



Study Lists Cleanup Options For Parts of Kalamazoo River

Allied Paper/Portage Creek/Kalamazoo River Superfund Site

Kalamazoo, Michigan

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Find out more

To learn more about the site, or to obtain a CD that contains the entire feasibility study, contact:

Diane Russell

Community Involvement Coordinator
989-401-5507
russell.diane@epa.com

James Saric

Remedial Project Manager
312-886-0992
saric.james@epa.com

Or visit one of the information repositories:

Kalamazoo Public Library

315 S. Rose
Kalamazoo

Waldo Library

Western Michigan University
1903 W. Michigan Ave.
Kalamazoo

On the Web

The feasibility study is a large document. The website version does not include appendices:

www.epa.gov/region5/cleanup/kalproject/index.htm

You may call the EPA's Chicago regional office toll-free at 800-621-8431, weekdays, 9:30 a.m. to 5:30 p.m.

The U.S. Environmental Protection Agency has developed several alternative approaches to cleaning up the part of the Kalamazoo River known as Area 1 (*see map, Page 3*). The alternatives are detailed in a recently released report called a feasibility study. The study focuses on the 22-mile section of the Kalamazoo River from Morrow Dam to the former Plainwell Dam and the 3-mile section of Portage Creek from Alcott Street to where it meets the Kalamazoo River.

Georgia-Pacific LLC, which is one of several parties legally responsible for the site, produced the study. The feasibility study does not propose a cleanup plan, but describes and analyzes several cleanup options for Area 1.

Next steps

EPA will evaluate the feasibility study and develop a proposed cleanup plan for Area 1. The proposed plan – expected to be released next summer – will explain EPA's recommended alternative for Area 1. There will be a public comment period, during which EPA will hold a formal public hearing to explain the proposed plan and accept oral comments. Written comments may be submitted any time during the public comment period. EPA will not make a final decision on the cleanup plan until it considers all public comments.

Cleanup of remaining floodplain and sediment areas

EPA divided Area 1 of the Kalamazoo River into eight sections. After EPA evaluated sediment concentrations of polychlorinated biphenyls, or PCBs, in each section and hot spot areas, alternatives for cleanup options were developed for Sections 2, 3, and 4 (*see map, page 4*).

EPA also evaluated floodplain soil and developed additional floodplain cleanup options to protect people and the environment. The Agency plans to require more testing in the natural floodplain upstream of the town of Plainwell to ensure the natural floodplain is clean enough for intended human use.

Cleanup goals

EPA has set goals for reducing the amount of PCBs in soil and sediment. These goals protect people's health and the environment, and comply with state and federal regulations for PCBs in soil and sediment.

The goals are designed to ensure that fish caught in the river or creek are safe to eat, and that people who live, work and play along the riverbanks are protected from PCBs. Specific cleanup goals – and additional technical details – are in the feasibility study (*see box, left*).

All cleanup alternatives, except the no-action alternatives, include at least a 30-year long-term environmental monitoring program of fish, water, soil and sediment. This helps ensure the cleanup goals are being met.

Under the federal Superfund law, a five-year review of the site is also required whenever waste remains on-site. This would be required for some of the cleanup alternatives.

The review evaluates whether the cleanup continues to protect people and the environment, and identifies additional actions that must be taken.

Cleanup alternatives

Cleanup alternatives were developed for sediment and floodplain soil using combinations of different technologies to meet Area 1 cleanup goals. Each sediment and floodplain soil alternative identified below was evaluated in detail against the remedy selection criteria established by federal law (*see box, right*).

However, the last two criteria, state and community acceptance, were not evaluated because they will be based on comments received and addressed in the proposed plan public meeting following the public review period, which will be held at a later date.

The alternatives are listed in a chart (*see pages 3 and 4*).

Site background

Several paper mills along the Kalamazoo River and Portage Creek recycled various types of paper stock starting in the 1950s. This included carbonless paper that contained PCBs that were released into the mills' waste streams and eventually into the Kalamazoo River. In 1990, the site was added to the National Priorities List due to the presence of PCBs in the sediment, fish and surface water of the Kalamazoo River. A study of the nature and extent of contamination at the site was completed for Area 1 in 2012. This study focused on the PCBs.

