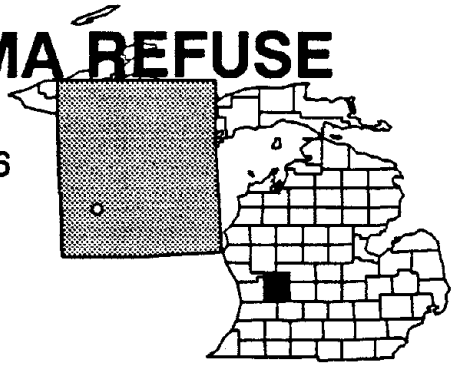
## Environmental Progress

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.

## Site Repository

Buchanan Public Library, 117 West Front Street, Buchanan, MI 49107

# FOLKERTSMA REFUSE
## MICHIGAN
EPA ID# MID980609366



**EPA REGION 5**
Kent County
Walker

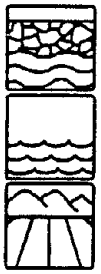
## Site Description

The 8-acre Folkertsma Refuse site was operated as a licensed, yet improperly zoned, 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. However, a later investigation conducted by the EPA estimated that there is 57,000 cubic yards of landfilled waste. Approximately 8,000 people live within a mile of the site.

**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



Groundwater is contaminated with arsenic. Sediments from two drainage ditches on the property and landfilled materials contain polynuclear aromatic hydrocarbons (PNAs) and heavy metals including arsenic, cadmium, chromium, nickel, and lead. Possible health threats stem from direct contact with or ingestion of contaminated groundwater, sediments, or landfilled materials, as well as inhaling contaminated dusts. Contaminated sediments pose an environmental risk because of the possibility of bioaccumulation of chemicals.

## Cleanup Approach

This site is being addressed in a 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 was completed in 1990, and a final cleanup remedy was selected in 1991. The final cleanup remedy involves excavating contaminated sediments and placing these sediments in the landfill. A clay cap will be constructed over the contaminated sediments and landfill materials. In addition, improved drains will provide for continued drainage of the site, and gas vents will be placed on each side of the landfill to prevent the buildup of gases if necessary. Fencing and deed restrictions will control access and use of the site, while groundwater and drainage water monitoring will ensure the effectiveness of the cleanup. The design of the remedy is expected to begin in mid-1992.

## Environmental Progress

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

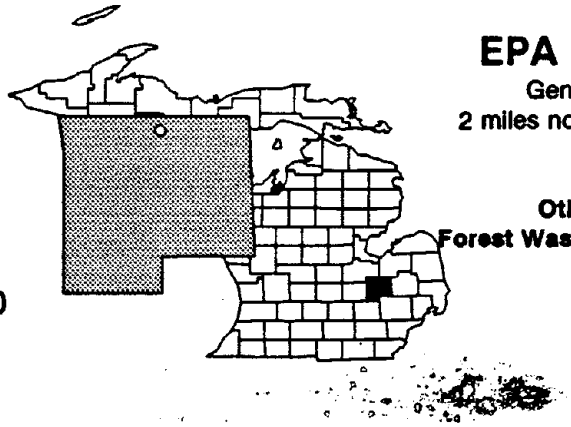
## Site Repository

Kent County Public Library, 4293 Remembrance Road, Northwest, Grand Rapids, MI 49504

# FOREST WASTE PRODUCTS

## MICHIGAN

EPA ID# MID980410740



**EPA REGION 5**

Genesee County
2 miles northwest of Otisville

**Other Names:**
Forest Waste Disposal Landfill

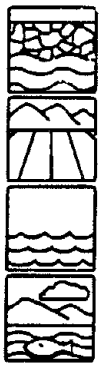
## Site Description

The 112-acre Forest Waste Products site is 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 have direct contact with or 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: immediate actions and two long-term remedial phases focusing on cleanup of the lagoons and cleanup of the landfill and groundwater.

### Response Action Status

**Immediate Actions:** 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: excavation, treatment, and disposal of 4,000 cubic yards of contaminated sludges, sediments, and soils in an off-site landfill; and 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 was completed in 1990.

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

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

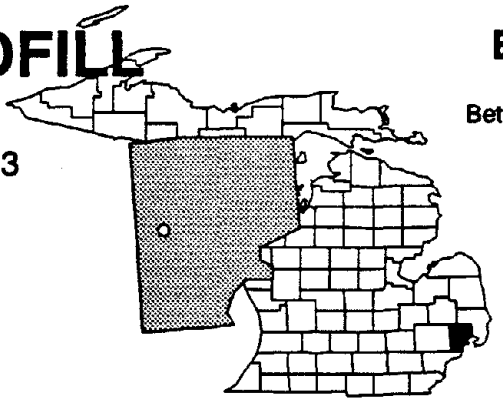
## Environmental Progress

Installing a fence, posting a guard, and the treating and disposing of sludges, soils, and liquids in the lagoons have reduced the potential for exposure to contaminated materials at the Forest Waste Products site while the design and cleanup activities are continuing.

## Site Repository

Forest Township Library, 130 East Main Street, Otisville, MI 48463

# G & H LANDFILL
## MICHIGAN
EPA ID# MID980410823



**EPA REGION 5**
Macomb County
Between Utica and Rochester

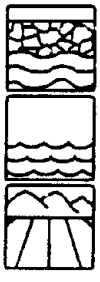
## Site Description

The 80-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 through direct contact with or ingestion of 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 also were 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 surround 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:** In 1990, the EPA decided to contain the contamination at the landfill by capping and installing a slurry wall; pumping and treating groundwater outside of the slurry wall; excavating, consolidating, and capping PCB-contaminated soil outside of the slurry wall; and providing municipal water connections as needed. Wetlands affected by the site will be restored. The EPA is expected to begin designing the cleanup approach in the fall of 1992.

## Environmental Progress

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

## Site Repository

Shelby Township Library, 51680 Van Dyke Avenue, Utica, MI 48316

# GRAND TRAVERSE OVERALL SUPPLY COMPANY
## MICHIGAN
EPA ID# MID017418559

**EPA REGION 5**
Leelanau County
Greilickville

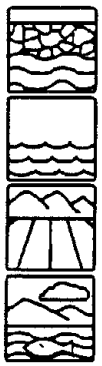
## Site Description

The Grand Traverse Overall Supply Company (GTOS) site is a commercial laundering facility covering 1 acre in Greilickville. The facility was built in 1953; 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. Since contaminated wells have been replaced, contact with contaminated groundwater no longer poses a threat. Lagoon sediments, dry cleaning waste sludges, soil from the dry well, and wastewater and cooling water were contaminated with trichloroethylene (TCE) and perchloroethylene. There was a potential for contamination of Cedar Lake, Cedar Lake Outlet, and Grand Traverse Bay with TCE prior to cleanup actions. People who had direct contact with or accidentally ingested contaminated groundwater, soil, or surface water may have been at risk. If the contaminated groundwater plume had migrated towards Grand Traverse Bay, the wildlife living in or around the Bay could have been exposed to pollutants.

## Cleanup Approach

The site is being addressed through initial actions; further investigations showed that no other cleanup actions are required.

### 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 sludge and contaminated soils were removed.

**Entire Site:** In 1988, the EPA began a study to determine the nature and extent of the groundwater, soil, and surface water contamination at the site. The study, completed in 1992, showed that the initial cleanup actions have addressed the threats to the people and the environment. Therefore, EPA has determined that no further cleanup actions are necessary.

## Environmental Progress

Replacement of contaminated wells and removal of contaminated soils have eliminated the potential for exposure to site-related contaminants. The EPA has determined that no other actions are required at the Grand Traverse Overall Supply Company site.

## Site Repository

Traverse Area District Library, 322 6th Street, Traverse City, MI 49684

# GRATIOT COUNTY GOLF COURSE

## MICHIGAN

EPA ID# MID980794531

**EPA REGION 5**

Gratiot County
St. Louis

**Other Names:**
**Edgewood Farms Golf Course Site**

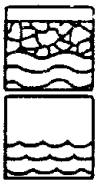
## Site Description

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 the 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 Federal, State, and potentially responsible parties' actions.

**NPL LISTING HISTORY**
Proposed Date: 12/01/82
Final Date: 12/01/82
Deleted 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 public 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:** The Gratiot County Golf Course site was placed on the first proposed NPL in December 1982. All cleanup actions were completed before the first final NPL was established. 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.

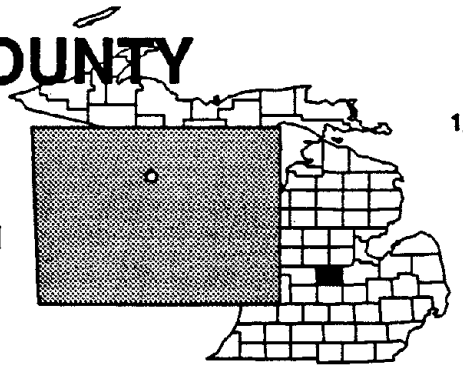
## Environmental Progress

The immediate actions performed have removed the sources of contamination and eliminated any potential threats at the site. Site evaluations determined that no additional cleanup work was required, and the Gratiot County Golf Course site was deleted from the NPL 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.

## Site Repository

Information is no longer available.

# GRATIOT COUNTY LANDFILL
## MICHIGAN
EPA ID# MID980506281



**EPA REGION 5**
Gratiot County
1/2 mile southeast of St. Louis

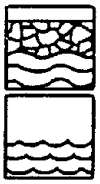
## Site Description

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, 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 a 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 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 of or direct contact with contaminated groundwater and surface water.

## Cleanup Approach

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

### Response Action Status

**Entire Site:** Between 1977 and 1980, various hydrogeological studies were performed at the site. Based on these studies, the Michigan Department of Natural Resources (MDNR) prepared an Environmental Impact Assessment and developed alternatives for cleanup of the site. A remedy for the site was selected in 1981, and in 1984, the State, with Velsicol Chemical Corporation, 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 evapotranspiration 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, expected in 1992, will determine if additional cleanup activities are necessary.

**Site Facts:** In November 1982, Velsicol Chemical Corporation 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 site while studies are taking place to determine whether further cleanup activities will be required.

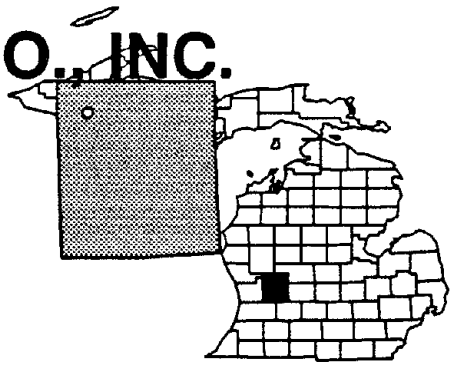
## Site Repository

Not established.

# H. BROWN CO., INC.

## MICHIGAN

EPA ID# MID017075136



**EPA REGION 5**

Kent County
Grand Rapids
Walker

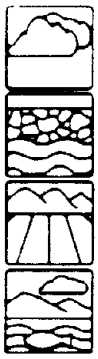
## Site Description

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 copper, nickel, lead, and chromium. Potential health threats include accidentally ingesting or coming in direct contact with 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 two phases: interim actions and a long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

**Interim Actions:** In spring 1991, the EPA took measures to limit the scattering of dust from surface soils and fenced the property to the north of the facility to limit access to the area where soils are contaminated with lead. Later, the potentially responsible parties erected a fence and performed limited air monitoring. The potentially responsible parties have not yet completed all air monitoring requirements.

**Entire Site:** The EPA initiated an investigation in 1988 to determine the nature and extent of groundwater, soil, air, and sediment contamination at the site and to identify alternative cleanup remedies. The investigation is scheduled to be completed in late 1992.

**Site Facts:** Under a Unilateral Administrative Order, the potentially responsible parties were required to erect a fence and monitor the air. All air monitoring requirements under the Order have not been completed to date.

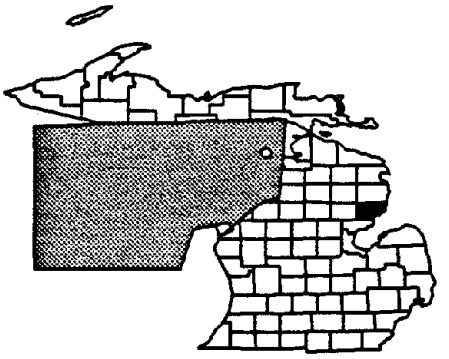
## Environmental Progress

Interim actions to control dust disturbance and restrict area access have reduced the potential for exposure to contaminated materials while the EPA continues its investigation and identifies cleanup alternatives for the H. Brown Company, Inc. site.

## Site Repository 

Kent County Public Library, Walker Branch, 1331 Walker Village Drive, Walker, MI 49504

# HEDBLUM INDUSTRIES
## MICHIGAN
EPA ID# MID980794408



**EPA REGION 5**
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 directly 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 northeastern 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, State, 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. Surface waters of the bayou northeast of the Au Sable Heights subdivision are contaminated with VOCs, including TCE and vinyl chloride. Residents of Au Sable Heights who use private wells may be exposed to contaminants when drinking or using groundwater. Sampling of residential wells in 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 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: extraction and treatment of contaminated groundwater; monitoring of groundwater in the Au Sable Heights subdivision during groundwater treatment; abandonment of six groundwater monitoring wells; and collection and analysis of on-site soil samples. A potentially responsible party began designing the groundwater treatment system in 1990. The design of the cleanup technologies is scheduled for completion in 1992, at which time site cleanup will begin.

