



U.S. EPA Proposes Cleanup Plan for Waste, Gas, Groundwater & Vapor

New Carlisle Landfill Superfund Site

Clark County, Ohio

August 2020

Site Location

715 N Dayton-Lakeview Road
New Carlisle, OH 45344

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

Online at
www.epa.gov/superfund/new-carlisle-landfill

Share your opinion

If you have questions or comments, U.S. EPA invites you to participate in the cleanup process for the New Carlisle Landfill 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 Aug. 17 to Sept. 16:

- Send via email to U.S. EPA at palomeque.adrian@epa.gov.
- Online at www.epa.gov/superfund/new-carlisle-landfill.
- Orally by phone at 312-353-6646.
- Fill out and mail the enclosed comment form.

Contact information

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

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

U.S. Environmental Protection Agency (U.S. EPA), working with Ohio Environmental Protection Agency (Ohio EPA), is proposing a cleanup plan¹ for the landfill waste and gas; on-site underground water, sometimes called “groundwater;” and vapor intrusion at the New Carlisle Landfill Superfund site. The on-site areas proposed for cleanup are known as Operable Unit 1, or OU1. New Carlisle Landfill is a source of groundwater contamination in the area and has contaminated off-site groundwater with volatile organic compounds, or VOCs. VOCs can evaporate into the air and cause soil vapor contamination that can move into buildings through cracks in foundations. This process is called vapor intrusion.

The proposed cleanup plan for New Carlisle Landfill OU1 consists of:

- Enhancing the existing cap, or cover, over the landfill and installing vents to allow for landfill gas to be released passively.
- Treating on-site groundwater by injecting microorganisms in combination with vegetable oil or iron powder, known as zero-valent iron, into the groundwater to break down the contamination.
- Installing systems in buildings to actively prevent the potential for contaminated vapors migrating into the building.
- Placing restrictions on land-use to protect the landfill cap, limit exposure to waste, ensure people do not drink contaminated water, and ensure future developments on properties with vapor intrusion potential are protective of human health.

U.S. EPA will continue to monitor groundwater off-site to evaluate the effectiveness of the groundwater treatment on-site. The federal agency will develop a cleanup plan for off-site groundwater in the future.

