



Michigan Department of Natural Resources and Environment

Frequently Asked Questions about the Proposed Open Burning Rule Amendments

Overview

The Department of Natural Resources and Environment (DNRE) is amending the open burning provisions of the air pollution and solid waste management rules. The changes will eliminate the current open burning exemption that allows the burning of household trash, including plastics, rubber, paper, shingles, treated wood, and other rubbish. This means that after April 1, 2011 the exemption that allows residents to burn their trash will no longer exist and it will become illegal to open burn residential trash under state regulations. The amendments also add three open burning exemptions that would allow the burning of contraband by a police agency, prescribed burns, and the burning of diseased or infested wooden apple bins. The amendments will not change the provisions that allow the burning of leaves, brush, and other yard clippings nor will they prohibit recreational campfires.

Why are these amendments necessary?

The volume and composition of household trash has changed over the past 40 years; waste today includes treated paper, plastics, foam, metals and other man-made materials. Open burning of trash emits contaminants that can have both long and short term health effects on exposed people, especially those with cardiovascular and respiratory conditions (e.g., asthma). Over the last decade, numerous human studies have demonstrated that the fine particulate matter created from burning is far more hazardous to people's health than previously known. The smoke and odors generated from this activity do not remain on the property on which they are generated. As a result, household trash burning is the source of numerous citizen complaints reported to the DNRE and local authorities. The open burning of trash is a significant source of wildfires and property fires throughout the state. Also, open burning is no longer the only means of trash disposal available to many residents as was the case several decades ago when the rules were first promulgated. Considering these factors, the DNRE has determined that it is appropriate to update the open burning rules to protect the health of Michigan's citizens and its environment. These changes reflect our increased knowledge of the risks associated with this activity and the changes that have occurred in availability of waste disposal services throughout the state. The DNRE also believes these changes will provide local units of government with a regulatory tool to help them address open burning concerns in their communities. By eliminating the current exemption that allows the open burning of household trash the DNRE is no longer promoting or condoning this activity as a waste disposal option under the state rules, which will make it easier for local governments to pass ordinances to address open burning.

What is fine particulate matter?

Fine particulate matter refers to particles smaller than 2.5 microns in diameter. A single particle of this size is too small to see with the human eye. Fine particulate matter reaches deep into the lungs with the smallest of particles entering the blood stream. The fine particulate matter generated by burning is typically smaller than 1 micron in diameter and is made up of hazardous chemicals that release or generated during combustion. These chemicals start as a vapor and as they cool form fine particulate matter. Visible clouds of smoke from burning contain dense amounts of fine particulate matter.

What are the health risks associated with open burning trash?

Open burning of household trash emits particulate matter and toxic air contaminants that may be expected to be present in varying levels in the environment, depending on the material being burned. Some particularly noteworthy chemicals that make up the fine particulate matter emitted from the open burning of household trash can include hydrogen cyanide, sulfur dioxides, polycyclic aromatic hydrocarbons, benzene, lead, mercury, and dioxin. This fine particulate matter containing a variety of chemicals can have acute and chronic health effects on exposed people including cardiovascular and respiratory conditions (e.g., asthma). Small children, the elderly, or people with preexisting respiratory and cardiovascular conditions can be especially vulnerable to fine particulate matter exposure. Long-term and repeated exposure to some of the chemicals emitted during trash burning have been shown to impair neurodevelopment in children, the immune system, reproductive system, and thyroid function. Some pollutants have been shown to contribute to the onset of diabetes and cancer. Many of these pollutants emitted can persist in the environment, resulting in future exposures to both people and wildlife. People conducting open burning of household trash as their main method of disposal will frequently be exposed to these hazardous substances. People living in the surrounding area (i.e., neighbors within several hundred feet) will also be frequently exposed to these hazardous substances. Significant amounts of particulate matter generated from outdoor burning have been shown to enter inside homes. Once particulate matter enters a house it can circulate in the air for at least several hours, extending peoples exposure to the hazardous substances.

