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Facts About Federal Air Quality Regulations

The Environmental Protection Agency (EPA) has developed and implemented several federal regulations to control air pollution emitted by industrial sources. These regulations are based on the federal Clean Air Act. The Nebraska Department of Environment and Energy (NDEE) adopts into Title 129 - Nebraska Air Quality Regulations most, though not all, of the regulations EPA develops. When Nebraska adopts the federal regulations into Title 129, NDEE has implementation and enforcement authority of those regulations.

Since federal air quality regulations are numerous and complex, it may be difficult for sources to understand which regulations apply. This fact sheet provides a brief explanation of the key federal air quality regulations.

Ambient Air Quality Regulations

Air quality regulations in the United States are based on a set of air quality standards known as the **National Ambient Air Quality Standards**, or **NAAQS**. Ambient air is the atmosphere, external to buildings, to which the general public has access. The primary NAAQS are set at the levels to protect the public health with “an adequate margin of safety.” Additionally, secondary NAAQS were created to protect the environment and public welfare. These standards are based on scientific studies conducted over many years and are scheduled for review every five years to determine if revisions should be made to the standards. The standards are expressed as either micrograms per cubic meter or parts per million, over a specified period of time. There are standards for six categories of pollutants, known as “criteria pollutants”: particulate matter less than ten microns in diameter (PM10 and PM2.5), sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide and lead. The NAAQS can be found in Chapter 4 of Title 129.

NDEE has several ambient air monitors located throughout the state to measure the concentrations of pollutants in the ambient air. If the concentration of one or more criteria pollutants in an area is found to exceed the regulated or ‘threshold’ level for one or more of the NAAQS, the area may be classified as a **nonattainment** area. Areas with concentrations of criteria pollutants that are below the levels established by the NAAQS are considered either attainment or unclassifiable areas. Currently, all areas in Nebraska are either in attainment or are unclassifiable. A summary of Nebraska ambient monitoring data is published annually in the “Nebraska Air Quality Report”, which can be found on NDEE’s website under Publications.

New Source Performance Standards

New Source Performance Standards (NSPS) are mandated by the Clean Air Act and establish technology-based standards applicable to criteria pollutant emissions from new or modified sources. NSPS are generally based on “best demonstrated technology”. EPA establishes performance-based standards requiring the application of the best-proven control system or method, while considering the cost of the technology. NSPS are found in Title 40, Part 60 of the Code of Federal Regulations (CFR). The standards that have been adopted into Title 129 are found in Chapter 18.

National Emission Standards for Hazardous Air Pollutants

EPA is required to regulate airborne toxic pollutants under the **National Emission Standards for Hazardous Air Pollution** (NESHAP) program. Hazardous Air Pollutants (HAPs) are pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. Currently there are 187 regulated HAPs. A listing of the regulated HAPs can be found in Appendix II and III of Title 129.

Prior to the 1990 Clean Air Act Amendments, only seven HAP standards had been promulgated. The “risk-based” standards were difficult to develop as they were frequently challenged on the basis that the required margin of safety was either too strict or not strict enough. The NESHAPs promulgated prior to 1990 can be found in 40 CFR Part 61 and Chapter 23 of Title 129.

Because of the difficulty EPA faced in developing the risk-based standards, the Amendments of 1990 required that EPA regulate HAPs based on a two-phased approach. The first phase requires development of technology-based standards. These standards set emission limits based on emissions levels already being achieved by many similar sources in the country. The technology-based standards are referred to as Maximum Achievable Control Technology (MACT) standards. MACT standards are found in 40 CFR Part 63 and Chapter 28 of Title 129.

The second phase would apply a risk-based approach in which EPA would assess how well the technology-based standards have reduced public health and environmental risks. If EPA finds that there are significant residual health or environmental risks, additional standards could be implemented.

New Source Review

There are two New Source Review (NSR) programs, one for sources constructing in attainment/unclassifiable areas and one for sources in nonattainment areas.

The program for facilities in attainment/unclassifiable areas is called the **Prevention of Significant Deterioration of Air Quality** (PSD) Program. PSD is a federal air quality construction permit program. Nebraska is delegated the responsibility for issuing permits under this program. The program is designed to maintain the NAAQS and prevent degradation of air quality in attainment/unclassifiable areas.

PSD targets large construction projects at the larger emission sources. It presumes that it is more efficient to develop and install the best available controls when an emission unit is first built, rather than after the fact. The program has three primary purposes: 1) to manage air pollution emissions, so that areas in compliance with the NAAQS remain in compliance even with increased industrial activity, 2) to address concerns about protection of visibility and sensitive flora and fauna in areas such as national parks, and 3) to protect against possible synergistic effects of multiple NAAQS pollutants. This program is designed to ensure that those areas already in attainment remain in attainment even as new emission sources are constructed.

The PSD program applies to new **major** sources and **major modifications** of existing sources of air pollution. The term 'major'; in the PSD program, applies to 26 specific industrial categories that emit or have the potential to emit 100 tons per year of any pollutant regulated by the Clean Air Act (except hazardous air pollutants), or any other source that emits or has the potential to emit 250 tons per year. The list of 26 source categories can be found in Title 129, Chapter 2.

Before a major source subject to the PSD program can obtain a construction permit, it must demonstrate that increased emissions resulting from the new construction project, in concert with existing emissions, will not violate the NAAQS. Compliance with the NAAQS is demonstrated using air quality models. Sources subject to the PSD program are required to model their potential emissions at the time of applying for a construction permit. For more information on the PSD program, refer to the fact sheet "Maintaining Good Air Quality Through the Increment Rules of the Prevention of Significant Deterioration Program" located on the NDEE website under Publications.

Facilities in areas of nonattainment must follow stricter NSR regulations and pollution control requirements. Major new sources constructing or sources modifying their facilities in nonattainment areas must implement controls to maintain the lowest achievable emission rate. Existing sources also must install emission controls. Additionally, states must submit an emission control strategy to EPA and frequently demonstrate progress toward complying with the NAAQS. The emission control strategy may include emission limitations; fees, taxes or other economic incentives; closing or relocating residential, commercial, and industrial facilities; work practice standards; and transportation control measures.

It is your responsibility to know and understand the air quality regulations that apply to your facility. Your air permits will list rules, conditions, and requirements that apply to your facility, but you may be subject to additional federal standards that aren't listed in your permit. If you have questions about federal air quality regulations, call the NDEE Air Quality Division at (402) 471-2189.

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