United States Environmental Protection Agency

EPA Proposes Cleanup Plan for Middleground Island

Tittabawassee River, Saginaw River & Bay Site
Midland, Saginaw and Bay City, Michigan February 2020

U.S. Environmental Protection Agency (EPA), working with the Michigan Department of Environment, Great Lakes, and Energy, has proposed a plan to clean up dioxin-contaminated soil on Middleground Island in the Saginaw River.

EPA's proposed plan calls for removing contaminated soil in people's yards. At residential properties where soil tests show levels greater than 250 parts of dioxin in a trillion parts of soil – a measure known as "parts per trillion," or "ppt" – workers will dig up and remove contaminated soil, replace it with clean soil and restore grasses and plants. EPA's proposed cleanup will ensure that people living on Middleground Island are safe when they contact soil in their yard. Not every property will need a cleanup.

Your comments are needed

EPA will select a final cleanup plan after reviewing comments received during the public comment period. This fact sheet gives you background information, describes cleanup options, and explains EPA's recommendations. You can find more details in a document called the *Middleground Island Engineering Evaluation/Cost Analysis*. EPA encourages your comments on this technical report, which you can find on our website and at the various locations listed on Page 7 (*see box, left, for ways you can participate in the decision-making process)*

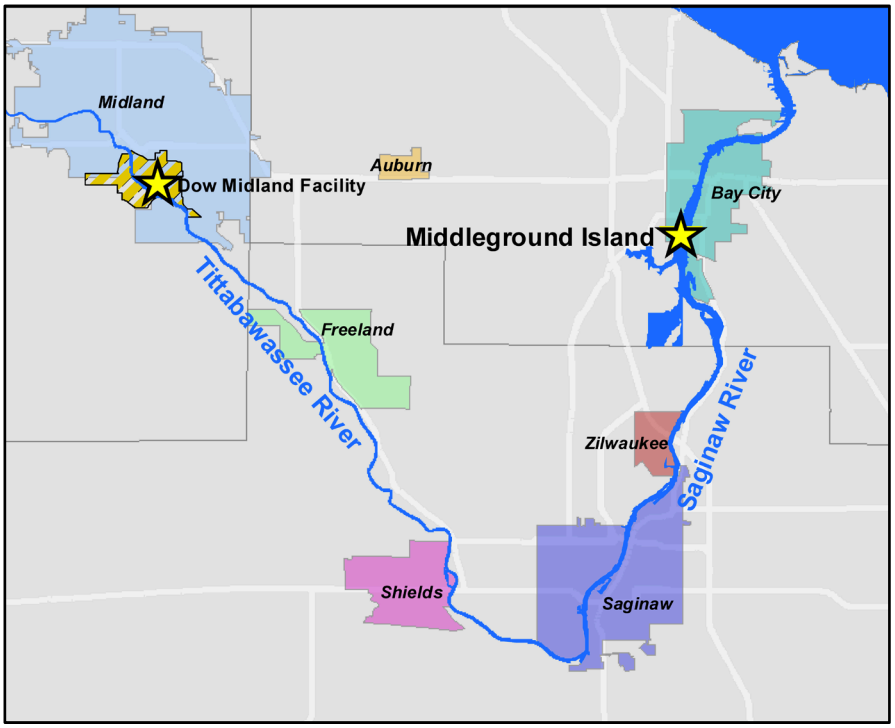

Figure 1: General location of Middleground Island

Share your opinion

EPA invites your comments on the proposed cleanup plan for soil on Middleground Island.

The public comment period is **Feb. 12 through March 30, 2020**. There are several ways to comment:

- Fill out and mail the enclosed comment form.
- Orally or in writing at the public meeting.
- Email your comments to russell.diane@epa.gov.

EPA may modify the proposed cleanup plan or select another option based on new information or public comments, so your opinion is important.