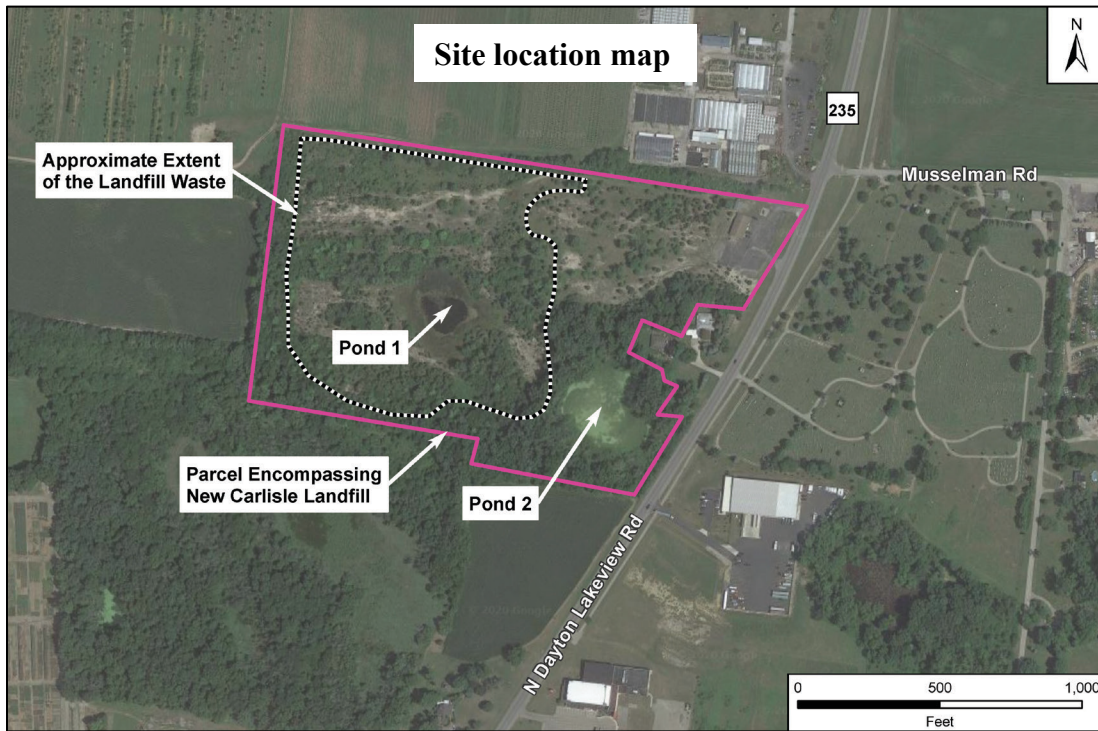
Your comments are needed

U.S. 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 U.S. EPA's recommendation. You can find more details in a document called the *Proposed Plan for New Carlisle Landfill Superfund Site OU1*, 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.

U.S. EPA will respond to comments in a document called a “responsiveness summary”, which will be included in U.S. EPA's “record of decision,” or ROD, that describes the final cleanup plan. The federal agency will announce the final cleanup plan in the *Dayton Daily News* printed publication, submit the announcement to the *New Carlisle News* online publication, 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 New Carlisle Public Library, or online at www.epa.gov/superfund/new-carlisle-landfill.



Background

The New Carlisle Landfill site includes a 21.7-acre unlined former landfill and groundwater contaminated with VOCs, such as trichloroethene, or TCE, tetrachloroethene, or PCE, cis-1,2-dichloroethene, or cis-1,2-DCE, and vinyl chloride, or VC. The New Carlisle Landfill site was divided into two geographical areas, one on-site area and one off-site area. The on-site area includes the landfill waste, landfill gas, on-site groundwater as well as vapor intrusion at residential and commercial properties directly adjacent to the eastern side of the landfill. On-site groundwater is the groundwater located underneath the landfill and within the landfill parcel (OU1). The off-site area includes areas where contaminated groundwater has migrated south of the landfill property (OU2).

From the mid-1950s until the early 1970s, the site operated as a general refuse and solid waste landfill. The landfill was officially closed in 1977 after several years of inactivity and has remained unused and undeveloped since the closure.

Approximately 15 feet of compacted industrial, commercial, and residential refuse was placed in the landfill over a period of about 20 years. The landfill is now covered with two to four feet of clay with a vegetation cover. The landfill was not designed with a protective liner in the manner of modern landfills and does not meet current federal and state closure requirements.

In 1997, Ohio Environmental Protection Agency sampling data showed that water from two public wells and two residential wells at a property near the landfill contained vinyl chloride above the safe drinking water level. In 2002, Ohio EPA required future use of the public wells be limited to irrigation. A 2003 Ohio EPA expanded site investigation found that the source of groundwater contamination was the former landfill. In October 2005, U.S. EPA extended the water line from the New

Carlisle public water system to the affected properties and disconnected their wells. In April 2008, U.S. EPA placed the site on the National Priorities List because the federal agency had concerns about the potential migration of the vinyl chloride toward residential wells within one-half mile of the landfill. Being placed on the National Priorities List makes the site eligible for cleanup under the Superfund program.

Summary of site risks

U.S. EPA conducted human health and ecological risk assessments to determine the potential risks to human health and the environment from exposure to site-related contaminants. U.S. EPA evaluated risks from contaminants in soil, soil vapor, air, surface water, sediments, and groundwater on-site and off-site. Potential risks were evaluated to residents, industrial/commercial workers, utility workers, seasonal workers and trespassers. The contaminants of concern at New Carlisle Landfill are VOCs, which are contaminants that evaporate into the air. The contaminants of concern in soil vapor and indoor air that may pose risks to human health at residential and commercial properties in OU1 are ethylbenzene, benzene, 1,2-dichloroethane, 1,4-dichlorobenzene, and 1,2,4-trimethylbenzene. In groundwater the contaminants of concern are TCE, PCE, cis-1,2-DCE and VC. The main way people in and around the site may come into contact with these potentially harmful pollutants is by vapor intrusion into residential properties and consumption of contaminated groundwater. Ecological aquatic risk is also present at Pond 1, which is located on the landfill cap.

