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# EPA Proposed Cleanup Plan Includes Capping

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**North Sanitary Landfill (Valleycrest)**  
Dayton, Ohio

July 2012

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## Your opinion wanted

EPA invites your comments on the proposed cleanup plan for the North Sanitary (Valleycrest) Landfill site. Your input is important because EPA may modify or select another cleanup option based on public comments. There are several ways your voice can be heard during the **public comment period** that runs from Aug. 9 – Sept. 10, 2012.

- Fill out and return the enclosed comment form by the deadline.
- E-mail comments to EPA Community Involvement Coordinator Virginia Narsete at [narsete.virginia@epa.gov](mailto:narsete.virginia@epa.gov)
- Fax to Virginia at 312-692-2441.
- Attend the **public hearing** on Thursday, Aug. 16, 6 – 8 p.m. at Kiser School, 1401 Leo St., Dayton, and submit a written or oral statement or the enclosed comment sheet.
- Comment via the Internet at [www.epa.gov/region5/cleanup/valleycrest/pubcomment.html](http://www.epa.gov/region5/cleanup/valleycrest/pubcomment.html)

## Read the files

An official repository for the Valleycrest site containing the detailed proposed plan and other documents is available for public review at the Ohio Environmental Protection Agency Southwest District Office, 401 E. Fifth St., Dayton, and at EPA's Chicago office, 77 W. Jackson Blvd.

## On the Web

[www.epa.gov/region5/cleanup/valleycrest/index.html](http://www.epa.gov/region5/cleanup/valleycrest/index.html)

The U.S. Environmental Protection Agency helped by the Ohio EPA is proposing to install a solid waste cap, a perimeter extraction system for liquid seepage and gas extraction wells to clean up and contain remaining waste at the North Sanitary Landfill. The facility is known locally as Valleycrest Landfill. This fact sheet is a summary of the technically detailed proposed plan that identifies EPA's preferred alternative for cleaning up the contamination at the North Sanitary Landfill site and provides the justification for this preference. In addition, this fact sheet and the proposed plan include summaries of other cleanup alternatives evaluated for use at the site.

EPA in consultation with OEPA will select a final cleanup plan for the location after reviewing and considering all information submitted during a 30-day public comment period that runs Aug. 9 – Sept. 10, 2012. A public hearing where federal and state agency representatives will explain the cleanup plan and accept oral and written comments will be held Aug. 16 in Dayton. (See left-hand box for ways you can participate in the decision-making process) The environmental agencies may modify the preferred alternative or select another response action presented in this plan based on new information or public comments so public participation is important.<sup>1</sup> People wanting to read more details about the proposed plan can read the full technical document as well as the remedial investigation/feasibility study reports. A remedial investigation or RI is a study of the nature and extent of contamination at a cleanup site, while the feasibility study or FS proposes and evaluates cleanup options.

## Smaller areas

EPA and Ohio EPA have divided Valleycrest into smaller sections called Disposal Areas 1-5. The environmental regulators looked at five cleanup options proposed in the feasibility study and decided the best, cost-effective alternative that protects public health and the environment was one costing \$36.8 million that will take two years of work. The landfill cap will cover 70 acres and 2.5 million cubic yards of waste and will eliminate 99 percent of the rain and snowmelt that could soak through the waste field. The extraction system will be built around the landfill and collect "leachate." Leachate is an environmental term for liquid that soaks through a waste field and picks up contaminants. Leachate can seep into and pollute underground supplies of water, called "ground water." The existing landfill gas collection system includes a network of 28 extraction wells spread around the waste field.

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<sup>1</sup>EPA is issuing this proposed plan as part of its public participation responsibilities under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This proposed plan summarizes information that can be found in greater detail in the Remedial Investigation/Feasibility Study reports, the full proposed plan and other documents contained in the administrative record file for this site available at Ohio EPA Southwest District Office in Dayton and EPA offices in Chicago. EPA and the state encourage the public to review these documents to gain a more complete understanding of the Superfund activities at the site.

## About Valleycrest

The North Sanitary Landfill is located to the northeast of the city of Dayton in Montgomery County, Ohio. The property is located in a mixed urban, commercial, industrial, and residential area. The area is bordered on the east, northeast, and north by residential properties. Valleycrest occupies almost 102 acres. More than half of those acres were used for disposing of industrial and municipal waste into unlined former gravel pits that intersected the underground water table.

