



# United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, D.C. 20240

MAR 16 2010

ER 10/73

Docket ID No. EPA-HQ-OAR-2005-0172  
Environmental Protection Agency  
Mail code 6102T  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Dear Sir or Madam:

The Department of the Interior (Department) has reviewed the Environmental Protection Agency's (EPA) January 19, 2010, proposal to revise the primary and secondary National Ambient Air Quality Standard (NAAQS) for ozone (O<sub>3</sub>). We offer the following comments developed by our National Park Service (NPS).

## Primary NAAQS

The EPA is soliciting comments on revising the primary standard from 0.075 parts per million (ppm), set in 2008, to a level within the range of 0.060-0.070 ppm to increase protection for children and other "at risk" populations against O<sub>3</sub>-related adverse health effects. The proposed standard would be based on an 8-hour average, as is the current standard. The EPA is soliciting comments on the proposed range and on the benefits to public health associated with a standard set at specific levels within the proposed range relative to the benefits associated with the standard set in 2008.

The NPS commends the EPA for proposing to set a more stringent primary ozone NAAQS to protect public health. Visitors to national parks expect clean, clear, healthy air, but instead sometimes experience significantly polluted air. In recent years, ozone monitors in or adjacent to a number of national park areas recorded ozone concentrations equal to or exceeding the 8-hour standard, including Acadia National Park (ME), Cape Cod National Seashore (MA), Cowpens National Battlefield (SC), Death Valley National Park (CA, NV), Great Smoky Mountains National Park (NC, TN), Joshua Tree National Park (CA), Lassen Volcano National Park (CA), Mammoth Cave National Park (KY), Mojave National Preserve (CA), Pinnacles National Monument (CA), Rocky Mountain National Park (CO), Sequoia and Kings Canyon National Parks (CA), Shenandoah National Park (VA), and Yosemite National Park (CA). High ozone concentrations have the potential to affect millions of park visitors, as well as park staff. The NPS has established, and implemented on occasion in some parks, a system to issue air quality

health advisories because of high ozone concentrations. During these advisories, both visitors and staff may be advised to limit outdoor activity, including hiking and climbing. Therefore, we fully support the EPA's current proposal to strengthen the primary standard to a value in the range recommended by the EPA's Congressionally-chartered body of independent scientific advisers, the Clean Air Scientific Advisory Committee (CASAC), of 0.060-0.070 ppm.

## Secondary NAAQS

### *Need for Revised Standard*

The EPA's July 2007 Staff Paper concluded that the current secondary standard is inadequate to protect the public welfare from known and anticipated adverse welfare effects. Widespread foliar injury has been documented in areas meeting the current standard; field and chamber studies indicate that O<sub>3</sub>-induced significant growth reductions are also occurring at levels below the current standard. Ozone also reduces the ability of plants to sequester carbon, an effect that could significantly impede future strategies to address rising carbon dioxide levels and climate change.

Therefore, the EPA proposes to revise the current secondary standard which is identical to the primary standard of 0.075 ppm. In addition, the EPA proposes to change the form of the standard from an 8-hour average to a more biologically-relevant form, the W126. The W126 sums weighted hourly ozone concentrations over 12 hours a day (8 a.m. to 8 p.m.) during the consecutive high 3-month period within the ozone season. The EPA proposes a maximum index value within the range of 7-15 ppm-hours, in keeping with CASAC's recommendations.

The Department agrees that the current standards are not protective of sensitive natural vegetation. Ozone injury surveys are limited to just a few parks, but injury has been documented in several areas currently designated attainment, including Mammoth Cave National Park and Cumberland Gap National Historic Park. In addition, EPA's modeling indicates that trees in many areas currently designated attainment are experiencing significant growth losses at current ozone levels.

### *Alternative Form for the Secondary Standard*

The EPA's previous review of the secondary ozone standard provided abundant evidence that it is appropriate to establish an alternative cumulative secondary standard for ozone that is distinctly different in averaging time, form, and level from the primary standard. However, in 2008, the EPA Administrator again established a secondary standard identical to the primary standard despite the recognition as far back as 1997, when Administrator Browner stated: "a SUM06 seasonal standard is more biologically relevant and therefore, .... also appropriate to consider" (62 FR 38877). The CASAC has encouraged the Administrator to "establish an alternative cumulative secondary standard for ozone and related photochemical oxidants that is distinctly different in averaging time, form and level from the currently existing or potentially revised 8-hour primary

standard.”<sup>1</sup> On the basis of recommendations from the EPA staff and CASAC, the EPA proposes to use the W126 metric for the revised standard. The CASAC notes that

“The [CASAC] Ozone Panel views the three-month growing season W126 index as a potentially more biologically-relevant index than the 3-month growing season SUM06 index. This is because the W126 index has no absolute minimum ozone concentration threshold and only lightly weights the lower ozone concentrations.”<sup>2</sup>

The NPS supports both the conclusion that a seasonal, cumulative metric is needed to protect vegetation, and that the W126 is an appropriate metric.