Public meeting

EPA will hold a meeting to discuss the plan and answer questions:

March 10, 2020 at 6:30 pm
Boys and Girls Club
300 West Lafayette Avenue
Bay City, MI

Contact EPA

If you need special accommodations at the public meeting or have questions, contact:

Diane Russell
Community Involvement Coordinator
989-395-3493
russell.diane@epa.gov

Mary Logan
Remedial Project Manager
312-886-4699
logan.mary@epa.gov

Background

The Dow Chemical Company has been operating at its Midland plant since the 1890s. Dioxins, primarily furans, are found in and along the Tittabawassee and Saginaw Rivers and in Saginaw Bay from former waste management practices at Dow's Midland plant. Waste particles released in the early 1900s to the Tittabawassee moved downstream and mixed with Saginaw River sediment. Current practices now control contaminant releases from Dow's facility.

Middleground Island is in the Saginaw River approximately seven miles upstream (south) of Saginaw Bay. About 41 acres of the 175-acre island consists of residential properties or lots that could be residential in the future. The remainder of the island includes recreational, commercial, and closed waste disposal properties (*see Figure 2*).

The dioxins found in Middleground Island soil are believed to be from the historical use of dredge materials as fill on the island. In 1910, the Saginaw River became an authorized federal navigation channel. Regular dredging has been conducted over time by the U.S. Army Corps of Engineers. The Corps created the Middleground confined disposal facility (CDF) in the middle of the island and used it as a disposal location for Saginaw River dredge material from 1973 until 1984. Dredged sediment from the CDF was used as daily cover material at the adjacent Bay City Middleground Landfill. Reportedly, the dredged sediment was also available for use as fill material in island yards.

Why is this cleanup important?

The term "dioxins" refers to a large family of similar chemicals, including furans. EPA has concluded that dioxins may cause cancer or other health effects such as skin problems, liver damage or reproductive issues, depending on exposures. Dioxins are not created intentionally but can be formed by human activity or naturally, such as in fires. In this case, dioxins formed as a byproduct of Dow's early manufacturing processes.

When people work or play outdoors, they can accidentally eat a small amount of dirt or get dirt on their skin. When the dirt is contaminated, people are being exposed to small amounts of contamination. EPA's proposed cleanup will limit people's exposure to dioxins in Middleground Island soil.

In 2015, EPA selected a cleanup plan for properties in the Tittabawassee floodplain. Because land is used in different ways, the Tittabawassee floodplain plan established two different cleanup numbers that ensure protectiveness for everyone who lives, works or plays along the river. Maintained residential areas are offered cleanup if soil contains more than 250 ppt of dioxins. Other land use areas – such as farms, parks, commercial properties, and natural areas – are offered cleanup if dioxin levels are greater than 2,000 ppt. Middleground Island properties will be compared to these same protective cleanup numbers.