Several residential drinking water wells in the area became contaminated with organic substances believed to be related to the site. Nearby residences have all been connected to the municipal water supply. Industrial waste disposed of at the site include used oils, solvents, scrap paint, lampblack, electrical transformers, brake grindings containing asbestos and sewage. The property contained a family of chemicals called volatile organic compounds or VOCs such as TCE and 1,1-dichloroethene as well as other pollutants such as vinyl chloride, methylene chloride, phenols, PCBs and heavy metals such as lead, mercury, cadmium, and cyanide. Numerous fires occurred at the site over the years, the last one in 1996 when responders spent weeks battling an underground blaze.

The Great Miami River is located 3,500 feet northwest of the site and the Mad River is 4,000 feet south of the property. The site is closed and currently owned by the Keystone Gravel Co.

## Previous cleanup work

This proposed cleanup plan outlines a permanent, long-term strategy for containing and cleaning up Valleycrest pollution, but EPA has been involved with the site for more than 13 years – Ohio EPA for much longer than that. EPA used its legal authority to lessen imminent health threats by conducting short-term, urgent cleanups in the late 1990s and early 2000s. Much of the short-term work involved removing buried containers. From 1998 through 2004, EPA removed nearly 43,000 drums and containers containing hazardous waste from Disposal Areas 1 and 5 and excavated more than 65,000 cubic yards of contaminated soil and waste material.

## Four pollution sources

The remedial investigation mentioned in the introduction of this fact sheet determined that four contaminant sources were affecting three areas – the ground water, the air and the soil. The four pollution sources are waste, leachate, landfill gas and a hazardous, hard-to-remove substance called non-aqueous phase liquid abbreviated as NAPL. NAPL has an oil or tar consistency and is often

referred to as “free product” because it does not readily mix with or dissolve in water and is present in the environment as a separate, floating or sinking material.

The waste at Valleycrest is estimated at 2.5 million cubic yards and contains hazardous substances including volatile organics, semi-volatile organics, inorganics and radionuclides. All of the cleanup alternatives include capping to prevent future exposure. Leachate containing a mix of hazardous substances can be found at all disposal areas except Area 4 and is estimated at 45 million gallons. Excessive levels of methane and VOCs were detected in the landfill gas at the North Sanitary Landfill site. The movement of landfill gas is presently controlled by a perimeter landfill gas collection system. NAPL was found mainly in Disposal Areas 1 and 5 with an estimated volume of 4,400 gallons. NAPL is considered the principal threat waste at Valleycrest because it is highly toxic and moves easily.

The ground water that runs under Valleycrest is divided into the Upper Aquifer and the Main Aquifer. The Upper Aquifer is contaminated with a number of hazardous pollutants. Pollution concentrations are lower in the Main Aquifer but still exceed safe levels if one were to drink the water. Nearby homes have been connected to municipal water. Some contamination was found in the waste in the disposal areas above the water table and these locations will have to be cleaned up as well.

## Risks to people and the environment

A baseline human health risk assessment evaluated risks and hazards to human health from exposure to contaminants at the site under both present and future conditions at four different areas on or near the property. The four areas include:

- The eastern two-thirds of the site (includes Disposal Areas 1, 2, and 5).
- The western third of the site (includes Disposal Areas 3 and 4).
- Outside of the site property.
- A small area of buried waste that extends off-site called the Off-Property Buried Waste Area.

The site risk assessment identified four contaminants that pose the greatest risk to human health. All except DCE are either probable or proven to cause cancer in humans: trichloroethylene (TCE); vinyl chloride; Cis-1,2-Dichloroethene (DCE); and benzene.

For each of the focus areas listed above, the human health risk assessment looked at eight possible scenarios for human exposure: on site trespasser (current), off site resident (current/future), utility worker (future), construction worker (future), park worker (future),

recreational user (future), maintenance worker (future), and commercial worker (future). The potential future uses were based on the city of Dayton’s vision statement for the property. The results of the risk and hazard evaluations that were conducted for each exposure scenario were compared to conservative safety limits established by EPA for protection of human health.

Several exposure scenarios exceeded EPA’s health risk standards and need to be reduced through the cleanup plan. The scenarios included situations such as trespassers breathing landfill gas, current area residents becoming exposed to off-site waste and future workers coming in contact with on-site pollutants. A risk assessment was also conducted for wildlife but

concluded no habitats exist at the location because of previous landfill operations. It is expected installation of the cover and grading on the site will protect any wildlife that return to the area.

