



EPA Proposes Cleanup Plan for Groundwater, Soil & Vapors

PMC Groundwater Superfund Site

Petoskey, Michigan

June 2022

Read the proposed plan and view a presentation about the proposed plan:

Online at
www.epa.gov/superfund/pmc-groundwater.

Share your opinion

EPA invites you to participate in the cleanup process for the PMC Groundwater Superfund site. Your input helps the federal agency determine the best way to clean up the contamination at the site.

You may comment on the proposed plan from June 22 to July 22:

- Send comments via email to EPA at kondreck.cheryl@epa.gov.
- Online at www.epa.gov/superfund/pmc-groundwater.
- During the virtual public meeting on June 29th (see “Public meeting” on the back page.)
- Fill out and mail the enclosed comment form.

Contact information

If you have questions, contact one of these team members:

Ruth Muhtsun

Community Involvement Coordinator
 312-886-6595
muhtsun.ruth@epa.gov

Cheryl Kondreck

Remedial Project Manager
 312-353-4872
kondreck.cheryl@epa.gov

Call EPA’s Chicago office toll-free at 800-621-8431, 9 a.m. – 5:30 p.m. weekdays.

U.S. Environmental Protection Agency, working with the Michigan Department of Environment, Great Lakes, and Energy, or EGLE, is proposing an interim cleanup plan¹ for the contaminated groundwater, soil and soil vapors at the Petoskey Manufacturing Co. Groundwater Superfund site, Petoskey, Michigan. During a recent review of the site, EPA determined additional measures needed to be taken to address contamination at the site. The site consists of groundwater, soil and soil vapors contaminated with volatile organic compounds, or VOCs, primarily trichloroethene, or TCE. Groundwater is underground supplies of water. VOCs, including TCE, are a group of chemicals often used as solvents that turn to vapor when exposed to air. These vapors can get into buildings through cracks in foundations or pipe openings, or through a sump or drain, and can contaminate indoor air. This process is called vapor intrusion.

The proposed cleanup plan for the PMC Groundwater site consists of:

- Installing vapor mitigation systems in buildings as needed based on future sampling.
- Conducting additional sampling of soil, soil vapor and groundwater to gather the information for the design phase of the cleanup.
- Using technologies called air sparging and soil vapor extraction, or SVE. Air sparging involves pumping air into the contaminated groundwater and exposing it to air turning the contaminants into vapor and capturing them with the SVE system. SVE is a system of wells that pump the vapors out of the ground for treatment.
- Monitoring groundwater and soil vapor to ensure the cleanup is working.
- Installing signs and fencing to protect people during construction and, if needed, during cleanup.

Your comments are needed

EPA will review all comments received during the public comment period before making a final decision on a cleanup plan. (See box, left, for ways you can participate in the decision-making process.) The federal agency may modify the proposed cleanup plan or select another option based on new information or public comments, so your opinion is important.

This fact sheet gives you background information, describes cleanup options, and explains EPA’s recommendation. You can find more details in a document called the *Interim Action Proposed Plan*, available on the web and at the local information repository (see box, last page). We encourage you to review and comment on the proposed cleanup plan.

EPA will respond to comments in a document called a “responsiveness summary”, which will be included in EPA’s record of decision, or ROD, that describes the final cleanup plan. The federal agency will announce the final cleanup plan in the *Petoskey News-Review*, place a copy in the information repository and post it on the web.

¹ Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires publication of a notice and a proposed plan for the site cleanup. The proposed plan must also be made available to the public for comment. This fact sheet summarizes information contained in documents that can be reviewed at the local repository at the Petoskey District Library or online at www.epa.gov/superfund/pmc-groundwater.

Site location map



Background

The source of the contamination at 200 W. Lake St. was the former Petoskey Manufacturing Co. It was a small fabricating operation that made small trim parts for the automotive industry. In addition to the plating and casting operations, the plant began painting operations in the late 1960s.

Manufacturing operations were conducted on the site from 1946 to 2000, and the facility was demolished in 2004. PMC improperly disposed of solvents and paint sludge on the ground outside the PMC building. This resulted in contaminated soil and groundwater near the site and near the town's municipal well.

