

Landfill Gas

Answers to Frequently Asked Questions



Where does landfill gas come from?

Mostly from the decomposition of organic material. The organic material in solid waste naturally decomposes when disposed of in municipal solid waste (MSW) landfills. The decomposition process produces gases that may cause a nuisance due to odor. Wet landfill conditions produce more gas than dry conditions. Some liquid wastes may also evaporate adding to generated landfill gas.

What gases are generated in MSW landfills?

Mostly carbon dioxide and methane. These gases make up nearly all of the gas generated by a typical MSW landfill. Both gases are colorless and odorless. Many other gaseous compounds comprise a small percentage of landfill gas including sulfides, ammonia, and various volatile organic compounds. Sulfides and ammonia produce unpleasant odors that people can smell, even at very low concentrations.



How can I be exposed to landfill gases?

Unlikely in open areas, but possible in confined spaces. Landfill gas is generated below the surface and it can migrate or move through the landfill cover or other underground pathways. Uncollected gas can also be directly released to the air within the landfill property. Through underground migration, gas can enter basements, buildings, sewers, or other below ground areas. If landfill gas is released to outside air, it is quickly diluted, especially as the gases travel greater distances from the landfill. Off-site public exposure to landfill gas is typically at very low concentrations; however, odors may still be noticeable for certain compounds such as hydrogen sulfide. Inside exposure to migrating landfill gas can result in higher exposures because dilution with ambient air is minimal.



How can landfill gases affect my health?

Effects can vary based upon exposure and sensitivity. Because public exposure to landfill gas is almost always at very low concentrations, most people will not experience health effects. However, some people are sensitive to low concentrations and may exhibit certain exposure-related symptoms. Such reactions are more common in people with conditions such as asthma. Other people may experience temporary symptoms like nausea and headache when exposed to odorous gas, but these symptoms should end when the odor disappears. Public exposure to low concentrations of landfill gases is not likely to cause any long-term health effects. Extended periods of exposure to higher concentrations of landfill gas could result in health impacts.

Are there any other potential hazards related to landfill gases?

Hazards can occur in confined spaces. The underground migration of methane and carbon dioxide found in landfill gas can pose serious public health and safety concerns if the gas enters buildings or other confined areas. Methane levels above 5 percent can cause fires or even explosions if a spark or flame is present. Landfill gas fires or explosions in structures near landfills are very uncommon but some incidents have occurred throughout the United States. Buildings near landfills should be routinely monitored and well-ventilated to avoid accidents. If carbon dioxide collects in a confined space, it will displace oxygen possibly leading to asphyxiation or suffocation. Symptoms of low oxygen levels include headache, increased breathing and heart rate, and dizziness. Monitoring and good ventilation are also appropriate to minimize impacts associated with exposure to accumulating carbon dioxide.



What should I do if I suspect landfill gas is entering my home?

Contact KDHE or others for assistance. The presence of landfill gas odor within a structure does not necessarily mean that carbon dioxide or methane are also present at dangerous levels. Certain compounds in landfill gas may cause odors at very low concentrations. Buildings that are very close to landfills may be at risk for the accumulation of landfill gas and should be monitored to ensure safety. If you believe landfill gas is accumulating in your home or other structure, you should leave the building or open windows to provide improved ventilation. A local landfill representative, KDHE, or other local emergency response agencies should be contacted to help you assess the situation.



How are landfill gas impacts minimized?

Gas collection and control systems are required. State rules related to landfill gas management minimize risks to public safety and nuisance. All landfills built after 1993 have plastic liners that minimize the potential for underground migration away from the landfill. Landfills larger than a certain size must install and operate a gas collection system designed to handle and manage the gas produced by the landfill. State of Kansas rules require landfill owners to monitor for the presence of gas along their facility boundaries to ensure that off-site underground migration is not occurring. They also perform surface monitoring over the landfill cover to ensure that the gas collection system is adequately recovering gas within the landfill property. Landfill gas collected at some facilities is used as an energy resource while others have on-site flares to burn the gas. Recovered landfill gas is a renewable energy resource used to generate electricity for thousands of Kansas homes and in some cases processed and placed into standard gas pipelines for a wide variety of uses.

Where can I get more information?

For health related concerns, please contact
Kansas Environmental Public Health Tracking Program
at 785-296-6426, ksepht@kdheks.gov
<https://keap.kdhe.state.ks.us/Ephtm>

For waste management related concerns, please contact
Bureau of Waste Management
at 785-296-1600, bwmweb@kdheks.gov
<http://www.kdheks.gov/waste>



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