

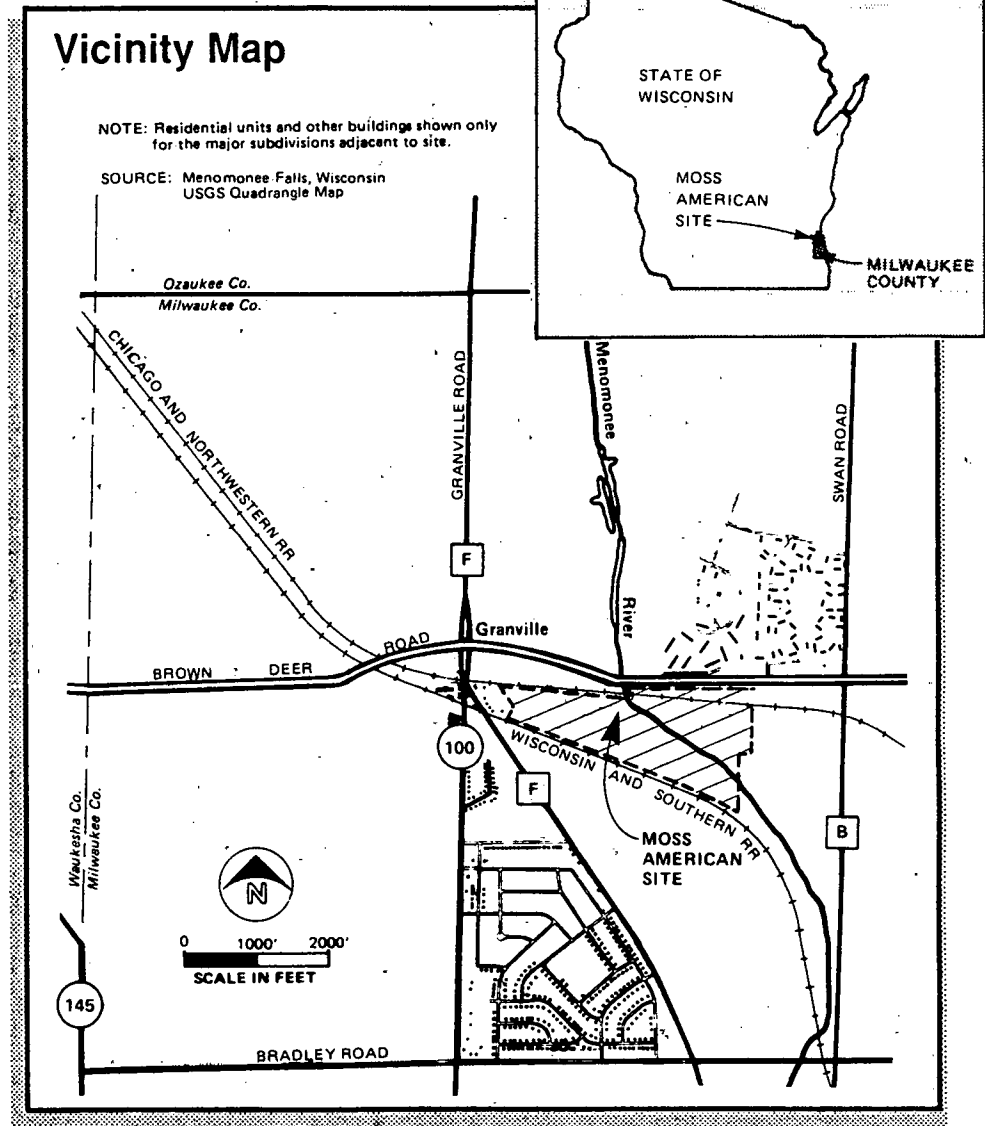


Remedial Investigation Completed at the Moss-American Site Milwaukee, Wisconsin

December 15, 1989

This Fact Sheet Will Tell You About

- The operating history of the site
- The findings of recent site investigations
- Other investigations planned for 1990
- Future site activities
- How you can get more information



Introduction

The United States Environmental Protection Agency (EPA), in conjunction with the Wisconsin Department of Natural Resources (WDNR), has undertaken a comprehensive study of the Moss-American site. A two-part study must be completed

before final site cleanup actions can begin. The first part, the **Remedial Investigation (RI)**, has just been completed. The objectives of the RI were to:

- Determine the nature and extent of contamination both on-site and in the river

- Evaluate the threat to area residents and the environment posed by contamination at, or potentially released from, the site and river
- Collect the data necessary to identify and evaluate potential remedial actions

A **Feasibility Study (FS)**, planned for early 1990, will present site cleanup alternatives from which EPA will select a final remedy. This fact sheet primarily concerns the RI. More information will be provided when the FS is finished. Words in **boldfaced** print are included in the glossary.

