FACT SHEET
FINAL REVISIONS TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS FOR NITROGEN DIOXIDE

SUMMARY OF ACTION

- On January 22, 2010, EPA strengthened the health-based National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide (NO_2). The new standard will protect public health, including the health of sensitive populations – people with asthma, children and the elderly.

- EPA is setting a new 1-hour NO_2 standard at the level of 100 parts per billion (ppb). This level defines the maximum allowable concentration anywhere in an area. It will protect against adverse health effects associated with short-term exposure to NO_2, including respiratory effects that can result in admission to a hospital.

- In addition to establishing an averaging time and level, EPA also is setting a new "form" for the standard. The form is the air quality statistic used to determine if an area meets the standard. The form for the 1-hour NO_2 standard, is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations.

- EPA also is retaining, with no change, the current annual average NO_2 standard of 53 ppb.

- This suite of standards will protect public health by limiting people's exposures to short-term peak concentrations of NO_2 – which primarily occur near major roads – and by limiting community-wide NO_2 concentrations to levels below those that have been linked to respiratory-related emergency department visits and hospital admissions in the United States.

- To determine compliance with the new standard, EPA is establishing new ambient air monitoring and reporting requirements for NO_2.
    - In urban areas, monitors are required near major roads as well as in other locations where maximum concentrations are expected.
    - Additional monitors are required in large urban areas to measure the highest concentrations of NO_2 that occur more broadly across communities.
    - Working with the states, EPA will site a subset of monitors in locations to help protect communities that are susceptible and vulnerable to NO_2-related health effects.

- The addition of a new 1-hour NO_2 standard and changes to the NO_2 monitoring network are consistent with the recommendations of the majority of the Clean Air Scientific Advisory Committee (CASAC). CASAC provides independent advice to the EPA Administrator on the relevant scientific and technical information and on the standards.

- These changes will not affect the secondary NO_2 standard, set to protect public welfare. EPA is considering the need for changes to the secondary standard under a separate review.

Exhibit 3

NO_2 AND PUBLIC HEALTH

- Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with an array of adverse respiratory effects including increased asthma symptoms, more difficulty controlling asthma, and an increase in respiratory illnesses and symptoms.

- Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.

- NO_2 concentrations near major roads are appreciably higher than those measured at monitors in the current network. Concentrations in heavy traffic or on freeways can be twice as high as levels measured in residential areas or near smaller roads. Monitoring studies indicate that near-road (within about 50 meters) concentrations of NO_2 can be 30 to 100 percent higher than concentrations away from major roads.

- EPA's NAAQS for NO_2 is designed to protect against exposure to the entire group of nitrogen oxides (NO_x). NO_2 is the component of greatest concern and is used as the indicator for the larger group of NO_x. The sum of nitric oxide (NO) and NO_2 is commonly called NO_x. Other nitrogen oxides include nitrous acid and nitric acid.

- Emissions that lead to the formation of NO_2 generally also lead to the formation of other NO_x. Control measures that reduce NO_2 can generally be expected to reduce population exposures to all gaseous NO_x. This may have the co-benefit of reducing the formation of ozone and fine particles both of which pose significant public health threats.
    - NO_x react with ammonia, moisture, and other compounds to form small particles. These small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. EPA's NAAQS for particulate matter (PM) are designed to provide protection against these health effects.
    - NO_x react with volatile organic compounds to form ozone. Children, the elderly, people with lung diseases such as asthma, and people who work or exercise outside are at risk for adverse health effects from ozone. These effects include reduced lung function and increased respiratory symptoms, more respiratory-related emergency department visits and hospital admissions, and increased risk of premature death from heart or lung disease. EPA's NAAQS for ozone are designed to provide protection against these health effects.

REVISING THE NO_2 MONITORING NETWORK

- EPA is setting new requirements for the placement of new NO_2 monitors in urban areas. These include:

    Near Road Monitoring

    - At least one monitor must be located near a major road in any urban area with a population greater than or equal to 500,000 people. A second monitor is required

near another major road in areas with either:

(1) population greater than or equal to 2.5 million people, or

(2) one or more road segment with an annual average daily traffic (AADT) count greater than or equal to 250,000 vehicles.

These NO_2 monitors must be placed near those road segments ranked with the highest traffic levels by AADT, with consideration given to fleet mix, congestion patterns, terrain, geographic location, and meteorology in identifying locations where the peak concentrations of NO_2 are expected to occur. Monitors must be placed no more than 50 meters (about 164 feet) away from the edge of the nearest traffic lane.

- EPA estimates that the new NO_2 monitoring requirements will result in a network of approximately 126 NO_2 monitoring sites near major roads in 102 urban areas.

