

US EPA ARCHIVE DOCUMENT

10/10/97

**FACT SHEET  
PROPOSED RULE FOR REDUCING REGIONAL TRANSPORT  
OF GROUND-LEVEL OZONE (SMOG)**

**TODAY'S ACTION**

- ◆ The Environmental Protection Agency (EPA) is proposing to require 22 states and the District of Columbia to submit state implementation plans that address the regional transport of ground-level ozone, the main component of smog. By improving air quality and reducing emissions of nitrogen oxides (a precursor to ozone formation known as NO<sub>x</sub>), the actions directed by these plans will decrease the transport of ozone across State boundaries in the eastern half of the United States. The States that will be subject to this action are:

Alabama, Connecticut, District of Columbia, Delaware, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Wisconsin, and West Virginia.

- ◆ Through a 2-year effort known as the Ozone Transport Assessment Group (OTAG), EPA worked in partnership with the 37 eastern-most States and the District of Columbia, industry representatives, and environmental groups to address ozone transport. Since May 1995, OTAG has been meeting to identify and evaluate flexible and cost-effective strategies for reducing long-range transport of ozone and ozone precursors.

- ◆ States that participated in OTAG but are not subject to the requirements of this action are:

Arkansas, Florida, Iowa, Kansas, Louisiana, Maine, Minnesota, Mississippi, North Dakota, Nebraska, New Hampshire, Oklahoma, South Dakota, Texas, Vermont

- ◆ The proposed rule does not mandate which sources must reduce pollution. States will have the ability to meet the requirements of this rule by reducing emissions from the sources they choose. However, utilities and large non-utility point sources would be one of the most likely sources of NO<sub>x</sub> emissions reductions.
- ◆ This action will reduce total emissions of nitrogen oxides by 35 percent in the affected 22 states and the District of Columbia.
- ◆ The proposed action to reduce the regional transport of smog is based on OTAG and EPA analyses to help States meet the 1-hour standards and EPA determined the reductions are also needed to meet the 8-hour standards. In fact, when finalized, EPA projects, that this action will bring the vast majority of all new nonattainment areas into attainment with the

8-hour standards without having to implement more costly local controls. It will also help reduce ozone levels in the remaining nonattainment areas east of the Mississippi River.

### **WHAT ARE THE HEALTH AND ENVIRONMENTAL EFFECTS OF THIS ACTION?**

- ◆ Ozone is not emitted directly into the atmosphere. It is formed when emissions of nitrogen oxides and volatile organic compounds react in the presence of sunlight. While beneficial in the upper atmosphere, ozone in the lower atmosphere can cause a variety of health problems because it damages lung tissue, reduces lung function, and adversely sensitizes the lungs to other irritants.
- ◆ Children, and especially asthmatic children, are at special risk for adverse health effects from the dangers of ozone pollution. Breathing ozone has been compared to getting a sunburn in your lungs. Children playing and exercising outside in the summertime, the season when concentrations of ground-level ozone are the greatest, may suffer from coughing, decreased lung function, and have trouble catching their breath. Asthmatic children and adults are much more likely to have asthma attacks - or have more severe attacks - when ozone levels in the air are high. Medical studies have clearly shown that ozone can aggravate asthma, causing more asthma attacks, increased use of medication, more medical treatment and more visits to hospital emergency rooms. Ten to twenty percent of all summertime respiratory-related hospital visits in the Northeastern US are associated with ozone pollution.
- ◆ Nitrogen dioxide (NO<sub>2</sub>) belongs to a family of highly reactive gases called nitrogen oxides (which are also a primary constituent of ozone). Exposure to nitrogen dioxide can irritate the lungs and lower the body's resistance to respiratory infections such as influenza.
- ◆ The regional transport and deposition of nitrogen oxides can result in adverse environmental effects such as acidic deposition and eutrophication. This occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.
- ◆ Ground-level ozone also interferes with the ability of plants to produce and store food making them more susceptible to disease, insect attack, and other pollutants. By weakening sensitive vegetation, ozone makes plants more susceptible to disease, pests, and environmental stresses. Ground-level ozone has been shown to reduce agricultural yields for many economically important crops (e.g., soybeans, kidney beans, wheat, cotton).

### **WHAT STATES WOULD BE AFFECTED BY THIS ACTION?**

- ◆ In this proposed action, EPA is identifying areas that "contribute significantly" to ozone problems in downwind areas. The following states will have to submit implementation

plans to EPA that address how they will reduce the transport of pollution across state boundaries because they have been deemed to “contribute significantly” to downwind ozone problems:

Alabama, Connecticut, District of Columbia, Delaware, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Wisconsin, and West Virginia.