Background

The Moss-American site is the location of a former wood preserving facility that treated railroad ties with a **creosote** and fuel oil mixture. The site operated from 1921 until 1976 when it was closed by Kerr-McGee, a former owner. During the period of operation, liquid wastes were discharged to settling ponds that, in turn, drained into the Little Menomonee River. Environmental problems observed at the site are related to the use and disposal of creosote.

Contamination at the site was first reported during the late 1960s. In 1973, the EPA financed the dredging of approximately 5,000 feet of the river from the site south to Bradley Road. The plant facilities were demolished in 1978 and some oil saturated soil was excavated and shipped to the Nuclear Engineering Landfill in Sheffield, Illinois. Additional details about the Moss-American site's background are provided on page 3.

Since 1983, when the site was placed on the **National Priorities List (NPL)**, site investigations have been conducted under the Federal Comprehensive Environmental Response, Compensation,

and Liability Act (also known as CERCLA or the Superfund program). The purpose of the Superfund program is to enforce applicable laws by developing and implementing long-term solutions to environmental problems caused by uncontrolled or abandoned hazardous waste sites. If **Potentially Responsible Parties (PRPs)** do not participate in the Superfund process, EPA will use the federal justice system to force compliance and to recover costs.

Remedial Investigation

The RI considered the site and the reach of the Little Menomonee River between Brown Deer Road and the Menomonee River. On-site work conducted during the RI included sampling of soil, river **sediment**, surface water, and **ground water**. Subsurface conditions and ground-water flow patterns were also investigated. The key findings of the RI are summarized below.

Soil Contamination

The areas of greatest contamination in the subsurface soil are the processing area and vicinity, the treated wood storage area, the northeast landfill, and the southeast landfill (see the Site Map). The major contaminants found in these areas were **polynuclear aromatic hydrocarbons (PAHs)** and **BTX compounds**, both of which are components of creosote.

Ground-Water Contamination

Twenty-four ground-water **monitoring wells** installed across the site were used to take shallow, intermediate, and deep samples of ground water. The **water table** was 5 to 10 feet below ground in most monitoring wells. Contaminated ground water was found in the shallow wells near the proc-

Site History

1921 Moss Tie Company and the American Creosote Company begin treating railroad ties with creosote.

1941 Holding ponds and baffles (slats along a drainage route that cause heavy materials in running water to settle out and accumulate) are installed onsite to treat creosote waste before discharge to Little Menomonee River.

1966 Milwaukee Metropolitan Sewerage District advises Kerr-McGee to modify creosote disposal facility.

1970 WDNR orders Kerr-McGee to pretreat industrial waste and discharge it to a sanitary sewer.

1971 Several people receive creosote-related chemical burns from wading in the Little Menomonee River.

1974 EPA files an injunction against Kerr-McGee ordering cleanup of contaminated river sediments. Milwaukee County also files suit against Kerr-McGee.

1976 Kerr-McGee closes Moss-American site.

1977 National Enforcement Investigation Center confirms the presence of creosote contamination onsite and downstream.

1978 EPA injunction against Kerr-McGee dismissed. Milwaukee County drops its suit against Kerr-McGee in exchange for 65 acres of the site.