### Cleanup alternatives

A set of “remedial action objectives” or RAOs were developed for the Valleycrest project. Cleanup options were designed to meet the RAOs. The objectives of the cleanup will be to reduce or prevent human exposure to the pollution associated with the landfill in the various scenarios outlined in the health risk assessment. Site experts came up with five cleanup alternatives to evaluate and then EPA picked its preferred alternative from that list. All of the cleanup options except the “no action” alternative contain common elements:

- Relocating Disposal Area 4.
- Consolidating waste and soil from the Off-Property Buried Waste Area.
- Monitoring and recovering NAPL where possible from two wells.
- Removing leachate.
- Collecting, flaring and monitoring landfill gas.
- Excavation and off-site disposal of soil within the on-site disposal areas.
- On-site stormwater management.
- Ground-water monitoring.
- Institutional controls on the property.  
Institutional controls are deeds or covenants that restrict future uses.

Each cleanup alternative was compared to nine evaluation criteria required by law. The nine criteria are explained in the box to the left.

**Alternative 1 – No Action:** EPA includes a no action option at every cleanup project as a basis for comparison. In the case of Valleycrest, this alternative would not protect human health and the environment and, therefore, is unacceptable. **Cost: \$0**

**Alternative 2A – Solid Waste Cap with Leachate Control at Site Perimeter (this is EPA’s preferred alternative):** This alternative, which would take two years to construct, includes capping of Disposal Areas 1, 2, 3 and 5. Waste material within Disposal Area 4, would be tested, then relocated and used as grading fill or as base material for Disposal Areas 1, 2, 3 and 5. Disposal Area 4 contains 154,000 cubic yards of waste. The total area to be capped at Valleycrest is 70 acres holding 2.5 million cubic yards of waste. The solid waste cap would consist of six layers starting with a “geosynthetic” clay liner that won’t allow liquids to pass through.

### 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, state and local laws.
- 3. Long-term effectiveness and permanence** evaluates how well an alternative 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 alternative 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 Wisconsin Department of Natural Resources) 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 standard after a public hearing and comment period.

Geosynthetic refers to a combination of special plastic with natural materials.

The cap would be topped with six inches of soil planted with vegetation. The cap will be almost 100 percent effective in stopping infiltration of rain and snowmelt.

Alternative 2A also includes a perimeter leachate extraction system. Restoration of contaminated ground water to the required standards is estimated to take three years. Management of extracted leachate would include on-site pretreatment (if needed) and discharge to the city of Dayton's sanitary sewer for treatment and disposal if city codes allow such a system. If the city sewer disposal is not available, another option could include on-site pretreatment and discharge to an on-site infiltration impoundment or underground room and transportation to an off-site commercial facility for treatment and disposal. Cleanup costs rise dramatically if Dayton cannot accept the Valleycrest wastewater.

**Cost: \$36.8 million**

#### **Alternative 2B – Solid Waste Cap with Leachate Control and Groundwater Extraction at Site Perimeter:**

Alternative 2B, which would also take two years to build, includes all of the components of Alternative 2A along with targeted ground water extraction. The ground water extraction system would be a network of 10 wells installed within select portions of the Upper Aquifer. Combined with the leachate extraction pumps described in Alternative 2A, the ground water and leachate wells could pump a combined 37.8 million gallons a year of contaminated liquid. **Cost: \$41.5 million**

#### **Alternative 3A –Alternate Cap (Non-compliant) with Leachate Control at Site Interior and**

**Perimeter:** Alternative 3A, which would take 1½ years to install, includes all of the components of Alternative 2A but employs an alternate cap design that does not comply with all federal and state regulations. The alternate cap would be used over Disposal Areas 1, 2, 3, and 5 and would consist of five layers based on a six-inch bedding layer of granular material. The alternate cap would be 95 percent effective in reducing infiltration of precipitation. Over the 70 acres to be capped, this infiltration would amount to 3.5 million gallons a year. Alternative 3A includes an interior leachate extraction system to catch the additional seepage allowed by the alternate cap. The leachate system would include 28 interior pumps and nine perimeter pumps. Restoration of contaminated ground water is estimated to take a little more than 3 years.