- ◆ EPA is issuing a nitrogen oxides (NO<sub>x</sub>) budget for each identified state in the proposed rule. States have the flexibility to decide which utilities and other sources will be required to reduce NO<sub>x</sub> emissions.
- ◆ To determine whether upwind sources “contribute significantly” to poor air quality in an area downwind, EPA relied heavily on the technical information developed by the OTAG. Based on this information, EPA used a “weight of evidence” approach relying on modeling that considers areas to have zero emissions in order to identify which upwind areas contribute emissions. In this approach, EPA considers a number of factors such as:
  - 1.) the fact that ozone forms as a result of precursor emissions from numerous sources in a broad geographic area;
  - 2.) the amount of contribution by all upwind sources to poor air quality downwind;
  - 3.) the amount of total emissions in upwind areas; and
  - 4.) the transport distance from upwind sources to downwind problems.

#### **HOW DID EPA ESTABLISH THE NO<sub>x</sub> BUDGETS?**

- ◆ EPA established NO<sub>x</sub> budgets using recommendations from OTAG on how to reduce emissions from utilities and other sources of NO<sub>x</sub>.
- ◆ States will be able to decide the best mix of controls to meet their overall NO<sub>x</sub> budget. EPA will require States to implement the controls they choose by September 2002.
- ◆ EPA’s proposed rule is consistent with OTAG’s recommendation for utilities. OTAG recommended reductions as high as 0.15 lbs/mmBtu or 85% from 1990 emissions rate. For non-utility point sources, mobile sources, and area sources, EPA is following OTAG recommendations to control major non-utility boilers and not require additional local controls on area and mobile sources.
- ◆ The Ozone Transport Commission (northeastern states) adopted the same range for NO<sub>x</sub> reductions for utilities that EPA has proposed.

- ◆ EPA will work with States to encourage the development of a "cap and trade" program. As part of this effort, EPA will develop a model "cap and trade" program and include this in a supplemental notice of proposed rulemaking in early 1998. This would allow facilities that reduce emissions early or in greater amounts than required to sell their "right to emit" to other facilities that cannot reduce emissions as quickly or cost-effectively. This program rewards early action, but grants more flexibility to those facilities that need more time to implement controls.

**WHAT WILL BE REQUIRED OF STATES AND WHEN?**

- ◆ As required by the CAA 1990, the Environmental Protection Agency (EPA) is proposing that 22 states and the District of Columbia submit State Implementation Plans (SIPs) that address the regional transport of ground-level ozone, the main component of smog.

**TIMELINE FOR PROPOSED REGIONAL OZONE TRANSPORT RULEMAKING  
(pending final decision)**

- ◆ May 1995 -- June 1997      37 eastern states form Ozone Transport Assessment Group (OTAG) to analyze regional ozone pollution in the East
- ◆ June 1997                      OTAG recommends that EPA take actions to reduce regional ozone transport
- ◆ October 1997                 EPA acts on OTAG recommendations and proposes regional reductions and rulemaking through Section 110 of the Clean Air Act
- ◆ April 1998                     SIPs due for those States with areas not attaining the 1-hour ozone standard
- ◆ September 1998              EPA issues final rule on regional reductions after taking public comment (establishing NOx budgets)
- ◆ September 1999              States submit plans to EPA in response to EPA rule
- ◆ September 2002              States implement controls

**WHAT IS A TRANSITIONAL CLASSIFICATION AND WHO WILL IT BENEFIT?**

- ◆ In July 1997, when EPA issued the revised national ambient air quality standards for ozone and particulate matter, President Clinton directed EPA to develop flexible approaches to implementing these new standards. This flexible implementation approach encourages cleaner air sooner, responds to the fact that ozone is a regional as well as a

local problem, and eliminates unnecessary planning and regulatory burdens for State and local governments.

