

# March 2008 Final National Ambient Air Quality Standards for Ground-level Ozone



## General Overview

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- On March 12, 2008, EPA significantly strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone
- These revisions reflect new scientific evidence about ozone and its effects on public health and the environment
- The final revisions affect two types of ozone standards:
  - *Primary standard* to protect public health, including the health of "sensitive" populations such as people with asthma, children, and older adults
  - *Secondary standard* to protect public welfare and the environment, including sensitive vegetation and ecosystems
- Specifically, EPA has:
  - Revised the level of the primary and secondary 8-hour ozone standards to 0.075 parts per million (ppm)
- For more information go to <http://www.epa.gov/groundlevelozone>

## *Regulating Ground-level Ozone Pollution*

- The Clean Air Act requires EPA to set primary and secondary NAAQS for common air pollutants:
  - **Ground-level ozone (smog)**
  - Carbon monoxide
  - Nitrogen dioxide
  - Particulate matter
  - Lead
  - Sulfur dioxide
- The law requires EPA to review the scientific information and the standards for each pollutant **every five years**, and to obtain advice from the Clean Air Scientific Advisory Committee (CASAC) on each review
- Different considerations apply to setting NAAQS than to achieving them
  - Setting NAAQS: health and environmental effects
  - Achieving NAAQS: account for cost, technical feasibility, time needed to attain
- EPA last revised the ozone standards in 1997. At that time, both the primary (health-based) and secondary (welfare-based) standards were set at 0.08 ppm (effectively 0.084 ppm due to rounding), with an 8-hour averaging time

## ***Ozone NAAQS Rulemaking Schedule***

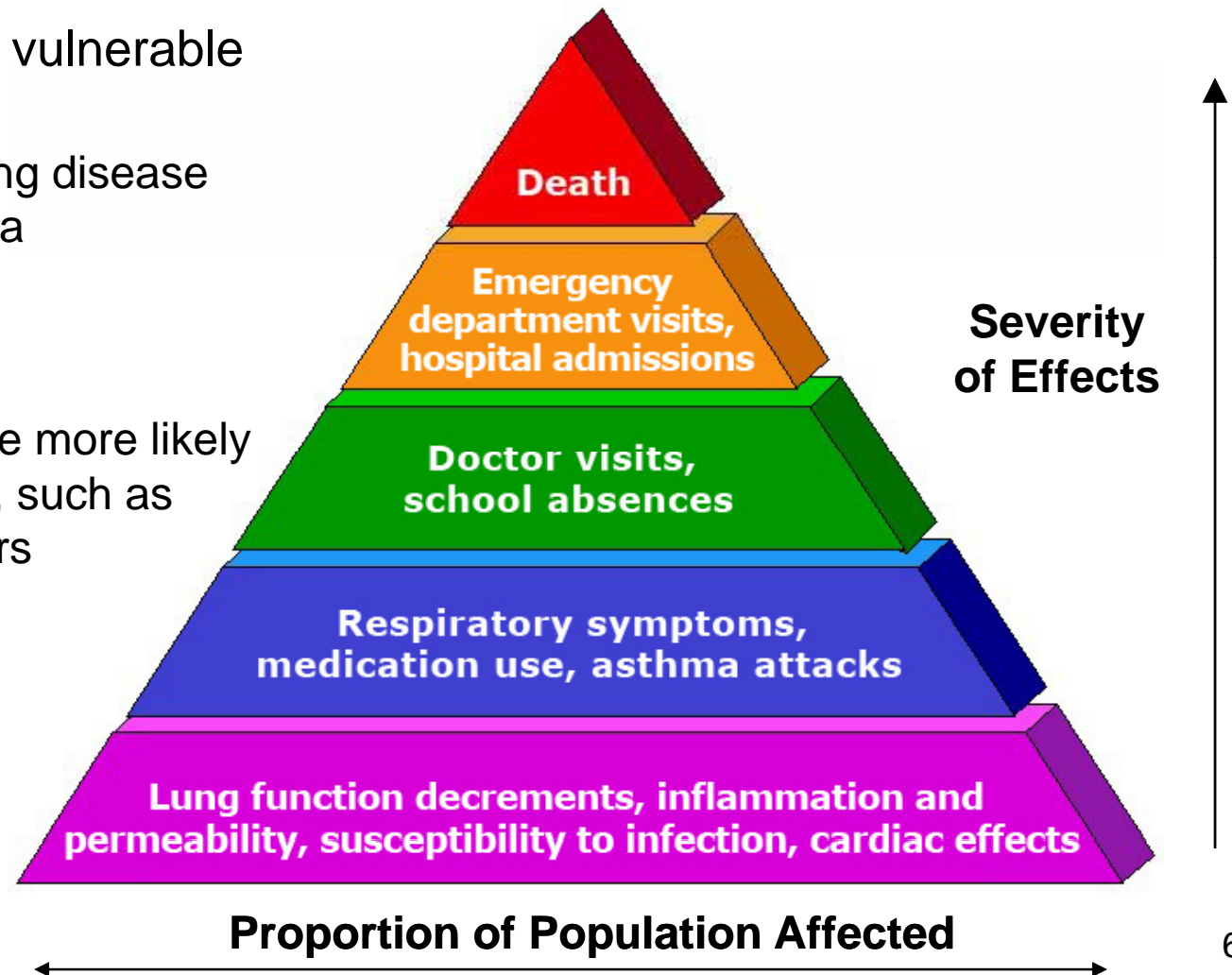
- Proposal signed June 20, 2007 (as required by consent agreement)
- Public comment period ended October 9, 2007. EPA received thousands of public comments
- Public hearings held in Los Angeles and Philadelphia on August 30, 2007, and in Atlanta, Chicago, and Houston on September 5, 2007
- Final Rule signed March 12, 2008 (consent agreement required signature by March 12, 2008)

