

AIR QUALITY REGULATIONS AND SMOKE MANAGEMENT: A BRIEF PRIMER

Air quality regulations are developed at the federal, state and local level. Any of these may impact prescribed burning.

Federal Law: The Clean Air Act

The Clean Air Act of 1967 and subsequent amendments to the Act are the basis for most air quality regulations. The Act lists nine **criteria pollutants** whose effects on the public may be so serious as to endanger public health and welfare. The maximum allowable concentrations of these pollutants are set forth in the National Ambient Air Quality Standards (NAAQS), determined by the US EPA. It is the responsibility of individual states to monitor their air and report their data to the EPA. The location of air quality monitors is a matter of public record, and should be available on the internet or from the air quality office of each state. If the air quality of a monitored area does not meet the standard for a certain pollutant, it is declared "non-attainment" for that pollutant. The state must then develop a State Implementation Plan (SIP) to bring its air into compliance with the NAAQS. The plan is developed at the state level, but must be approved by the US EPA.

The EPA also regulates regional haze, or the visibility in an airshed. These regulations may have an impact locally on prescribed burning.

Criteria Pollutants

There are several criteria pollutants of concern to prescribed burners, chiefly particulate matter, ozone and carbon dioxide.

Particulate Matter (PM) In 1998, the EPA passed new, stricter regulations to govern particulate emissions. The new regulations set a standard for PM 2.5 (fine particulates 2.5 microns in diameter or less), and retained the former standard for PM10 (coarse particulates 10 microns or less). The move to regulate PM 2.5 may have a serious impact on prescribed burning in some parts of the country since 70% of the smoke produced on burns falls into this category. A nationwide system of monitors was established in 1998-1999 which will gather fine particulate emissions data for three years. At that time, the US EPA will decide which areas to declare non-attainment and states will develop SIPs for those areas to bring the air into compliance.

Carbon Dioxide Fire has come into scrutiny as a producer of CO₂ in light of concern over global climate change. Biomass burning contributes to the release of greenhouse gases (such as CO₂), and eliminates a carbon sink. The 1992 United Nations Framework Convention on Climate Change (UNFCCC), ratified by the United States, pledges to limit sources of anthropogenic greenhouse gases, and to take steps to maintain carbon sinks. The 1997 Kyoto Protocol, amended to the UNFCCC, specifically mentions limiting forestry activities which produce greenhouse gases and eliminate carbon sinks. The United States *signed* this treaty but did not *ratify* it, meaning we are not legally bound by the document. The US did pledge to reduce its CO₂ emissions by 7%.

At this point, it is best to be aware that CO₂ emission is an issue related to prescribed fire, and burning may at some future date come under regulation for CO₂ production. Current studies are underway to document in some fuel types how much carbon is emitted during burns, and how long it takes for the burned area to return to its function as a carbon sink.

Ozone Ozone, a product of biomass combustion, is a precursor to greenhouse gases. Although ozone produced by prescribed fire usually is quickly diluted and dispersed into the air, it may bring wildland fire under scrutiny as a contributor to the greenhouse effect. As a criteria pollutant, ozone production may be regulated by a SIP, or burns may be banned under ozone alerts.

The EPA's Air Quality Policy on Wildland and Prescribed Fire

As the EPA was reviewing the air quality standard for particulate matter, it recognized a conflict would exist between the new regulations and plans for federal land managers to dramatically increase their annual acreage burned. They had the foresight to form a working committee with both regulators and fire managers to develop a compromise which would protect public health, but allow fire use to be retained as a land management tool. They developed the Wildland Fire and Air Quality Policy recommendation, which serves as guidance to the states in how they should treat emissions from prescribed fire smoke. (Emissions from wildfires are treated differently. They are covered under the Natural Event Policy and are therefore exempt from NAAQS.)