#### *Level for the Secondary Standard*

In its 2007 Staff Paper, the EPA noted that appropriate W126 ranges have been identified for various vegetation effects endpoints, and that these ranges could be used to inform a standard. The W126 ranges include 13-17 ppm-hours for crops, 7-13 ppm-hours for growth effects to tree seedlings in natural forest stands, and 5-9 ppm-hours for visible foliar injury to natural ecosystems. For the current proposal, the EPA is following the recommendations of the CASAC that a secondary standard should be set in a range from 7 to 15 ppm-hours, focusing on effects to natural vegetation. The NPS strongly supports EPA's proposed range and, as in 2007, the NPS strongly recommends a value from 7-9 ppm-hours for the secondary standard to provide the best level of protection to sensitive vegetation in national parks and other protected areas.

#### *Diurnal and Seasonal Window for the Secondary Standard*

The EPA proposes to set a cumulative standard over 12 hours a day (8 a.m. to 8 p.m.) during the consecutive 3-month period within the ozone season with the maximum index value, in accordance with recommendations from CASAC. We agree that the maximum consecutive 3-month period within the ozone season is a reasonable averaging time for vegetation in many areas of the country. In addition, for most areas of the country, the daytime 12-hour window is an appropriate period over which to cumulate diurnal ozone exposures.

#### *Annual vs. 3-year Averaging Period for the Secondary Standard*

The EPA is proposing to specify the secondary standard as a 3-year average of W126 values to increase the stability of the standard, as W126 values may vary significantly from year to year in an area. Averaging W126 values over 3-years has the potential to underestimate the effect of a single high ozone year, whereas in that one year the plant may be sufficiently injured to experience long-lasting growth and reproductive effects in later years. Because of this, CASAC recommended that if multi-year averaging is used,

---

<sup>1</sup> Dr. Rogene Henderson, CASAC Chair, Letter to the Honorable Stephen L. Johnson regarding CASAC's Peer Review of the Agency's Second Draft Staff Paper (October 24, 2006).

<sup>2</sup> Id.

the level of the standard should be revised downward to assure that the desired threshold is not exceeded in individual years. The Department agrees, and if EPA uses a 3-year average for the standard, as we recommend above, the level of the standard should not exceed 7-9 ppm-hours to protect sensitive vegetation.

### Implementation and Monitoring Strategies

The NPS recognizes that implementing more protective primary and secondary standards will pose unique challenges, and would like to offer assistance to the EPA in developing implementation strategies for the revised standards. This is particularly so for the secondary standard. We would like to work with the EPA to identify protected areas of national interest and the ozone-sensitive resources in those areas. In addition, we would like to help the EPA identify areas where the secondary standard may be violated. At present, continuous monitoring of hourly ozone concentrations, using methods stated in 40 CFR Part 50, is required to demonstrate non-compliance with a standard. The EPA is not proposing any specific changes to these existing monitoring requirements or to quality assurance requirements. However, the EPA notes in its proposed rule that the existing monitoring requirements are oriented towards the primary standard, with a focus on urban areas. Violations of the secondary standard may go undetected in rural areas with sensitive vegetation because the level of monitoring in non-urban areas and especially natural areas such as national parks and wilderness areas is inadequate to identify all areas that might violate a secondary standard.

Even if funds for additional monitors were available, monitoring with any currently required method in many natural areas would not be practicable. Many natural areas, especially wilderness areas, do not have electrical power available. This limits the ability to operate certified reference and equivalent method instrumentation and to meet the shelter temperature requirements for ambient air monitoring. Alternatively, we recommend that the EPA consider accepting other monitoring methods and instruments for an initial determination that the secondary standard is being violated. A much broader network of monitors could be deployed in natural and remote locations if the methods and instruments were better suited to the limits imposed on power, access, shelters, noise and cost. For example, low power instruments that can run on solar power and collect hourly concentrations could be useful in expanding a network to more rural locations while still providing the kind of data EPA requires to determine compliance. These lower cost monitors would allow many additional monitored locations, decreasing the uncertainty in the extent of ozone problems in natural areas and ultimately improving the protection of natural resources.