## *Ozone and Health*

- Ozone can penetrate deep into the lungs and can:
  - Make it more difficult for people working or playing outside to breathe as deeply and vigorously as normal
  - Irritate the airways, causing: coughing, sore or scratchy throat, pain when taking a deep breath, and shortness of breath
  - Increase asthma attacks and use of asthma medication
  - Inflammation and damage the lining of the lung by injuring the cells that line the air spaces in the lung
  - Increase susceptibility to respiratory infection
  - Aggravate chronic lung diseases such as asthma, emphysema and bronchitis
- Repeated episodes of ozone-induced inflammation may cause permanent changes in the lung, leading to long-term health effects and a lower quality of life
- Ozone may continue to cause lung damage even when symptoms have disappeared

## Ozone Health Impacts: “Pyramid of Effects”

- Susceptible and vulnerable groups include:
  - People with lung disease such as asthma
  - Children
  - Older adults
  - People who are more likely to be exposed, such as outdoor workers



## *Revisions to the Primary Ozone Standard*

- EPA has concluded the 1997 primary standard is not adequate to protect public health with an adequate margin of safety
- EPA has strengthened the level of the 8-hour primary ozone standard to 0.075 parts per million (ppm)
- More than 1700 new scientific studies available in this review indicate strong evidence of adverse health impacts of ozone at the level of the 1997 standard and below
- EPA also specified the level of the standards to the nearest thousandth of a ppm (also referred to as the “third decimal place”), eliminating the need for rounding when comparing measured ambient levels to the new standard

## *Level of the Primary Ozone Standard*

- EPA agrees with CASAC that the 1997 standard is not requisite to protect public health with an adequate margin of safety and must be strengthened to provide increased public health protection
  - In June 2007, EPA proposed to set the standard within the range of 0.070 to 0.075 ppm
  - CASAC recommended a range of 0.060 to 0.070 ppm
- In the final decision, based on thorough consideration of the full body of currently available information, the Administrator judged a standard set at 0.075 ppm to be requisite to protect public health, including the health of sensitive populations, with an adequate margin of safety

## Revised Ozone AQI

- EPA is changing the Air Quality Index (AQI) to reflect the new primary standard
- The AQI is EPA's color-coded tool designed to inform the public about daily air pollution levels in their communities
- EPA is adjusting the 100-level, which is the upper end of the "moderate" category, to equal the new 0.075 ppm standard, and making proportional changes to other AQI values
- EPA encourages the States to use the new AQI breakpoints for air quality forecasting by the beginning of ozone season. In many areas this date is May 1, 2008

Category	AQI Value	1997 8-hour (ppm)	2008 8-hour (ppm)
Good	0-50	0.000-0.064	0.000-0.059
Moderate	51-100	0.065-0.084	0.060-0.075
Unhealthy for Sensitive Groups	101-150	0.085-0.104	0.076-0.095
Unhealthy	151-200	0.105-0.124	0.096-0.115
Very Unhealthy	201-300	0.125-0.374	0.116-0.374
Hazardous	301-400	No Change	No Change
	401-500	No Change	No Change