- ◆ Part of this approach involves incentives for establishing a "transitional" classification for areas that do not meet the new 8-hour ozone standards, instead of classifying them as "nonattainment." The transitional classification is designed to allow States to take advantage of regional NO<sub>x</sub> reductions and make it easier to comply with the new 8-hour ozone standard. Many areas will need little or no additional new local emission reductions to reach attainment, beyond those reductions that will be achieved through the regional NO<sub>x</sub> control strategy. These areas will most likely come into attainment earlier than otherwise required. Therefore, EPA is eliminating unnecessary local planning requirements for these areas, which would be required under "nonattainment" classification.
- ◆ Areas covered by this rulemaking could be eligible for the "transitional" area classification if:
  - They attain the previous 1-hour 0.12 standard by the year 2000;
  - The state submits an implementation plan by the year 2000 that specifies how it will achieve the emission reductions called for in this rulemaking; and
  - For areas that need additional reductions to achieve the new standard, states must submit by 2000 a plan for achieving those necessary reductions.
- ◆ In States where the regional NO<sub>x</sub> reductions are sufficient to bring areas into attainment, no additional local controls will be necessary.
- ◆ If the regional NO<sub>x</sub> reductions are not sufficient to bring the area into attainment, the State's plan would need to include (1) control measures to achieve the regional No<sub>x</sub> reductions and (2) additional local measures as necessary to bring the area into attainment.
- ◆ Areas not covered by this rulemaking are also eligible for the transitional classification if:
  - They attain the 1-hour 0.12 ppm standard by 2000 and
  - The State submits to EPA by 2000 a plan for achieving any reductions needed to attain the new standard.

## NEXT STEPS

- ◆ EPA will seek public comment prior to finalizing this rule. EPA expects to issue the final rule in September 1998.

## BACKGROUND

- ◆ Ground-level ozone, or smog, is formed when nitrogen oxides (emitted from automobiles, power plants, and other sources) and volatile organic compounds (emitted from automobiles, factories, as well as smaller sources like paints and coatings) "bake" in the summer heat resulting in health problems at ground level. Exposure to smog can cause serious respiratory illness, damage lung tissue, and cause significant declines in agricultural crop yield.
- ◆ Ground-level ozone tends to be a problem over broad regional areas, particularly in the eastern United States, where it is transported by the wind. When emitted, nitrogen oxides react in the atmosphere to form compounds that contribute to the formation of ozone. These compounds, as well as ozone itself, can travel hundreds of miles across state boundaries to affect public health in areas far from the source of the pollution. Thus, cities or areas with "clean" air, those that meet or attain the national air quality standards for ozone, may be contributing to a downwind city's ozone problem because of transport.
- ◆ The Clean Air Act requires that a state implementation plan contain provisions to prevent a State's facilities or sources from contributing significantly to air pollution problems "downwind," specifically in those areas that fail to meet the national air quality standards for ozone (known as "nonattainment areas").

## WHAT IS THE OZONE TRANSPORT ASSESSMENT GROUP (OTAG)?

- ◆ In May 1995, EPA and the Environmental Council of States (includes environmental commissioners from each state) formed the Ozone Transport Assessment Group (OTAG). Comprising the 37 eastern-most States and the District of Columbia, OTAG was created to develop strategies (to reduce emissions in "upwind" areas) that address the transport of smog forming pollutants across State boundaries.
- ◆ OTAG has completed the most extensive analysis of ozone transport ever conducted. This analysis included the most comprehensive review of regional air quality information to date; a collection of a complete emissions inventory; and state-of-the-art photochemical modeling to analyze control strategy impacts. States and other stakeholders have worked diligently to develop common-sense regional solutions to reduce the regional transport of ozone.
- ◆ In June 1997, the OTAG states voted 32-5 in favor of a strategy to reduce nitrogen oxides (NOx) emissions from utilities and other major sources by levels ranging from those currently required by the Clean Air Act, up to an 85% reduction in emissions rate (or

.15/mmBTU) from 1990 utility levels in a number of states in the OTAG region. OTAG also voted to continue development of market-based programs for NO<sub>x</sub> emissions that could be used as the basis for multi-state emission trading programs. This will ensure that reductions are made in a common sense, cost effective, and flexible manner.

- ◆ EPA's analysis shows that implementing the "upper range" of the OTAG recommendations for regional reductions would result in widespread attainment of the new revised ozone standard in the vast majority of new nonattainment counties across the eastern US. These analyses are based on the most recent air quality data available at this time (i.e., data through 1995). EPA will not actually officially designate areas as nonattainment under the new 8-hour ozone standard until the year 2000 (using 1997-1999 air quality data.)

#### **FOR MORE INFORMATION**

- ◆ Interested parties can download the rule from EPA's web site on the Internet under the heading "Recently Signed Rules" at the following address: (<http://www.epa.gov/ttn/oarpg/rules.html>). Information about the OTAG process can also be found on the Internet at: (<http://www.epa.gov/oar/otag/otag.html>). For further information about the rule, contact Kimber Scavo of EPA's Office of Air Quality Planning and Standards at (919) 541-3354.
- ◆ EPA's Office of Air and Radiation's homepage on the Internet contains a wide range of information many air pollution programs and issues. The Office of Air and Radiation's home page address is: (<http://www.epa.gov/oar/>).