## 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.

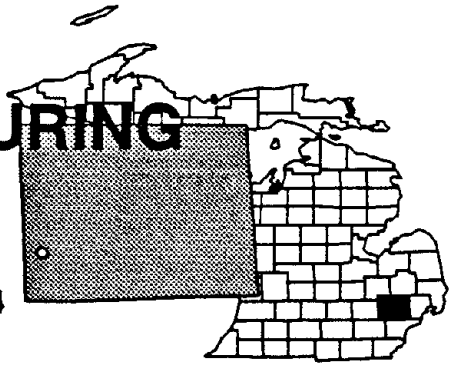
## Site Repository

Oscoda Public Library, 110 South State Street, Oscoda, MI 48750

# HI-MILL MANUFACTURING COMPANY

## MICHIGAN

EPA ID# MID005341714



**EPA REGION 5**

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 periodically were 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 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), dichloroethane (DCE), and vinyl chloride. 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 an intensive study to determine the nature and extent of contamination at the site in 1989. The study is expected to be completed in late 1992. 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 study of site contamination.

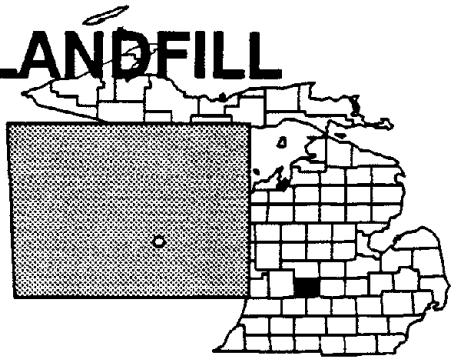
## Environmental Progress

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.

## Site Repository

Highland Township Library, 205 West Livingston Street, Highland, MI 48031

# IONIA CITY LANDFILL
## MICHIGAN
EPA ID# MID980794416



**EPA REGION 5**
Ionia County
Ionia

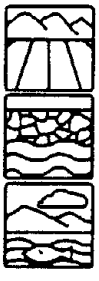
## Site Description

The Ionia City Landfill site is a former landfill covering 20 acres in Ionia. From the 1930s until it closed in 1969, the City owned and operated the site for the disposal of municipal wastes. Although closed, wastes continued to be periodically disposed of at the site through the early 1970s. 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 unknown number of drums are buried in an area approximately 1/3 acre in size, located in the north central portion of the site. 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 forms the eastern boundary 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



Heavy metals, including chromium, barium, and lead, were found in soil. Groundwater is contaminated with volatile organic compounds (VOCs) such as vinyl chloride and the heavy metal chromium. People who come into direct contact with or accidentally ingest contaminated groundwater or soil may be at risk. The contamination at the site may harm wildlife living in or around the area.

## Cleanup Approach

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

**Source Control:** 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 potentially responsible parties currently are designing the technical specifications for the ISV to meet performance criteria established by the EPA. Testing of the design technology is scheduled for completion in 1993.

**Site Facts:** The EPA expects to initiate an additional cleanup phase at the Ionia City Landfill to address cleanup of contaminated groundwater.

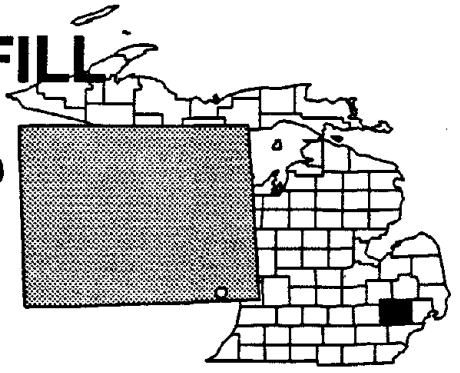
## Environmental Progress

By constructing a security fence to restrict access to the Ionia City Landfill site, removing the exposed contaminated drums, and installing a clay cover to prevent contaminant migration, the parties potentially responsible for site contamination have reduced the potential for exposure to hazardous materials. The selected source control remedy for the site currently is in the design phase, with the cleanup activities scheduled to begin in 1993.

## Site Repository

Hall-Fowler Memorial Library, 126 East Main Street, Ionia, MI 48846

# J & L LANDFILL
## MICHIGAN
EPA ID# MID980609440



**EPA REGION 5**
Oakland County
Rochester Hills

**Other Names:**
**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 a mile of the site, with the nearest residence about 200 feet away. Some of 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 through 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 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 long-term remedial phase focusing on the cleanup of the entire site.

### Response Action Status

**Entire Site:** Many of the residents using the shallow wells as a drinking water source have received hook-ups to the city water supply. 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 1992, 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.

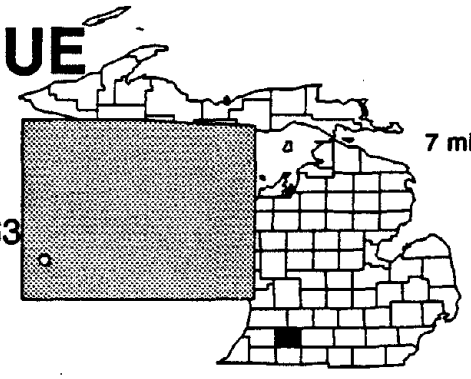
## Site Repository

Rochester Hills Public Library, 210 West University Drive, Rochester Hills, MI 48063

# K & L AVENUE LANDFILL

## MICHIGAN

EPA ID# MID980506463



**EPA REGION 5**

Kalamazoo County
Oshtemo Township
7 miles west of downtown Kalamazoo

**Other Names:**
**West KL Avenue Landfill**
**Kalamazoo KL Landfill**
**Kalamazoo County Landfill**
**Oshtemo Township Landfill**

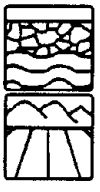
## Site Description

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. The landfill was closed in 1979, after contaminants were found in residential wells. The County provided bottled water to the affected residences 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 adjacent to the site. The landfill is about 200 feet southwest of Bonnie Castle Lake and 1 mile east of Dustin Lake. Both bodies of water are used for recreation, including fishing.

**Site Responsibility:** The site is being addressed through Federal and County 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, the groundwater presently poses little or no threat to public health.

## Cleanup Approach

The 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 1980 and 1981, the County of Kalamazoo either installed new wells for or provided connections to a public water supply 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 1990, the EPA selected cleanup activities consisting of continued monitoring of groundwater, surface water, and air; deed restrictions on the use of the shallow aquifer as a drinking water source; groundwater extraction and treatment by enhanced bioremediation; discharge of the treated groundwater back into the aquifer or an infiltration pond; fencing of the site; deed restrictions on the construction of buildings on the site or adjacent to the site; capping of the landfill; and the installation and monitoring of gas vents throughout the landfill. The engineering design of this remedy is expected to begin in 1992.

## Environmental Progress

By replacing contaminated water supplies, the County is protecting nearby residents from site-related contaminants at the K & L Avenue Landfill while the selected cleanup activities are being planned.

## Site Repository

Kalamazoo Public Library, 315 South Rose, Kalamazoo, MI 49007

# KAYDON CORPORATION
## MICHIGAN
EPA ID# MID006016703

**EPA REGION 5**
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; now only cooling water is discharged into the creek. The process wastes are removed by waste haulers and are placed in lined settling ponds to settle out the sludge prior to discharge to a sanitary sewer. The pond sludge periodically is removed to a federally approved facility for disposal. Approximately 5,000 people live within a 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 of the site have private wells, but only one residence used a 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, State, 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 came in direct contact with 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 cleanup of the entire site.

### 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 them in a federally approved facility. The excavated area was backfilled with clean sand, graded to conform to existing land contours, and seeded.

**Entire Site:** 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. A performance evaluation currently is being conducted.

**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 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.

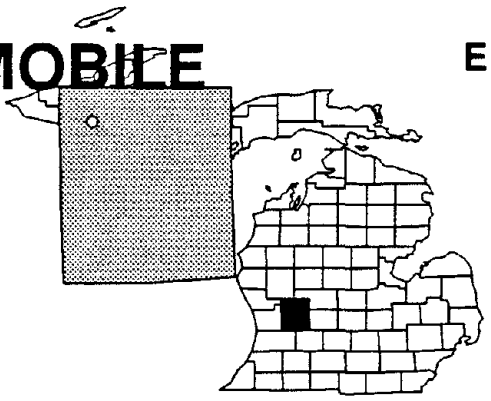
## Site Repository

Contact the Region 5 Superfund Community Relations Office.

# KENT CITY MOBILE HOME PARK

## MICHIGAN

EPA ID# MID981089915



**EPA REGION 5**

Kent County
Kent City

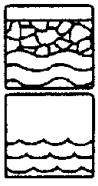
## Site Description

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 potential risk to people who came in direct contact with 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 immediate actions.

### Response Action Status

**Immediate Actions:** 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 NPL.

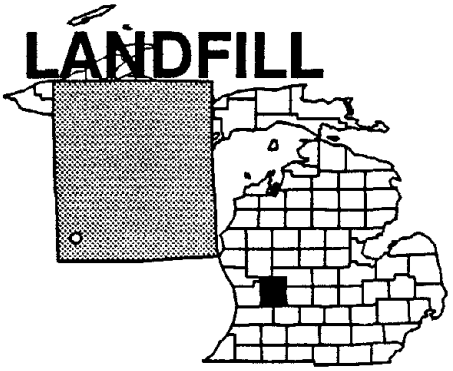
## Environmental Progress

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 public health or the environment.

## Site Repository

Not established.

# KENTWOOD LANDFILL
## MICHIGAN
EPA ID# MID000260281



**EPA REGION 5**
Kent County
Kentwood

**Other Names:**
**Kent County Landfill**

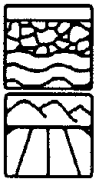
## Site Description

The 55-acre Kentwood Landfill site originated as the Paris Township dump in the early 1950s and lies within a 72-acre parcel of land in Kentwood. Refuse was dumped into ravines at the landfill and was burned. In 1966, the dump was licensed as a solid waste disposal facility; however, the license stipulated that the refuse be covered daily and that burning cease. The site was inspected in late 1966, 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 an additional landfill, southeast of the original landfill. The County covered both the original and the new landfill with clay and sand in 1975 and 1976 to prevent rainwater from coming into contact with the buried wastes. The entire landfill was closed in 1976. Approximately 22 residences are in the immediate area near the landfill. Some of these residences obtain their drinking water supply from the groundwater in the area surrounding the site. The City of Kentwood obtains drinking water from a municipal water supply system tapping Lake Michigan.

**Site Responsibility:** This site is being addressed through Federal, County, and municipal 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 come in direct contact with 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 public health and the environment.

## Cleanup Approach

This site is being addressed in a 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, conducted an investigation to determine the type and extent of contamination at the landfill. The groundwater, soil, surface water, and sediments of Plaster Creek were sampled and tested. In early 1991, the EPA selected a remedy, which includes capping the landfill, incorporating a gas venting and leachate collection system into the cap, extracting groundwater and treating it at a local wastewater treatment facility, implementing groundwater use restrictions, and constructing a leachate extraction system. The design phase for constructing the remedy is currently underway and is expected to be completed in 1993, at which time the final cleanup activity will begin.

**Site Facts:** In 1985, the City of Kentwood and Kent County signed an Administrative Order on Consent to conduct a study of the site. The Municipalities signed a Consent Decree to conduct the design of the remedy and the cleanup activities in August 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 Kentwood Landfill site while cleanup activities are taking place.

## Site Repository

Kent County Library, Kentwood Branch, 4700 Kalamazoo Avenue, Southeast, Kentwood, MI 49508

# KYSOR INDUSTRIAL CORPORATION

## MICHIGAN

EPA ID# MID043681840

**EPA REGION 5**

Wexford County
Cadillac

**Other Names:**
**Kysor Cadillac**

## Site Description

The Kysor Industrial Corporation site covers approximately 1/10 acre in the Cadillac Industrial Park. The park consists of about 40 industrial facilities, two of which are NPL sites, Kysor and the Northernaire 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 still were contaminated. The second NPL site, Northernaire, also has contaminated soil and groundwater. The groundwater plumes have intermingled, so that the groundwater under both sites is contaminated with elements from Northernaire and Kysor. Approximately 10,800 people live within 3 miles of the site; about 5,000 live within a 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.

**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, as well as hexavalent chromium. 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 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 Northernaire 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 groundwater also will be treated with a carbon adsorption treatment system to remove hexavalent chromium. 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 have completed a pilot test of the selected remedies and are designing the technical specifications for the cleanup at the site under EPA monitoring. After the completion of the design phase, scheduled for 1993, the planned cleanup activities will begin.

