



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

NOV 10 1998

MEMORANDUM

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

SUBJECT: Guidance on Assessing the Impacts of May 1998 Mexican  
Fires on Ozone Levels in the United States

FROM: John S. Seitz, Director  
Office of Air Quality Planning and Standards (MD-10)

TO: Addressees

The purpose of this memorandum is to provide guidance on the technical approach for assessing whether the smoke plumes from the severe fire incidents, which occurred in Mexico and Central America in May of this year, had significant impacts on air quality in specific areas of the United States. This guidance addresses possible impacts on peak daily monitored ozone levels downwind of these fires and methods for technically justifying the exclusion of concentration values above the level of the standard from use in subsequent compliance calculations.

BACKGROUND

The guidance, developed by a workgroup which included representatives from my office, affected Regional Offices, and the Office of General Counsel, is provided as an attachment to this memorandum. The Workgroup on Mexican Fire Impacts was formed in response to the impacts of the Mexican fires of May 1998, on air quality as described in my memorandum to you dated June 25, 1998.

In that memorandum, we noted specifically that our first concern in all cases of elevated air pollution levels is the potential impact on public health in the affected areas. We stated that in this regard, it is necessary for the State and local agencies to inform the public of potential health hazards and to mitigate those hazards to the extent possible. We also noted that it is not the intent of the Environmental Protection Agency (EPA) to hold State and local agencies accountable for exceedances of air quality standard levels that were caused by the extraordinary and catastrophic May 1998 Mexican fire event. EPA's workgroup has developed specific technical recommendations, based on readily-available data, for identifying when and where the Mexican fires of 1998 impacted ozone pollution levels, such that the affected monitoring data could be appropriately flagged and excluded from use in determining compliance with the ozone standard. This guidance has been developed by taking a common-sense approach to the technical problem, with the specific intent of keeping the process as simple as possible to reduce the burden on the affected States. The EPA believes that, for purposes of determining attainment of the ozone standard, all quality-assured data should be considered unless it is plainly demonstrated to warrant exclusion under an

authorized exemption. Clearly, the burden of proof for justifying these data exclusion requests belongs to the States. The EPA wishes to provide technical assistance for these justifications through direct workgroup interaction wherever possible.

The EPA has concluded that the approach described in the attached guidance is appropriate for the extraordinary Mexican fire event of 1998. The approach in the attached guidance is intended for application to ozone only. The applicability of this approach to any future ozone events will be determined on a case-by-case basis.

#### LEGAL RATIONALE FOR EXCLUDING DATA

On July 18, 1997, the EPA promulgated the revised 8-hour National Ambient Air Quality Standard (NAAQS) for ozone. Under the new 8-hour NAAQS, EPA has provided for adjustments to data affected by natural events, such as the fires concerned here. Section 50, Appendix I of 40 Code of Federal Regulations (CFR) provides in part that:

"Whether to exclude, retain, or make adjustments to the data affected by stratospheric ozone intrusion or other natural events is subject to the approval of the appropriate Regional Administrator."

For determinations of attainment to be made under the new 8-hour NAAQS set forth in 40 CFR section 50.10, EPA has expressly provided for an opportunity for adjustments for natural events. EPA also believes that, since the adoption of the new 8-hour NAAQS, it is also appropriate to provide this opportunity for adjustment to determinations to be made on 1-hour ozone NAAQS attainment determinations. Section 50.9(b) of 40 CFR provides that "the 1-hour standards set forth in this section will no longer apply to an area once EPA determines that the area has air quality meeting the 1-hour standard."

Since the purpose of the determination of attainment for the 1-hour standard is to phase out that standard as part of the transition to the 8-hour standard, EPA believes that the applicable data handling procedures for determining attainment should be consistent with those for the 8-hour standard. It would be inappropriate to disregard a natural event deemed significant enough to adjust data for the 8-hour standard and not do the same under the 1-hour standard. The determination that an adjustment is warranted must, of course, be subject to the approval of the appropriate Regional Administrator.

Even under the 1-hour standard, Congress explicitly authorized exempting data affected by events of international origin from consideration for similar attainment-related purposes in section 179B(b). This section provides:

"Notwithstanding any other provision of law, any State that establishes to the satisfaction of the Administrator that, with respect to an ozone nonattainment area in such State, such State would have attained the national

ambient air quality standard for ozone by the applicable attainment date, but for emissions emanating from outside of the United States, shall not be subject to provisions of section 181(a) (2) or (5) or section 185."

