

PROPOSED EMISSION GUIDELINES FOR EXISTING LANDFILLS: FACT SHEET

OVERVIEW

- On August 14, 2015, the U.S. Environmental Protection Agency (EPA) proposed updates to its 1996 Emission Guidelines for *existing* municipal solid waste (MSW) landfills to further reduce emissions of methane-rich landfill gas. In a separate action, the agency issued a supplemental proposal for reducing emissions from *new* and modified landfills. Both actions are part of the Obama Administration's Climate Action Plan – Strategy to Reduce Methane Emissions.
- MSW landfills receive non-hazardous wastes from homes, businesses and institutions. As the waste in a landfill decomposes, it produces landfill gas, which includes a number of air toxics, carbon dioxide, and methane -- a potent greenhouse gas with a global warming potential greater than 25 times that of carbon dioxide. MSW landfills are the third-largest source of human-related methane emissions in the U.S., accounting for 18 percent of the human-related methane emissions in the U.S. in 2013.
- Methane pollution contributes to long-lasting changes in the earth's climate, such as rising air and ocean temperatures, changes in precipitation patterns, melting and thawing of global glaciers and ice, increasingly severe weather events, and sea level rise, among other impacts.
- Climate change threatens America's health and welfare for current and future generations. Children, older adults, people with heart or lung disease, and people living in poverty may be most at risk from [the health impacts of climate change](#).
- EPA has determined that it is appropriate to update the 1996 Emission Guidelines for Municipal Solid Waste Landfills, based on significant changes in the landfill industry that have occurred since the initial guidelines were issued, an improved understanding of landfill gas emissions and public comments received on an [Advance Notice of Proposed Rulemaking](#) issued in 2014.
- The proposed updates would reduce methane emissions from MSW landfills by about 436,000 metric tons per year beginning in 2025 – the equivalent of reducing carbon dioxide emissions by about 10.9 million metric tons annually.
- The proposed guidelines also would reduce emissions of nonmethane organic compounds, which can include volatile organic compounds and air toxics such as benzene, toluene, ethyl

benzene and vinyl chloride, by nearly 2,800 metric tons per year. These pollutants and the pollutants they form are linked to a variety of serious public health effects.

- EPA analyses show that the climate-related benefits of the proposed guidelines would outweigh costs, yielding \$14 in benefits for every dollar spent to comply.
- EPA will take comment on the proposal for 60 days after it is published in the Federal Register. The agency will hold a public hearing if one is requested within five days of publication. To request a hearing contact Aimee St. Clair at (919) 541-1063 or stclair.aimee@epa.gov.

SUMMARY OF PROPOSED REQUIREMENTS

- An estimated 989 open and closed landfills would be subject to the proposed Emission Guidelines. Of these, 574 currently are required to collect and control their emissions.
- The agency is proposing to update the emissions threshold that triggers a requirement to install landfill gas collection and control systems. That annual threshold, currently set at 50 metric tons (written as megagrams in the proposal) of nonmethane organic compounds, would change to 34 metric tons for active landfills under the proposed guidelines. This is the same threshold EPA is proposing for new landfills. Closed landfills would remain subject to the current threshold of 50 metric tons per year.
- The proposed updates would apply to landfills that began construction, reconstruction or modification on or before July 17, 2014, and accepted waste after November 8, 1987.
- Under the proposed updates, an additional 106 open landfills would be required to collect and control landfill gas emissions, bringing the total number of open and closed landfills collecting and controlling emissions to 680 in 2025. EPA projects that 105 open landfills would have to report their emissions but would not be required to collect them.
- The proposed Emission Guidelines would retain a number of current requirements, including:
 - Existing landfills would be subject to the guidelines if they have a design capacity of 2.5 million metric tons and 2.5 million cubic meters of waste.
 - A well-designed and well-operated landfill gas collection and control system would be the best system of emission reductions for controlling landfill gas. Landfill owners/operators may control gas by putting it to beneficial use by combusting it in an enclosed combustion device (such as a boiler, engine or turbine) for energy

generation, by using a treatment system that processes the collected gas for sale, or by flaring it.

- Landfills subject to the proposed guidelines would have 30 months after reaching the emissions threshold to install and begin operating a gas collection and control system.
- Landfill owners/operators with a gas collection and control system would be required to expand that system into new areas of the landfill within five years for active areas, and two years for areas that are closed or at final grade.
- EPA is also proposing an alternative, site-specific method for determining when a landfill must install and operate a gas collection and control system. Using this method, which is based on surface emissions monitoring, a landfill would not be required to collect and control landfill gas if it can demonstrate that emissions of methane are below 500 parts per million for four consecutive quarters. EPA also is proposing to allow a similar, site-specific method for determining when controls can be removed.
- States would have nine months to prepare or update state plans to implement the proposed guidelines, with plans due after the final emission guidelines are issued.
- EPA is proposing to eliminate the wellhead operating limits for oxygen, nitrogen and temperature; however, the limits for negative pressure would remain in place. Landfills would continue to monitor and record temperature and oxygen/nitrogen levels at wellheads to help them determine whether adjustments to their gas collection and control systems are necessary.
- In addition, the agency is proposing a number of clarifications, including clarifying that the use of treated landfill gas is not limited to use as a fuel for stationary engines but also may be used for other beneficial purposes.

