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BEFORE THE  
COMMITTEE ON RESOURCES  
U. S. HOUSE OF REPRESENTATIVES**

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Mr. Chairman, Members of the Committee, thank you for inviting me to discuss issues surrounding fire management and the Environmental Protection Agency's (EPA's) revisions to the national ambient air quality standards for ground-level ozone and particulate matter.

As you know, the Clean Air Act directs EPA to set national standards for certain air pollutants to protect public health and the environment. For each of these pollutants, Congress directed EPA to set what are known as "primary" standards to protect public health without consideration of cost. Under the Act, Congress directs EPA to review these standards every five years to determine whether the latest scientific research indicates a need to revise the standards.

In July of this year, I set new standards for ozone and particulate matter (PM) that will be a major step forward in public health and welfare protection. Each year, these updated standards have the potential to prevent as many as 15,000 premature deaths, and hundreds of thousands of cases of significantly decreased lung function in children and cases of aggravated asthma.

The new ozone and particulate matter standards are based on an extensive scientific and public review process. Congress directs EPA to consult with an independent scientific advisory board, the Clean Air Scientific Advisory Committee

(CASAC). In conducting these reviews, EPA analyzed thousands of peer-reviewed scientific studies that had been published in well-respected scientific journals. These studies were then synthesized, and along with a recommendation on whether the existing standards were adequately protective, presented to CASAC. After three-and-a-half years of work, including 11 meetings totaling more than 125 hours of public discussion, and based on 250 of the most relevant studies, the CASAC panel concluded that EPA's air quality standards for ozone and particulate matter should be revised. CASAC unanimously supported changing the ozone standards from a 1-hour averaging period to an 8-hour averaging period to reflect increasing concern over prolonged exposure to ozone, particularly in children. CASAC also supported adding a fine particle standard. Fine particles are inhaled more deeply into the lungs and are more strongly associated with serious health effects and visibility impairment than larger particles.

Based on scientific evidence reviewed by EPA and CASAC, EPA proposed revised standards and conducted an extensive public comment process, receiving approximately 57,000 comments at public hearings across the country and through written, telephone and E-mail message communications.

After carefully considering the results of this extensive process, and with the support of the President, I issued a final rule updating the ozone standard from 0.12 parts per million (ppm) of ozone measured over one hour to a standard of 0.08 ppm measured over eight hours, with the three-year average of the annual fourth highest concentrations determining whether an area is out of compliance. The new standard will reduce "flip-flopping" in and out of attainment by changing from an "expected

exceedance" to a "concentration-based" form.

For particulate matter, EPA is adding new standards for particles smaller than 2.5 micrometers in diameter (known as "PM-2.5" or fine particles). The fine particle standard will have two components: an annual standard, set at 15 micrograms per cubic meter and a 24-hour standard, set at 65 micrograms per cubic meter. EPA has also changed the form of the current 24-hour PM-10 standard; this will provide some additional stability and flexibility to states in meeting that standard.

Our PM-2.5 rule requires three years of federal reference method air quality monitoring data for determining whether an area is "attainment" or "nonattainment" with the new PM-2.5 standards. To obtain these data, a comprehensive network of monitors must be put in place. EPA has agreed to cover the cost of establishing that network through grants to states. In view of the time needed to establish the network and collect data, EPA expects that three years of PM-2.5 monitoring data will not be available until between 2001 and 2004, depending on when monitors are installed in a given locality. Therefore, actual designations of attainment or nonattainment will not take place until between 2002 and 2005. If an area is designated nonattainment, a state will have up to three years to develop a plan to control the problem. Areas will have ample time to review and analyze the nature of their particulate matter problem and to develop technically sound and cost-effective control strategies. In addition, states that are participating in regional reduction programs to curb acid rain will not face new local requirements if full implementation of the acid rain program would enable attainment of the PM-2.5 standard.

As required by the Clean Air Act, EPA intends to complete its next periodic review of the particulate matter national ambient air quality standards, including review by the Clean Air Scientific Advisory Committee, within five years of issuing these new standards. By July 2002, EPA will have determined, based on data available from its review, whether to revise or maintain the standards. This determination therefore will be made before any areas have been designated nonattainment under the PM-2.5 standards and before any new controls related to the PM-2.5 standards are implemented.