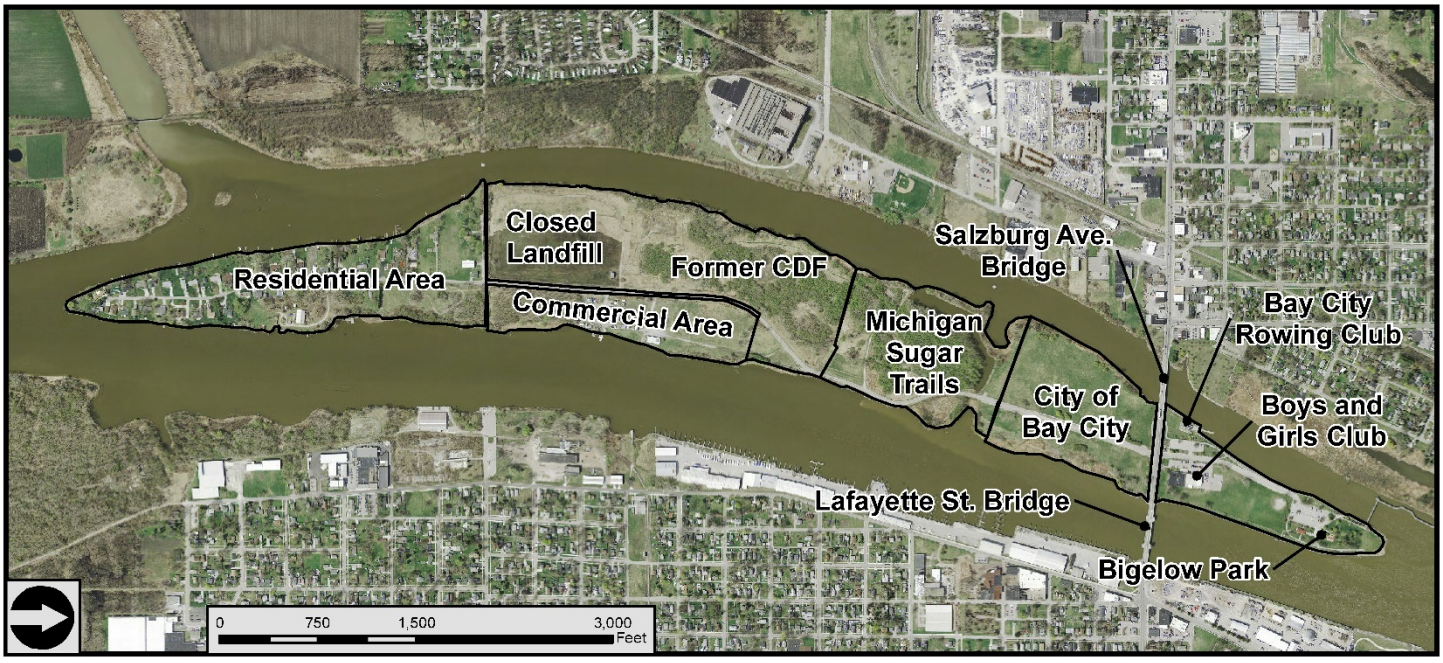

Figure 2: Middleground Island Current Land Use

What properties need a cleanup?

In the 1950's, a few residential homes began to appear on the southern portion of Middleground Island. Development of additional homes continued during the next few decades and currently there are 37 residential homes on the island. As mentioned above, sediments dredged from the Saginaw River may have been available for use as fill material in residential yards on the island.

Dow took soil samples from most of the residences and other areas on the island. Property owners eligible for cleanup have been contacted by EPA. Seventeen of the residential areas sampled had dioxin levels greater than EPA's cleanup number of 250 ppt. Several of the areas that trigger cleanup do not currently have a home but could have homes in the future. In total, about 15 acres is expected to be cleaned up.

Dow also sampled the recreational areas at the north end of the island and some commercial properties in the center of the island. Those results are all well below EPA's non-residential cleanup number of 2,000 ppt. Therefore, EPA's cleanup plan is focused on the residential areas.

Summary of cleanup alternatives

EPA is evaluating two alternatives to clean up Middleground Island soil. Briefly, they are:

- **Alternative 1, Clean Cover:** A clean cover would be placed over eligible properties. Covers are usually a layer of clean soil planted with grass on top, but other materials could be used, as appropriate. A minimum thickness of one foot of soil is expected, but this would be finalized in design. Clean covers help keep people and animals from contacting the contamination. Long-term controls, such as maintenance plans and institutional controls, would be needed at each property.

- **Alternative 2, Removal and Backfill:** Contaminated soil would be dug up from each eligible property, clean soil would be placed to restore the original grade, and the property would be replanted. The contaminated soil is hauled away for long-term management at an approved location. There are several spots where the soil could be hauled: it could be relocated or consolidated on the island; it could be relocated to Dow's Midland plant; or it could go to another approved location, such as a commercial landfill.

Evaluation of alternatives

EPA is required to evaluate these options against the criteria of effectiveness, implementability and cost (*see box, right*). These three criteria help compare how the alternatives will meet cleanup goals. EPA's main goal for the Middleground Island cleanup is to ensure that people are safe when they contact soil.

Soil being removed from a Tittabawassee River property.

Effectiveness: Both alternatives are expected to help protect human health and the environment, meet the cleanup goals, and comply with laws and regulations.

- Both alternatives can be effective in the short term. Clean covers provide an immediate benefit by safely isolating the contamination. Once the soil is dug up and replaced, removal also provides an immediate benefit.

- Both alternatives would have short-term impacts such as limitations on property use, heavy equipment around properties, and noise that may be disruptive during the cleanup. If possible, these effects would be managed by construction practices and working with property owners. It's usually faster to install clean covers than to dig up and replace soil.