Will residents still be allowed to burn leaves, brush, and other yard clippings?

The state rules for burning trees, logs, brush, leaves, and other yard clippings are staying the same; however, residents should contact their local officials to learn what is acceptable in their area.

How will the amended open burning regulations be enforced?

The DNRE does not intend to actively target residents for enforcement of this rule but rather implement the changes via education and outreach in coordination with local units of government. The immediate concern of the DNRE is protecting the health of those adversely affected by trash burning. The DNRE will continue to rely on local units of government for primary enforcement if they choose to do so. It is expected that any necessary enforcement will be complaint driven and conducted by the local units of government or the DNRE, as needed. In other words, if a complaint is received, it may be followed up on by the local unit of government or DNRE. The DNRE will work with local units of government to help implement ordinances to address open burning. Where ordinances do not exist, the DNRE can assist local authorities with writing citations under the state law.

Local units of government do not have to create an ordinance that adopts these changes in order for these open trash burning rules to be enforced by local authorities. The DNRE hopes that the changes will serve as a foundation on which ordinances can be created to allow local communities flexibility in implementing this amendment. If a local unit of government chooses not to have an ordinance that prohibits the burning of household trash they may regulate the open burning of trash and respond to complaints under the state regulations.

Isn't trash burning the only means of trash disposal for some residents?

When Michigan's open burning rules were first promulgated several decades ago, many Michigan residents did not have access to waste disposal services and trash burning was the only practical disposal option. However, since that time, trash pick-up and drop-off sites have become more common and trash burning is no longer the only practical disposal option. All Michigan residents now have access to waste disposal pick up or drop off services. The DNRE is working with County Solid Waste Management personnel as well as solid waste haulers and landfills to help identify



Wastes - Non-Hazardous Waste - Municipal Solid Waste

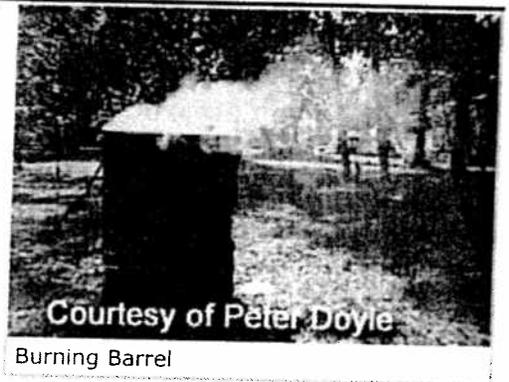
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Human Health

Burning trash in the open produces many pollutants, including:

- [dioxins](#),
- [particle pollution](#),
- [polycyclic aromatic hydrocarbons](#),
- [volatile organic compounds](#),
- [carbon monoxide](#),
- [hexachlorobenzene](#), and
- [ash](#).



Many dangerous health conditions can be caused by inhaling or ingesting even small amounts of these pollutants. Small children, the elderly, or people with preexisting respiratory conditions can be especially vulnerable to some of these pollutants.

Dioxins

Backyard burning is of particular health concern because it produces significant quantities of dioxins. Dioxins and "dioxin like" compounds are a group of 30 highly toxic chlorinated organic chemicals. They are produced naturally in small quantities, but are primarily the result of human activity. They can be produced through industrial processes such as chlorinated chemical manufacturing and metal smelting. Currently, however, the largest quantified source of dioxin emissions is the uncontrolled burning of household trash (backyard burning). Studies have shown that only small amounts of chlorinated materials in waste are required to support dioxin formation when burning waste. This means that even when materials containing high levels of chlorine, such as PVC, are removed from household trash, burning the waste still creates dioxins because nearly all household waste contains trace amounts of chlorine.