#### **Effect on Forest Health of the Revised Air Standards for Ground-level Ozone**

Ozone causes damage to vegetation by interfering with the ability of plants to produce and store food, so that growth, reproduction and overall plant health are compromised. Plants and trees weakened in this way become more susceptible to disease, pests and environmental stresses.

Research at the U.S. Department of Agriculture (USDA), EPA and elsewhere has shown that ground-level ozone damages many kinds of trees and crops. Significant damage due to ground-level ozone has been seen in tree species such as black cherry, white pine, aspen and ponderosa pine. It also damages many kinds of crops such as soybeans, wheat, kidney beans, cotton and peanuts, resulting in significantly reduced crop yields. There are a number of significant benefits from reducing adverse effects of ozone on forests, crops, vegetation and natural ecosystems. For example, specific benefits from ozone reductions in ambient concentrations would accrue from: decreased foliar injury; averted growth reduction of trees in natural forests; maintained

integrity of forest ecosystems (including habitat for native animal species); and the aesthetics and utility of urban ornamentals (e.g., grass, flowers, shrubs and trees).

The extensive scientific review of the ozone standard included a review of the effects of ozone on trees, crops and other vegetation. The CASAC supplemented its panel with experts in plant biology and economics to examine the impact of ozone on crops, trees and vegetation. In the April 4, 1996, closure letter to EPA on this matter, George Wolff, chairman of the CASAC, wrote:

"It should be pointed out that the Panel members all agreed that damage is occurring to vegetation and natural resources at concentrations below the present 1-hour national ambient air quality standard (NAAQS) of 0.12 ppm. The vegetation effects experts were in agreement that plants appear to be more sensitive to ozone than humans. Further, it was agreed that a secondary NAAQS, more stringent than the present primary standard, was necessary to protect vegetation from ozone...."

### **Background -- EPA's Revised Particulate Matter Standards**

Historically, EPA's standards for particulate matter have often tended to focus emission control efforts on "coarse" particles -- those larger than PM-2.5. Before 1987, EPA's particulate matter standards focused on "total suspended particles," -- including even larger-sized particles. In 1987, responding to new science showing that it was the smaller particles capable of depositing in the lungs that were associated with the most adverse health effects, EPA revised the standards to control only those particles equal to or smaller than 10 micrometers in diameter (or PM-10). For comparison purposes, a human hair is about 70 micrometers in diameter.

The most recent scientific review focused attention on the need to better address the "fine" fraction particles -- those equal to or smaller than 2.5 micrometers in diameter. CASAC recommended setting a fine particle standard. We continue to see adverse health effects from exposure to the "coarse" fraction (those between 2.5 and 10 micrometers in diameter) of PM at levels above the current standards. As a result, CASAC scientists agreed that existing PM-10 standards, with minor revisions, should be maintained for the purpose of continuing to control the effects of exposure to the "coarse" fraction of PM-10.

However, over twenty of the new health and atmospheric science studies have highlighted significant health concerns with regard to the smaller "fine" particles, or "fine" particle indicators. These particles are so small that several thousand of them could fit on the type-written period at the end of a sentence. In the simplest of terms, fine particles represent a health concern because they can remain in the air for long periods, both indoors and outdoors, and can easily penetrate and be absorbed deep into the lungs. These fine particles are not only associated with serious health effects, but are also a major reason for visibility impairment in the United States in places such as national parks that are valued for their scenic views and recreational opportunities. For example, visibility in the eastern United States, which should naturally be about 90 miles, has been reduced to under 25 miles.

These fine particles get into the air in two ways. They are emitted directly into the air from a variety of sources such as diesel buses, utility and commercial boilers, woodburning, and construction activities. These are known as "primary" or direct emissions. Fine particles are also chemically formed in the air from sulfur or nitrogen

gases emitted from sources such as power plants, motor vehicles, or fuel combustion and can be transported many hundreds of miles. These are known as "secondary emissions."

Based on our analysis to date, we believe that "secondary" particulate matter -- sulfates and nitrates formed from nitrogen oxides and sulfur dioxide gas emissions from power plants, for example -- generally represents the largest percentage of PM-2.5 in the air. Since secondary PM-2.5 is formed in the atmosphere and often transported much greater distances than "coarse" particles, EPA and states will need to assess regional, rather than local-only, emission control strategies to reduce PM-2.5.