- Both alternatives would require most existing vegetation to be cleared away. Although yards will be replanted, mature trees and landscaped areas may need to be removed. Grassy areas will be easier to restore.

Explanation of evaluation criteria

For this type of action, EPA uses three criteria to evaluate and compare cleanup options (*see Table 1 on page 4*).

- ✓ **Effectiveness** evaluates the ability of an alternative to meet project objectives, whether it is protective and reliable, and if it complies with all laws and regulations.
- ✓ **Implementability** evaluates how difficult the option will be to complete, whether materials and services are available in the area, and whether it is acceptable to the community.
- ✓ **Cost** includes the estimated costs to construct the option such as equipment, materials and labor, as well as the long-term costs of monitoring and maintaining the option.

Loading contaminated soil into a truck for transport.

- Both alternatives are expected to result in truck traffic through the communities and potential traffic safety issues. There would also be air emissions from the transport.
  - Clean covers could require about 750 truckloads to deliver the cover materials.
  - Removal could require more than 1100 truckloads to haul away the contaminated soil and about 1100 truckloads to bring in clean replacement soil.
  - Trucks will travel more than 20 miles one-way to haul removed contaminated soil to Dow's Midland plant or another off-island location.

- Worker safety concerns involve working around and operating construction equipment, managing large amounts of contaminated soil and possible exposure to extreme weather conditions. These concerns would be managed by appropriate health and safety plans.

- Clean covers may be less reliable in the long-term because integrity of the cover relies on compliance of individual property owners with long-term land use restrictions. Covers must be monitored and may need maintenance to make sure they continue to be reliable. Removal would be effective in the long term because it permanently removes contaminated soil from yards.

Implementability: All the alternatives can be carried out. Similar actions have been done successfully at other areas in the Tittabawassee River floodplain. All equipment, personnel and material necessary to implement the alternatives should be locally available. Community acceptance will be evaluated after public comments are received. EGLE supports EPA's recommended alternative but will make a final recommendation after considering public comments.

- Traffic management will be one of the biggest implementation challenges. The only vehicle access to the island is via a busy two-lane road with two bridges. There are currently no traffic controls to turn on or off the island. On the island there is only one narrow, two-lane road (Evergreen Drive). Remedy-related construction traffic on the island will need to be carefully planned and managed.

- Agreements from owners must be obtained before conducting work on their property. EPA calls land management tools "institutional controls," which are non-engineered instruments such as legal or administrative controls. Long-term agreements would be requested of property owners if a clean cover is placed and some owners may be reluctant to allow ongoing access or to place institutional controls.

- In order to approve the final location for long-term management of removed soils, EPA and EGLE need to ensure that the site meets all technical and legal requirements and that the owners and operators can provide the necessary long-term assurances.

Cost: Table 1 shows the estimated cost for each alternative. Placing clean covers on the eligible properties is estimated to cost about $750,000. Removing and backfilling soil is estimated to cost between $1,700,000 and $2,100,000. The ranges for removal and backfill are estimates that reflect different costs primarily related to transportation. Project costs will be refined as property-specific cleanup plans are developed.

Alternative	Effectiveness	Implementability	Estimated Cost
Alt 1: Clean Cover	Low to High – depends on property owner long-term compliance	Easy to implement	$750,000
Alt 2: Removal and Backfill EPA's Recommended Alternative	High	Easy to moderately difficult to implement	$1,700,000 – $2,100,000

Table 1 – Compares how each alternative meets the evaluation criteria, relative to other alternatives.

Use this space to write your comments

EPA is interested in your comments on the proposed cleanup plan for Middleground Island of the Saginaw River. Comments provided by the public are valuable in helping EPA select a cleanup plan.

You may use the space below to write your comments. To submit, you may fold, seal with tape, apply postage and mail; turn in at the March 10, 2020 public meeting; or send an email with your comments to russell.diane@epa.gov. Comments must be submitted or postmarked by March 30. If you have any questions, please contact Diane Russell at 989-395-3493, or russell.diane@epa.gov, 9:30 a.m. – 5:30 p.m. weekdays.