## Environmental Progress

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

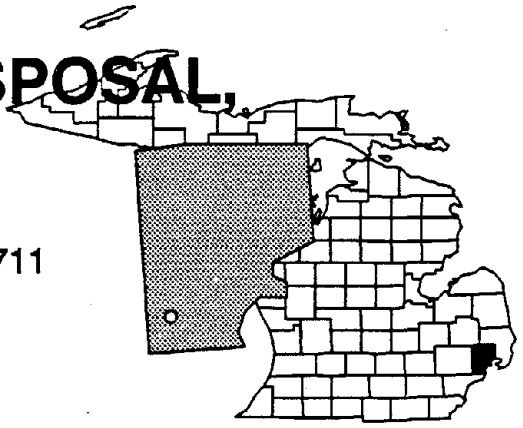
## Site Repository

Cadillac-Westford Library, 411 South Lake Street, Cadillac, MI 49601

# LIQUID DISPOSAL, INC.

## MICHIGAN

EPA ID# MID067340711



**EPA REGION 5**
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, old incinerator parts, emptied tanks, wooden pallets, miscellaneous containers, and other debris remain 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 eastern 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 NPL site are about a mile away from the Liquid Disposal, Inc. 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 a mile of the site, with the nearest residence situated 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, forcing 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 also were disposed of. In 1985, the EPA removed 100,000 gallons of flammable liquids. All the underground tanks were uncovered, opened, and cleaned. Approximately 200 drums were incinerated or landfilled in early 1986. Several hundred sample jars of hazardous material were removed in 1990.

**Entire Site:** Based on the results of the site investigation by the Michigan Department of Natural Resources (MDNR), the EPA selected the following methods for long-term cleanup at the site: on-site disposal of existing debris and equipment; on-site solidification and fixation of soil and waste; extraction and treatment of groundwater using air stripping and ion exchange, with discharge of the treated groundwater into the Clinton River; and construction of a slurry wall and impermeable cap containment system. The design of the technical specifications is underway, and cleanup of the site is expected to begin in early 1993. All cleanup actions are expected to be completed by 1995.

**Site Facts:** In February 1982, the MDNR 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.

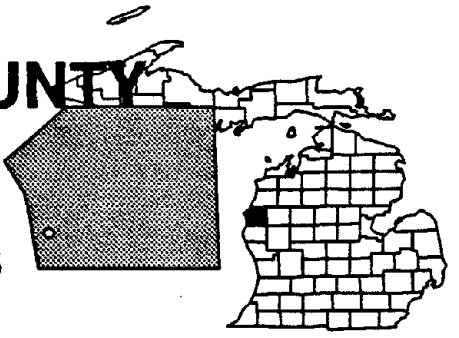
## Environmental Progress

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

## Site Repository

Shelby Township Library, 51680 Van Dyke Avenue, Utica, MI 48087

# MASON COUNTY LANDFILL
## MICHIGAN
EPA ID# MID980794465



**EPA REGION 5**
Mason County
Pere Marquette Township
3 miles south of Lundington

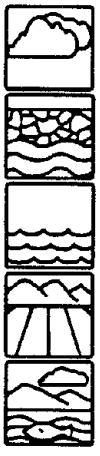
## Site Description

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 a mile east of Lake Michigan. A wetland 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 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 to possible adverse health effects. 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 focusing on 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 Babbin 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: covering the landfill with soil and clay according to Federal hazardous waste management regulations; constructing a fence around the perimeter of the site; placing deed restrictions on and near the site to prohibit the use of shallow groundwater; and continuing monitoring groundwater to aid in the long-term cleanup action for the groundwater and to assess the effectiveness of the clay and soil cover. Construction of the clay/soil cap was completed in mid-1991. All cleanup activities are expected to be completed by 1993.

**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 1995, 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 subsequently was 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

Covering the landfill, grading the land, constructing storm drains, and venting Babbin Pond and the landfill have reduced the potential for exposure to contaminants at the Mason County Landfill site while final cleanup activities and additional site studies are underway.

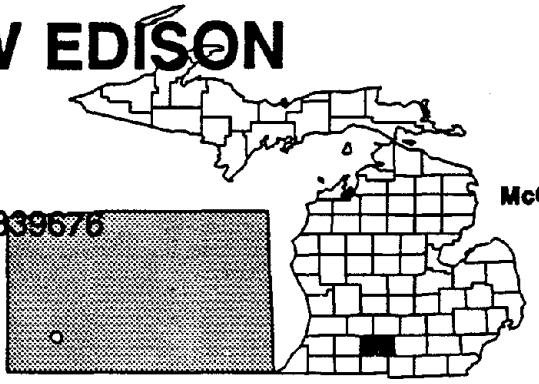
## Site Repository

Ludington Public Library, 217 East Ludington Street, Ludington, MI 49431

# MCGRAW EDISON CORP.

## MICHIGAN

EPA ID# MID005339676



**EPA REGION 5**

Calhoun County
Albion

**Other Names:**
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 also was 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 located one half mile from the site, receives discharge from groundwater purge wells, and is used for recreational activities such as swimming and fishing.

**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, 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 were 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 purge wells and a carbon adsorption tank. The wells have been constructed and the system is operational. Treated groundwater is being discharged, under a Federal permit, into the Kalamazoo River. Groundwater monitoring began in 1990 and will last for 40 years.

**Soil:** Areas of soil containing greater than 10 parts per billion of TCE, which still remain on site, will be cleaned up during this long-term soil phase. The selected remedy for soil cleanup is flushing 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 has 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 potentially responsible party has reduced the potential for direct exposure to hazardous materials at the McGraw Edison Corp. site. The final cleanup of the soil contamination is scheduled to begin as soon as a State discharge permit is received. Groundwater contamination currently is being treated and monitored.

## Site Repository 

Not established.

# METAL WORKING SHOP
## MICHIGAN
EPA ID# MID980992952

**EPA REGION 5**
Benzie County
Lake Ann

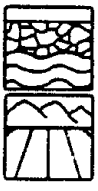
## Site Description

The Metal Working Shop site covers approximately 2 1/2 acres 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 low levels of volatile organic compounds (VOCs) including toluene and with the heavy metal chromium. Because contamination levels are low and site contaminants are not migrating, no potential health threats exist.

## Cleanup Approach

Intensive investigations of site conditions showed that the site does not pose a threat to people or the environment.

### Response Action Status

**Entire Site:** In 1992, the EPA completed an investigation to determine the nature and extent of contamination, including sampling of monitoring wells, residential wells, surface and subsurface soils, and lakes. The investigation results showed that the concentration of contaminants at the site does not pose a threat to people or the environment. Therefore, EPA determined that no cleanup actions are necessary and is proceeding with deleting the site from the NPL.

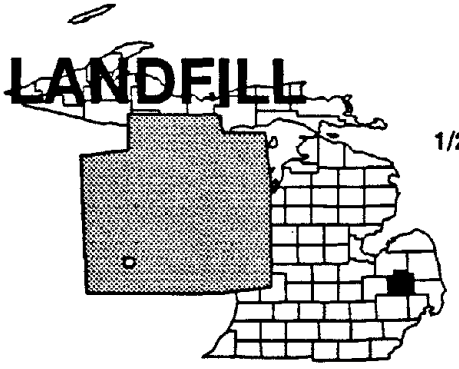
## Environmental Progress

The EPA has determined that the site does not pose a threat to the surrounding communities or the environment; therefore, no cleanup actions are required at the Metal Working Shop site.

## Site Repository

Almira Township Office, 7276 Sweet Lake Road, Lake Ann, MI 49650

# METAMORA LANDFILL
## MICHIGAN
EPA ID# MID980506562



**EPA REGION 5**
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 1955 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 unknown. However, it is likely that the previous owner disposed of waste and drums in unlined pits, which formerly were used for gravel mining or borrow areas. Fires occurred at the site in 1972 and 1979. About eight 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 five disposal areas. Two areas on site have been confirmed to contain approximately 28,000 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 VOCs and heavy metals including arsenic. 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. These wells are located within 1,000 feet downgradient of the site; however, there is no evidence to suggest that on-site groundwater contamination has migrated off site into private drinking water wells. 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 28,000 drums in Areas 1 and 4. These actions are expected to be completed by late 1992.

**Groundwater:** The State, with EPA assistance, conducted an investigation into the nature and extent of contamination in the groundwater and the landfill area. This study was completed, and a remedy was selected in 1990. The selected remedy entails groundwater extracting and treatment via chemical precipitation and air stripping and capping of the landfill. A passive gas collection and flaring system also will be installed. Design of the remedy began in 1991 and is expected to be completed in late 1993, at which time final cleanup activities will begin.

**Soil:** A potentially responsible party is conducting a study into the nature and extent of subsurface soil contamination. During this study, the two drum burial areas on the site will be investigated and soil borings will be taken. Once the investigation is completed, expected in 1993, a final cleanup remedy will be selected.

**Site Facts:** The EPA sent Special Notice letters to potentially responsible parties in November 1990.

## Environmental Progress

The ongoing removal and incineration of drums have reduced the potential for exposure to hazardous material at the Metamora Landfill site while further investigations to determine the most appropriate remedies for soil contamination are underway, and the design of the groundwater remedy is being conducted.

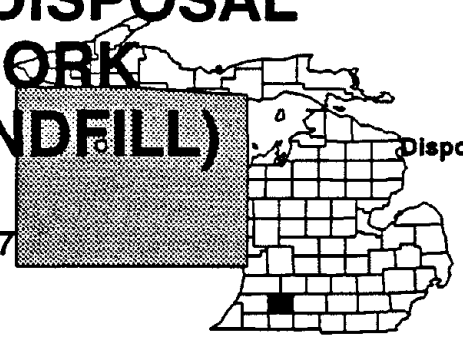
## Site Repository

Lapeer County Library, Metamora Branch, 4024 Oak Street, Metamora, MI 48455

# MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL)

## MICHIGAN

EPA ID# MID000775957



**EPA REGION 5**
Kalamazoo County
Kalamazoo

**Other Names:**
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 municipal 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 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 10 acres of 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 nature and extent of contamination at the site and recommend final cleanup activities. The investigation has included extensive sampling, an ecological survey, installation of five additional monitoring wells, and a pump test on the municipal well stations near the site to determine if local water supplies were affected by the contamination on site. The study was completed in September 1991, at which time the final cleanup remedy was selected. The remedy includes placing a solid waste cap on the entire site and pumping and treating the contaminated groundwater and discharging it to a publicly-owned treatment facility. The design of the selected remedies is expected to begin in early 1993.

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

## Environmental Progress

By covering a portion of the landfill and installing a leachate collection system, the potentially responsible party has reduced the potential for exposure to contaminants on the Michigan Disposal Service (Cork Street Landfill) site has been reduced while final site cleanup activities are being planned.

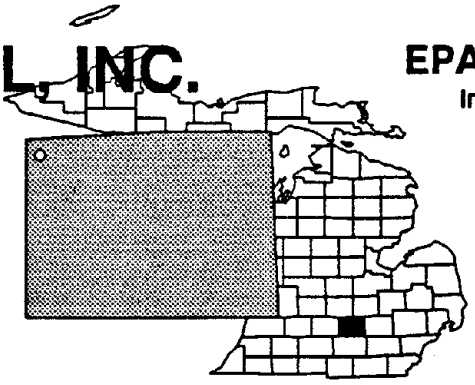
## Site Repository

Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007

# MOTOR WHEEL, INC.

## MICHIGAN

EPA ID# MID980702989



**EPA REGION 5**
Ingham County
Lansing

## Site Description

The Motor Wheel, Inc. site is located on the northeastern side of Lansing. This 25-acre site was used from approximately 1938 until 1979 for the 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 to the south, the W.R. Grace disposal area. 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 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 exist for individuals who drink the contaminated groundwater.

## 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 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 monitoring by the EPA and the Michigan Department of Natural Resources (MDNR), the potentially responsible parties initiated an investigation of the site in 1987. The investigation was completed in 1991 and a remedy was selected for cleanup. Contaminated groundwater will be extracted and treated and a cap will be constructed and placed over the waste mass. Design of the remedy is expected to begin in 1992.

**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 to 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, Inc. site. The EPA has determined that no other immediate actions are required while cleanup activities are being planned.

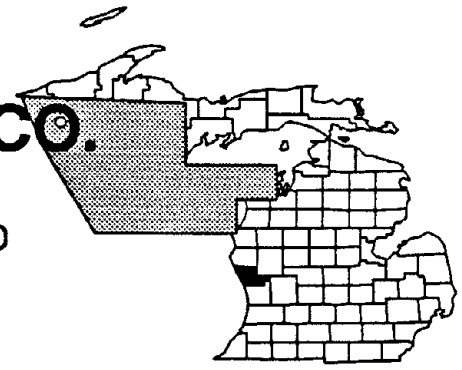
## Site Repository

Lansing Public Library, 401 S. Capitol Avenue, Reference Section-Second Floor, Lansing, MI 48933

# MUSKEGON CHEMICAL CO.

## MICHIGAN

EPA ID# MID072569510



**EPA REGION 5**

Muskegon County
Whitehall

**Other Names:**
**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 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 to develop an effective purge system. The study also is evaluating soils, particularly underneath the plant, and is identifying sources of contamination stemming from the plant. The surface water is being evaluated to ensure that bioaccumulation of contaminants is not occurring. The investigation is expected to be completed in late 1993.