**Cost: \$29.9 million**

**Alternative 3B – Alternate Cap (Non-compliant) with Leachate and Groundwater Control (interior and perimeter):** Alternative 3B, which can be completed in 1½ years, includes all of the components of Alternative 3A along with targeted ground water extraction. The ground water extraction system would be installed within select portions of the Upper Aquifer to clean up zones containing excessive contamination. Experts estimate a network of 10 ground water extraction wells would be needed south of the landfill. The leachate extraction system would manage contamination in the Upper Aquifer at the northwest corner of the site. In total, the leachate/ground water extraction systems would include 37 leachate wells and 10 ground water wells capable of pumping 41.3 million gallons a year. Restoring contaminated ground water would take three years. **Cost: \$34.6 million**

#### **Evaluation of alternatives**

The five cleanup options were compared with the nine evaluation criteria and the results illustrated in the chart on P. 7. The no action alternative does not protect human health and the environment and was rejected. Because Alternative 3A and 3b do not meet all waste management regulations only Alternatives 2A and 2B protect human health and the environment after completion of the cleanup systems and applying the institutional controls.

EPA experts decided Alternative 2A provided the best balance of the nine evaluation criteria and was selected over the other cleanup options because it is expected to achieve substantial and long-term risk reduction. The preferred alternative is also expected to prevent future human exposure to contaminated soil and ground water through the installation of a cap compliant with federal and state regulations. The preferred alternative also reduces risk within a reasonable timeframe and provides for long term reliability of the selected remedy.

Based on the information available at this time, EPA and the OEPA believe the preferred alternative would protect human health and the environment, would comply with state and federal regulations, would be cost effective, and would utilize permanent solutions and alternative treatment technologies to the maximum extent possible. Because it would treat the NAPL material – which forms the principal health threat – the proposed cleanup plan would meet the statutory preference for the selection of an option that involves treatment as a main element.

*(text continued on P. 7 ...)*



# North Sanitary (Valleycrest) Landfill Comment Sheet

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Place  
First  
Class  
Postage  
Here

**Virginia Narsete**  
EPA Community Involvement Coordinator  
Superfund Division  
EPA Region 5  
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Chicago, Il 60604-3590

<b>Comparison of Cleanup Alternatives</b>					
<b>Evaluation Criteria</b>	<b>Alternative 1</b>	<b>Alternative 2A**</b>	<b>Alternative 2B</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
<b>Protects Human Health and the Environment</b>	○	●	●	○	○
<b>Complies with Waste Management Regulations</b>	○	●	●	○	○
<b>Long-term effectiveness</b>	○	●	●	▣	▣
<b>Reduction of Toxicity, Mobility or Volume</b>	○	●	●	●	●
<b>Short-term Effectiveness</b>	n/a	●	●	●	●
<b>Implementability</b>	n/a	●	●	●	●
<b>Cost* (in millions)</b>	\$0	\$36.8M	\$41.5M	\$29.9M	\$34.6M
<b>State Acceptance</b>	Ohio EPA	supports	EPA's	preferred	option
<b>Community Acceptance</b>	Evaluated	after	public	comments	
<p>● <b>Meets Criteria</b>                      ▣ <b>Partially Meets Criteria</b>  ○ <b>Does Not Meet Criteria</b>            n/a <b>Not Applicable</b></p> <p><b>*Assumes Dayton can accept wastewater; ** EPA's recommended alternative</b></p>					

(... continued from P. 4)

**Next steps**

The preferred Alternative 2A can change in response to public comments or new information so it is important interested people participate in the decision-making process by submitting statements during the comment period Aug. 9 – Sept. 10 or at the public hearing Aug. 16.

Remember, for much more technical details about the North Sanitary Landfill, review the remedial investigation/feasibility study reports or the technical

proposed plan document online at [www.epa.gov/region5/cleanup/valleycrest/index.html](http://www.epa.gov/region5/cleanup/valleycrest/index.html) or at the official repository located at the Dayton office of Ohio EPA or U.S. EPA's Chicago offices.

EPA and Ohio EPA will select a final cleanup plan after gathering public input and publish their decision in a document called a “record of decision or ROD. The ROD will be publicized with a local newspaper advertisement. Comments will be summarized and answered in a document included with the ROD called a “responsiveness summary.”

# EPA Proposes Cleanup Plan

**Valleycrest Landfill  
Superfund Site**  
Dayton, Ohio

Public Hearing: Aug. 16, 2012  
Comment Period: Aug. 9 – Sept. 10, 2012

(details inside)

## **EPA contacts**

If you have questions about the comment period or public meeting or want to learn more about the Valleycrest cleanup you can contact these team members:

### **For general questions:**

**Virginia Narsete**

EPA Community Involvement  
Coordinator

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### **For technical questions:**

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**EPA toll-free:** 800-621-8431,  
9:30 a.m. – 5:30 p.m., weekdays

**NORTH SANITARY LANDFILL: EPA Proposes Cleanup Plan**

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