

Air pollution and the regulations related to its release can be very complex subjects. This fact sheet is intended to make the issues more easily understood by the general public. If it only generates more questions for you, please contact one of the people listed at the end of the document.

### **Air Pollution - What's the Problem?**

We can only live without air for about five minutes. Air is the most important thing in our life. When we breathe clean air, it contains oxygen at 21 percent (by volume), nitrogen at 78 percent (by volume), and only 1 percent (by volume) of other gases. Polluted air contains other chemical compounds in quantities sufficient to cause us harm.

Depending on the types and/or quantities of pollution in the air, we can experience immediate or short term harm (acute effects) or long term harm (chronic effects). The right amount of a highly toxic pollutant can cause immediate death. Daily doses of small amounts of a pollutant can cause cancer after multiple years of exposure.



Specific health effects can include:

- heart and lung diseases,
- cancer,
- eye irritation,
- diseases of the nervous system (may cause brain damage), and
- asthma.

With such a wide variety of health effects caused or aggravated by air pollution, it results in a large cost to society. The compounds that can cause such health effects in humans can also cause problems for animals and plants, destroying agricultural crops or livestock. The problems caused by air pollution can even extend to damaged property, like when acid rain “eats” away at buildings and statues.

### **Sources of Air Pollution?**

Many pollutants can occur naturally. Volcanos and wildfires generate large quantities of air pollution. Trees also generate air pollutants through their natural process. Many human activities create tremendous amounts of air pollution, from transportation to industrial processes. Our daily use of consumer products can also release air pollution.

Over the past three decades the most common pollutants, which came to be called the “criteria” pollutants, were identified as being the most significant pollution problem in the nation. The criteria pollutants include:

- particulate matter (PM),
- carbon monoxide (CO),
- sulfur dioxide (SO<sub>2</sub>),
- nitrogen oxides (NO<sub>x</sub>),
- ground level ozone (O<sub>3</sub>), and
- lead (Pb).

Ground level ozone is created when volatile organic compounds (VOC) and NO<sub>x</sub> combine and react with sunlight. VOC and/or NO<sub>x</sub> are usually regulated instead of ozone.

To begin to address the problems caused by air pollution, US Environmental Protection Agency (EPA) created National Ambient Air Quality Standards for each of the criteria pollutants. These standards are the maximum concentration allowed that protects the most sensitive people from adverse health effects. Secondary standards have also been set to address health and welfare of animals and the environment.

Counties throughout the nation that do not meet the standards are said to be “non-attainment” areas. There are five levels of non-attainment that reflect different levels of how far above the standards the air in an area is contaminated:

- marginal,
- moderate,
- serious,
- severe, and
- extreme.

The worse level of non-attainment an area is in, the greater the level of regulation that must be set to reduce the air pollution.

Chemical compounds causing adverse health effects but not included in the list of criteria pollutants are regulated as hazardous air pollutants, often called HAPs. HAPs are less common throughout the nation, but often cause greater adverse effects at lower concentrations in the air. Because individual HAPs are not always a national issue, it has been harder to set national standards for these. When EPA did not act quickly enough, states like Wisconsin began developing their own rules for HAP emissions.

### ***Who Regulates Air Pollution?***

EPA has set the primary standards on allowed levels of air pollution. EPA then delegates its authority to enforce those standards to the individual states or to local air pollution control agencies. This way, each state or local agency can craft regulations that work best in their particular area of concern. Areas like Los Angeles, CA, where transportation is a large percentage of their source of air pollution may have stricter regulations on vehicles driven there. Other areas may have industry as their primary source of air pollution and set regulations accordingly.

In Wisconsin, EPA has delegated its authority for air pollution regulations to the Department of Natural Resources (DNR). DNR has regulations for the criteria pollutants as well as nearly 500 HAPs.

### ***How Do I Know if My Business Has Air Pollution?***

If you use adhesives, paints, inks, other solvents or solvent containing materials - these would be likely to emit VOCs and HAPs.

If you generate building or process heat or steam with any fuels (not including electricity) - these generate emissions of all criteria pollutants and some HAPs.

If you do any grinding, sanding, welding, material handling or any other activity that creates dust or fumes - these would be considered PM and HAPs.