## 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.

## Site Repository

Whitehall City Library, 414 East Spring Street, Whitehall, MI 49461

# NORTH BRONSON INDUSTRIAL AREA

## MICHIGAN

EPA ID# MID005480900

**EPA REGION 5**

Branch County
North Bronson

**Other Names:**
**Bronson Plating Mfg Co.**
**Bronson WWTP**
**Bronson Residents Well**

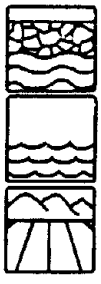
## Site Description

The North Bronson Industrial Area (NBIA) in Bronson covers approximately 400 acres. The actual areas of concern are the old and new lagoons and their surrounding surface soils and sediments, a portion of County Drain No. 30 located along the north side of the site, and possibly soil surrounding industrial sewer lines that lead to the lagoons. 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 and State actions.

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

## Threats and Contaminants



On-site groundwater monitoring wells have shown detectable levels of trichloroethylene (TCE), dichloroethylene, and vinyl chloride as well as elevated levels of heavy metals and cyanide. Polychlorinated biphenyls (PCBs) and metals such as cadmium 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 of 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 two phases: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

**Initial Actions:** Private wells found to be contaminated have been taken out of service and alternate water supplies have been provided to the affected residences.

**Entire Site:** The EPA initiated an investigation in mid-1987 to determine the nature and extent of contamination at the site caused by the lagoons and to determine if other possible sources of contamination, such as the industrial sewer lines, exist. The field work that has been completed to date includes extensive sampling of the soils, sediments, and liquids in and near the lagoons as well as in the county drain, and sampling of groundwater beneath the site. The investigation is expected to be completed in 1993, at which time alternative cleanup options will be identified for final remedy selection for the site.

## Environmental Progress

Taking contaminated private wells out of service and providing alternate water supplies have reduced the potential for exposure to site contamination while studies leading to the selection of final cleanup remedies are being conducted at the North Bronson Industrial Area site.

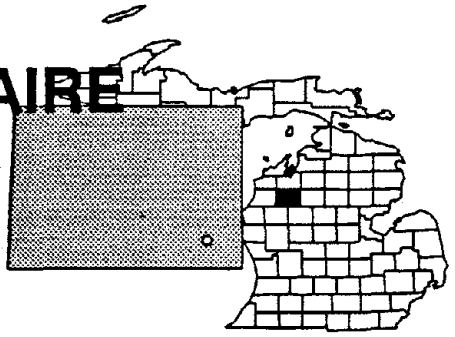
## Site Repository

Branch County Library, Bronson Branch Library, 207 North Matteson Street, Bronson, MI 49028

# NORTHERNAIRE PLATING

## MICHIGAN

EPA ID# MID020883609



**EPA REGION 5**

Wexford County
Cadillac

## Site Description

Northernaire Plating began operations on this 13-acre site 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 Northernaire 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, Northernaire 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 located in the immediate area. The Kysor Industrial Corp. NPL site is 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 coming in direct contact with contaminated groundwater 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, which featured: excavating soils and sewer line sediments and disposing of them at a Federally approved facility; cleaning the dust and residue off the floor of the facility; 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 as necessary; and backfilling all excavated areas with clean soil. The State finished all the cleanup actions in 1989, except disposal of the concrete floor and pad, which was completed in 1991.

**Groundwater:** Because the groundwater under this site has intermingled with another NPL site, the Kysor Industrial Corp., the groundwater cleanup will address both the Kysor and Northernaire 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 groundwater also will be treated by a carbon adsorption treatment system to remove hexavalent chromium. The treated groundwater will be discharged into the Clam River. 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. Kysor is designing the technical specifications for the groundwater cleanup. Once the design phase is completed, scheduled in 1993, the cleanup activities will begin.

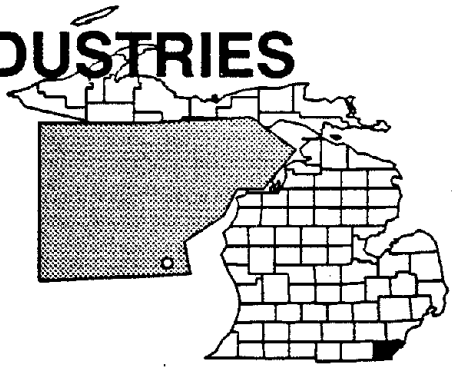
## Environmental Progress

The removal of hazardous wastes from the site has reduced the potential for exposure to contaminated wastes and drums at the Northernaire Plating site while further cleanup actions are being designed.

## Site Repository

Cadillac-Westford Library, 411 South Lake Street, Cadillac, MI 49601

# NOVACO INDUSTRIES
## MICHIGAN
EPA ID# MID084566900



**EPA REGION 5**
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 part 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 and 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 low levels of 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 potential health risk at the site, although this is considered unlikely. The two domestic wells that are located in the shallow aquifer have been abandoned.

## Cleanup Approach

Intensive investigations of site conditions showed that the site does not pose a threat to people or the environment.

## Response Action Status

**Entire Site:** Following an investigation of groundwater contamination at the site between 1983 and 1986, the EPA selected the following remedy: extract and treat approximately 36 million gallons of groundwater; discharge treated water into Indian Creek; monitor groundwater for 30 years; and 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 remedy design phase. Analysis of these samples indicated that the chromium concentrations had fallen below the Federal drinking water standard. The EPA canceled the start of work on 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 public health standards. Therefore, no further actions are required except for continued site monitoring to ensure the long-term safety of the site.

## Environmental Progress

The groundwater and soil samples taken at the Novaco Industries site indicate that the low level of contamination that currently exists at the site does not pose any threats to nearby residents and the environment. The EPA will continue to monitor the groundwater to ensure safety standards are maintained.

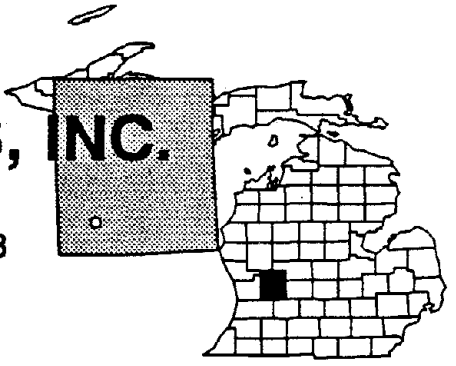
## Site Repository

Monroe County Public Library, Bedford Branch, 8575 Jackman Road, Temperance, MI 48182

# ORGANIC CHEMICALS, INC.

## MICHIGAN

EPA ID# MID990858003



**EPA REGION 5**

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 it was purchased in 1968 by the 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 municipal 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 a mile of the site, and 9,000 people live within 3 miles of the site. All residences are connected to the Grandville municipal water system and use municipal water for drinking and cooking.

**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 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 coming in direct contact with contaminated groundwater or soil.

## Cleanup Approach

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

### 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.

**Shallow Groundwater:** The EPA conducted an extensive study of the groundwater contamination in the shallow aquifer 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. The study was completed in 1991, and the final selected remedy includes carbon absorption of the contaminated shallow groundwater followed by air stripping. The potentially responsible parties are currently evaluating and testing the pre-design specifications of the remedy. A pump test is also underway to determine the amount of extraction needed for cleanup.

**Other Areas:** The EPA is conducting an additional investigation addressing soil contamination, contamination in the lower groundwater system, and oil-related contamination. Test pits dug on site revealed extensive oil contamination, probably due to the refinery operation and bulk storage terminal. As a result, this phase of the investigation, scheduled for completion in early 1994, 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 additional studies are taking place and cleanup activities are being planned.

## Site Repository

Grandville Public Library, 3141 Wilson Avenue, Grandville, MI 49418

# OSSINEKE GROUNDWATER CONTAMINATION

## MICHIGAN

EPA ID# MID980794440

**EPA REGION 5**

Alpena County
Ossineke

## Site Description

The 11-acre Ossineke Groundwater 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. A second potential source was a laundry/dry cleaning facility and its washwater pond. 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 an area 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. Soils behind the dry cleaning facility contain perchloroethylene. Wetlands also may be threatened.

## 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:** Fourteen wells that showed traces of 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 took samples of the groundwater, surface water, sediments, air, and soil gases to clearly define the sources of contamination and the extent of the problem. The investigation, completed in early 1991, determined that the source of contamination was from leaking underground storage tanks. Based on these findings, it has been proposed that the cleanup of this site be turned over to the EPA's Underground Storage Tank (UST) program.

## Environmental Progress

Replacement of contaminated wells has reduced the potential for exposure of nearby residents to site-related contaminants from the Ossineke Groundwater Contamination site while cleanup activities are being planned, possibly under the EPA's UST program.

## Site Repository

NBD Alpena Bank, 11686 US Highway 23, South, Ossineke, MI 49766

# OTT/STORY/CORDOVA CHEMICAL CO.

## MICHIGAN

EPA ID# MID060174240

**EPA REGION 5**

Muskegon County
Dalton Township

**Other Names:**
**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. The company's improper storage and handling of wastes resulted in contaminated groundwater and 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 at least 1 mile to an unnamed tributary of Little Bear Creek. The plume contaminated the tributary, the creek, and several private wells in the area. Cordova Chemical bought the property in 1977 and continued to produce a limited number of petro-chemical 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

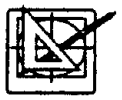
Groundwater and soil on and near the site contain various volatile organic compounds (VOCs). Surface water is contaminated with VOCs as well as semivolatile compounds and pesticides. People could be exposed to site-related contaminants through ingestion of or direct contact with contaminated groundwater, soil, sediments, or surface water.

## Cleanup Approach

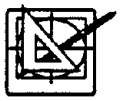
This site is being addressed in four stages: immediate actions and three long-term remedial phases focusing on cleanup of the groundwater, aquifer restoration, and soil cleanup.

### 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 neutralized and disposed of via an agreement with the new site owner. 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 residences with wells that were contaminated. Unused buildings, including the pilot plant, an incinerator, and four production buildings on the site were dismantled and 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 remedies for cleanup of the groundwater: installing groundwater extraction wells near a surface water body and the unnamed tributary; constructing a groundwater treatment plant on site to treat the groundwater pumped from the well; treating the groundwater; and discharging the treated groundwater to Little Bear Creek. The Army Corps of Engineers is developing access arrangements on the EPA's behalf so that construction can begin. The EPA is designing the technical specifications for the groundwater remedy and expects to complete the design in 1992.



**Aquifer Restoration:** Based on the results of an investigation completed in 1990, the EPA selected a remedy for aquifer restoration that includes installation and operation of extraction wells, a purge and treatment system at points throughout the aquifer, and a groundwater monitoring system. Groundwater will be treated in attempt to attain pertinent Federal-State discharge standards. Data on the extent of groundwater contamination from extraction and monitoring wells will be used to ensure that the entire contaminated groundwater plume is treated. The EPA is expected to complete the remedy design in 1992.

**Soil:** The EPA is conducting an investigation to review soil hot spot areas. This investigation includes limited excavation and spot checks for dioxins, thought to be present due to past malfunctions of the dismantled incinerator. The investigation is expected to be completed in late 1992.

**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. In an August 1991 Federal District Court decision, certain parties potentially responsible were found liable for cleanup actions at the site.

## Environmental Progress

By removing drums and other contaminated materials and providing an alternate water supply, the State has reduced exposure to contamination at the Ott/Story/Cordova Chemical Co. site while final cleanup activities are being planned and additional investigations are underway.

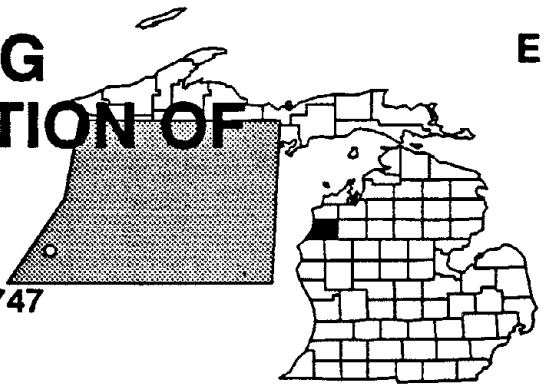
## Site Repository

Walter Memorial Library, 1522 Ruddiman Avenue, North Muskegon, MI 49445

# PACKAGING CORPORATION OF AMERICA

## MICHIGAN

EPA ID# MID980794747



**EPA REGION 5**
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 1976, completely phased out discharging waste products into the lagoons. Between 1951 and 1976, approximately 7 billion gallons of wastewaters were discharged to the seepage lagoons. 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, located to the west of the site over the plume of contaminated water, formerly used groundwater for drinking and industrial purposes. 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 phenols and heavy metals including chromium 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 that the dewatered lagoons and their surrounding areas are used for hunting and by recreational vehicles.