To provide for consistency of data handling under both the 1-hour and 8-hour standards in the transition period while the 1-hour standard undergoes area-by-area revocation, EPA has concluded that the provision for adjustment for natural events should be applicable to determinations of attainment under both the 1-hour and 8-hour standards.

PROCESS FOR REQUESTING EXCLUSION OF DATA

States desiring exclusions for the May 1998 Mexican fire event should submit data exclusion requests in writing to their Regional Office within 30 days of the release of this memorandum, if they have not already done so. Final technical justifications for these requests, including all pertinent data and analysis, should be submitted to the Regional Office within 60 days of the release of this memorandum. Decisions on approval or disapproval of the data exclusion requests will be made by the appropriate Regional Office in conjunction with the Office of Air Quality Planning and Standards in an expeditious manner following these submittals (nominally 30 days). Individuals interested in submitting data exclusion requests are encouraged to contact the chair of EPA's workgroup directly to ensure expeditious response.

If you have further questions regarding this guidance, please contact the workgroup chair, Dave Guinnup, by phone at (919) 541-5368 or by e-mail at "guinnup.dave@epa.gov."

Attachment

Addressees:

Acting Director, Office of Environmental Measurement and Evaluation, Region I  
 Director, Division of Environmental Planning and Protection, Region II  
 Director, Environmental Services Division, Region III  
 Director, Air, Pesticides, and Toxics Management Division, Region IV  
 Director, Air and Radiation Division, Region V  
 Acting Director, Multimedia Planning and Permitting Division, Region VI  
 Director, Environmental Services Division, Region VII  
 Director, Air Program, Region VIII  
 Director, Air Division, Region IX  
 Director, Office of Air Quality, Region X  
 Deputy Director, Office of Ecosystem Protection, Region I  
 Director, Division of Environmental Science and Assessment, Region II  
 Director, Air Protection Division, Region III  
 Director, Science & Ecosystems Support Division, Region IV  
 Director, Air, RCRA, and Toxics Division, Region VII  
 Director, Office of Environmental Assessment, Region X

cc: Scott Bohming

Jeff Clark  
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JUN 25 1998

MEMORANDUM

**SUBJECT:** Impact of Wildfires in Mexico and Central America on Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS)

**FROM:** John S. Seitz, Director *ORIGINAL SIGNED*  
Office of Air Quality Planning and Standards (MD-10)  
*BY*  
**JOHN S. SEITZ**

**TO:** Air Division Director, Regions I - X

The plume from the recent wildfires in Mexico and Central America has caused increased air pollution levels in parts of the United States. In particular, we are aware of increases in monitored particulate matter (PM) and ozone values. Our first concern, of course, is the impact on public health in the areas affected by the plume. As always, we feel that the State and local agencies must inform the public whenever the air quality in an area is unhealthy and should take appropriate measures to protect public health and to mitigate the health impacts to the extent possible. However, we are also concerned that States and local agencies and sources within impacted areas not be held accountable for the NAAQS violations caused by these international wildfires.

The Natural Events Policy for PM<sub>10</sub><sup>1</sup> recognizes the possibility of the impact of wildfires on attainment of the PM<sub>10</sub> standard and addresses situations like this. With regard to the ozone NAAQS, there are several studies which show that smoke from wildfires can result in increased

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<sup>1</sup> Memorandum for Mary Nichols, Assistant Administrator for Air and Radiation, to Air Division Director, Regions I - X, "Areas Affected by PM-10 Natural Events," May 30, 1996.

ozone concentrations.<sup>2, 3, 4</sup> Therefore, we do not intend to hold States responsible for violations of the ozone standards which are caused by these wildfires.

The OAQPS is working with available information to determine the temporal and geographic extent of these impacts and will be assisting the States and Regional Offices in determining the areas and times where the wildfires are the cause of high monitored ozone and PM values. Therefore, it will be critical that the State and local agencies continue to submit all valid ambient air quality data to EPA's Aerometric Information and Retrieval System and make these data available for public access.

