

National Ambient Air Quality Standards & Missouri Air Quality Standards

Section's 108 and 109 of the Clean Air Act (CAA) required the United States Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for certain, "criteria" pollutants in order to protect public health and the welfare of the environment with an "adequate margin of safety."

To address this mandate, two differing types of NAAQS were established, the primary NAAQS and the secondary NAAQS. The primary NAAQS provide protection to public health and consider sensitive populations such as the elderly, children and individuals suffering from pulmonary ailments such as heart disease, asthma, etc. Because the primary NAAQS focused on public health, the secondary NAAQS were established to provide protection for public welfare and consider potential damage to crops, vegetation, animals, man-made structures, such as buildings and visibility impairment.

Six criteria pollutants have been defined with each standard expressed as a concentration of the pollutant averaged over a specified period of time. The six criteria pollutants for which NAAQS have been established are ozone (O₃), lead (Pb), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO_x), and particulate matter (PM). For a summary table of the current NAAQS, please refer to the following EPA website: [National Ambient Air Quality Standards \(NAAQS\)](#).

In order to ensure that the public health and the environment continue to be protected, the EPA is required to review each NAAQS every five years based upon the most recent, sound scientific information available. The EPA has implemented a NAAQS review process based upon five primary elements: planning, science assessment, risk and exposure assessment, policy assessment and rulemaking. Each element within the review, along with a description, can be found at the following EPA website: [Process of Reviewing the National Ambient Air Quality Standards](#).

The NAAQS are pollutant ceilings and represent the maximum concentration of pollution that can be allowed within the atmosphere before adverse impacts become evident. The NAAQS are measured as the total amount of a pollutant that is present within a particular region whose compliance is based upon all emission sources within that region. If the permit granting authority determines that a modeling study is necessary prior to the issuance of a construction permit, the applicant will be required to submit a NAAQS compliance demonstration for each applicable pollutant and averaging time for which a significant ambient impact will take place.

In addition to the NAAQS, 10 CSR 10-6.010 establishes ambient air quality standards for two additional pollutants, hydrogen sulfide and sulfuric acid, that must be met in order to provide protection to the public and to maintain the health of the environment. A third pollutant, fluoride, is also regulated under the New Source Review Program and can trigger an analysis if the *de minimis* threshold in 10 CSR 10-6.020(3) (A) Table 1 is exceeded.

As noted previously, compliance demonstrations are pollutant specific reviews whose requirements can differ based upon the averaging time being modeled. For guidance on modeling specific air pollutants it



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is necessary to determine the quantity of the pollutant being emitted and the permit type. The modeling requirements, including a pollutant specific overview of NAAQS compliance demonstrations, are outlined at each of the following locations based upon permit type: *De Minimis* Permit Reviews, Minor Source Permit Reviews, or Major Source Permit Reviews.