## Cleanup Approach

This site is being addressed in a 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. As part of the investigation, toxicity studies have determined that groundwater near the site is toxic to aquatic organisms, while surface water in Lake Manistee is not. PCA is expected to complete the investigation in 1993, at which time a final remedy 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 Packaging Corporation of America site while studies are taking place and cleanup activities are being planned.

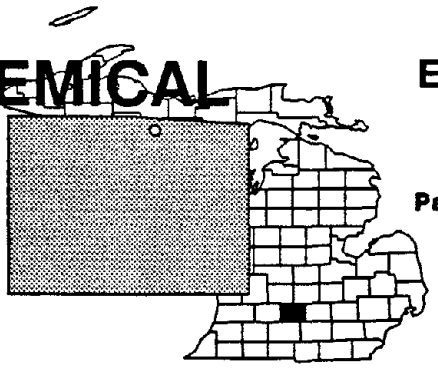
## Site Repository

Manistee County Library, 95 Maple Street, Manistee, MI 49660

# PARSONS CHEMICAL WORKS, INC.

## MICHIGAN

EPA ID# MID980476907



**EPA REGION 5**

Eaton County
Grand Ledge
**Other Names:**
**Parsons/ETM Enterprise**

## 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 long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

**Initial Actions:** In response to the discovery of dioxin contamination in 1985, the MDNR and the Michigan Department of Health fenced the contaminated areas. In 1990, contaminated soils were removed. Treatment and removal of these and additional soils are expected to be completed in 1993.

**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: incinerate contaminated soils/sediments with a rotary kiln; remove contaminated soils/sediments to an off-site incinerator; vitrify contaminated soils/sediments in place; build a landfill on site to dispose of contaminated media; send the contaminated materials to an off-site landfill; and 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. A preliminary decision has been made to use in-place vitrification. 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 is scheduled to select a final remedy in 1994, after the pilot studies and tests are completed.

## Environmental Progress

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

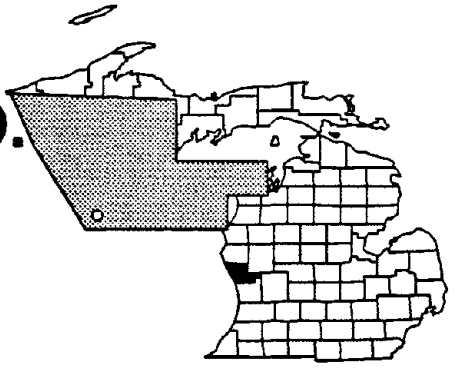
## Site Repository

Grand Ledge Public Library, 131 East Jefferson Street, Grand Ledge, MI 48837

# PEERLESS PLATING CO.

## MICHIGAN

EPA ID# MID006031348



**EPA REGION 5**

Muskegon County
Muskegon

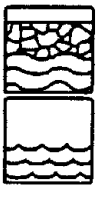
## Site Description

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 onto 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 public 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 city uses the shallow aquifer as 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, State, and potentially responsible parties' actions.

**NPL LISTING HISTORY**
Proposed Date: 06/24/88
Final Date: 08/30/90

## 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 with 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: the lagoons were drained; soil was removed from the lagoon areas; the interior of the building was cleaned; vats, lines, and tanks were decontaminated; sewer lines were sealed; cyanide and nitric acid were neutralized on site; and hazardous materials were removed to a federally regulated facility. In 1991, the EPA removed approximately 2,500 gallons of liquids containing heavy metals and cyanide from an on-site tank. Eliminating immediate sources of contamination, encapsulating asbestos insulation from an oven, and fencing the site are additional activities that have been performed by the potentially responsible parties.

**Entire Site:** In 1989, the EPA began a study of the nature and extent of contamination at the site, focusing on 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 and select the final remedy by 1994.

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

## Environmental Progress

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

## Site Repository

Norton Shores Branch Library, 705 Seminole Road, Muskegon, MI 49442

# PETOSKEY MUNICIPAL WELL FIELD

## MICHIGAN

EPA ID# MID006013049

**EPA REGION 5**

Emmet County
Petoskey

**Other Names:**
**Petoskey Manufacturing Co., Inc.**

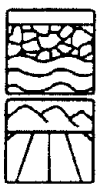
## Site Description

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 was dumping solvents and paint sludges onto the ground adjacent to the western 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, State 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 may have been exposed to hazardous chemicals from the site by drinking and coming in direct contact with contaminated water from the municipal well. People also could be exposed to hazardous chemicals at the Petoskey Municipal Well Field site 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 Company carried out additional studies of the groundwater in 1984. As a result of these findings, the company 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 State, which took over the study due to the company's bankruptcy, completes the study it will use the results to identify various methods to address contamination of the well field. Completion of the study is expected in late 1994.

**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 Company has filed for bankruptcy, and the State has taken over the investigation.

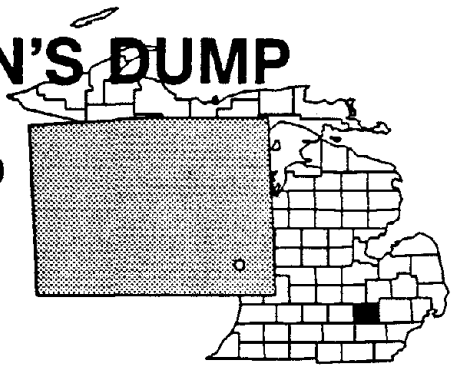
## Environmental Progress

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

## Site Repository

Petoskey Public Library, 451 East Mitchell Street, Petoskey, MI 49770

# RASMUSSEN'S DUMP
## MICHIGAN
EPA ID# MID095402210



**EPA REGION 5**
Livingston County
Green Oak Township

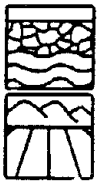
## Site Description

The Rasmussen's Dump site, which was previously a sand and gravel pit area used as a dump, is located on 35 acres in Green Oak Township. The dump was unlicensed and was known to have accepted both domestic and industrial solid and liquid wastes. The dump 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 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 dump. Soil sampling by the State revealed polychlorinated biphenyl (PCB) and organics contamination near a drum pile on the eastern side of the site. In 1985, the State installed a fence around the site to eliminate the health risks from accidental ingestion of and direct contact with contaminated soils.

## 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. In 1985, a security fence was installed around the site. In 1989, under EPA monitoring, 11 of the potentially responsible parties excavated, analyzed, and disposed of surface and buried drums, associated wastes, and contaminated soils. These actions were completed in 1990.

**Entire Site:** The State, with EPA assistance, has conducted an investigation into the nature and extent of the contamination at the site. Based on the results of this investigation, completed in early 1991, the EPA has chosen a cleanup remedy that includes extracting, treating, and reinjecting groundwater; monitoring groundwater; capping the site; disposing of any drums unearthed during capping; and adding fencing and deed restrictions, as necessary. Groundwater will be treated using chemical precipitation of heavy metals, bioremediation, air stripping, and granular activated carbon. The design of the remedies is expected to begin in 1992.

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

## Environmental Progress

By fencing the site and removing most of the contaminated soils, solids, and drums of hazardous materials, the potential for exposure to contaminants at the Rasmussen's Dump site has been reduced while the design of final cleanup remedies is being planned.

## Site Repository

Hamburg Township Library, 7225 Stone Street, Hamburg, MI 48139

# ROCKWELL INTERNATIONAL CORP. (ALLEGAN PLANT)

## MICHIGAN

EPA ID# MID006028062

**EPA REGION 5**
Allegan County
Allegan

## Site Description

The 30-acre Rockwell International Corp. (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 was discharged into the Kalamazoo River. Later these waste streams were discharged into an unlined settling pond that drained to the Kalamazoo River. In the late 1960s, when this pond reached a saturation point in terms of sludge depth, the pond was abandoned and buried, and three new unlined ponds were constructed. In 1971, a water treatment system was installed, which included two 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 1974, 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 1975 was effective for about a year. In 1976, it was determined that the seepage to the river from groundwater originated from the two concrete 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 1/2 mile from the site. The site is downgradient from the current public water supply system.

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

**NPL LISTING HISTORY**
Proposed Date: 04/10/85
Final Date: 07/22/87

## Threats and Contaminants

On-site groundwater is potentially contaminated with heavy metals including lead, arsenic, and cyanide. River sediment contains heavy metals. It is believed that the abandoned pond contains 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 local residents' exposure to 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 still are 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, approximately 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, which include: the oil/water wastewater treatment facility; the three active treatment ponds; the former collection pond that was filled in 1972; the former Allegan city dump, upon which a parking lot was built; the Allegan city wastewater treatment plant; and sediments in the Kalamazoo River. The investigation will define the contaminants of concern and will recommend alternatives for the final cleanup. The investigation is expected to be completed in late 1994.

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

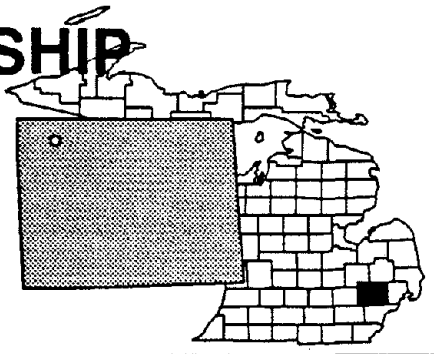
## Environmental Progress

The installation of oil recovery wells 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 Corp. (Allegan Plant) site. Investigations are currently being conducted to select the final cleanup remedies for the various areas of the site.

## Site Repository

Allegan Public Library, 331 Hubbard Street, Allegan, MI 49010

# ROSE TOWNSHIP DUMP
## MICHIGAN
EPA ID# MID980499842



**EPA REGION 5**
Oakland County
Rose Township

**Other Names:**
**Dorsey Dump**

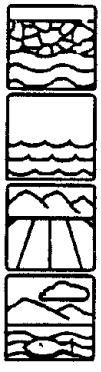
## Site Description

Approximately 12 acres of the 110-acre Rose Township Dump site once were 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 also were 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. 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. 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. 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. Some nearby lakes are used for recreation, and the marshes are unfenced.

**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, 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, a pesticide. The potential health risks to people at this site include direct contact with or accidental ingestion of contaminated groundwater, surface water, soil, or 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 cleanup excavation 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 PCBs- 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 also was shipped away for disposal.

**Entire Site:** The selected cleanup technologies addressing site contamination include: excavating 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; installing a groundwater extraction and treatment system to clean contaminated groundwater prior to discharging it to the wetlands adjacent to the site; installing groundwater monitoring wells on and near the site and monitoring groundwater underneath the site for the next 30 years; constructing a fence around the site; collecting and analyzing samples from the wetlands adjacent to the site; and testing the potential effectiveness of soil-flushing technology to clean up contaminated subsurface soil. The potentially responsible parties began preparing the technical specifications and design for the selected cleanup remedies in late 1989. Pre-design activities include soil and water sampling for each respective cleanup technology. Cleanup activities are scheduled to begin once the design phase is completed, scheduled for 1993.

**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 12 parties signed a Consent Decree, requiring the parties to implement and pay for cleanup activities.

## Environmental Progress

Removing the contaminated drums and surrounding soils and fencing the area have resulted in a reduction of immediate threats to the surrounding communities and the environment at the Rose Township Dump Site while the final cleanup remedies are being designed.

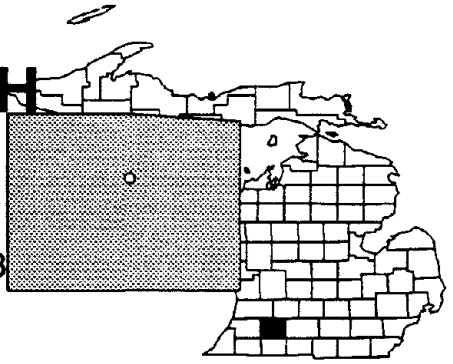
## Site Repository

Holly Township Library, 1116 North Saginaw Street, Holly, MI 48442

# ROTO-FINISH CO., INC.

## MICHIGAN

EPA ID# MID005340088



**EPA REGION 5**

Kalamazoo County
Portage

## Site Description

The 7 1/2-acre Roto-Finish Co., Inc. site is an abandoned specialty plastics manufacturing facility that operated from approximately 1950 until 1988. The company designed and manufactured specialized equipment for burring and polishing 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 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. Soil borings, well installation, and a study of groundwater flow direction have been undertaken. A second study phase was completed in 1991. A decision on cleanup actions is planned for 1993.

## Environmental Progress

After listing the Roto-Finish Co., Inc. 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.