1980 Chicago & North West Railroad obtains remaining 23 acres of site.

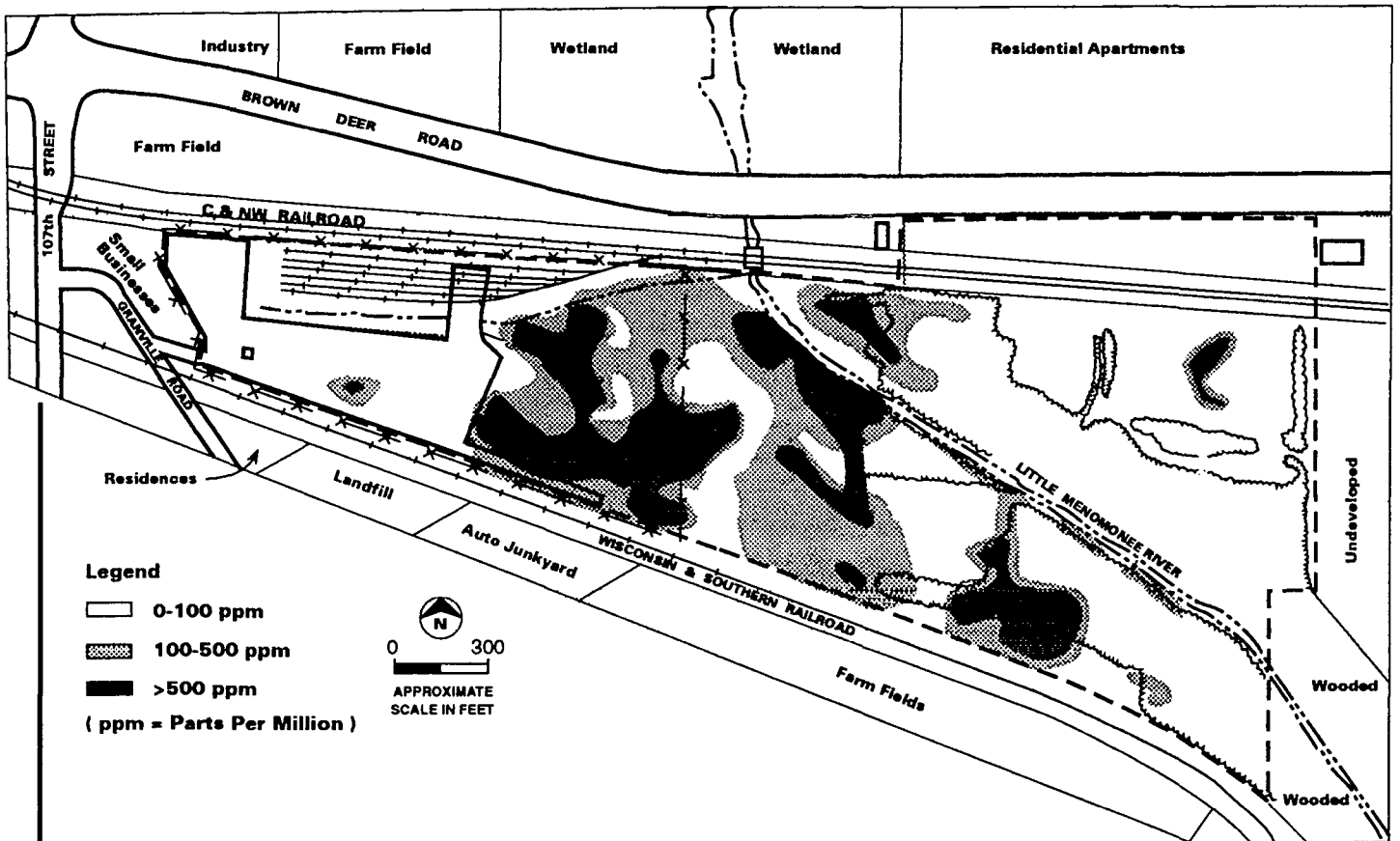
1983 EPA adds Moss-American site to the National Priorities List.

1985 EPA begins site planning work by asking the potentially responsible parties to participate in Superfund investigations.

1987 First phase of RI begins.

The Site

The 88-acre Moss-American site is located in northwestern Milwaukee at the southeast corner of the intersection of Brown Deer Road and Granville Road. The parcel is located between the Chicago & North Western and the Wisconsin and Southern Railroad lines. Sixty-five acres of the site are owned by Milwaukee County and held as undeveloped park land. The remaining 23 acres are owned by the Chicago & North Western and used as an automobile loading and storage area. The Little Menomonee River enters the site through the northern boundary and leaves through the eastern boundary. The site is surrounded by a mix of urban and rural uses. The areas of onsite contamination are shown on the site map.



Potentially Contaminated Areas on Moss-American Site

ess area and the treated wood storage area. Free-standing creosote or an oily sheen was observed in ground water sampled from three monitoring wells. Similar observations were noted in the ground water in eight test pits excavated within 200 feet of the former settling ponds.

A contaminated plume, as wide as 400 feet, extends from the processing area to the river. The plume generally follows the northeasterly ground-water gradient at the site. The depth of contamination varied up to a maximum of 20 feet below the surface. No contamination was detected in intermediate and deep onsite wells. The lower extent of ground-water contamination is limited by a layer of dense silty clay.

Surface Water Contamination

Eight surface water samples were taken from the Little Menomonee River and onsite ditches. No PAHs or other contaminants were detected in samples from the river. PAHs were detected in a ditch that drains water from the site to the river. Oil from the former settling pond outfall also appears to discharge to the river. The apparent discharge produced a sheen on the river adjacent to the outfall during low flow conditions. During normal flow conditions, the sheen was not noticeable.

River Sediment Contamination

A total of 291 sediment samples were collected from the Little Menomonee River, inlets to the river, flood plain, and bank areas. Sediment samples were taken at approximately 300-foot intervals from the confluence with the Menomonee River to the north edge of the site. The contaminants detected in the river sediment are consistent with those found onsite. The primary contaminants are PAHs. PAHs were

detected along the entire reach, from Brown Deer Road to the Menomonee River, but not at every sample location, indicating an uneven contaminant distribution. Contaminant concentrations appear to decrease slightly with distance from the site.