Summary of cleanup alternatives

U.S. EPA considered different alternatives for cleaning up the contamination at the New Carlisle Landfill Superfund site OU1. Alternatives were developed for the landfill waste and landfill gas (LF alternatives), onsite landfill groundwater (GW alternatives), and for vapor intrusion (VI alternatives). The proposed remedy includes an alternative for each of the contaminated media (landfill waste, landfill gas, onsite groundwater, and soil vapor) at the site. The agency developed these alternatives and evaluated each option in detail against the selection criteria established by federal law.

Landfill waste and landfill gas cleanup alternatives

Alternative LF-1 – No action

The “no action” alternative is evaluated to establish a baseline for comparison. Under this alternative, U.S. EPA would take no action to ensure the landfill is properly closed in the long-term or to monitor the existing cover. Additionally, this alternative would not include landfill gas management or land use controls.

Estimated Cost: \$0

Estimated Construction Time: None

Common Elements for Alternatives LF-2 and LF-3 Both alternatives would include:

Land-use controls – Restrictions would be placed on the site for future use of the land to protect the cap and to limit direct exposure to the waste. No drinking water wells would be allowed to be installed on the property to ensure people do not drink the contaminated groundwater. Access to the site would also be restricted by fencing, posting signs, etc.

Site preparation – Current landfill vegetation would be removed, and the landfill would be graded to ensure proper slopes, a uniform foundation and drainage.

Passive gas vents – Vents would be installed on the landfill to allow methane to be released passively.

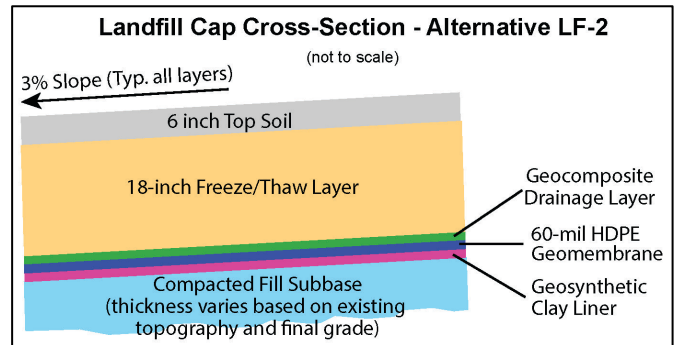
Pond work – Pond 1 would be filled with existing on-site soil and, as needed, Pond 2 might also be filled.

Waste consolidation - waste from the landfill edges may be consolidated into the interior to reduce the size of the cap.

Restrictions on nearby private wells – New state ordinances require private wells to be a minimum of 1,000 feet from a landfill. Private wells on three properties closer to the landfill will be abandoned and the buildings associated with those wells will be connected to the municipal public water system.

Alternative LF-2 – Multi-layer cap, passive gas venting, and land-use controls

In addition to the common elements listed above, this alternative would involve installing a multi-layer cap over the landfill that would meet Ohio landfill closure requirements. A conceptual design would include, starting from the bottom: a layer of soil; a layer of clay; a 60-mil thick, high-density polyethylene liner; a layer made up of two bonded overlapping 250-mil thick high-density polyethylene strands; a 90-mil thick



nonwoven polypropylene geotextile fabric; eighteen inches of imported backfill; and six inches of topsoil. (See cross-section graphic above.)

Estimated Cost: \$8.12 million

Estimated Construction Time: 3-4 months

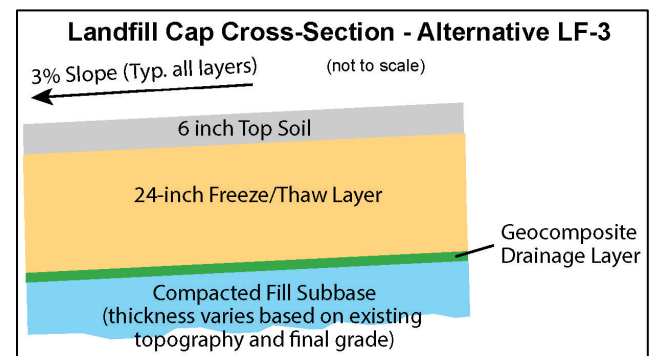
***What is capping?** Capping involves placing a cover over contaminated material such as landfill waste or contaminated soil. These covers are called “caps.” Caps do not destroy or remove contaminants. Instead, they contain them and keep them in place to avoid the spread of contamination. Caps prevent people and wildlife from coming into contact with contaminants.*