### **Issues Surrounding Fire in Forest Management and EPA's Particulate Matter Standards**

EPA recognizes that fires have always been a natural part of forest ecosystems. Forest fires release important nutrients from flammable "fuels" or debris on the forest floor into the soil. By reducing the undergrowth and debris on the forest floor, trees typically grow taller and healthier since there is less competition by other surrounding plants for nutrients. For many years fire was aggressively suppressed in our Nation's forests, resulting in a number of problems, including long-term damage to the health of trees and heavy accumulation of dead vegetation on the forest floor, which can lead to catastrophic wildfires. We now know that smaller, periodic fires that are well managed help prevent these catastrophic wildfires.

In recognition of the serious problems caused by years of fire suppression, the U.S. Departments of Agriculture and the Interior jointly released the results of a Federal Wildland Fire Management Policy and Program Review in 1995. This report recognized

the critical role fire plays in maintaining healthy wildland ecosystems and endorsed a significant increase in the use of planned, or managed, fire as a land and resource management tool. The Departments of Agriculture and the Interior adopted a policy that all future plans to manage fires on wildlands will incorporate public health and environmental considerations, including air quality. EPA also participated in developing the 1995 Program Review and I endorsed its recommendations.

Unplanned wildland fires, such as catastrophic wildfires, can pose serious threats to property and public safety. Wildfires cause extended periods of intense smoke, which contains particulate matter that can cause serious health problems, especially for people with respiratory illness. They can also affect visibility, a particular concern in national parks, forests and wilderness areas.

On the other hand, fires can be managed or planned to minimize the smoke impacts that adversely affect public health and impair visibility. This can occur through techniques such as scheduling burning during favorable wind directions and weather conditions and controlling the amount of fuel or acreage burned. Many planned fire activities are already subject to state air quality regulations.

In developing a common-sense implementation strategy for the new ozone and particulate matter standards, EPA used the Federal Advisory Committee Act to create a subcommittee to obtain advice from outside experts representing industry, environmental, state, local, federal and other stakeholders. As part of this process, EPA established a special workgroup comprised of fire and air quality experts from the U.S. Departments of Agriculture, the Interior, and Defense; the National Association of State

Foresters, state/local air quality agencies and others to develop a National Wildland Fire/Air Quality policy.

This policy will integrate the two goals of achieving sound ecosystem management, including the use of fire, and protecting public health. It will establish recommended practices for managing smoke impacts on air quality from wildland fires. It will also outline how land owners/managers can work cooperatively with state and local air pollution control officials to conduct integrated planning to successfully manage ecosystem health and air quality concerns. We expect to issue this Wildland Fire/Air Quality Policy early next year in conjunction with our guidance on implementation of the new fine particle standard.

This policy is being developed considering the 1996 recommendations from the Grand Canyon Visibility Transport Commission, a multi-stakeholder effort comprised of eight Western state governors, several Native American Indian tribal leaders and officials from federal agencies, including EPA, the U.S. Forest Service, and the U.S. Department of the Interior. The Commission was established by the Clean Air Act, as amended in 1990, to advise EPA on strategies for protecting visual air quality at 16 national parks and wilderness areas on the Colorado plateau.

The Wildland Fire/Air Quality policy will also build on the so-called "natural events" policy that EPA issued in 1996. The natural events policy was developed to address the role of natural events, including wildfires, in meeting PM-10 air quality standards. Under this policy, EPA has committed not to redesignate areas as nonattainment when natural events are clearly the cause of the problem. However, states would still be required to have plans in place to respond to any adverse health

impacts associated with a natural event, such as a wildfire. We have also committed to work with states to redesignate nonattainment areas to attainment when these areas have shown compliance with the national air quality standards, except during unique periods caused by natural events.

Our goal is to provide this same kind of flexibility with the Wildland Fire/Air Quality policy, and not to punish areas that follow the policy, yet occasionally experience unavoidable smoke intrusions.

### **Conclusions**

In summary, the best available science indicates that trees, crops and other vegetation will benefit from programs designed to meet the new air quality standards for ground-level ozone. For particulate matter, EPA recognizes the fact that fires have always been and will continue to be an integral part of healthy forests and ecosystems. We are working closely in partnership with the U.S. Departments of Agriculture and the Interior, as well as state land managers and air quality officials to develop a policy that will ensure that the necessary managed fires occur in a way that minimizes air quality problems.

Mr. Chairman, this concludes my written statement. I will be happy to answer any questions that you might have.