United States Environmental Protection Agency

EPA Releases Report on Landfill Cleanup Options – Public Availability Sessions to Follow

Allied Landfill – Allied Paper/Portage Creek/Kalamazoo River Superfund Site
Kalamazoo, Michigan December 2013

U.S. Environmental Protection Agency has completed the "feasibility study" for the Allied Landfill portion of the Allied Paper/Portage Creek/Kalamazoo River Superfund site. The feasibility study does not propose a specific cleanup plan, but is a detailed description and analysis of potential cleanup options considered for the site. The proposed cleanup plan will be developed and presented to the public at a later date. Allied Paper Landfill occupies 89 acres including the area of Portage Creek between Cork and Alcott streets in the city of Kalamazoo (*see map on Page 2*).

Contamination report

A study of the nature and extent of contamination at the site was completed for the Allied Paper Landfill in 2008. This study, known as a "remedial investigation," focused on polychlorinated biphenyls or PCBs. The PCBs at the landfill are associated with paper making residuals which are wastes from the past recycling of carbonless copy paper. PCBs are the primary contaminant at Allied Landfill. Other pollutants identified in the study in lesser amounts were metals and a family of chemicals called semi-volatile organic compounds. This study concluded that the conditions existing at the site require that a response action be taken to address the contamination at the site.

Evaluating cleanup alternatives

EPA's feasibility study for the Allied Landfill details and compares cleanup alternatives that work at the landfill. The cleanup options included in the report are: no further action (this is required at all sites); consolidation and capping; removal and off-site disposal; and encapsulation and containment.

All of the cleanup alternatives (except the no-action alternative) would achieve EPA's primary goal to protect people's health and the environment over time. The Agency will further evaluate these alternatives and select the one that best protects in the short and long term, is cost-effective, and represents the best balance of EPA's nine evaluation criteria (*see box on page 3*).

Common elements of the cleanup options

All of the alternatives (except the no-action one) require excavation of contaminated material from the former operations area near Alcott Street and from sections east of Portage Creek such as the Goodwill property and nearby residential lots. The various cleanup alternatives require different amounts of excavation in the other parts of the site. PCB-containing materials located under the Goodwill buildings would not be removed. If there is any contaminated material left under buildings, groundwater monitoring would

Informational meeting

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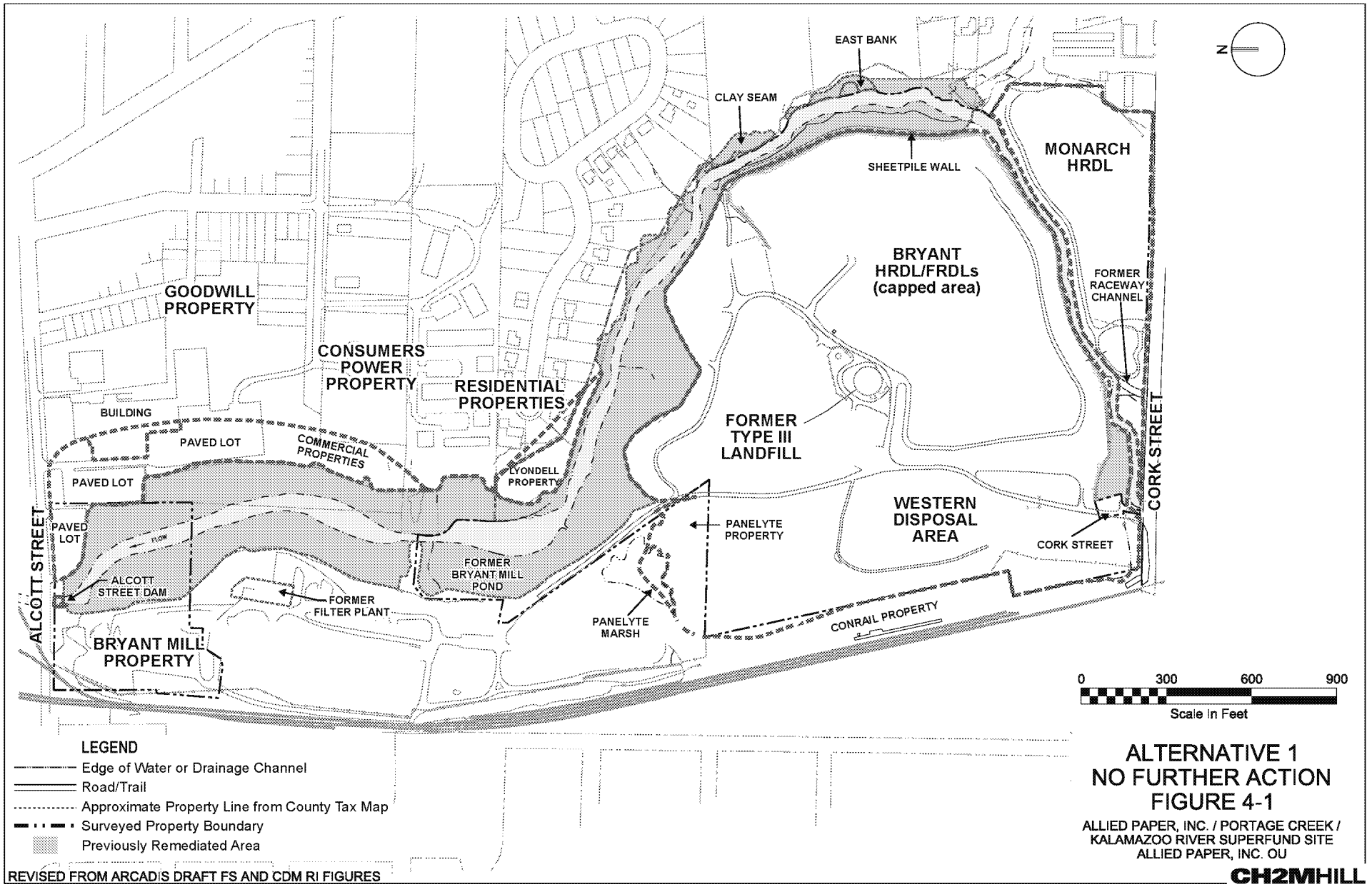
You can read more about the site at www.epa.gov/region5/cleanup/alliedpaper. The feasibility study is a large document and the website version does not include appendices. You can call or email either Patricia Krause or Michael Berkoff for a CD of the study. The entire feasibility study is also available on CD at the information repository at the Kalamazoo Public Library, 315 S. Rose and at the Waldo Library, Western Michigan University, 1903 W. Michigan Ave., Kalamazoo.