Alternative LF-3 – Enhancing existing cover, passive gas venting, and land-use controls

In addition to the common elements listed on this page, this alternative would involve enhancing the existing cover. This alternative is like Alternative LF-2; however, instead of constructing a new cap, the existing soil cover would be reworked by grading, supplementing it with off-site low permeability soil, and compacting it to meet Ohio landfill closure requirements. Existing soil cover would also be graded and compacted as a subbase to ensure appropriate slopes, to provide a uniform soil cover thickness and to promote drainage. Additional low-permeability soil and other structural fill soil would need to be brought in to supplement the existing soil cover material and to achieve the necessary 3 to 5 percent slope minimum. To further reduce infiltration through the enhanced existing cover, a geocomposite drainage layer, may be added. (See cross-section graphic below.)

Estimated Cost: \$6.08 million

Estimated Construction Time: 2 months



**U.S. EPA's
recommended
alternative**

On-site landfill groundwater alternatives

Alternative GW-1 – No action

The “no action” alternative is evaluated to establish a baseline for comparison. Under this alternative, U.S. EPA would take no action taken to reduce risk at the site related to future use of groundwater or to return groundwater to beneficial use.

Estimated Cost: \$0

Estimated Construction Time: None

Alternative GW-2 In-Situ Groundwater Treatment

Common Elements for Alternatives GW-2A, GW-2B and GW-2C

All these alternatives would include:

Permeable reactive barrier - A permeable reactive barrier is created when chemicals are injected into the ground in the path of the flow of groundwater to form a treatment zone.

Contaminated groundwater then flows through the zone where it is treated by the chemicals and comes out clean on the other side. Although, each alternative uses a different chemical to treat the contamination. (See cross-section on this page.)

Expanded groundwater monitoring well network -The groundwater monitoring well network would be expanded to within the barrier and after the barrier.

U.S. EPA’s recommended alternative: U.S. EPA will do a pilot test in the design phase to determine which of the following treatment technologies (GW-2A, GW-2B or GW-2C), or combination of technologies, will work best.

Alternative GW-2A – Enhanced Reductive Dechlorination Permeable Reactive Barrier

This alternative would involve use of formulations containing vegetable oil or lactate, in the permeable reactive barrier and expansion of the groundwater monitoring well network as described above.

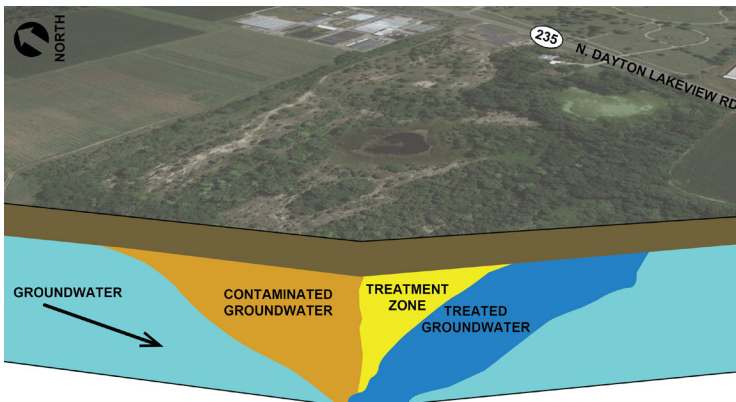
Estimated Cost: \$3.37 million

Estimated total project duration: Up to 30 years

Alternative GW-2B – In-Situ (in place) Chemical Oxidation Permeable Reactive Barrier

This alternative would involve use of an oxygen-containing chemical in the permeable reactive barrier. Oxygen feeds the bacteria that break down the contamination. It would also

Cross-Section of Permeable Reactive Barrier



include expansion of the groundwater monitoring well network as described in common elements.

Estimated Cost: \$6.54 million

Total project duration: 30 years

Alternative GW-2C – In-Situ (in place) Chemical Reduction Permeable Reactive Barrier

This alternative would involve use of a substance known as “zero-valent iron” in the permeable reactive barrier. This specially treated iron cleans the groundwater chemically. It would also include the expansion of the groundwater monitoring well network as described in common elements.