Much of the dioxins created and released into the air through backyard burning settle on plants. These plants are, in turn, eaten by meat and dairy animals, which store the dioxins in their fatty tissue. People are exposed to dioxins primarily by eating meat, fish, and dairy products, especially those high in fat. Backyard burning occurs most commonly in rural farming areas where dioxin emissions can more easily be deposited on animal feed crops and grazing lands. These dioxins then accumulate in the fats of dairy cows, beef, poultry, and swine, making human consumption of these harmful chemicals difficult to avoid.

Dioxins are classified as persistent, bioaccumulative, and toxic pollutants (PBTs). PBTs are highly toxic, long-lasting substances that can build up in the food chain to levels that are harmful to human and ecosystem health. Persistent means they remain in the environment for extended periods of time. Bioaccumulative means their concentration levels increase as they move up the food chain. As a consequence, animals at the top of the food chain (such as humans) tend to have the highest dioxin concentrations in their bodies.

Dioxins are potent toxicants with the potential to produce a broad spectrum of adverse effects in humans. Dioxins can alter the fundamental growth and development of cells in ways that have the potential to lead to many kinds of impacts. These include adverse effects upon reproduction and development, suppression of the immune system, disruption of hormonal systems, and cancer. For more detailed information on dioxin health effects, safety issues, and risk, visit [EPA's Dioxin and Related Compounds Web site](#).

Particle Pollution

Particle pollution, also referred to as particulate matter, or PM, refers to microscopic particles released by open burning. Particles that are small enough to get into the lungs (those less than or equal to 10 um in diameter) can cause numerous health problems. Particles can aggravate respiratory conditions such as asthma and bronchitis, and have been associated with cardiac arrhythmia (heartbeat irregularities) and heart attacks. People with heart or lung disease, the elderly, and children are at highest risk from exposure to particles. For more information EPA's [particulate matter](#) site.

Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons, or PAHs, are a group of chemicals commonly found in particulate matter (or smoke and soot) released from backyard burning. They are formed from the incomplete combustion of certain materials. Some PAHs are carcinogenic, or cancer-causing.

Volatile Organic Compounds

People in the immediate vicinity of a burn barrel are also exposed to high levels of volatile organic compounds (VOCs) produced by open burning. Many VOCs are harmful to humans. They also contribute to ground-level ozone pollution, also known as smog, which can worsen respiratory, heart, and other existing health problems. Inhaling certain VOCs can lead to eye, nose, and throat irritation; headache; loss of coordination; nausea; and damage to liver, kidney, and central nervous system.

Carbon Monoxide

Another major pollutant generated by backyard burning is carbon monoxide (CO). At low levels of exposure to CO, humans may experience a variety of neurological symptoms including headache, fatigue, nausea, and vomiting. For more information, visit EPA's [carbon monoxide](#) site.

Hexachlorobenzene

Hexachlorobenzene, or HCB, is a highly persistent environmental toxin that degrades slowly in air and, consequently, undergoes long-range atmospheric transport. HCB bioaccumulates in fish, marine animals, birds, lichens, and animals that feed on fish or lichens. Based on studies conducted on animals, long-term low-level exposures may damage a developing fetus, cause cancer, lead to kidney and liver damage, and cause fatigue and skin irritation. HCB is considered a probable human carcinogen and is toxic by all routes of exposure.

Ash

Backyard burning also produces ash residue, which can contain toxic metals such as mercury, lead, chromium, and arsenic. These metals can be toxic when ingested. When a person ingests hazardous amounts of lead, for example, he or she may experience high blood pressure, cardiovascular problems, kidney damage, and brain damage. Unaware of the potential danger, some people scatter the ash in their gardens or bury it on their property. Garden vegetables can absorb and accumulate these metals, which can make them dangerous to eat. Children playing in the yard or garden can incidentally ingest soil containing these metals. Also, rain can wash the ash into groundwater and surface water, contaminating drinking water and food.

opportunities for waste pick up and drop off. This information will be compiled into a database that will be made available to communities and the general public at www.michigan.gov/openburning.

The DNRE is providing a phase in period to allow communities and residents time to comply with the rule change and are making a concerted effort to work with stakeholders to provide options to those residents that will be affected.