The Policy recommends that states develop a voluntary Smoke Management Program (SMP) which must be certified by the EPA. Once the SMP is certified and in use, the EPA will allow two exceedances of the NAAQS for PM_{2.5} attributable to prescribed burning without declaring the region out of attainment. The states will instead be allowed to review their SMP and make adjustments if it is found inadequate. On the third violation, the area will be designated as out of attainment, the Smoke Management Program will become mandatory, and a SIP must then be prepared.

In the normal process of reviewing their air quality data, individual states may request an exemption from the US EPA for the occurrence of an "unusual event" which violated the standards. Some states may include data from a particularly bad prescribed fire smoke incursion in that process. The EPA may use its discretion to exclude that data from the NAAQS calculations.

See below for more information on the Air Quality Policy on Wildland and Prescribed Fires, including a copy of the text, explanatory material from the EPA, and links to pertinent internet sites.

State Implementation Plans: Your Chance for Input

When air quality within a region or airshed deteriorates below one or more of the NAAQS, the state must develop a State Implementation Plan to improve the air quality. The means of achieving the standard is determined largely by the state. The regulators may decide to severely limit prescribed burning, or they may focus on some other pollutant source.

It is important for prescribed fire managers to develop a relationship with state air quality staff, and educate them about the crucial role of fire in the region's ecosystems. Most air quality regulators have little or no understanding of the degree of care and concern prescribed burners take in smoke management. Explain to them the process that you use in developing your Prescribed Burn Plan, and review your history of success on previous burns. In this way, you may be able to convince the air regulators to provide consideration for prescribed burning in the development of the SIP.

County Laws and Regulations

Individual counties may pass air quality regulations which are more strict than those of the NAAQS. In fact, this may be a bigger threat to prescribed burning than federal or state regulations. Be proactive in working with the local county and city administrators to educate them about the importance of burning at your site. Stress the essential role of fire in maintaining the community's natural resources. In Florida, the Prescribed Fire Councils (local associations of fire users from federal, state and private interests) have promoted passage of county resolutions which support the use of fire as a land management tool. In several instances, the resolutions have been important in quelling attempts by individuals to limit burning in their counties.

Air Quality Links and References

Download plain-language fact sheets explaining the EPA's Interim Air Quality Policy

Fact Sheet: The EPA's Interim Air Quality Policy on Wildland and Prescribed Fires
http://www.epa.gov/ttn/oarpg/t1/fact_sheets/firefl.pdf

Westar Projects: Wildland Fire Policy Review

Western Air Resources Council site which is posting all information relating to the US EPA's Wildland Fire Policy Committee and its products. Has numerous white pages relating to prescribed fire and air quality, emission reduction, smoke management programs, etc. The best place to get current information on fire and the new particulate matter standards.

EPA's Updated Air Quality Standards for Smog (Ozone) and Particulate Matter

Site maintained by the US EPA's Office of Air and Radiation. This is the best site for general information on the new standards. Many references, fact sheets, publications, and copies of the rulings for downloading. Also contains information on the opinion of the U.S. Court of Appeals for the District of Columbia Circuit regarding the final national ambient air quality standards for ozone and particulate matter.

Implementation of EPA's New Ozone and Particulate Matter Air Quality Standards

US EPA's site explaining the implementation strategy for the new standards. Also contains detailed information on the plans for particulate matter monitoring.

The Greenbook: Nonattainment Areas for Criteria Pollutants

The US EPA Greenbook lists all sites in the country that are currently non-attainment for any of the criteria pollutants. It includes PM 10, but not the new PM 2.5 standard since non-attainment determinations won't be made until three years of data have been collected and analyzed.

US Fish and Wildlife Service Policy, Rules and Regulations

A comprehensive site with many documents on pertinent issues, including the Clean Air Act, visibility and regional haze, prevention of significant deterioration, Grand Canyon Visibility Transport Commission recommendations, maps of Class 1 areas, and individual states' air quality and smoke management policies and regulations.