Estimated Cost: \$4.55 million

Estimated total project duration: Up to 30 years

Alternative GW-3 – Groundwater Extraction, Treatment, and Discharge

This alternative involves using groundwater extraction wells to intercept and remove contaminated groundwater and prevent its movement off site. Three to five extraction wells would be installed along the southern site boundary.

Extracted groundwater would be treated with an air stripper to remove VOCs, and possibly other contaminants. An air stripper works by exposing contaminated water to air, causing VOCs in the water to evaporate. Treated water would be discharged to Honey Creek. The groundwater monitoring well network would be expanded to evaluate groundwater flow patterns and contaminant levels.

Estimated Cost: \$10.76 million

Estimated total project duration: Up to 30 years

Vapor intrusion alternatives

The vapor intrusion alternatives address vapor intrusion concerns at residential and commercial properties east of the landfill.

Soil Vapor Alternative VI-1 – No action

The “no action” alternative is evaluated to establish a baseline for comparison. Under this alternative, U.S. EPA would take no action to address vapor intrusion from the site. No vapor removal systems would be installed.

Estimated Cost: \$0

Estimated Construction Time: None

Soil Vapor Alternative VI-2 – Institutional Controls and Monitoring

This alternative would use deed restrictions to prohibit future residential use of the commercial property or to require that future residential property development include an evaluation of whether vapor intrusion removal systems would be needed. Monitoring would be conducted at the residential properties to determine if the cleanup remedy for landfill gas is effectively reducing the soil gas concentrations sufficiently to address the vapor intrusion concerns. Access to the site would be restricted by fencing, posting signs, etc. **only if** vapor intrusion is determined to pose a threat to future building occupants.

Estimated Cost: \$229,000

Total Project Duration: Up to 30 years

Soil Vapor Alternative VI-3 – Foundation Sealing and Monitoring

Alternative VI-3 includes deed restrictions to prohibit future residential use of the commercial property and foundation sealing to inhibit vapor intrusion at the residential properties. Alternative VI-3 deed restrictions would be the same as those discussed in Alternative VI-2. General foundation sealing would focus on finding the main entry routes of vapor intrusion and sealing vapor intrusion pathways within the existing building foundations at the residential properties. Examples of main entry routes include seams between construction materials (including expansion and other joints), utility penetrations and sumps, and foundation cracks.

Estimated Cost: \$360,000

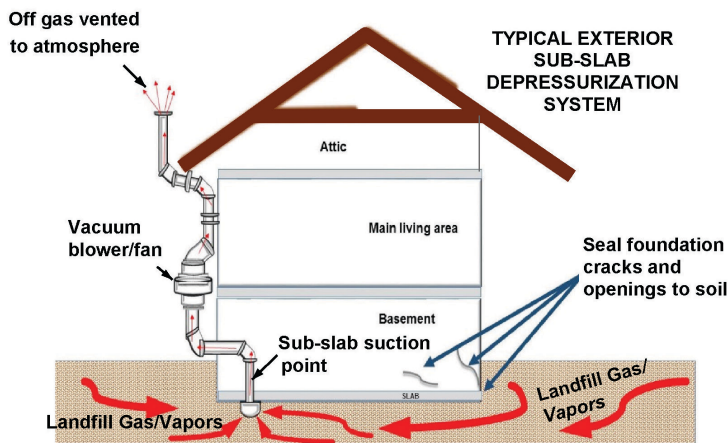
Estimated Construction Time: 2 weeks

Estimated Total Project Duration: Up to 30 years

Soil Vapor Alternative VI-4 – Sub-Slab Depressurization System

Alternative VI-4 includes deed restrictions and installation of sub-slab depressurization systems to inhibit vapor intrusion at the residential properties. Alternative VI-4 deed restrictions would be the same as those discussed for Alternative VI-2. Alternative VI-4 actively removes soil gas from beneath the sub-slab. (*See figure on this page.*) Sub-slab depressurization systems involve creating extraction points in a basement floor, which are then connected to a

*U.S. EPA's
recommended
alternative*



small vacuum blower. The PVC piping is routed outside the building from the extraction point, where the blower is located. The blower is typically attached to the side of the building and vented through PVC piping above the roof line where no windows or vents for the building are located.