Isn't burning trash better than putting it in a landfill?

No. Sending trash to a landfill has much less of an impact on human health and the environment. The uncontrolled smoke emitted from open burning contains numerous highly toxic compounds and fine particles which can become lodged deeply into a person's lungs, adversely impacting a person's health. Also, the ash from trash burning contains toxic metals and other chemicals that contaminate soil. However, landfills are required to capture and control the gas generated by the decomposing waste and are also required to construct a leachate containment system to capture any liquid at the site.

Landfill disposal of waste is also more protective of the environment than open burning. Landfill design and management has changed dramatically since the time of unlined dumps that were often set on fire. The federal and state regulations that went into effect in the early 1990's regulate landfill disposal. The likelihood of waste contaminating the environment or damaging human health if it is burned is much higher than if the waste is disposed in a landfill or recycled.

Where can I find more information about open burning and the proposed rule amendments?

Information is available at www.michigan.gov/openburning or by calling the DNRE at (800) 662-9278.

Summary of State Regulations on Residential Trash Burning

State	Trash Burning Prohibited	Allowed but restrict type of waste	Allowed No restrict type of waste	REG Link
Alabama	X			WEBSITE
Alaska		X		WEBSITE
Arizona		X		WEBSITE
Arkansas	X			WEBSITE
California		X ⁽¹⁾		WEBSITE
Colorado			X	WEBSITE
Connecticut	X			WEBSITE
Delaware	X			WEBSITE
Florida	X			WEBSITE
Georgia	X			WEBSITE
Hawaii	X			WEBSITE
Idaho		X		WEBSITE
Illinois		X		WEBSITE
Indiana		X		WEBSITE
Iowa		X		WEBSITE
Kansas			X	WEBSITE
Kentucky		X		WEBSITE
Louisiana		X		WEBSITE
Maine	X			WEBSITE
Maryland			X ⁽²⁾	WEBSITE
Massachusetts	X			WEBSITE
Michigan			X	WEBSITE
Minnesota	X			WEBSITE
Mississippi	X			WEBSITE
Missouri			X ⁽³⁾	WEBSITE
Montana		X		WEBSITE
Nebraska			X	WEBSITE
Nevada			X	WEBSITE
New Hampshire	X			WEBSITE
New Jersey	X			WEBSITE
New Mexico	X			WEBSITE

Summary of State Regulations on Residential Trash Burning (continued)

State	Trash burning Prohibited	Allowed but restrict type of waste	Allowed No restrict type of waste	REG Link
New York		X		WEBSITE
North Carolina	X			WEBSITE
North Dakota		X		WEBSITE
Ohio		X		WEBSITE
Oklahoma			X ⁽³⁾	WEBSITE
Oregon		X		WEBSITE
Pennsylvania		X ⁽⁴⁾		WEBSITE
Rhode Island			X	WEBSITE
South Carolina	X			WEBSITE
South Dakota		X		WEBSITE
Tennessee		X		WEBSITE
Texas		X		WEBSITE
Utah			X	WEBSITE
Vermont	X			WEBSITE
Virginia		X		WEBSITE
Washington		X		WEBSITE
West Virginia	X			WEBSITE
Wisconsin		X		WEBSITE
Wyoming		X		WEBSITE

⁽¹⁾ Regulated separately by Air Resource Boards. Some areas are more restrictive than others.

⁽²⁾ Doesn't regulate type of trash but does not allow burning of household waste that creates dense smoke > 40% opacity and Refuse may not be burned at locations closer than 200 feet from any neighboring habitable dwelling or place where people work or congregate

⁽³⁾ Specifically prohibits burning tires

⁽⁴⁾ PA's Air quality and solid waste laws conflict. PA Solid Waste Management Act only allows open burning with permit but they do not issue permits for open burning; therefore, burning not allowed. Recycling Act requires recycling in certain size cities, if not recycling waste then open burning is prohibited there. However, Air quality regulations do allow open burning of household waste.