EMISSION REDUCTIONS, BENEFITS AND COSTS

- EPA estimates that proposed emission guidelines would reduce annual methane emissions by more than 436,000 metric tons beginning in 2025, compared to current requirements – the equivalent of reducing 10.9 million metric tons of carbon dioxide. Emissions of nonmethane organic compounds, which include a number of air toxics, would be reduced by 2,770 metric tons a year.
- Estimated climate benefits of the proposed emission guidelines would substantially outweigh costs. EPA estimates the value of the climate-related benefits in the proposed rule at \$670 million in 2025 – more than \$14 in benefits for every dollar spent to comply. The estimated climate benefits reflect a net reduction in climate change damages, which include

human health impacts, property damages from flood risk, and the value of ecosystem services, among other effects.

- Reductions in other pollutants, including volatile organic compounds and air toxics, also are expected to yield benefits; however, EPA was not able to quantify those. Those benefits include reductions in health effects related to fine particle pollution, ozone and air toxics, along with improvements in visibility.
- EPA estimates the nationwide cost of complying with the proposed guidelines at \$47 million a year in 2025. This includes the cost of installing and operating a gas collection and control system, and at some landfills, the cost of an engine that uses the landfill gas to generate electricity. The costs also reflect the revenues landfills may make by selling electricity generated using landfill gas.
- EPA estimated the benefits and costs of the supplemental proposed New Source Performance Standards (NSPS) for new and modified landfills separately. For more information see <http://www.epa.gov/ttnatw01/landfill/landflpg.html> .

THE STRATEGY TO REDUCE METHANE EMISSIONS

- In March 2014, as part of the President's Climate Action Plan, the Obama Administration issued the Strategy to Reduce Methane Emissions to identify actions that will improve public health and safety while providing more energy and reducing greenhouse gas emissions.
- Landfills accounted for 18 percent of the human-related methane emissions in the U.S. in 2013 – the equivalent of approximately 100 million metric tons of carbon dioxide pollution. Nearly 1,000 MSW landfills in the U.S. currently are subject to either the 1996 emission guidelines for existing landfills or the 1996 NSPS for new landfills.
- The Strategy to Reduce Methane Emissions called on EPA to propose updates to the NSPS for new and modified landfills and take public comment on whether to update standards for existing landfills, engaging industry and stakeholders on a range of approaches for cutting landfill gases currently being emitted by existing facilities.
- In addition, the strategy called on EPA to continue to work with municipalities and landfill owners to advance cost-effective landfill energy recovery projects through the agency's Landfill Methane Outreach Program (LMOP). Created in 1994, LMOP helps reduce methane emissions from landfills by encouraging the recovery and use of landfill gas as an energy resource.

- LMOP forms partnerships with landfill owners, utilities, power marketers, states, tribes and nonprofit organizations to provide technical assistance, share information on best practices, and provide tools and resources to market the benefits of projects to their communities. As of August 2015, LMOP had more than 1,100 partners.

BACKGROUND

- Emission guidelines set a performance level that is based on the best system of emission reduction for the particular industry category and pollutant. Each state must develop a plan that demonstrates how the affected industry in that state will reach the required emissions reduction level, and submit that plan to EPA for review and approval.
- EPA issued the initial emission guidelines for MSW landfills in 1996. These guidelines cover existing MSW landfills designed to hold at least 2.5 million metric tons and 2.5 million cubic meters of waste, and that began construction or modification on or before May 30, 1991 and that accepted waste after November 8, 1987. The current guidelines require landfills to install gas collection systems or demonstrate that the landfill emits less than 50 metric tons a year of nonmethane organic compounds.
- The agency proposed amendments to guidelines in 2002 and 2006 to clarify issues that arose during implementation; however, those proposals were not finalized.

HOW TO COMMENT

- EPA will accept comments on the proposal for 60 days after publication in the Federal Register. Please identify comments with Docket ID No. EPA-HQ-OAR-2014-0451. You may submit comments by one of the following methods:
 - www.regulations.gov: Follow the online instructions for submitting comments.
 - Email: Send your comments via electronic mail to A-and-R-Docket@epa.gov, Attention Docket ID No. EPA-HQ-OAR-2014-0451.
 - Facsimile: Fax your comments to (202) 566-9744, Attention Docket ID No. EPA-HQ-OAR-2014-0451.
 - Mail: Send your comments to: Environmental Protection Agency, EPA Docket Center (EPA/DC), Mailcode 28221T, 1200 Pennsylvania Ave., NW, Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2014-0451.
 - Hand Delivery: Deliver your comments to: EPA Docket Center (EPA/DC), WJC West Building, Room 3334, 1301 Constitution Ave., NW, Washington, DC, 20004, Attention Docket ID No. EPA-HQ-OAR-2014-0451. Such deliveries are accepted only during the normal hours of operation (8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays), and special arrangements should be made for deliveries of boxed information.

FOR MORE INFORMATION:

- Today's proposed updates and the supplemental proposal for new landfills are available at:
<http://www.epa.gov/ttn/atw/landfill/landflpg.html>.