Estimated Cost: \$381,000

Estimated Construction Time: 2 weeks

Estimated Total Project Duration: Up to 30 years

Evaluation of alternatives

U.S. EPA is required to evaluate these alternatives against nine criteria (*see box, below*).

Explanation of Evaluation Criteria

U.S. 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, or 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 Ohio EPA) accepts an option. U.S. EPA evaluates this criterion after receiving public comments.
9. Community acceptance considers the opinions of nearby residents and other community members about the proposed cleanup plan. U.S. EPA evaluates this standard after a public hearing and comment period.

Evaluation Criteria	Landfill Alternatives			Groundwater Alternatives (EPA is recommending Alternative GW-2**)					Soil Vapor Alternatives			
	LF-1	LF-2	LF-3*	GW-1	GW-2A	GW-2B	GW-2C	GW-3	VI-1	VI-2	VI-3	VI-4*
Overall Protection of Human Health and the Environment	□	◆	◆	□	◆	◆	◆	◆	□	❖	◆	◆
Compliance with ARARs	N/A	◆	◆	N/A	◆	◆	◆	◆	N/A	❖	◆	◆
Long-Term Effectiveness and Permanence	□	◆	◆	□	◆	❖	◆	❖	□	❖	◆	◆
Reduction of Toxicity, Mobility and Volume through Treatment	□	❖	❖	□	◆	◆	◆	❖	□	□	❖	❖
Short-Term Effectiveness	□	◆	◆	□	◆	◆	◆	◆	□	◆	◆	◆
Implementability	□	◆	◆	□	◆	◆	◆	◆	□	◆	◆	◆
Cost	\$0	\$8.12 million	\$6.08 million	\$0	\$3.37 million	\$6.54 million	\$4.55 million	\$10.76 million	\$0	\$229,000	\$360,000	\$381,000
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

* U.S. EPA recommended alternatives

** U.S. EPA is recommending Alternative GW-2 and will conduct pilot testing in the design phase to determine the best technology to use.

Summary of the evaluation of the alternatives

Overall protection of human health and the environment

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. The “no action” alternatives for the landfill, groundwater and soil vapor, LF-1, GW-1 and VI-1 are not protective of human health or the environment. The remaining alternatives are protective of human health and the environment.

Compliance with ARARs

All the alternatives comply with federal, state and tribal requirements known as *Applicable or Relevant and Appropriate Requirements*, or ARARs, except the no action alternatives LF-1, GW-1 and VI-1. For those alternatives since nothing would be done, ARARs would not apply.

Long-term effectiveness and permanence

LF-2 and LF-3 would be highly effective at meeting the long-term effectiveness and permanence criterion. Both the multi-layer cap in LF-2 and the enhanced cap in LF-3 would prevent direct contact with landfill contents and reduce contaminants from getting into the groundwater in the future. Of the groundwater alternatives, GW-2C provides the highest level of long-term effectiveness and

permanence because the dechlorination would quickly and permanently reduce the VOCs in the groundwater. GW-2A would be very effective in the long-term, but its reliance on using microorganisms alone to reduce the contamination would take longer and could potentially produce harmful by-products in some cases. GW-2B would be moderately effective in the long term. The chemical oxidation in GW-2B would destroy contaminants on contact, making cleanup timeframes shorter; however, chemical oxidation is more effective for contamination at higher concentrations. Note, the effectiveness of GW-2A, 2B and 2C will be further evaluated during the remedial design in order to select the best technology for the site. GW-3 relies on groundwater extraction to keep containing the contamination and would require decades to reach cleanup levels. GW-3 would be moderately effective in the long term.

VI-4 would be very effective in the long term because it actively removes vapors and a failure of the system would be easily apparent. VI-3 would be moderately effective because it would rely on a sealant barrier and failure of the sealant might not be apparent for a while. VI-2 would only be slightly effective in the long term because, by itself, it would not prevent residential exposure to soil vapors.

The no-action alternatives LF-1, GW-1 and VI-1 do not provide for long-term effectiveness.