Many processes can emit air pollution that may not be obvious.

Organic compounds: deep fat fryers, dry cleaners, ethylene oxide sterilizers, aluminum scrap sweat furnaces, certain processes at primary metal finishing or foundries.

Aerosols, mists, fumes: welding, aerosol can filling or crushing, heat treating of metal.

Dusts: certain processes at primary metal finishing or foundries, unpaved road dust.

Acid gases: multi-stage parts cleaning with agitated acid baths.

### ***Do I Have to Do Something About My Air Pollution?***

#### **Meet Regulations**

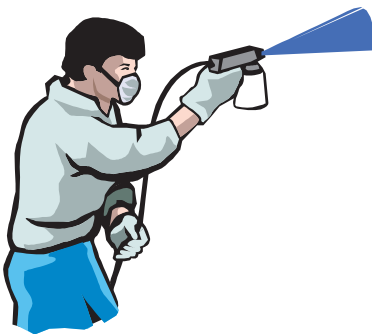
DNR and EPA have developed regulations that dictate what must be done to improve air quality. Rules must be established at the level of government that will enforce the regulations. For DNR to be allowed to enforce certain national regulations, there must be rules included in the Wisconsin Statutes and the Wisconsin Administrative Code. Because EPA is the original author of the regulations, they can usually enforce them as well. Where DNR rules have no basis in federal regulations, only DNR can enforce them - this refers to what are called “state-only” rules.



Often the EPA rules set the framework that DNR and other state and local programs must meet, but they can do it in such a way that it best fits the mix of air pollution sources (transportation, industry, etc.) in their jurisdiction. Other EPA rules must be taken straight from the Code of Federal Regulations and incorporated into state or local rules so they can be enforced by the state or local programs directly.

The two state permit programs are established under different direction from EPA. DNR's new source review rules had to operate nearly identical to the federal regulations in order for the state's program to get approval from EPA as a stand-alone program - so they will be handled nearly identical from state to state. The operation permit program under the federal Title V of the Clean Air Act Amendments of 1990 had to meet certain criteria, but could be put in state rules in a form preferred by the state agency. These permit programs have similar framework, but will vary widely from state to state in how they look and act to a business that has plants in multiple states.

Another example is the industry specific standards called RACT or Reasonably Available Control Technology standards. They were established to address the ozone non-attainment areas in Wisconsin. EPA set out which categories must have RACT standards, but DNR spelled out the requirements specific to the industries within the state and what was reasonably available to them. Many RACT rules impact industries using paints, coatings, inks, etc.



For particulate matter, there are no categories specified by EPA to be regulated. DNR created their own regulations to enforce the national standard for particulate matter in Wisconsin. There are certain requirements for the non-attainment areas and then there are other limits for businesses in areas that attain the standard.

On the other hand EPA has no regulations regarding odors, but DNR does have a requirement that anyone creating an odor must minimize it whenever someone else finds it objectionable.

### **Apply for Permits**

DNR has set certain levels of emissions, above which a business would need to get a permit. Businesses need to apply for a permit under two scenarios. If a business wants to add or modify processes or activities at a business that in some way generate air pollution, the owner/operator must apply for a construction permit. The construction permit must be issued by DNR before the business begins any of the related construction or modification of the process or activity. A construction permit is good for 18 months, with one 18-month extension allowed upon request.

Any existing business with air pollution that has emissions above the levels set for exemptions, must apply for an operation permit. Operation permits are generally good for 5 years and must be renewed prior to the date on which they expire; certain special operation permits don't expire.

### ***How Do I Get Details on the Rules?***

This fact sheet is not intended to do more than give you broad information on air pollution. There are many detailed fact sheets available from the Small Business Clean Air Assistance Program (SBCAAP) to help a business learn about any DNR or EPA regulations that might apply to them. Contact anyone listed below for assistance on specific regulations or go to the SBCAAP web site:

**<http://commerce.wi.gov/sbcaap>.**



### ***Contacts for More Information or Assistance.***

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact one of the program's Clean Air Specialists for more assistance: Renée Lesjak Bashel at 608/264-6153 or Tom Coogan at 608/267-9214.



For further information on the basics of air pollution contact your DNR Regional or Service Center at **<http://dnr.wi.gov/contacts>**.