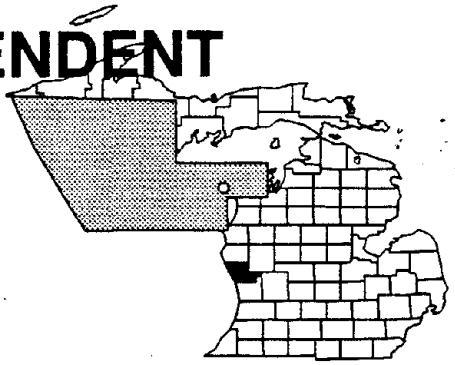
## Site Repository

Portage Public Library, 300 Library Lane, Portage, MI 49002

# SCA INDEPENDENT LANDFILL

## MICHIGAN

EPA ID# MID000724930



**EPA REGION 5**

Muskegon County
Muskegon Heights

**Other Names:**
**Independent Landfill**

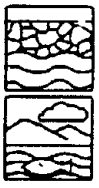
## Site Description

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 4-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. In addition, a 6-acre parcel in the northeastern section of the site received refuse. All areas have been closed and capped. The closure plan implemented by SCA Services, a potentially responsible party, 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 immediate groundwater cleanup activities were required. 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 also are 6 schools and 7 churches within 3 miles of the site. The landfill is located in a swampy area about 1/8 mile south of Black Creek, a coldwater stream. The groundwater flow apparently empties into wetlands that border Black Creek, a stream that has been re-stocked successfully with trout since 1987. A mobile home park with more than 300 families is located 1/2 mile north of 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 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 with 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 one long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

**Entire Site:** A full investigation of site contamination is being planned by the State to determine the nature and extent of contamination at the landfill and in the groundwater.

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

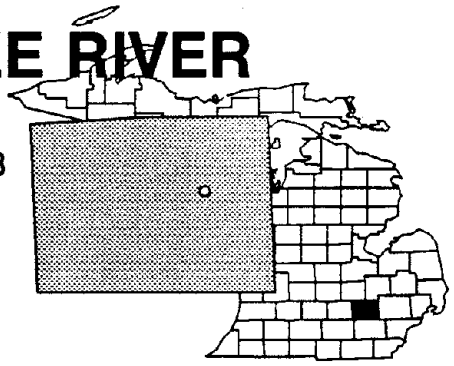
## Environmental Progress

After the closure of the landfill and an initial site assessment by the State, the EPA decided that no immediate actions were necessary at the SCA Independent Landfill site while studies are being planned.

## Site Repository

Not established.

# SHIAWASSEE RIVER
## MICHIGAN
EPA ID# MID980794473



**EPA REGION 5**
Livingston County
Howell

## Site Description

The Shiawassee River flows through the communities of Byron, Vernon, and Corunna. All three 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

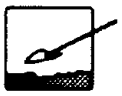
## Threats and Contaminants

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 long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status



**Immediate Actions:** The 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. Field work includes groundwater, surface water, sediment, and soil sampling. The flood plains and industrial area are being sampled. The investigation is planned to be completed in 1993.

## 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.

## Site Repository

Howell Township Hall, 3525 Byron Road, Howell, MI 48843

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

## MICHIGAN

EPA ID# MID069826170

**EPA REGION 5**
Macomb County
Macomb Township

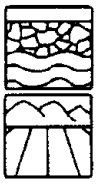
## Site Description

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 a sand and gravel 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 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 leachate collection systems. 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. Two contaminated aquifers are present beneath the site; a third, deeper aquifer is not contaminated. 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 coming in direct contact with 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 long-term remedial phase focusing on cleanup of the entire site.

### Response Action Status

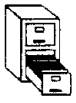
**Initial Actions:** Leachate controls have been put into place that include installing erosion control measures, covering the landfill, and installing a collection system and holding tank. Residences with contaminated wells were connected to the municipal water supply.

**Entire Site:** The EPA completed its investigation into the nature and extent of site contamination and potential effects on public 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. Methods of groundwater extraction/collection and on-site treatment were investigated by the EPA until the responsibility was turned over to the State of Michigan. No final cleanup remedy has been identified yet. Design of selected technologies is expected to begin in 1994. A separate remedial phase related to the contents of the landfill is planned.

## Environmental Progress

Initial actions including capping the landfills, installing leachate collection systems, and providing an alternate water supply to affected residents have reduced the potential of exposure to contaminants from the South Macomb Disposal Authority (Landfills #9 and #9A) site while plans for final cleanup are being formulated.

## Site Repository



Macomb County Library, 16480 Hall Road, Mt. Clemens, MI 48044

# SOUTHWEST OTTAWA COUNTY LANDFILL

## MICHIGAN

EPA ID# MID980608780

**EPA REGION 5**

Ottawa County
Park Township

**Other Names:**
**South Ottawa Disposal Corporation**

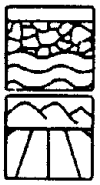
## Site Description

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 hookups to the municipal water system for the residences with potentially contaminated wells. 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 contaminated 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 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 pumped and 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.

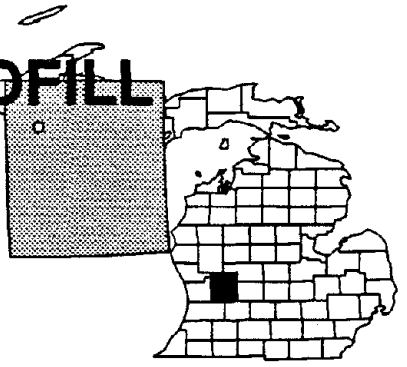
## Environmental Progress

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 cleanup goals are achieved.

## Site Repository

Not established.

# SPARTA LANDFILL
## MICHIGAN
EPA ID# MID000268136



**EPA REGION 5**
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 County 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 coming in direct contact with 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 will recommend alternatives for final cleanup. It is scheduled to begin in late 1992 and is expected to be completed in 1994.

## 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 underway and cleanup activities are being planned.

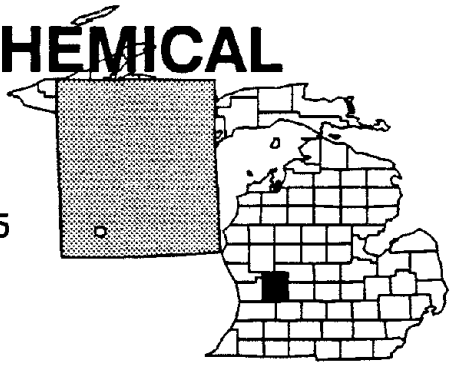
## Site Repository

Contact the Region 5 Superfund Community Relations Office.

# SPARTAN CHEMICAL COMPANY

## MICHIGAN

EPA ID# MID079300125



**EPA REGION 5**

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. Soil was contaminated with VOCs prior to being treated by air stripping. It is believed that there currently are no potential health threats to people at this site, because disposal of wastewater to the 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 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.

**Soil:** The State, with EPA assistance, conducted a study to address on-site soil contamination in 1987. The State installed a second purge well off site to assure that groundwater contamination within the plume would be contained and treated. The treatment of the groundwater has addressed the soil contamination.

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

## Environmental Progress

The currently operating groundwater treatment system continues to reduce the potential for exposure to contaminated materials at the Spartan Chemical Company site.

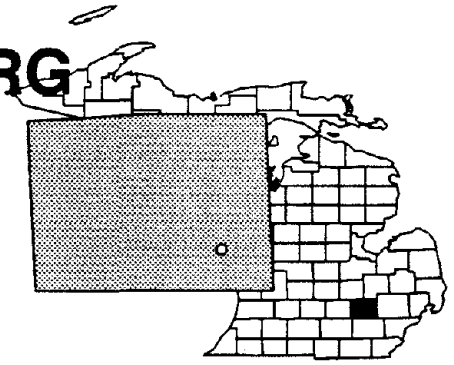
## Site Repository

Not established.

# SPIEGELBERG LANDFILL

## MICHIGAN

EPA ID# MID980794481



**EPA REGION 5**

Livingston County
Green Oak Township

## Site Description

The 115-acre Spiegelberg Landfill site is a waste disposal pit that currently is 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 in one of the excavations of the gravel pit. The paint sludge area was the site's major source of contamination. In 1988 to 1989 the paint sludge and underlying soils down to the groundwater table, were removed and disposed of in a permitted secure landfill. The Spiegelberg Landfill site is adjacent to Rasmussen's Dump, another NPL site. Several hundred people live within a 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 uncontaminated portion of 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

Lead, volatile organic compounds (VOCs), and other organics are present in the groundwater. Soil was contaminated with lead, VOCs and other organics. Potential health threats to people include accidentally ingesting or coming in direct contact with contaminated groundwater or soil.

## Cleanup Approach

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

### Response Action Status

**Paint Sludge Area:** The selected cleanup remedy to address the source of the contamination included: excavation of waste material; off-site incineration of the excavated liquid waste material; and disposal of soils into a landfill. The potentially responsible parties, under EPA monitoring, completed excavation, separation, and incineration of wastes and landfilling of 58,500 tons of waste and soils in late 1989. This included removing contaminated soils down to the groundwater in the paint sludge disposal area and backfilling the area with clean gravel.

**Groundwater:** In 1990, the State completed an investigation into the nature and extent of groundwater contamination at the site and recommended alternative remedies for the final groundwater cleanup. In mid-1990, the EPA chose to pump and treat groundwater and reinject it to injection wells. The technology for this cleanup remedy includes chemical precipitation, bioremediation, air stripping, and carbon adsorption. Deed restrictions will be used to restrict access to groundwater. Design of the selected remedy began in 1992.

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

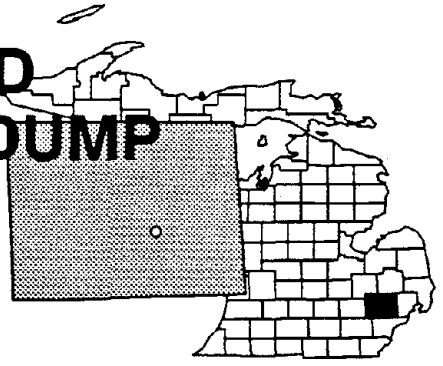
## Environmental Progress

The removal of containers of waste and contaminated soil and incineration of liquid wastes have reduced the potential for exposure to contaminated materials at the Spiegelberg Landfill site while groundwater cleanup activities are being planned.

## Site Repository

Hamburg Library, 7225 Stone Street, Hamburg, MI 48139

# SPRINGFIELD TOWNSHIP DUMP
## MICHIGAN
EPA ID# MID980499966



**EPA REGION 5**
Oakland County
35 miles northwest of Detroit

**Other Names:**
**Oakland County Landfill**

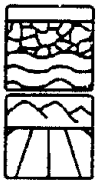
## Site Description

The 4-acre Springfield Township Dump was used for chemical waste disposal from 1966 to 1968. Liquid wastes and sludges were dumped into a low area 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 the pesticide dieldrin were detected in on-site sludge. Health threats to people stem from direct contact with contaminated soils and sludge, inhalation of contaminated dusts or vapors, or 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 completed an investigation into soil and groundwater contamination at the site in 1990. Based on the results of the investigation, the EPA selected on-site incineration, solidification, and in-place vacuum extraction for soil cleanup and extraction and carbon adsorption for groundwater cleanup. Design of these technologies and additional soil sampling began in 1991.

## Environmental Progress

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

## Site Repository

Springfield Township Hall, 650 Broadway Street, Davisburg, MI 48019

# STATE DISPOSAL LANDFILL, INC.

## MICHIGAN

EPA ID# MID980609341

**EPA REGION 5**

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, the 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 are 2 miles from the site and 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 health through direct contact or ingestion.

## 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:** Between 1989 and 1990, the State extended a permanent municipal water line to all affected residences. The potentially responsible parties have installed a security fence at the site.

**Entire Site:** Waste Management of North America is conducting an investigation, under State monitoring, to determine the nature and extent of contamination on the site. The State is conducting an off-site investigation of the contamination plume. Upon completion of the investigations, scheduled for late 1993, appropriate cleanup measures will be selected.

## Environmental Progress

The extension of the municipal water line has eliminated the potential for residents to be exposed to contaminated drinking water from the State Disposal Landfill site and will continue to protect nearby residents while site investigations are underway and cleanup activities are being planned. A security fence currently restricts access to the site and limits the potential for contact with contaminated materials.

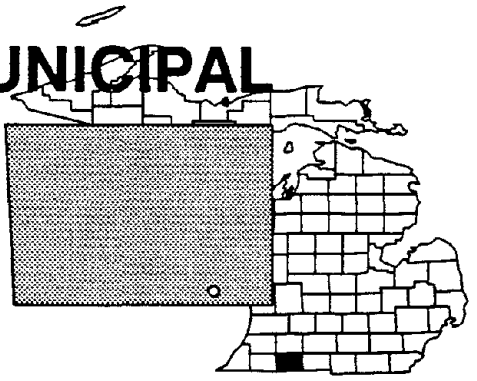
## Site Repository

Grandville Public Library, 3141 Wilson Avenue, Grandville, MI 49418

# STURGIS MUNICIPAL WELLS

## MICHIGAN

EPA ID# MID980703011



**EPA REGION 5**

St. Joseph County
Sturgis

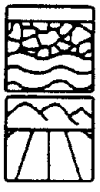
## Site Description

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 use. 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 now are being used solely 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, was found to be contaminated with VOCs. This well subsequently was 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 VOCs including trichloroethylene (TCE) and perchloroethylene (PCE) compounds. TCE, PCE, and other VOC compounds have been detected in the soil. Direct contact with or accidental ingestion of the contaminated groundwater and soil poses a potential health threat.