Contact EPA

For more information, or if you have comments about the Portage Creek cleanup, contact:

Michael Berkoff
Remedial Project Manager
312-353-8983
berkhoff.michael@eapa.gov

Patricia Krause
Community Involvement Coordinator
312-886-9506
krause.patricia@epa.gov



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ALTERNATIVE 1
NO FURTHER ACTION
FIGURE 4-1

ALLIED PAPER, INC. / PORTAGE CREEK / KALAMAZOO RIVER SUPERFUND SITE
ALLIED PAPER, INC. OU

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be performed and land-use covenants would be put in place.

Below are the cleanup alternatives included in the Allied Landfill feasibility study:

Alternative 1 – No action
This option must be considered at every Superfund site. At the Allied Landfill, it would mean leaving soil and sediment in place with no engineering work or maintenance. Five-year site reviews would be part of this alternative. **Estimated cost: $120,000.**

Alternative 2 – Consolidation and Capping
Under this option, excavated materials at Allied Landfill would be consolidated in the main body of the landfill that includes the former residual dewatering lagoon, the former Type III landfill, and the Western disposal area, and possibly in the area of the landfill known as the Monarch historical residual dewatering lagoon (*see map on Page 2*). There are three versions of this alternative called 2A, 2B and 2C.

- Alternative 2A leaves the Monarch historical residual dewatering lagoon in place under a cap. Monarch is a disposal area separated from the main body of the landfill by Portage Creek. All other contaminated material would be consolidated in the main body of the landfill. **Estimated cost: $43 million.**
- Alternative 2B calls for the contaminated material at Monarch to be excavated and consolidated into the main body of the landfill with all the other contaminated material. **Estimated cost: $41 million**.
- Alternative 2C is the same as 2B except EPA would also look in the material being excavated for hot spots of extremely high PCB concentrations and if found ship them off-site for incineration. It is estimated 5 percent of the soil dug up would require off-site incineration, which would significantly increase the cost due to the added expenses of transportation and treatment. **Estimated cost: $62 million.**

The consolidated area under Alternative 2 would be covered with an engineered landfill cap consisting of six layers. The six layers include (from bottom to top):

- A non-woven geotextile layer.
- A sand layer for gas venting.
- An impermeable plastic cover – a sheet of strong plastic-like material to stop downward water drainage and upward escape of gases.
- A geosynthetic drainage layer that allows for liquid flow without soil loss.
- A 24-inch-thick (minimum) drainage and soil protection layer.
- A six-inch-thick (minimum) topsoil layer with vegetation.

During the design phase of this alternative, EPA would evaluate the necessity of the existing sheet-pile wall, which is an underground barrier that stabilizes the sloped edge or toe of the existing landfill. The sheet-pile wall may not be necessary in those cleanup alternatives that would involve pulling back large amounts of material from Portage Creek. An evaluation would determine if the sheet-pile wall can be removed completely or if parts of the wall

Explanation of evaluation criteria

EPA compares each cleanup option or alternative with these nine criteria established by federal law:

1. Overall protection of human health and the environment 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 (ARARs) 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.

are still needed to stabilize the base of the landfill along Portage Creek.

At those areas where contaminated material would be excavated and pulled back from Portage Creek, clean material would be placed to act as a protective buffer to keep the energy of fast-moving creek water off the cap during floods, give a clean area for groundwater monitoring well installation, and create distance between the waste and sensitive stream environment. After that work, more samples would be taken to make sure cleanup goals have been achieved. Monitoring wells and if necessary a groundwater collection system would be installed between the landfill and Portage Creek. Monitoring the groundwater that flows from a landfill is one way EPA can observe if a cleanup is successful at preventing contamination from moving off-site. As a part of the long-term monitoring, EPA would require these wells be sampled at regular intervals well into the future. This cleanup alternative also includes long-term inspections and maintenance of the newly installed engineered caps and any remaining sheet pile. EPA estimates that it would take approximately two years to implement any of the three versions of the consolidation and capping alternative.