Name_____

Address_____

City _____State _____

Zip _____

Public Comment Insert Page

EPA Proposes Cleanup Plan for Saginaw River's Middleground Island
Public Comment Sheet

Fold, seal with tape, apply postage and mail.

Name

Address _____

City_____State_____

Zip _____

Place Stamp Here

Diane Russell
Community Involvement Coordinator
U.S. EPA Region 5 Superfund Division
Community Information Office
1300 Bluff St., Suite 140
Flint, MI 48504

Common elements to all alternatives

Some features are common to each alternative:

- Property-specific design plans will be needed for each eligible property.
- Access to the work areas may require temporary roads on the island and temporary staging areas for equipment and materials.
- EPA and EGLE would monitor the cleanups.
- A health and safety plan will ensure worker and community safety while the work is underway.

EPA's recommended alternative

EPA, in consultation with EGLE, recommends Alternative 2, Removal and Backfill, because it provides the best balance of effectiveness, implementability and cost. Alternative 2 calls for the removal and backfill of surface soil in residential yards where dioxin levels exceed 250 ppt. The contaminated soil will be hauled to an approved location and managed long-term.

Alternative 2 is effective because it permanently removes contaminated soil from homeowner's yards, ensuring long-term protectiveness. Alternative 2 costs more and there may be more implementation challenges, but EPA believes that Alternative 1 may be less reliable in the long-term because it requires future homeowners to understand and comply with the restrictions on the clean cover. Alternative 2 allows more flexibility for future land use than Alternative 1 because placement of a clean cover would restrict activities that would disturb the cover

Some details about Alternative 2 will be worked out as design plans are developed. There are several spots where the soil could be hauled; EPA and EGLE will make the final decision after review of the proposed site's technical and legal status. If soils could be consolidated/ relocated on the island it would help minimize impacts from the transportation of large amounts of contaminated soil. If long-term management on the island is not feasible, EPA and EGLE will evaluate other locations. Traffic management will be important. EPA expects that transportation details will be finalized during design.

Next steps

Before making a final decision, EPA will review comments received during the public comment period. Based on the comments, EPA, working with EGLE, may modify its recommended alternatives or choose another, so your opinion is important. EPA encourages you to review and comment on this proposed cleanup plan and the *Middleground Island Engineering Evaluation/Cost Analysis*. More details are available in the official documents on file at the information locations and on EPA's website (*see box below*).

Clean soil being backfilled at a Tittabawassee River property.

EPA will respond to public comments in a document called a "Responsiveness Summary." This will be part of another document called an "Action Memorandum" that describes the final selected cleanup plan. The Agency will announce the final plan on our website and will place a copy in the information locations.

Once the cleanup plan is final, EPA expects Dow to implement the work on Middleground Island. EPA and Dow will work closely with each owner to design and implement an acceptable approach for their property. EPA, working with EGLE, will oversee Dow's work. EPA expects the cleanup to start in 2020, after Dow completes detailed property-specific designs. EPA anticipates work to require one or two construction season.

For more information

You can see documents related to the Tittabawassee River, Saginaw River & Bay site at: http://www.epa.gov/superfund/tittabawassee-river, or:

Grace A. Dow Memorial Library,
1710 W. Saint Andrews St., Midland

Hoyt Main Library,
505 Janes Ave., Saginaw

Alice and Jack Wirt Public Library,
500 Center Ave., Bay City

EPA Proposes Cleanup Plan For Middleground Island

Tittabawassee River, Saginaw River & Bay Site
Midland, Saginaw, Bay Counties, Michigan

Public Comment Period: FEBRUARY 12 – MARCH 30, 2020[1]
Public Meeting: MARCH 10, 2020

(details inside)

[1] EPA expects that the public may want more than the normal 30-day public comment period and therefore is providing, in advance, a 15-day extension to the public comment period pursuant to Section 300.415 (n)(4)(iii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

TITTABAWASSEE RIVER, SAGINAW RIVER & BAY SITE:
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RETURN SERVICE
REQUESTED

FIRST
CLASS

United States
Environmental Protection
Agency

Region 5
Superfund Division (SI-7J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590