## Cleanup Approach

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

### Response Action Status

**Entire Site:** The Michigan Department of Natural Resources (MDNR) conducted an investigation to determine the nature and extent of contamination. The investigation consisted of groundwater monitoring, well installation, groundwater quality sampling, and soil gas testing. The final cleanup remedy was selected in 1991 and includes: groundwater extraction; groundwater treatment through air stripping; reinjection of the treated groundwater; soil vapor extraction of the VOCs; and excavation and disposal of any remaining contaminated soil at a Federally approved facility. The design has begun of an interim groundwater extraction and treatment system. This interim system will protect the municipal water supply and contain the plume until the final groundwater cleanup remedy is designed and fully implemented.

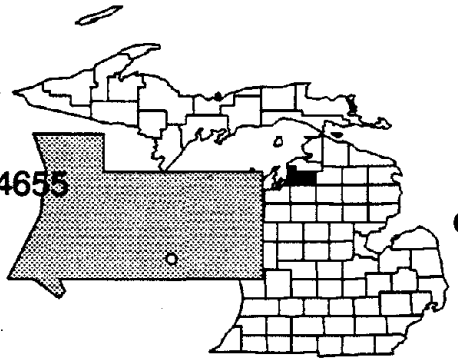
## Environmental Progress

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 final cleanup activities are being designed.

## Site Repository

Contact the Region 5 Superfund Community Relations Office.

# TAR LAKE
## MICHIGAN
EPA ID# MID980794655



**EPA REGION 5**
Antrim County
Mancelona Township

**Other Names:**
**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 poses a health hazard through direct contact or ingestion.

## Cleanup Approach

This site is being addressed in a 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. Once the study is completed, expected in 1993, appropriate cleanup measures will be selected.

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

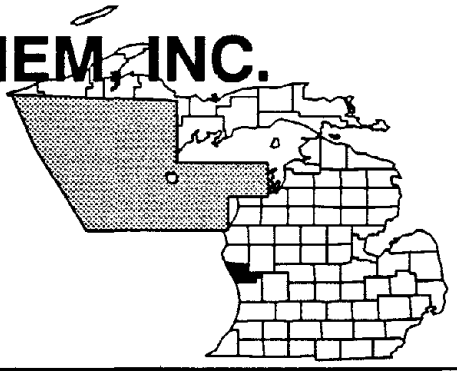
## Site Repository

Mancelona Public Library, 202 West State Street, Mancelona, MI 49659

# THERMO-CHEM, INC.

## MICHIGAN

EPA ID# MID044567162



**EPA REGION 5**

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 resulting sludges and residues were incinerated at the site. In addition, materials that were unsuitable for processing reportedly were 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. Recently, the decision was made to include the 1 1/2-acre Thomas-Solvent property in the site, which is located adjacent to Thermo-Chem, Inc. and is contaminated with similar wastes. 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 the site. The entire population in this area is served by groundwater either from 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 four 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, soil, and on-site sludges are contaminated with volatile organic compounds (VOCs) including trichloroethylene (TCE), toluene, and xylene. The contaminated groundwater and the soil pose a health hazard through direct contact or ingestion. 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 could reach Black Creek and Mona Lake.

## Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of on-site soils, sludges, and groundwater, and cleanup of Black Creek and the groundwater south of Black Creek.

### Response Action Status

**Immediate Actions:** After a spill occurred in 1987, the EPA sampled, tested, and removed 50 to 100 barrels of contaminated soil. A security fence was installed around 8 acres of the site in 1989. In early 1991, 16 underground storage tanks were removed from this site.

**On-Site Soils, Sludges, and Groundwater:** The parties potentially responsible for the site contamination conducted an investigation to determine the nature and the extent of the contamination. In 1991, the final cleanup remedy was selected, which calls for fence installation; demolition of buildings and storage tanks; soil excavation and off-site incineration of highly contaminated soil and in-situ vapor extraction of less contaminated soil; groundwater extraction and treatment using filtration, air stripping, metal precipitation, and pH adjustments; discharge of treated groundwater to the Black Creek; groundwater monitoring; and soil testing underneath the demolished buildings and storage tanks. Design of the remedies is expected to begin in early 1993.

**Black Creek and Groundwater South of Black Creek:** The potentially responsible parties are carrying out an investigation to determine the nature and extent of contamination in this area. Based on the results of this investigation, expected to be completed in 1993, the EPA will recommend appropriate cleanup methods.

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

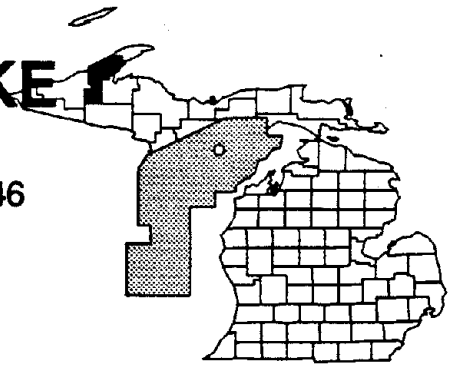
## Environmental Progress

By removing contaminated soil from the spill area, fencing the Thermo-Chem property, and removing underground storage tanks, the EPA has reduced the potential for direct contact with hazardous materials while final cleanup activities are being planned for groundwater, soil, and sludge contamination, and further investigations addressing contamination of Black Creek are taking place.

## Site Repository 

Muskegon County Library, Egelston Township Branch, 5402 Apple Avenue,
Muskegon, MI 49442

# TORCH LAKE
## MICHIGAN
EPA ID# MID980901946



**EPA REGION 5**
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 of 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 also has 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 a 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 pose a health hazard through direct contact or ingestion. The Michigan Department of Health issued a fish consumption advisory, since the contaminants already have affected the lake's fish and aquatic vegetation. There also is 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 in four stages: immediate actions and three long-term remedial phases focusing on cleanup of on-site tailings and slag piles, cleanup of surface water, sediment, and groundwater, and cleanup of other tailings and slag piles.

### Response Action Status

**Immediate Actions:** 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 contained any toxic materials. In 1990, 12 additional drum locations were excavated and sampled. As a result of the test samples, the EPA removed the contaminated drums from the lake as well as contaminated soil beneath the drums.

**On-Site Tailings/Slag Piles:** In 1990, the EPA completed field work involving a Bathymetric survey to locate submerged tailings and slag piles on the shore of Torch Lake. These data were used to study the nature and extent of contamination and to identify cleanup alternatives. Recommendations for cleanup are expected in 1992.

**Surface Water, Sediment, and Groundwater:** In 1992, the EPA completed sampling surface water, sediment, and groundwater underlying all tailings piles. Using the sampling results, the EPA will decide if further investigation is necessary.

**Other Tailings/Slag Piles:** In 1992, the EPA completed an investigation exploring the nature and extent of other tailings and slag piles located on the peninsula. Based on these sampling results, the EPA is expected to select a final cleanup remedy by 1992.

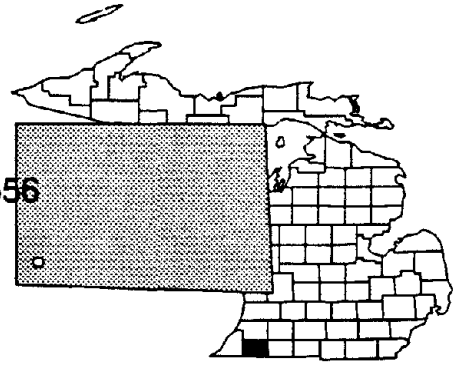
## Environmental Progress

The removal of contaminated drums and soil has reduced the potential for exposure to hazardous wastes at the Torch Lake site while investigations are taking place and cleanup activities are being planned.

## Site Repository

Portage Lake District Library, 105 Huron Street, Houghton, MI 49931

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



**EPA REGION 5**
Cass County
Howard Township

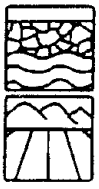
## Site Description

U.S. Aviex manufactured non-lubricating automotive fluids at its 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 was broken during excavation on the southeastern side of the plant. Within 3 to 4 months, low levels of ether had been detected in nearby residential wells. A fire in 1978 also contributed 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 either were 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 have been 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. An airport, a sewage treatment lagoon, and various light industries are approximately 1 mile to the west of the site. 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). Direct contact with or ingestion of the contaminated groundwater and soil pose a potential health risk. Inhaling contaminated vapors from the groundwater or soil also could cause adverse health effects.

## 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:** 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.

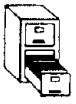
**Entire Site:** In 1988, the EPA selected the following methods to clean up the site: soil flushing of approximately 11,500 cubic yards of contaminated on-site soil and collection of on- and off-site groundwater and fluids from the soil flushing process, with on-site treatment by air stripping. Cleanup activities began in 1991 and the entire cleanup process is scheduled for completion in 1993.

**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 treating polluted groundwater, the potentially responsible party has reduced the potential for exposure to contaminated groundwater. The operation of the groundwater treatment system will continue to protect nearby residents and the environment from the contamination at the U.S. Aviex site while final cleanup activities are underway.

## Site Repository

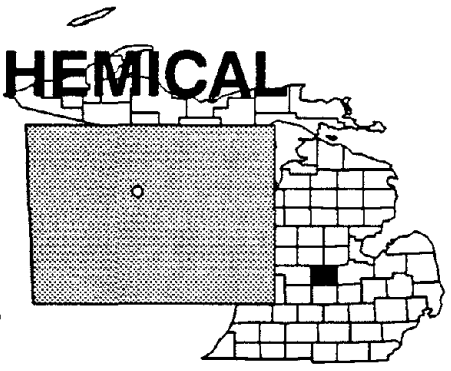


Howard Township Hall, 1345 Barron Lake Road, Niles, MI 49120

# VELSICOL CHEMICAL CORP. (MICHIGAN)

## MICHIGAN

EPA ID# MID000722439



**EPA REGION 5**

Gratiot County
St. Louis

## Site Description

The Velsicol Chemical Corp. (Michigan) 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 was contaminated with chloride, sulfate, phenol, and carbon tetrachloride. On-site soil samples revealed contamination with phenol and lead. Potential risks existed for people who ate contaminated fish and wildlife from the area of the site.

## Cleanup Approach

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

### Response Action Status

**Entire Site:** In 1982, the following cleanup technologies were selected: demolition, salvage, and removal of building materials and scrap; construction of a 2-foot-thick slurry wall groundwater containment system; construction of a clay cap; operation of a groundwater collection system with deep well injection; and implementation of a long-term maintenance and monitoring program. Between 1983 and 1984, containment activities, including capping the site and constructing a shallow groundwater cut-off wall, were conducted. In 1984 and 1985, the site was fenced and warning signs were posted to limit access. The State is overseeing maintenance and monitoring operations. In addition, the EPA investigated the deep aquifer and installed six deep monitoring wells and one shallow well in 1992. Monitoring will continue to ensure the long-term effectiveness of the remedies. All construction is now complete and the site is scheduled to be deleted from the NPL in late 1993.

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

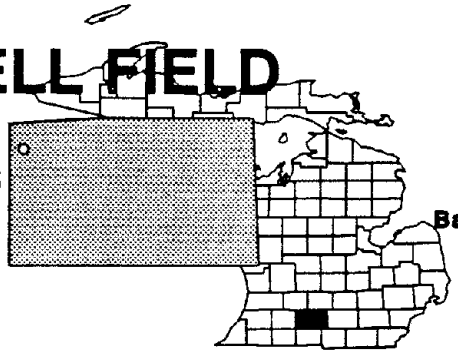
## Environmental Progress

By capping the site, installing a fence, posting warning signs, 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 Corp. (Michigan) site has been reduced. The site is being closely monitored to ensure the effectiveness of the cleanup remedies.

## Site Repository

TA Cutler Memorial Library, 110 West Sahinaw, St. Louis, MI 48880

# VERONA WELL FIELD
## MICHIGAN
EPA ID# MID980793806



**EPA REGION 5**
Calhoun County
Battle Creek

**Other Names:**
**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 tricholoroethylene (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 is contaminated with volatile organic compounds (VOCs) including perchloroethylene (PCE), TCE, toluene, xylene, and vinyl chloride. There presently is no potential threat of exposure to VOCs from the site. The City's drinking water is supplied from wells that are not contaminated.

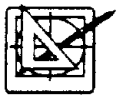
## Cleanup Approach

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:** In 1983, 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. In 1989, a 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. Water from these blocking wells is pumped to an air stripper/carbon adsorption system, which removes 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: construction of a groundwater extraction well system to contain and collect contaminated groundwater in the vicinity of the Thomas Solvent Company (Raymond Road facility); extraction and treatment of contaminated groundwater at the existing well field air stripping facility; installation of air extraction wells to enhance the vaporization of VOCs from the contaminated soils; and continued maintenance of the groundwater extraction system. The soil vapor extraction system is scheduled for completion in the summer of 1993.



**Eastern Plume:** An investigation was conducted by the EPA to explore the nature and extent of contamination at two other contaminated source areas. The EPA selected the final cleanup approach and technologies in mid-1991. The remedies selected were soil vapor extraction at the two source areas, groundwater extraction at these areas and Raymond Road, and the construction of a blocking well line at the main wellfield.