Contamination at the site was first discovered in September 1981 when drinking water samples from the Ingalls municipal well showed elevated levels of TCE, cis-1,2 dichloroethene, and trihalomethanes. The city of Petoskey requested assistance from EGLE to help identify the potential responsible parties for the contamination, referred to as PRPs. They also asked EGLE to investigate the source of the contamination.

Results from EGLE's investigation in early 1982, showed elevated levels of several VOCs, including xylene, toluene, TCE and ethylbenzene near the site, which was attributed to PMC. EGLE subsequently asked PMC to determine the extent of the contaminated soil, and to remove and dispose of the impacted material. In 1982, PMC, under the direction of EGLE, completed a partial soil removal from the west side of the building. Subsequently, the site was placed on the National

Priorities List in 1983 making it eligible for investigation and cleanup under the Superfund program.

In 1984, EPA negotiated with PMC to conduct further studies, which PMC completed. In 1987, PMC agreed to conduct a full investigation to determine the nature and extent of contamination and to evaluate appropriate cleanup alternatives. In 1990, EPA relieved PMC of conducting further investigative work, and entered into an agreement with the EGLE to complete the investigation and evaluate cleanup alternatives with funding provided by EPA.

In 1995, EPA selected a temporary cleanup remedy for the site that involved air stripping of water from the Ingalls Well to remove the contamination from the water. However, it was not implemented because funding was secured to instead remove the Ingalls Well and construct a new well.

1998 cleanup remedy

In 1998, EPA selected another remedy to clean up the remaining soil and groundwater contamination. That remedy included:

- Excavation of contaminated soil to a depth of 5 feet to remove the potential source of groundwater contamination. *(Completed in 1999.)*
- Using SVE to remove soil contamination deeper than five feet in the northeast corner of the PMC building. *(Installed and operated intermittently in 1999 and 2000. Removed 753 grams of TCE.)*

- Using monitored natural attenuation, or MNA, to restore groundwater to drinking water standards. MNA involves allowing natural processes such as evaporation or dilution to decrease or “attenuate” the remaining contaminants in the groundwater, while monitoring the water to determine the effectiveness. *(Long-term monitoring ongoing.)*
- Preparing a contingency plan to protect human health and the environment if environmental monitoring indicates that MNA is not occurring sufficiently or at an acceptable rate.
- Establishing land use and deed restrictions on land on the former PMC property that restrict excavation and the use of groundwater. *(Restrictions have been in place on the former PMC property since 2005. Additional restrictions may be added for properties above the groundwater contamination.)*

Development of condominiums

The former PMC facility was sold in April 2003 to a developer, and the PMC building was demolished in July 2004. The construction of the residential condominium complex started in September 2004, and by 2008, 10 of the planned 16 residences were completed. In fall 2009, the property was in foreclosure because the developer went bankrupt. Construction for the remaining six units was completed by 2014 by a subsequent developer.

It is reported that a barrier was placed beneath a portion of the complex in five of the units, which left 12 units either partially or completely without a barrier. However, final completion of this activity was not formally documented in a report. Presence of the membrane was confirmed when it was encountered at 4 feet below ground during drilling activities. The incomplete installation likely limits the barrier’s effectiveness.

Five-year reviews

EPA reviews the health and environmental protectiveness at all its NPL sites every five years. EPA completed the third five-year review in 2014. In the 2014 review, vapor intrusion was identified as a potential issue at the former PMC source area. It is important to note that the science of the health effects of TCE has evolved in the 15 or more years since the original source area cleanup was completed. EPA’s screening criteria for determining whether vapor intrusion might be a health concern are now much lower and conservative. That means the levels of TCE considered safe are much lower than they use to be.

Beginning in January 2017, EPA conducted sampling under the slab of some condominiums built directly over the former PMC facility. The sampling looked for VOC vapors trapped

between soil particles. After preliminary results showed high levels of TCE under some units, EPA conducted air sampling to determine if TCE was also detected in the air inside those residences. Results showed that some units did have levels of TCE that could pose a health risk. EPA and the local health department notified affected residents of the results and installed vapor mitigation systems. Currently, all condo units on the former PMC property have vapor mitigation systems and EPA is pursuing access agreements to sample additional private properties offsite.

