

# Analysis of Ambient Air Contaminants Bristol Quarry Landfill, Bristol Tennessee and Virginia | Dec 2025

## Summary of Health Consultation Conclusions and Recommendations

People living in Bristol, VA, and Bristol, TN, have been concerned that breathing landfill gases from the nearby Bristol Quarry Landfill is making them sick. Benzene, sulfur dioxide, and methyl mercaptan are major contaminants associated with the landfill. **The Agency for Toxic Substances and Disease Registry (ATSDR) evaluated if breathing contaminated outdoor air around the Bristol Quarry Landfill area might make people sick.** Using data collected by the Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (VADEQ), **we found benzene and sulfur dioxide were present outdoors in the community at levels that could harm people's health.** There hasn't been enough scientific research about methyl mercaptan for us to know if its levels were high enough to cause people to be sick. EPA and VADEQ also detected some potentially irritating chemicals, but the method used to detect these compounds does not measure their concentrations. **ATSDR doesn't expect the other chemicals that EPA and VADEQ measured to cause human health effects.**

This fact sheet gives a summary of all the findings and recommendations of ATSDR's health consultation (HC) report "Bristol Quarry Landfill – Analysis of Ambient Air Contaminants".



### Site Background

The Bristol Quarry Landfill is a municipal solid waste (MSW) landfill that stopped collecting waste in 2022. The landfill is located in an old stone quarry partly filled with MSW. The landfill design and other conditions have resulted in the following problems at the landfill:

- Too much water and leachate
- High benzene amounts in the liquids at the landfill and air samples taken at and near the landfill
- Landfill gasses heating up at different depths in the landfill, causing odors and toxic gas releases
- Landfill gasses flaring on the property because they are not collected regularly

Community members in Virginia and Tennessee have placed numerous odor complaints and voiced health concerns to the City of Bristol, VA, and the VADEQ about the Bristol City Landfill.

### What did ATSDR do?

EPA and VADEQ conducted air monitoring around Bristol City Landfill between December 2020 and April 2022. ATSDR evaluated whether levels of contaminants present in air could contribute to health effects or the odors described by residents. ATSDR's HC report includes recommendations to reduce exposure to harmful air contaminants and improve quality of life in the communities in and around the cities of Bristol in Virginia and Tennessee.

### What did ATSDR find?

ATSDR found benzene, sulfur dioxide, and possibly methyl mercaptan were at levels that could make people sick. Key findings include:

- For people living near the landfill, breathing benzene at the detected levels for a year or longer may harm their health. For example, it may suppress their immune system. Short periods of benzene exposure are not expected to make people sick.
- People living near the landfill could also be at slightly increased risk of developing leukemia. ATSDR estimates continuous inhalation of the detected levels of benzene, for the twenty-five years between

when the landfill opened and when effective controls were put in place, could result in almost one additional leukemia case for every ten thousand residents for those with the highest exposure. Given that emissions during the time benzene was measured are believed to be higher than earlier in the landfill's history, this calculation likely overestimates the landfill's true impact on leukemia.

- Breathing the measured levels of sulfur dioxide over a short period of time may harm people's health. In particular, the sulfur dioxide could make symptoms worse for children who have asthma or other respiratory problems, especially if they are exercising or doing strenuous outdoor activities.



- Methyl mercaptan and other landfill gases at Bristol are at levels where people can regularly smell bad odors. People in the community might experience odor-related symptoms such as headaches, nausea, loss of appetite, coughing, difficulties breathing, and stress or annoyance. ATSDR doesn't know if the methyl mercaptan levels are high enough to directly cause people to be sick.
- EPA and VADEQ detected some potentially irritating chemicals. However, their detection methods are not designed to measure levels. Because we don't know how much of those chemicals were present, we don't know whether they could harm people's health.
- The other chemicals ATSDR evaluated were not present at high enough levels to make people sick.

## What does ATSDR recommend?

ATSDR recommends the following actions:

- Community members with asthma and other respiratory conditions should develop a plan to reduce exposures to harmful chemicals in the air on days when there are odors coming from the landfill. This plan might include staying indoors, reducing any strenuous outdoor exercise, installing indoor air filters, or temporarily relocating to an area not impacted by landfill odors.
- Community members should continue to let local and state health officials know about their environmental health concerns.
- The landfill operator or VADEQ should monitor the community's ambient air to confirm actions are reducing exposures to toxic chemicals.
- The landfill operator should continue to improve engineering controls onsite and complete the recommendations identified in the April 25, 2022, Expert Panel Report.
- Landfill operators should let the community know before elevated releases from the landfill (e.g., pipeline cleanout, other construction activities).
- VADEQ EPA should continue to oversee landfill activities and enforce landfill permit regulations.
- VADEQ, City of Bristol, VA and local/state health agencies should monitor odor complaints.

## What are the next steps?

To protect public health, ATSDR will communicate the findings of this report and respond to questions. ATSDR will provide further technical assistance to environmental and public health agencies regarding air quality data in the Bristol area. ATSDR will also review new environmental data and issue an updated report if the new data changes the conclusions and recommendations in this report.

## How can I protect my health?

There are additional steps you can take to protect yourself and your family:

- Exercise indoors or at another location on days when environmental odors are strong.
- Stay indoors when allergies, asthma, or chronic lung problems are acting up.
- If possible, get away from the environmental odor by leaving the area for a few hours.
- Remember that an unpleasant odor does not mean unsafe amounts of chemicals are in the air.
- If you are worried that odor-producing chemicals may be affecting your health, call or visit your doctor to talk about your concerns.

You can also talk with doctors at the Region 3 Pediatric Environmental Health Specialty Unit (PEHSU). PEHSU doctors specialize in environmental exposures and their effects on the health of children and pregnant women. Talking to them is free.

### Pediatric Environmental Health Specialty Unit, Region 3

**Website:** <https://www.pehsu.net/findhelp/region3.html>

**Toll-free Phone:** (833) 362-2243

## How do I learn more?

For questions about ATSDR activities at this site:

- Contact **Michael Byrns**, Regional Director of the ATSDR Region 3 office at **(404) 498-1681** or by email at [ab79@cdc.gov](mailto:ab79@cdc.gov).
- Call **1 800 CDC-INFO (1-800-232-4636)** and ask for information about the Bristol Quarry Landfill site or at <https://wwwn.cdc.gov/dcs/ContactUs/Form>.

## Resources

- » ATSDR Benzene Toxicological Profile: <https://www.atsdr.cdc.gov/toxprofiles/tp3.pdf>
- » ATSDR Sulfur Dioxide Toxicological Profile: <https://www.atsdr.cdc.gov/toxprofiles/tp116.pdf>
- » Landfill Gas Primer (Historic Document): <https://www.atsdr.cdc.gov/HAC/landfill/html/intro.html>

## About ATSDR

ATSDR is a federal public health agency of the U.S. Department of Health and Human Services. ATSDR works with other agencies and tribal, state, and local governments to study possible health risks in communities where people could come in contact with hazardous materials. Learn more at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).