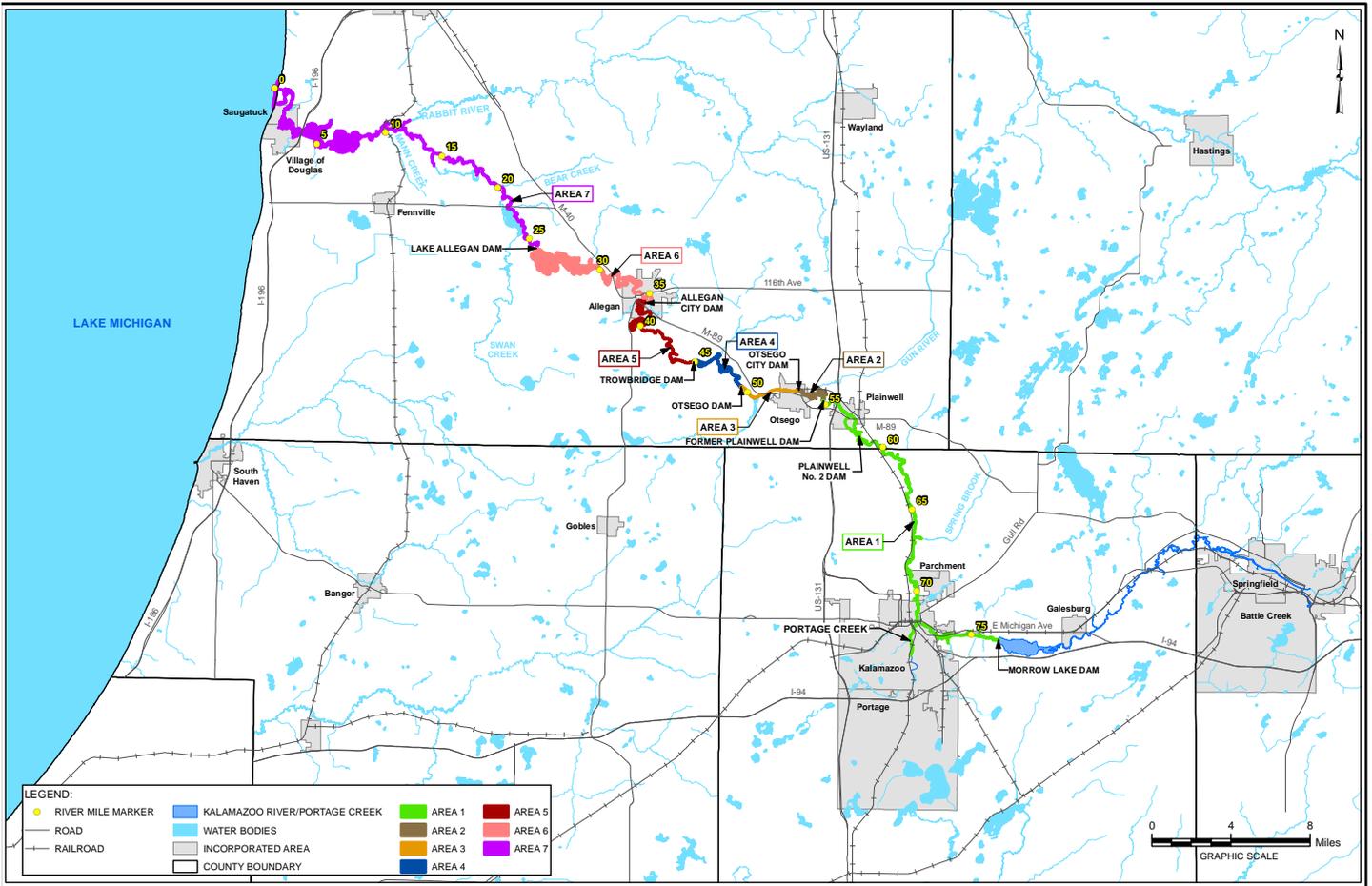
Most of the PCBs in Area 1 are in river sediment in isolated areas and are the focus of sediment cleanup options (see page 3 and 4). In floodplain areas, the highest contaminated areas are located upstream from the former Plainwell Dam and around the two flow control structures of Plainwell No. 2 Dam area.