Community Wide Monitoring

- A minimum of one monitor must be placed in any urban area with a population greater than or equal to 1 million people to assess community-wide concentrations.
- An additional 53 monitoring sites will be required to assess community-wide levels in urban areas.
- Some NO_2 monitors already in operation may meet the community-wide monitor siting requirements.

Monitoring to Protect Susceptible and Vulnerable Populations

- Working with the states, EPA Regional Administrators will site at least 40 additional NO_2 monitors to help protect communities that are susceptible and vulnerable to NO_2 -related health effects.

- All new NO_2 monitors must begin operating no later than January 1, 2013.

- EPA Regional Administrators have the authority to require additional monitoring in certain circumstances, such as in areas impacted by major industrial point sources or a combination of sources where there is an indication that the standards may be exceeded. The Regional Administrators also have the authority to require additional near-road monitoring in urban areas where multiple peak concentration areas may be caused by a variety of mobile source factors including fleet mix, traffic congestion patterns, or terrain.

IMPLEMENTING THE NEW NO_2 STANDARD

- In this final rule, EPA is outlining the Clean Air Act requirements that states must address to implement the new NO_2 air quality standard.

- The new standard must be taken into account when permitting new or modified major sources of NOx emissions such as fossil-fuel fired power plants, boilers, and a variety of other manufacturing operations.

- EPA expects to identify or “designate” areas as attaining or not attaining the new standard by January 2012, within two years of establishing the new NO_2 standard. These designations

will be based on the existing community-wide monitoring network. Areas with monitors recording violations of the new standards will be designated "nonattainment." EPA anticipates designating all other areas of the country "unclassifiable" to reflect the fact that there is insufficient data available to determine if those areas are meeting the revised NAAQS.

- Once the expanded network of NO_2 monitors is fully deployed and three years of air quality data have been collected, EPA intends to redesignate areas in 2016 or 2017, as appropriate, based on the air quality data from the new monitoring network.

BACKGROUND

- The Clean Air Act requires EPA to set national ambient air quality standards for pollutants considered harmful to public health and the environment. National standards exist for six pollutants: nitrogen dioxide, ozone, particulate matter, carbon monoxide, sulfur dioxide, and lead.

- For each of these pollutants, the Clean Air Act requires EPA to set the health-based or "primary" standards at a level judged to be "requisite to protect the public health with an adequate margin of safety" and establish secondary standards that are "requisite" to protect public welfare from "any known or anticipated adverse effects associated with the pollutant in the ambient air" including effects on vegetation, soils, water, wildlife, buildings and national monuments, and visibility. EPA is considering the need for changes to the secondary NO_2 standard under a separate review.

- The law also requires EPA to review the standards and their scientific basis every five years to determine whether revisions are appropriate.

- Nitrogen dioxide is one of a group of highly reactive gasses known as "oxides of nitrogen." NO_2 forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone and fine particle pollution, NO_2 is linked with a number of adverse effects on the respiratory system.

- EPA first established standards for NO_2 in 1971, setting both a primary standard (to protect health) and a secondary standard (to protect the public welfare) at 53 ppb, averaged annually. Prior to the current review, the Agency reviewed the standards twice since 1971, but chose not to revise the standards at the conclusion of each review.

- All areas presently meet the 1971 NO_2 NAAQS, with annual NO_2 concentrations measured at community-wide monitors well below the level of the standard (53 ppb). Annual average ambient NO_2 concentrations, as measured at community-wide monitors, have decreased by more than 40 percent since 1980. Currently, the annual average NO_2 concentrations range from approximately 10-20 ppb.

- EPA expects NO_2 concentrations to continue decreasing as a number of mobile source regulations take effect. Tier 2 standards for light-duty vehicles began phasing in during 2004, and new NO_x standards for heavy-duty engines are phasing in between 2007 and 2010

model years. Current air quality monitoring data reflect only a few years of vehicles entering the fleet that meet these stricter NO_x tailpipe standards.

FOR MORE INFORMATION

- To download a copy of the final rule, go to EPA's Web site at: http://www.epa.gov/air/nitrogenoxides.

- This final rule and other background information are also available either electronically at http://www.regulations.gov, EPA's electronic public docket and comment system, or in hardcopy at the EPA Docket Center's Public Reading Room.

- The Public Reading Room is located in the EPA Headquarters, Room Number 3334 in the EPA West Building, located at 1301 Constitution Avenue, NW, Washington, DC. Hours of operation are 8:30 a.m. to 4:30 p.m. eastern standard time, Monday through Friday, excluding Federal holidays.

- Visitors are required to show photographic identification, pass through a metal detector, and sign the EPA visitor log. All visitor materials will be processed through an X-ray machine as well. Visitors will be provided a badge that must be visible at all times.

- Materials for this action can be accessed using Docket ID No. EPA-HQ-OAR-2006-0922.