During the fourth five-year review for the site in 2020, EPA determined that the groundwater remedy of monitored natural attenuation, or MNA, is not functioning as intended. *(EPA will further assess the MNA once the remedy proposed in this document is implemented.)*

This proposed cleanup plan addresses the potential human health risks from vapor intrusion from the former PMC facility, as well as at the surrounding residential and commercial properties (*study area – see map on Page 2*). The vapor intrusion is believed to be coming from both groundwater and soil contamination.

Summary of site risks

As part of the investigation, EPA evaluated the current and future risks to human health and the environment from contaminants at the site in what is called a human health assessment (for people) and an ecological risk assessment (for the environment). The risk assessment determined that the contaminated vapors from vapor intrusion into indoor air pose a risk to residents via inhalation.

Summary of cleanup alternatives

EPA considered three different alternatives for cleaning up contaminated groundwater, soil, and vapors at the site. The Agency developed these alternatives and evaluated each option in detail against the selection criteria established by federal law.

Alternative 1 – No action

The “no action” alternative is evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action to reduce the levels of TCE in groundwater, soil, vapors, or indoor air. Additionally, this alternative would not include continued operation of vapor mitigation systems or implementing land use restrictions or any measures to control exposure to the contamination.

Estimated Cost: \$0

Common elements for Alternatives 2 and 3 include:

- Installing vapor mitigation systems in structures as needed based on future sampling.
- Conducting additional sampling of soil, soil vapor and groundwater to gather the information for the design phase of the cleanup.
- Monitoring groundwater and soil vapor to ensure the cleanup is working.
- Installing signs and fencing to protect people during construction and, if needed, during cleanup.

Alternative 2 – Air sparging/soil vapor extraction and common elements described above.

In addition to the common elements listed in the previous paragraph, this alternative would involve using air sparging, which involves injecting air into the contaminated groundwater and exposing it to air turning the contaminants into vapor. The contaminated vapors would then be captured by the SVE

*EPA's
recommended
alternative*

system, which uses a series of wells that pump the vapors out of the ground for treatment. The SVE will also reduce the contamination in soil.

Estimated Cost: \$5.5 million

Alternative 3 – In situ (in-place) treatment of groundwater with chemical oxidation, soil vapor extraction and common elements.

In addition to the common elements listed on this page, this alternative would involve injecting an oxygen-containing chemical (such as hydrogen peroxide) into the groundwater and flows with the groundwater to reach the contamination. The oxygen-containing chemical will destroy the contamination by changing them into less harmful byproducts. Additionally, this alternative includes using an SVE system as described in Alternative 2 to pump and treat contaminated vapors which will also reduce the contamination in soil.

Estimated Cost: \$5.2 million

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 living things. 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, state and tribal 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.

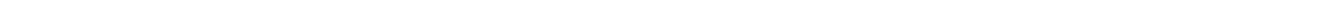
8. State acceptance determines whether the state environmental agency (in this case EGLE) accepts an option. EPA evaluates this criterion after receiving public comments.

9. Community acceptance considers the opinions of nearby residents and other stakeholders about the proposed cleanup plan. EPA evaluates this standard after a public comment period.

PMC Groundwater Superfund Site – Comment Sheet



Detach, fold on dashed lines, staple, stamp, and mail



Name _____
Address _____
City _____
State _____ Zip _____

Cheryl Kondreck
Remedial Project Manager
EPA Region 5 (SR-6J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Summary of the evaluation of the alternatives

The evaluation criteria are used to help compare how the alternatives will meet cleanup goals. The table on this page compares each alternative against the nine criteria explained in the box on Page 4.

Overall protection of human health and the environment

The “no action” alternative is not protective of human health or the environment therefore is not evaluated further. Alternatives 2 and 3 are protective of human health and the environment. Alternative 2 is slightly more protective because it does not rely on the flow of the groundwater.

Compliance with ARARs

Alternatives 2 and 3 comply with federal, state, and tribal requirements – *Applicable or Relevant and Appropriate Requirements*, or ARARs.

Long-term effectiveness and permanence

Alternatives 2 and 3 both provide long-term effectiveness and permanence and are considered proven and effective alternatives for VOC-contaminated soil and groundwater sites such as the PMC site. Alternative 2 is expected to offer better long-term effectiveness and permanence than Alternative 3 because it does not rely on the groundwater flow. There is also uncertainty in the volume of the groundwater contamination that can be treated using Alternative 3 without the installation of extraction wells to move the groundwater and oxidant through the aquifer. This makes Alternative 3 potentially less effective than Alternative 2.