Reduction of toxicity, mobility and volume through treatment

LF-2 and LF-3 would not reduce the toxicity or reduce the volume of the VOCs through treatment. However, both caps would reduce mobility of the contaminants. GW-2B and GW-2C would provide the highest level of reduction in toxicity, mobility, and volume of VOCs through treatment because the chemical reactions produced by both alternatives rapidly and permanently destroy the VOCs in groundwater. GW-2A would be highly effective in reducing toxicity, mobility, and volume of VOCs through treatment. GW-3 would be moderately effective in reducing toxicity, mobility, and volume of VOCs through treatment. GW3 would not destroy VOCs directly, VOCs would be removed from extracted groundwater by air stripping. For VI concerns, VI-3 would seal the vapor pathway, and VI-4, would remove VOC vapors before they enter a building. VI-3 and VI-4 would be slightly effective in reducing the mobility of contaminants in soil gas through treatment; however, they would not reduce the toxicity or volume of VOC vapors. VI-2 would not be effective in reducing toxicity, mobility, and volume of VOCs through treatment because treatment is not a component of this alternative. Alternatives LF-1, GW-1 and VI-1 would not treat the contaminants, restrict their mobility, nor reduce their volume.

Short-term effectiveness

Since LF-2 requires a longer time to implement and more complex construction methods, LF-2 would be moderately effective in the short-term. LF-3 would be very effective at protecting workers, the community and the environment in the short-term. Alternatives GW-2A, GW-2B, and GW-2C would be very effective in the

short-term. Although GW-3 would contain the groundwater contamination within days, GW-3 would be moderately effective in the short term because it involves more construction elements increasing potential risks to construction workers during implementation and ongoing operation of the extraction and treatment system. VI-2, VI-3 and VI-4 would be effective in the short-term. Workers would experience minimal impacts while implementing VI-2, VI-3 and VI-4. Potential exposure to VOC vapors or contact with other contaminants during sealing would be easily addressed by hiring properly trained employees and the use of proper personal protective equipment.

Implementability

LF-2 and LF-3 are very easy to implement technically and administratively. The installation methods are well understood, and materials, equipment and qualified laborers are readily available. Alternatives GW-2A, GW-2B, GW-2C, and GW-3 are technically and administratively easy to implement. All components, methods, labor and materials are readily available. Alternatives VI-2, VI-3, and VI-4 are easy to implement because the equipment, materials and labor to implement them are readily available and are common practices for dealing with vapor intrusion. While the no-action alternatives LF-1, GW-1 and VI-1 would be technically easy to implement, they would be administratively difficult to implement because they are not protective of human health and the environment.

Cost, state acceptance and community acceptance

See the above table for a cost comparison. The Ohio EPA's and the community's acceptance will be evaluated after the public comment period.

U.S. EPA's recommended alternatives:

U.S. EPA recommends Alternatives LF-3, GW-2, and VI-4 to address contamination at the site.

- LF-3 Enhancing existing cover, passive gas venting, and land-use controls: LF-3 would provide the same level of protectiveness as Alternative LF-2, but at a lower cost.
- GW-2 In-Situ groundwater treatments: GW-2 would reduce groundwater contamination faster than GW-3. It would also be protective of human health and the environment, provide a permanent solution and utilize U.S. EPA's preference for treatment. Additionally, it would pose a low risk to workers or the community, would be relatively easy to implement and is cost effective. Note, the effectiveness of the treatment technology to ultimately be used (either GW-2A, 2B, or 2C) will be further evaluated during the remedial design in order to select the best technology for the site.
- VI-4 Sub-slab depressurization systems: VI-4 would be more protective than the other vapor intrusion alternatives since it provides a permanent solution and is cost-effective.

For more information


You may review site-related documents at:

New Carlisle Public Library
111 E. Lake Ave.
New Carlisle, Ohio

Or on the web, at:

www.epa.gov/superfund/new-carlisle-landfill

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

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NEW CARLISLE LANDFILL SUPERFUND SITE: U.S. EPA Proposes Cleanup Plan for Waste, Gas, Groundwater & Vapor

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



New Carlisle Landfill Superfund Site – Comment Sheet



Fold on dashed lines, staple, stamp, and mail



Name _____
Address _____
City _____
State _____ Zip _____

Meg Moosa
Community Involvement Specialist
Tetra Tech, Inc.
12334 Valley Vista Dr.
Chesterland, OH 44026