We are forming a work group consisting of OAQPS, other Headquarters representatives, and the Regional Offices to review the relevant air quality information, identify the areas affected by the plume from the wildfires, and assist in identifying where data should be adjusted or excluded as appropriate. We will keep you informed of the activities of this group.

cc: R. Wilson

bcc: D. Gerth  
W. Hamilton  
W. Hunt  
J. Paisie  
S. Reinders  
S. Shaver  
H. Thomas

OAR/OAQPS/AQSSD/OD/B.HAMILTON/B.Gilbert NCM 523:X5498

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<sup>2</sup> Ridley, B.A., et al., "Measurements of Reactive Nitrogen and Ozone to 5-km Altitude in June 1990 over Southeastern United States," Journal of Geophysical Research, Vol. 103, no. D7, Pg 8369-8388, Apr 20, 1998.

<sup>3</sup> Mauzerall, D.L., et al., "Photochemistry in Biomass Burning Plumes and Implication for Tropospheric Ozone over the Tropical South Atlantic," Journal of Geophysical Research, Vol. 103, no. D7, Pg 8401-8423, Apr 20, 1998.

<sup>4</sup> Andreae, M.O., et al., "Biomass-Burning Emissions and Associated Haze Layers Over Amazonia," Journal of Geophysical Research, Vol. 93, no. D2, Pg 1509-1527, Feb 20, 1988.

**Technical Guidance & Criteria for Deciding whether Fire Plume Impacted Ground-level Ozone Concentrations - established for Mexican/Central American fire event, May 1998, by EPA Workgroup on Mexican Fire Impacts**

If an exceedance of the level of the ozone standard (125 ppb for 1-hour or 85 ppb for 8-hours, whichever is applicable) is measured at a particular location on a given day, it may be established that the exceedance could have been caused by pollution from the fire if:

1. TOMS satellite imagery from that day and the day before indicate that the aerosol plume from the fires passed over the location, or;
2. GOES satellite imagery from that day and the day before indicate that smoke from the fires passed over the location. The EPA Workgroup on Mexican Fire Impacts will gladly facilitate the availability of satellite imagery data to any interested party. Currently, pertinent satellite data have been compiled and are available for viewing and download in the "Resources" section of the website:

<http://capita.wustl.edu/CentralAmerica>

While EPA may need to rely solely on the existence of an exceedance of the ozone standard level accompanied by the presence of the plume, it will also consider other available evidence, such as particulate measurements and visibility or visibility range measurements, as well as other data bearing on the likelihood that the exceedance was caused by pollution from the fire. We acknowledge that the type of local data and appropriate analyses may vary from case to case, but some examples of these are given below.

Corroboration of a potential fire impact can be established if:

1. Particulate measurements (PM-10 or PM-fine) taken on that day near that location indicate abnormally high levels when compared to similar data from surrounding days or average values from previous years on that date, or;
2. Visibility or visibility range measurements taken on that day near that location indicate abnormally low levels when compared to similar data from surrounding days or average values from previous years on that date, or;
3. Other data (meteorological, other pollutant measurements, for example) indicate either that the presence of the fire plume on the exceedance date is likely or that conditions are not generally conducive to the local production of high ozone levels on the exceedance date.

It should be noted that corroboration of the fire impact is not a necessary condition to establish the likely causality, but that such evidence, if available, can serve to increase the confidence of this determination. Conversely, evidence of low levels of particulate matter or good visibility in the presence of a plume aloft will cast doubt on whether the plume has contributed to the exceedance. In either case, consideration of this and other evidence will help EPA make a well-informed decision. To that end, EPA will endeavor to use all available data for these determinations, and will work directly with States to see that all data are considered.

Once a State or local agency has determined that the Mexican/Central American fires have likely contributed to an ozone standard level exceedance on a given day, the ozone data submitted to AIRS for that day should be flagged according to standard AIRS exceptional event procedures using the forest fire flag (E). At that same time, or soon thereafter, the State or local agency should submit a request to the appropriate Regional EPA Office to approve this exception with their analysis following the criteria detailed above. The Regional Office and the Office of Air Quality Planning and Standards (OAQPS) will review this material and make appropriate recommendations within 30 days. If approved, the data in AIRS will be flagged accordingly (EE) by OAQPS. Data flagged in this way will subsequently not be used in the calculation of ozone attainment status (i.e., the data will not be used to penalize an area for air quality violations attributed to the fires.)

For further information, please contact the chair of the EPA Workgroup on Mexican Fire Impacts: Dave Guinnup, OAQPS, EPA (MD-14), Research Triangle Park, NC 27711. Telephone: (919)-541-5368. FAX: (919)-541-1903. E-mail: [guinnup.dave@epa.gov](mailto:guinnup.dave@epa.gov)