Unfortunately, even alternative monitoring methods may not be feasible in certain natural and remote areas, either because of access issues or prohibitions on equipment placement, e.g., in wilderness. Particularly in the western U.S., if more than a small fraction of natural areas is to be protected, computer modeling by itself or in combination with spatial interpolation may provide the only means of identifying areas that potentially violate the secondary standard. Although the EPA's analysis in the Staff Paper found that such an approach tended to underestimate ozone exposure, particularly in the West,

the NPS recommends that, in the absence of other viable options, the EPA allow such approaches for unique remote or wilderness areas. The NPS would like to work with the EPA to investigate the applicability of alternative monitoring, modeling, and interpolation techniques for estimating ozone exposures and identifying areas that may violate the secondary standard.

An additional implementation challenge will be related to rural areas like parks that violate one or both of the proposed standards. In many of these situations ozone and its precursors are likely to be transported from several widely separated sources which would suggest the need for a more regional approach both for technical work and in determining the most effective means of reducing emissions and achieving compliance with the ozone NAAQS. NPS strongly urges the EPA to support states in undertaking regional efforts aimed at meeting the proposed standard.

### Recommendations for Research

The NPS concurs with the CASAC's finding that support for Federally-funded ozone environmental effects research has been neglected in recent years, and that there should be a significant future investment in effects research. The NPS recommends that support for research, especially in federally protected lands, be increased so that data for plant response to ozone are representative of the natural vegetation species the standard is intended to protect, in a variety of ecosystem types.

The NPS also recommends that the EPA continues to develop alternative monitoring, modeling, and interpolation techniques for estimating ozone exposures in natural wildland areas.

Finally, additional research is needed to better understand the relationship between fire and downwind ozone concentrations. As the standards decline, fire may play an increasing role in episodic peaks in ozone concentrations, especially in the West. NPS is interested in collaborating with EPA on this research.

### Designation Schedule

EPA has asked comment on two options for making designations for the secondary standard. One would be to adhere to the same schedule as for the primary standard, while the alternative option would be to make designations based on the maximum two years provided for in the Clean Air Act. NPS recommends the first option, the same schedule as for the primary standard, as being more efficient technically, since the vast majority of the areas will be nonattainment for both standards. In addition, reduced ozone levels would likely be achieved sooner, benefitting NPS resources.

### Conclusions

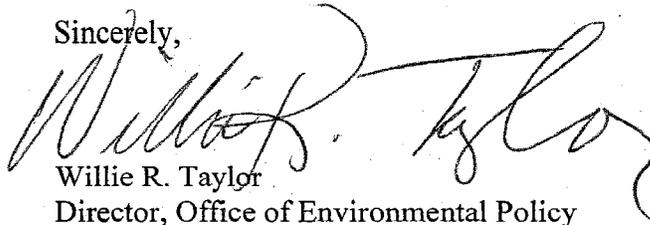
For the primary ozone standard, the NPS agrees with the EPA Administrator that the value of the standard should be set within the range 0.060-0.070 ppm.

For the secondary ozone standard,

- NPS strongly recommends that EPA adopt a seasonal, cumulative form for the standard and agrees with EPA that the W126 metric is an appropriate metric for the standard. NPS agrees with EPA and CASAC that retaining the current form of the 8-hour standard for the secondary standard is inappropriate and inadequate for characterizing ozone exposures to vegetation.
- NPS agrees that the 12-hour diurnal window and the 3-month growing season period are appropriate averaging times for the standard. If a 3-year averaging period is used for the standard, NPS recommends a low level for the standard that would protect against exceeding plant injury thresholds in individual years.
- NPS agrees with CASAC and EPA that the value of the secondary standard should be in the range of 7-15 ppm-hours and strongly recommends that a W126 value in the lower end (e.g., 7-9 ppm-hours) of EPA's proposed range be adopted. A secondary standard of 7-9 ppm-hours would protect vegetation in most parks and, as noted above, protect vegetation from exceeding plant injury thresholds in individual years.
- NPS recommends that, in order to extend protection from the secondary standard to many additional natural areas, alternative ozone monitoring methods and ozone estimation techniques be accepted for demonstrating violations of the standard. NPS offers to assist EPA in exploring these alternative methods and techniques.
- NPS recommends a schedule for designations for the secondary standard that parallels that being used for the primary standard.

We appreciate the opportunity to provide comments on the EPA's proposed ozone standards. If you have any questions, please contact Chris Shaver, NPS, Air Resources Division, at (303) 969-2074.

Sincerely,



Willie R. Taylor  
Director, Office of Environmental Policy  
and Compliance