

Are Burn Barrel Emissions Significant?

NMED evaluation of the estimated emissions from burn barrels in New Mexico

Just looking at the [estimated emissions from burn barrels](#) isn't enough to evaluate how much concern we should have. Several factors need to be considered for each pollutant, including:

- How much do burn barrels emit?
- Are the health effects of the pollutant more serious (cancer) or less serious (temporary lung irritation)?
- Is the pollutant toxic in very small amounts?
- Does the pollutant persist in the environment and build up in plants and animals (including the ones we eat), and in our bodies over a lifetime, or does it quickly break down?
- Would reducing burn barrel emissions be likely to significantly reduce the level of the pollutant and improve health, or is the amount emitted by burn barrels just a "drop in the bucket" compared to other sources?

Considering these questions, our greatest concern is with the "Toxic Air Pollutants."

We are most concerned about the chemicals listed under "Toxic Air Pollutants" in [the table](#), even though the amounts emitted are mostly much less than for the ones listed as "Common Pollutants". The reasons for our concern are:

- ***Health effects are more serious***

Benzene, styrene, some PAHs, some dichlorobenzenes, hexachlorobenzene, dioxins, and PCBs are known or suspected to cause cancer in humans. Some of these (benzene, hexachlorobenzene, dioxins, and PCBs) are also known or suspected to cause developmental abnormalities in children.

- ***Small amounts can cause adverse health effects***

For most cancer-causing substances, it is very difficult to find a level that is "safe". Most studies seem to indicate that every little bit of increased exposure to the substance will increase the risk of cancer. For most of the chemicals listed under "Toxic Air Pollutants", reference concentrations used to evaluate potential health risks are in the part-per-million range. For some of the most toxic pollutants, even extremely low concentration are of concern. For 2,3,7,8-TCDD, the most toxic form of dioxin, the U.S. E.P.A. limit in drinking water is 0.00003 micrograms per liter. This is equivalent to one pound of TCDD in 4 trillion gallons of water (about 10 times the maximum capacity of Elephant Butte Reservoir).

- ***Several of them accumulate in the environment, our food, and our bodies***

Hexachlorobenzene, dioxins, furans, PCBs, and some PAHs are of special concern for this reason. They are not easily broken down into less harmful substances by environmental factors or inside of organisms that absorb or eat them. Concentrations build up as they move up the food chain, from soil and water to plants, then from plants to animals, and from the plant and animal products we eat to our own bodies, where concentrations increase over our lifetime. For example, a recent study found that people now living in an area of Vietnam where dioxin-contaminated Agent Orange was sprayed have "alarmingly high" levels of dioxin in their bodies, even though many of them didn't live in sprayed areas during the war or were born after the war.

- ***Burn barrel emissions are significant relative to other sources***

Most people think of industrial sources (factories, coal- and oil-burning power plants, refineries, etc.) as the main source of air pollution. That's true for some pollutants, but when we [compare New Mexico's burn barrel emissions with industrial sources](#) (Toxic Release Inventory) we find that NM burn barrel emissions of most of the "Toxic Air Pollutant" chemicals are comparable to or greater than industrial emissions. One factor keeping industrial emissions lower than they would be otherwise is that most major industrial sources are required to have very efficient pollution controls.