Risk Assessment

A risk assessment was performed to evaluate the potential site-related threats to public health. The risk assessment identified ways that people could come in contact with site contaminants over long periods of time. It evaluated the potential for exposure to on-site contaminants based on existing site and river uses and future residential development of the site. The risk assessment assumed no corrective actions would take place and no restrictions would be placed on future use of the site and river. It concluded that various exposures could occur if no further actions are taken to prevent potential movement of contaminants offsite. It also concluded that a Feasibility Study is warranted to assess remedial alternatives that would reduce the threat of potential exposure. Detailed information on potential human exposures under current site conditions and potential future site uses can be found in the RI report.

The site's ecological impact on aquatic plants and animals in the Little Menomonee River was not studied as part of this investigation. However, previous investigations have concluded that the river downstream from the site is ecologically impaired.

Conclusions of the Remedial Investigation

Potentially unacceptable risks to public health and the environment exist because of site-related

and river contamination. Remedial action is needed to address contamination at the site and the river to reduce the potential risk to public health.

Feasibility Study

The EPA, in cooperation with the WDNR, is undertaking an FS that will evaluate a range of site cleanup actions. The agencies will then recommend a **remedial action** designed to protect public health and the environment. Area residents will be given an opportunity to review the FS report and comment on the alternatives. Following the public comment period, EPA decide on a cleanup strategy for the entire site. The FS report can be expected in early 1990.

For More Information

Anyone desiring additional information may consult various EPA documents pertaining to the site. Copies of the applicable laws, Work Plans, and the RI report are available at:

The Mill Road Library

6431 North 76th Street
Milwaukee, Wisconsin
414 278-3088

If you have any questions, the following EPA personnel may be contacted:

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312 353-1325

U.S. EPA Region 5

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800 621-8431
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Glossary

BTX Compounds - A group of organic compounds that includes benzene, ethylbenzene, toluene, and xylenes. These colorless, highly flammable compounds are used as solvents and as components of gasoline and creosote. Short-term exposure to these compounds can cause irritation of the eyes, respiratory tract, and skin.

Creosote - A heavy oily liquid used chiefly as a wood preservative. It is also used as a roofing pitch and fuel oil additive. Creosote and its vapors are strong irritants. Acute short-term exposure to high concentrations of creosote can cause burning, itching, eye injuries, or skin inflammation and discoloration. Suspected carcinogenic (cancer-causing) compounds such as PAHs, are often present in creosote.

Feasibility Study - See Remedial Investigation/Feasibility Study.

Ground Water - Water found beneath the Earth's surface that fills pores between soil, sand, and gravel particles to the point of saturation. When it occurs in a sufficient quantity, ground water can be used as a drinking water supply.

Monitoring Wells - Special wells drilled at specific locations and depths that are used to sample ground water. The samples are analyzed to determine such things as ground-water movement and the nature and distribution of ground-water contaminants.

National Priorities List (NPL) - The NPL is a roster of the nation's highest-priority uncontrolled hazardous waste sites. Sites on the NPL

are eligible for study and cleanup under the Superfund program.

Polynuclear Aromatic Hydrocarbons (PAHs) - A group of organic compounds related by their basic chemical structure. These compounds are normally associated with petroleum products such as creosote and some are suspected carcinogens.

Potentially Responsible Parties (PRPs) - Any private party (person, owner) who may be held liable for costs to clean up the site.

Remedial Action - Under Superfund, an action is considered a remedial action when it involves direct actions (or remedies) to address site contamination and protect the public from exposure. An interim remedial action is a remedial action that is not considered final, but is consistent with a final remedy.

Remedial Investigation/Feasibility Study (RI/FS) - The RI/FS is a two-part study which is completed before any remedial cleanup can begin. The first part is the Remedial Investigation (RI), which studies the nature and extent of the problem. The second part is the Feasibility Study (FS), which evaluates different methods of dealing with the problem and selects a preferred method that will effectively protect public health and the environment.

Sediment - A mineral or organic substance deposited by air, water, or ice.

Water Table - The surface of the ground water in an aquifer (underground, water bearing layer of rock or soil).

Mailing List Additions

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Anyone wishing to be placed on the Moss-American mailing list, please fill out, detach, and mail this form to:

Susan Pastor

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Office of Public Affairs (SPA-14)
230 South Dearborn Street
Chicago, Illinois 60604

Name _____

Address _____

Organization _____

Phone (Daytime) _____



U.S. Environmental Protection Agency
Region 5
Office of Public Affairs
230 South Dearborn Street
Chicago, Illinois 60604



ADDRESS CORRECTION REQUESTED

Mr. Mark Giesfeldt
WI Dept. of Natural Resources
Bureau of Solid Waste Mgt.
Madison, WI 53702

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BUREAU OF SOLID
HAZARDOUS WASTE MANAGEMENT