Previous cleanups

Since 1998, EPA has conducted several cleanups to control the sources of PCBs. So far, the Agency has removed more than 300,000 cubic yards of contaminated material, and cleaned up and restored more than three miles of riverbank.

Explanation of evaluation criteria

- 1. Overall protection of human health and the environments.** Examines whether an option protects both human health and the environment. This standard can be met by reducing or removing pollution or by reducing exposure to it.
- 2. Compliance with applicable or relevant and appropriate requirements.** Ensures options comply with federal and state laws.
- 3. Long-term effectiveness and permanence.** Evaluates how well an option will work over the long term, including how safely remaining contamination can be managed.
- 4. Reduction of toxicity, mobility or volume through treatment.** Determines how well the option reduces the toxicity, movement and amount of pollution.
- 5. Short-term effectiveness.** Compares how quickly an option can help the situation and how much risk exists while the option is under construction.
- 6. Implementability.** Evaluates how feasible the option is and whether materials and services are available in the area.
- 7. Cost.** Includes not only buildings, equipment, materials and labor but also the cost of maintaining the option for the life of the cleanup.
- 8. State acceptance.** Determines whether the state environmental agency (in this case Michigan Department of Environmental Quality) accepts the option. EPA evaluates this criterion after receiving public comments.
- 9. Community acceptance.** Considers the opinions of the public about the proposed cleanup plan. EPA evaluates this criterion after a public hearing and comment period.