**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 for Chapter 11 bankruptcy.

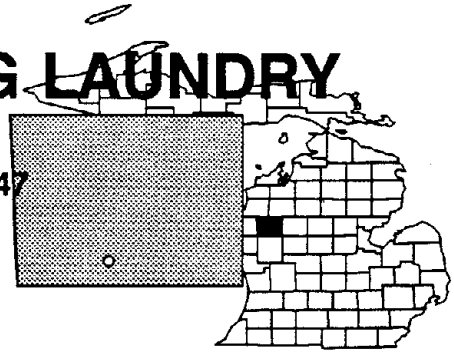
## Environmental Progress

The provision of an alternate water supply and the installation of a groundwater treatment system have reduced the potential for exposure to contaminated groundwater from the Verona Well Field site while final cleanup actions in the southern plume are underway and the remedies for the eastern plume are being designed.

## Site Repository

Willard Library, 7 West Van Buren Street, Battle Creek, MI 49017

# WASH KING LAUNDRY
## MICHIGAN
EPA ID# MID980701247



**EPA REGION 5**
Lake County
Pleasant Plains Township

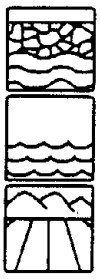
## Site Description

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. Site operations, however, ceased in 1991 when the site owner declared bankruptcy. 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 Laundry 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 operations ceased in 1991 with a declaration of bankruptcy by the site owner.

**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 used for laundry discharge and minor amounts of sludge contain the same contaminants as those in the groundwater. Drinking or coming into direct contact with contaminated groundwater or lagoon sediments may pose a health risk.

## 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 Laundry 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. A plume of contaminated groundwater moving northward toward the Pere Marquette river and contaminated sediments associated with seepage lagoons formerly used on the site have been identified as sources of contamination. At the conclusion of the investigation, expected in early 1993, a final remedy will be selected to clean up the site.

**Site Facts:** In 1978, a court agreement was reached, under which Wash King Laundry agreed to cease all dry cleaning operations and eliminate all sources of PCE contamination 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 party potentially responsible for contamination has reduced the potential for exposure to contaminated groundwater. Investigations leading to the selection of the final cleanup remedies currently are underway.

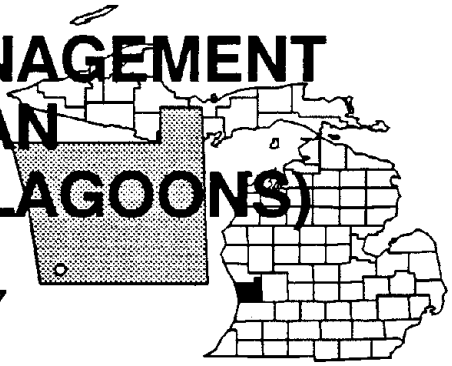
## Site Repository

Pathfinder Community Library, 812 Michigan Avenue, Baldwin, MI 49304

# WASTE MANAGEMENT OF MICHIGAN (HOLLAND LAGOONS)

## MICHIGAN

EPA ID# MID060179587



**EPA REGION 5**

Ottawa County
North of Holland

**Other Names:**
**Jacobusses Refuse Service**

## Site Description

The 160-acre Waste Management of Michigan (Holland Lagoons) 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; currently, 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 Federal, State, and potentially responsible parties' actions.

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

## Threats and Contaminants

Initial sampling indicated groundwater was contaminated with volatile organic compounds (VOCs) including toluene, benzene, trichloroethylene (TCE), and vinyl chloride and the heavy metal cadmium. People could have been exposed to contaminants through accidental ingestion of or direct contact with contaminated water.

## Cleanup Approach

The 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 1980, 43 55-gallon drums of waste were removed from the site. In addition, dewatering sludges and contaminated soils were removed.

**Entire Site:** The State and the potentially responsible parties investigated the extent of contamination at the site. Comprehensive water sampling from monitoring wells and soil indicated no contaminant levels of concern exist. The site is expected to be deleted from the NPL.

## Environmental Progress

The removal of on-site drums, sludges, and soils in 1980 eliminated the potential threat to area residents and the environment. The EPA, the Michigan Department of Natural Resources, and Waste Management of Michigan are cooperating in efforts to have the site deleted from the NPL.

## Site Repository

Contact the Region 5 Superfund Community Relations Office.

# WHITEHALL MUNICIPAL WELLS

## MICHIGAN

EPA ID# MID980701254

**EPA REGION 5**

Muskegon County
Northeast portion of Whitehall

**Other Names:**
**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 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 was addressed through Federal, State, and potentially responsible parties' actions.

**NPL LISTING HISTORY**
Proposed Date: 12/30/82
Final Date: 09/21/84
Deleted Date: 02/11/91

## 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 of, inhalation of, or direct contact with contaminated water may have posed a health threat.

## Cleanup Approach

The site was addressed in a long-term remedial phase directed at cleanup of the entire site.

## Response Action Status

**Entire Site:** Well #3 was closed in 1981 and Well #6 was brought on line to increase the water supply. Residences that were affected by contaminated groundwater were connected to the city water supply. An investigation and risk assessment indicated there was no further public health risk involved with the site. As a result of the closing of Well 3. Therefore, no further cleanup action was recommended. The Michigan Department of Public Health will continue its routine sampling of the city water supply to ensure its long-term safety. This site was deleted from the NPL in early 1991.

**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 were threatened by hazardous substances in the groundwater.

## Environmental Progress

Closing 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.

## Site Repository

Information is no longer available.

# GLOSSARY

## Terms Used in the NPL Book

*This glossary defines terms used throughout the NPL Volumes. The terms and abbreviations contained in this glossary apply specifically to work performed under the Superfund program in the context of hazardous waste management. These terms may have other meanings when used in a different context. A table of common toxic chemicals found at NPL sites, their sources, and their potential threats is located on page G-15*

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

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

**Administrative Order [Unilateral]:** A legally binding document issued by the EPA, directing the parties potentially responsible to perform site cleanups or studies (generally, the EPA does not issue Unilateral Orders for site studies). This type of Order is not signed by the PRPs and does not require approval by a judge.

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

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

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

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

**Applicable or Relevant and Appropriate Requirements (ARARs):** Federal, State, or local laws which apply to Superfund activities at NPL sites. Both emergency and long-term actions must comply with these laws or provide sound reasons for allowing a waiver. ARARs must be identified for each site relative to the characteristics of the site, the substances found at the site, or the cleanup alternatives being considered for the site.

# GLOSSARY

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

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

**Asbestos:** A mineral fiber that can pollute air or water and is known to cause cancer or asbestosis when inhaled.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Carbon Disulfide:** A degreasing agent formerly used extensively for parts washing. This compound has both inorganic and organic

properties, which increase cleaning efficiency. However, these properties also cause chemical reactions that increase the hazard to human health and the environment.

**Carbon Treatment:** [see Carbon Adsorption].

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

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

**Characterization:** The sampling, monitoring, and analysis of a site to determine the extent and nature of toxic releases. Characterization provides the basis for acquiring the necessary technical information to develop, screen, analyze, and select appropriate cleanup techniques.

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

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

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

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

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

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

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

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

**Confined Aquifer:** An aquifer in which groundwater is confined under pressure that is significantly greater than atmospheric pressure.

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

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

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

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

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

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

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

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

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

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

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

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

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

**Deletion:** A site is eligible for deletion from the NPL when Superfund response actions at the site are complete. A site is deleted from the NPL when a notice is published in the Federal Register.

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

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

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

**Dioxin:** An organic chemical by-product of pesticide manufacture which is known to be one of the most toxic man-made chemicals.

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

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

**Ecological Assessment:** A study of the impact of man-made or natural activity on living creatures and their environment.

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

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

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

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

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

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

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

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

**Feasibility Study:** The analysis of the potential cleanup alternatives for a site. The feasibility study usually starts as soon as the remedial investigation is underway. In this volume, the feasibility study is referred to as a site study [see also Remedial Investigation].

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

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

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

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

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

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

**General Notice Letter:** [See Notice Letter].

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

**Good Faith Offer:** A voluntary offer, generally in response to a Special Notice letter, made by a potentially responsible party, consisting of a written proposal demonstrating a potentially responsible party's qualifications and willingness to perform a site study or cleanup.

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

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

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

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

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

**Heavy Metals:** Metallic elements with high atomic weights, such as arsenic, lead, mercury, and cadmium. Heavy metals are very hazardous even at low concentrations and tend to accumulate in the food chain.

**Herbicide:** A chemical pesticide designed to control or destroy plants, weeds, or grasses.

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

**Hydrocarbons:** Chemical compounds that consist entirely of hydrogen and carbon.

**Hydrology:** The properties, distribution, and circulation of water.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Leach, Leaching [v.t.]:** The process by which soluble chemical components are dissolved and carried through soil by water or some other percolating liquid.

**Leachate [n]:** The liquid that trickles through or drains from waste, carrying soluble components from the waste.

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

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

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

**Long-term Response Action:** An action which requires a continuous period of on-site activity before cleanup goals are achieved. These actions typically include the extraction and treatment of groundwater and monitoring actions.

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

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

**Mill Tailings:** [See Mine Tailings].

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

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

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

**Monitoring Wells:** Special wells drilled at specific locations within, or surrounding, a hazardous waste site where groundwater can be sampled at selected depths and studied to obtain such information as the direction in which groundwater flows and the types and amounts of contaminates present.

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

**Natural Attenuation:** [See Attenuation].

**Neutrals:** Organic compounds that have a relatively neutral pH, complex structure and, due to their organic bases, are easily absorbed into the environment. Water is the most commonly known neutral, however, naphthalene, pyrene, and trichlorobenzene also are examples of neutrals.

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

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

The 60-day period may be extended if the EPA receives a good faith offer from the PRPs within that period. [See also Good Faith Offer].

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

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

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

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

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

**Pentachlorophenol (PCP):** A synthetic, modified petrochemical that may be 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.

**Pesticide:** A substance or mixture of substances intended to prevent, destroy, or repel any pest. If misused, pesticides can accumulate in the foodchain and contaminate the environment.

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

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

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

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

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

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

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

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

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

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

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

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

**Potentially Responsible Parties (PRPs):** Parties associated with a Superfund site who may be liable for the cost of remedying the release of hazardous substances. This may include owners or operators of the site or transporters who disposed of materials at the site. PRPs may admit liability, or liability may be determined by a court of law. PRPs may sign a Consent Decree or Administrative Order on Consent to participate in the site cleanup without admitting liability.

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

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

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

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

**RCRA:** [See Resource Conservation and Recovery Act].

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

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

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

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

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

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

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

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

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

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

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

**Resource Conservation and Recovery Act (RCRA):** A Federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Soil Gas:** Gaseous elements and compounds that occur in the small spaces between particles of soil. Such gases can move through or leave the soil or rock, depending on changes in pressure.

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

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

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

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

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

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

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

**Special Notice Letter:** [See Notice Letter].

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Water Table:** The upper surface of the groundwater.

**Weir:** A barrier to divert water or other liquids.

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

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

# Some Common Contaminants at NPL Sites

| Contaminant Category | Example Chemical Types | Sources | Potential Health Threats* |
|---|---|---|---|
| Heavy Metals | Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Chromium, Lead, Manganese, Mercury, Nickel, Silver, Selenium, Zinc | Electroplating, batteries, paint pigments, photography, smelting, thermometers, fluorescent lights, solvent recovery | Tumors, cancers, and kidney, brain, neurological, bone and liver damage |
| Volatile Organic Compounds (VOCs) | Trichloroethylene (TCE), Perchloroethylene (PCE), Acetone, Benzene, Ketone, Methyl chloride, Toluene, Vinyl Chloride, Dichlorethylene | Solvents and degreasers, gasoline octane enhancers, oils and paints, dry cleaning fluids, chemical manufacturing. | Cancers, kidney and liver damage, impairment of the nervous system resulting in sleepiness and headaches, leukemia |
| Pesticides/ Herbicides | Chlordane, DDT 4-4, DDE, Heptachlor, Aldrin, Endrin, Atrazine, Dieldrin, Toxaphene | Agricultural applications, pesticide and herbicide production | Various effects ranging from nausea to nervous disorders. Dioxin is a common by-product of the manufacture of pesticides and is both highly toxic and a suspected carcinogen. |
| Polychlorinated biphenyls (PCBs) | — | Electric transformers and capacitors, insulators and coolants, adhesives, caulking compounds, carbonless copy paper, hydraulic fluids. | Cancer and liver damage. |
| Creosotes | Polyaromatic hydrocarbons (PAHs), Polynuclear aromatics (PNAs), Phenolic Tars, Pentachlorophenol (PCP) | Wood preserving, fossil fuel combustion | Cancers and skin ulcerations with prolonged exposure |
| Radiation (Radionuclides) | Radium-226, Radon, Uranium-235, Uranium-238 | Mine tailings, radium products, natural decay of granites | Cancer |

*Sources:* *Toxic Chemicals—What They Are, How They Affect You (EPA, Region 5)*
*Glossary of Environmental Terms (EPA, 1988)*

**The potential for risk due to these contaminants is linked to a number of factors; for example, the length and level of exposure and environmental and health factors such as age.*