Reduction of toxicity, mobility and volume through treatment

Alternatives 2 and 3 both directly treat the contaminants, eliminating them. Both Alternatives 2 and 3 would remove VOC vapors from the soil through the SVE system and would treat the VOCs using granulated active carbon. However, Alternative 2 achieves a greater reduction in the toxicity, mobility or volume of contaminants through treatment of the VOCs in groundwater because it does not depend on the groundwater flow at the site.

Short-term effectiveness

For both Alternatives 2 and 3, engineering controls will provide short-term effectiveness to the environment, workers and the community during well installation and operations. Construction of the systems for both Alternatives 2 and 3 would have impacts to the community including truck traffic in the area, odors, dust and noise. Once the systems are operational, noise associated with equipment operation may

persist but can be mitigated to some extent by incorporating sound barriers into the final design. Alternative 3 could have an additional risk from the oxygen-containing chemicals, which can be dangerous if mishandled. However, implementing safe practices should eliminate risk to workers.

Evaluation Criteria	Alternatives		
	1	2*	3
Overall Protection of Human Health and the Environment	☐	◆	◆
Compliance with ARARs	N/A	◆	◆
Long-Term Effectiveness and Permanence	☐	◆	❖
Reduction of Toxicity, Mobility and Volume through Treatment	☐	◆	❖
Short-Term Effectiveness	☐	◆	◆
Implementability	◆	◆	◆
Cost	\$0	\$5.5 million	\$5.2 million
State Acceptance	To be evaluated after the public comment period		
Community Acceptance	To be evaluated after the public comment period		

◆ = Meets criterion ❖ = Partially meets criterion ☐ = Does not meet criterion
N/A = Not applicable * EPA recommended alternative

Implementability

Alternatives 2 and 3 are all technically and administratively feasible and have been successfully used at other sites. Community disruption will be equally the same for Alternatives 2 and 3. Wells will need to be drilled in public and private spaces, limiting the use of some public walkways that provide access to Bayfront Park during construction. However, once construction is complete, the system will run with minimal disruption to the community. Underground utilities would also need to be considered when installing wells. Minimizing noise from large compressors and blowers might also present challenges.

Summary of EPA’s recommended alternative against the evaluation criteria

EPA believes its recommended alternative provides the best balance of tradeoffs among the alternatives evaluated with respect to evaluation criteria. EPA expects the recommended alternative to be protective of human health and the environment; comply with ARARs; be cost-effective, utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and satisfy the preference for treatment. It also provides long-term and permanent protection against exposure to site-related contaminants by the combination of groundwater and soil vapor treatment, installing vapor mitigation systems as needed and land-use restrictions.

Cost, state acceptance and community acceptance

See the table on Page 7.

Next steps

Before making a final decision, EPA will review comments received during the public comment period. If new information is presented, EPA may modify its proposed plan or select another option. EPA will respond to the comments in a document called a responsiveness summary. This will be part of the record of decision that describes the final cleanup plan. EPA will announce the selected cleanup plan in a local newspaper, place a copy in the information repository, and post it on the web at www.epa.gov/superfund/pmc-groundwater.

For more information

You may review site-related documents at:
Petoskey District Library
500 E. Mitchell St.
Petoskey

Or on the web at:
www.epa.gov/superfund/pmc-groundwater

An administrative record, which contains detailed information that will be used in the selection of the cleanup plan, is also located at the library.

Public meeting

EPA will hold a virtual public meeting to explain the status of the site and the Agency's recommended remedy. EPA staff will give a presentation followed by an opportunity for people to ask questions and provide formal comments on EPA's recommended alternative as well as all the alternatives considered.

Date: June 29, 2022

Time: 6 p.m.

A zoom link to the meeting and dial-in instructions will be posted at www.epa.gov/superfund/pmc-groundwater the day of the meeting.

♻️
Reproduced on Recycled Paper

EPA Proposes Cleanup Plan for Groundwater, Soil & Vapors

United States
Environmental Protection
Agency
Region 5
Community Involvement and
Outreach Section (RE-19J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