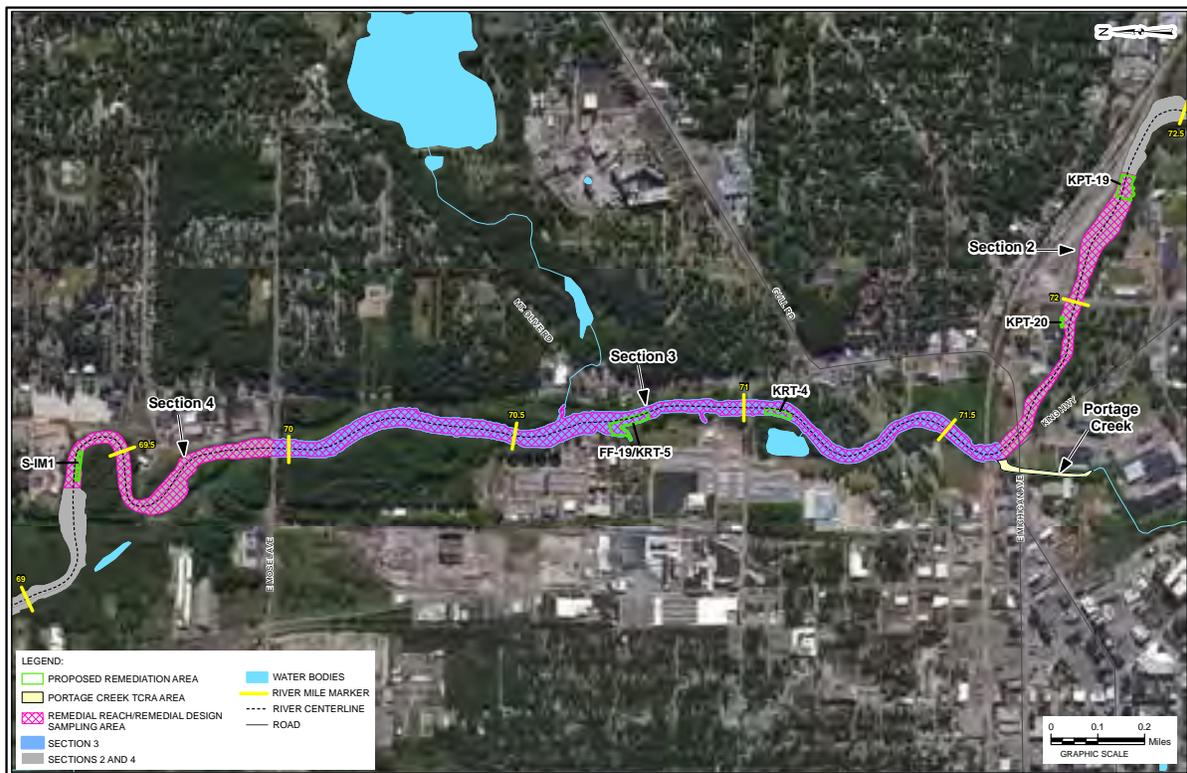


Map of Kalamazoo River cleanup Areas 1 through 7.

Sediment Alternative	Description	Time to reach cleanup	Long-term monitoring required?	Cost
S-1: No Further Action	Required baseline to compare with other alternatives.	87 years	No	\$0
S-2: Monitored Natural Recovery (MNR), Institutional Controls (ICs) and Engineering Controls (ECs)	No physical cleanup; relies on natural processes, site restrictions and physical barriers to the site.	87 years	Yes	\$2.7 million
S-3A: Removal of Hot Spot Areas and Crown Vantage Side Channel, MNR, ICs and ECs	Remove 19,500 cubic yards of sediment from five highly contaminated areas in Sections 2, 3 and 4 and the Crown Vantage side channel. Additional sampling in Sections 2, 3 and 4 to identify additional hot spots.	31 years	Yes	\$13.1 million–\$16.6 million
S-3B: Removal of Hot Spot Areas, Capping for Crown Vantage Side Channel, MNR, ICs and ECs	All actions in S-3A except replacing removal of Crown Vantage Side Channel with capping. Volume of sediment removed is reduced to 15,600 cubic yards.	31 years	Yes	\$12.2 million–\$15.7 million
S-4A: Removal of Hot Spot Areas, Crown Vantage Side Channel and Section 3 River Channel Edges, MNR, ICs and ECs	All actions in S-3A, plus excavation of sediment along the edges of Section 3 that exceed cleanup goals. The total volume of sediment removed is estimated at 63,900 cubic yards.	26 years	Yes	\$33.7 million–\$37.2 million

S-4B: Removal of Hot Spot Areas and Section 3 Channel Edges, capping for Crown Vantage Side Channel, MNR, ICs and ECs	All actions in S-4A except replacing removal of Crown Vantage Side Channel with capping. Volume of sediment removed would be reduced to 59,900 cubic yards.	26 years	Yes	\$32.3 million–\$35.8 million
S-5: Area 1-Wide Removal, MNR, ICs and ECs	Total excavation of all highly contaminated sediment throughout the river in Area 1. Removal of 300,000–490,000 cubic yards of sediment.	45 years	Yes	\$202 million–\$337 million

Floodplain Alternative	Description	Time to reach cleanup	Long-term monitoring required?	Cost
FPS-1: No Further Action	Required baseline to compare with other alternatives.	NA	No	\$0
FPS-2: MNR, ICs, ECs	No physical cleanup. Relies on natural processes, site restrictions and physical barriers.	NA	Yes	\$1.3 million
FPS-3: Capping, ICs, and ECs	Placing a 12-inch cap over 7 acres of floodplain soil in the former Plainwell Impoundment with high PCB concentrations; also relies on ICs and ECs.	1 year	Yes	\$3.8 million
FPS-4A: Removal, ICs, and ECs	Excavation of 11,300 cubic yards of floodplain soil with high levels of PCBs; also relies on ICs and ECs.	1 year	Yes	\$6.8 million
FPS-4B: Removal, ICs, and ECs	Total excavation in all of Area 1; remove 1.4 million cubic yards of floodplain soil with high PCB levels.	10 years	No	\$486 million



Map of Kalamazoo River cleanup Area 1.