## *Ozone and the Environment*

- Ground-level ozone is absorbed by the leaves of plants, where it can:
  - Interfere with the ability of sensitive plants to produce and store food
    - This can lead to reduced growth, biomass production and/or yields
  - Make sensitive plants more susceptible to certain diseases, insects, harsh weather, other pollutants, and competition
  - Reduce or change the diversity of plant species
    - This can lead to damage to ecosystems dependent on those species
  - Visibly injure the leaves of plants, affecting the appearance of vegetation in national parks, recreation areas and cities

## *Revisions to the Secondary Ozone Standard*

- EPA has concluded the 1997 secondary standard is not adequate to protect public welfare
- EPA has strengthened the level of the 8-hour secondary ozone standard to 0.075 parts per million
- Ozone effects on sensitive species include reduced biomass, foliar injury, loss of vigor, and susceptibility to disease. This could lead to loss of plant diversity and change the types of plants in ecosystems
- While EPA agrees with CASAC that cumulative, seasonal exposures are the most biologically relevant, the remaining uncertainties over how to best protect vegetation led the Administrator to conclude the secondary standard should be set equal to the primary

## *Expected Implementation Timeline for Revised Ozone NAAQS*

<b>Milestone</b>	<b>Date</b>
<b>Signature—Final Rule</b>	March 12, 2008
<b>State Designation Recommendations to EPA</b>	No later than March 12, 2009
<b>Final Designations</b>	No later than March 12, 2010*
<b>Attainment Demonstration SIPs Due</b>	2013*
<b>Attainment Dates</b>	2013-2030 (depends on severity of problem)

\* In the event the Administrator has insufficient information to promulgate the designations by March 12, 2010, the date of final designations may be extended up to one year, but no later than March 12, 2011. SIPs will be due three years from final designations.

## Schedule Likely Affected by Lawsuit

- On May 27th, U.S. EPA was sued by Earth Justice on behalf of a number of environmental and conservation groups and the ALA.
- Fourteen states filed a parallel suit.
- They argued that the new standard did not go far enough to protect public health and the environment, and ignored advice from the CASAC.
- The Ozone NAAQS Litigation Group and the Utility Air Regulatory Group (UARG), the State of Mississippi also sued.
- They argued that the standard was too strict.

# *Implementation Considerations For Revised Ozone Standards*

- Designations
  - No later than one year after EPA issues a revised standard, the Clean Air Act requires States and gives Tribes the option to recommend to EPA which areas **are** and which areas **are not** meeting the new standards
  - EPA is required to issue final designations within 2 years after establishing revised standards, but may take up to another year if insufficient data is available for designation
  - EPA is reviewing existing designations guidance and will be communicating with States and Tribes if additional guidance is needed.
- 1997 Ozone Standards
  - For now, the 1997 8-hour ozone NAAQS and all the associated regulatory requirements will remain in place
  - States should continue their plans for implementing the 1997 NAAQS
  - EPA will address any transition issues in a separate rulemaking

## *Monitoring Considerations Related to Revised Ozone Standards*

- EPA did not propose any specific changes to existing monitoring requirements, but invited comment on a number of issues. EPA will consider the following issues in a proposed monitoring rule in June 2008, and a final rule in approximately March 2009
  - Requirements in urban areas, including whether to require ozone monitors in smaller Metropolitan Statistical Areas (cities) of between 50,000 and 350,000 population that do not currently have monitors
  - The length of the required ozone monitoring season, including whether the season should be lengthened in some areas to capture relevant measurements in calculating the revised NAAQS and the Air Quality Index

## *Progress toward Clean Air*

- While ozone's impacts on human health and the environment are more damaging than previously understood, and occur at lower ozone concentrations, EPA, States and Tribes have been making steady progress to lower the amount of ozone in the air
- In recent years, ozone air quality trends have been improving:
  - Ground level ozone declined 9% nationwide between 1990 and 2006
  - Nationwide, 89 of the original 126 areas designated nonattainment for the 1997 standard met that standard during the 2004-2006 period
  - The Clean Air Interstate Rule (CAIR), issued in March 2005, will continue this progress using a similar cap-and-trade approach in the Eastern United States