Alternative 3 – Total Removal and Off-site Disposal
This cleanup option would involve the complete excavation of Allied Landfill. The extent of areas with PCB-contaminated material would be confirmed and then excavated. This includes all outlying and landfill areas containing PCBs (except for materials under the Goodwill buildings). EPA estimates 1.5 million cubic yards of PCB-contaminated materials would be removed. These materials would be dug up and transported off-site to a licensed commercial landfill. After excavation, sampling would make sure cleanup goals were achieved. Wetland areas that are excavated would be backfilled with clean material and restored as wetlands. Overall, the excavated and backfilled area would extend over 65 acres. Legal covenants would also be put in place after cleanup activities are completed and would clearly separate those areas to be maintained as wetland, commercial, and industrial. In addition, the sheet pile wall along the western bank of Portage Creek would be removed along with the groundwater collection system.

The total excavation option could take a minimum of five years to complete depending on factors such as the size and depth of the contaminated area and the funding available for the cleanup. If 100 percent funding was not available to keep the cleanup going at full speed, the cleanup would last more than five years. This alternative would require local traffic safety precautions for the period of cleanup work because of the estimated 115 truck trips per work day. **Estimated cost: $189 million.**

Alternative 4 – Encapsulation Containment System
This alternative involves digging up PCB-contaminated material and encapsulating it in a new landfill on-site. The new landfill would be constructed generally within the footprint of the existing landfill. This plan would include:

- Constructing a bottom liner.
- Placing excavated materials on the newly constructed landfill liner.
- Constructing a cap over the new landfill covering about 50 acres. This is the same type of six-layer cap described in Alternative 2.

Some material would be transported off-site and disposed of in licensed landfills if the newly constructed landfill cannot hold all of the waste. The sheet pile wall could be removed along the western bank of Portage Creek. Portions of the sheet pile wall may be left if they are necessary to maintain a proper slope to the landfill and bank stability. Given the amount of excavation and construction activities involved with the encapsulation alternative, EPA estimates it could take ten years to implement. Groundwater monitoring would be conducted in areas outside of the constructed remedy to

Cleanup Alternatives	Estimated Cost
1 – No Action	$120,000
2 – Consolidation and Capping:	
2A – Monarch area capping	$43 million
2B – Monarch area consolidation	$41 million
2C – Monarch area consolidation and hot spot removal	$62 million
3 – Total removal and off-site disposal	$189 million
4 – Encapsulation containment system	$136 million

effectively monitor for the occurrence of any groundwater contamination. **Estimated cost: $136 million.**

Cleanup goals

EPA has established cleanup goals that protect people's health and the environment and comply with state and federal regulations for PCBs in soil, groundwater and sediment. "Groundwater" is an environmental term for underground supplies of fresh water. Sediment is saturated soil in a creek, river, wetland, or other water body. Cleanup to these goals will be protective of public health and the environment. Each alternative includes excavation of soil and sediment above respective cleanup goals in outlying areas and, depending on the alternative, in other areas of the site. In those areas subject to excavation, EPA would sample soil and sediment and if the tests show certain levels of PCB contamination, the soil and sediment would be excavated.

Once the excavation of contaminated material was complete, the areas would be backfilled with clean material. If the target area is a wetland, the section would be restored and an environmental covenant would be put in place requiring the area remain a wetland. An environmental covenant is a long-term, land-use control on the property.

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 done every five years for the foreseeable future evaluates whether the cleanup continues to protect people and the environment, and identifies whether any additional actions need to be taken to ensure protectiveness.

Next steps

EPA will be hosting public availability sessions in Kalamazoo during the winter. At these meetings, EPA will discuss the site conditions and the potential cleanup alternatives with the public. These availability sessions will be somewhat different from previous public meetings on the Kalamazoo site as EPA will use posters and other visual aids to present the topics. EPA will not be making a formal presentation during these sessions. With this change, EPA is seeking to have more one-on-one, in-depth conversations with members of the public.

When EPA is ready to propose a specific cleanup plan for Allied Landfill the Agency will issue a new document called a proposed plan. The proposed plan will present EPA's recommended cleanup alternative for the Allied Landfill. EPA does not yet have an anticipated release date for the proposed plan. The publishing of the proposed plan will mark the beginning of an official public comment period, during which EPA will collect statements by mail or Internet submissions and hold a formal public hearing. At the hearing, EPA will explain the proposed plan, and people can verbally comment for the record.

After carefully considering all public comments, EPA will make a final choice on a cleanup alternative and announce its decision in a document called a "record of decision" or ROD. EPA may make changes to the recommended option or select another alternative based on the comments it receives during the public comment period. EPA will summarize and answer all the public comments in a "responsiveness summary" included in the ROD.

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Region 5
Superfund Division (SI-7J)
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Chicago, IL 60604-3590