EPA'S OZONE AIR QUALITY STANDARDS AND AGRICULTURE

- On Oct. 1, 2015, the U.S. Environmental Protection Agency (EPA) strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, based on extensive scientific evidence about ozone's effects on public health and welfare. The strengthened primary standard will improve public health protection, particularly for children, the elderly, and people of all ages who have lung diseases such as asthma. The strengthened secondary standard will improve public welfare protection, particularly for effects on trees, other plants and their ecosystems.

Highlights

- EPA is setting both the primary standard (to protect public health) and the secondary standard (to protect the public welfare) at 70 ppb.
- The standards do not establish emission control requirements for any particular industry, including agriculture.
- States will have time to develop and implement plans to meet the revised standards, and existing and proposed federal rules will help by making significant strides toward reducing ozone-forming pollution.
- EPA projections show the vast majority of U.S. counties would meet the updated standards by 2025 just with the rules and programs now in place or under way.
- The vast majority of states have not required the agriculture industry to take any actions that require emission reductions as part of their plans for meeting ozone standards.

About Ozone Standards

- Ozone, a key component of smog, forms in the atmosphere when emissions of nitrogen oxides and volatile organic compounds "cook" in the sun. Emissions from sources such as cars, trucks, buses, engines, industries, power plants and products such as solvents and paints are among the major manmade sources of ozone-forming emissions. Farm dust does not contribute to ozone formation.
- The Clean Air Act requires EPA to set two types of standards: primary standards, to protect public health with an "adequate margin of safety," including the health of at-risk groups, and secondary standards to protect the public welfare, which includes effects on trees, plants, crops and ecosystems.

- Scientific evidence shows that ozone can cause a number of harmful effects on the respiratory system, including difficulty breathing and inflammation of the airways. For people with lung diseases such as asthma and COPD (chronic obstructive pulmonary disease), these effects can aggravate their diseases, leading to increased medication use, emergency room visits and hospital admissions. Evidence also indicates that long-term exposure to ozone is likely to be one of many causes of asthma development. In addition, studies show that ozone exposure is likely to cause premature death.
- The evidence also indicates that ozone reduces plant growth and productivity of forested ecosystems and EPA analyses show that reducing ozone can protect forest communities, and also improve yields for timber and some crops, such as soybeans and winter wheat.
- Protecting and improving the nation's air quality is the work of a federal-state partnership established in the Clean Air Act. EPA issues national standards and designates the "nonattainment areas" that must reduce pollution in order to meet the standards. States then determine what those pollution reduction steps will be and outline those steps in plans known as "state implementation plans." Federal rules – including for industries, motor vehicles, and power plants – will help the vast majority of counties meet the standards without additional actions.

What the Existing Ozone Standards Have Meant for Agriculture

- Like all national air quality standards, the ground-level ozone standards set the amount of ozone pollution allowed in the outdoor air. But the standards do not establish emission control requirements for any particular industry, including agriculture. Each state determines what it needs to do (beyond federal measures) to reduce an area's pollution to meet the standards in a way that makes the most sense for that area.
- The vast majority of states have not required the agriculture industry to take any actions that require emission reductions, instead focusing their efforts on reducing emissions of the pollutants that form ozone from sources such as industrial processes and consumer products.
- In California, some nonattainment areas are addressing ozone-forming emissions from agriculture by incorporating USDA-approved conservation management practices identified with input from growers and USDA into ozone implementation plans for those nonattainment areas. These include a menu of options growers can choose from, such as spray application technologies or limiting combustion emissions from engines by combining or reducing tillage operations to reduce the number of passes through fields. These commonsense practices reduce emissions of VOCs and NOx.

- In addition, farmers may be able to use USDA Farm Bill programs such as the Environmental Quality Incentives Program, which can provide financial assistance to farmers for replacing diesel engines that power agricultural equipment with lower NOx-emitting models.

The Final Standards

Strengthening the primary (health) standard to improve public health protection

- A significantly expanded body of scientific evidence shows that ozone can cause a number of harmful effects on the respiratory system, including difficulty breathing and inflammation of the airways. For people with lung diseases such as asthma and COPD (chronic obstructive pulmonary disease), these effects can lead to emergency room visits and hospital admissions. Ozone exposure also is likely to cause premature death from lung or heart diseases.

- In addition, evidence indicates that long-term ozone exposure is likely to be one of the many causes of asthma development. Asthma disproportionately affects children, families with lower incomes, and minorities, including Puerto Ricans, Native Americans/Alaska Natives and African-Americans.

- EPA has concluded that the current 8-hour ozone standard of 75 ppb is not adequate to protect public health as the law requires and is revising the standard to 70 ppb to improve public health protection for millions of Americans.

Strengthening the secondary (public welfare) standard to improve protection for trees, plants and ecosystems

- New studies since the last review of the standards add to evidence showing that repeated exposure to ozone reduces growth and has other harmful effects on plants, trees and forested ecosystems. These types of effects have the potential to impact the benefits that plants and forested ecosystems provide.

- EPA is revising the level of the secondary standard to 70 ppb, equivalent to the primary standard. A standard at this level will provide appropriate protection against the cumulative ozone exposures that can affect ecosystems through damage to plants and trees.

- In July 2013, the U.S. Court of Appeals for the D.C. Circuit upheld the 2008 primary ozone standard but remanded the secondary standard to EPA, on the grounds that the agency had not adequately explained how the secondary standard provided the required public welfare protection. EPA's 2015 decision revising the secondary standard responds to this remand.

- In the 2015 decision, the EPA is identifying the level of protection needed for vegetation trees, plants and ecosystems from cumulative seasonal ozone exposure using a seasonal exposure index that scientists often use to assess the impact of ozone on ecosystems and vegetation. This index is known as a W126 index, named for the equation used to calculate it. The agency has concluded, based on analyses of data from air quality monitors, that the

revised standard of 70 ppm should limit cumulative seasonal exposures above a W126 index of 17 parts per million-hours (ppm-hours), averaged over three years, and provide the degree of protection that the Clean Air Act requires.

- Ppm-hours is a measurement unit used to express the sum of weighted hourly ozone concentrations.

Implementing the Standards

- As part of the final rule, EPA has outlined initial states the agency will take to help states implement the revised standards, including the anticipated area designations schedule.
- Once EPA sets a new air quality standard, or revises an existing standard, the Clean Air Act requires EPA to designate areas as meeting the standards (*attainment areas*) or not meeting them (*nonattainment areas*) based on local air quality. The agency also may designate an area as *unclassifiable*, meaning there is not enough information to make a determination. Governors make initial designation recommendations, and EPA works closely with states and tribes as it determines initial designations and boundaries for nonattainment areas.
- All states with nonattainment areas must develop emission inventories and implement a preconstruction permitting program designed to provide additional air quality safeguards for those areas. States with nonattainment areas classified as "Moderate" or higher must develop state implementation plans (SIPs) showing how the areas will meet the standards.
- Tribes may, but are not required to, develop their own plans for nonattainment areas in Indian country. Where necessary or appropriate to protect air quality, EPA will develop plans for any tribal area that chooses not to develop its own plan.
- EPA anticipates making final designations by October 1, 2017; those designations likely would be based on 2014-2016 air quality data. Nonattainment areas will have from 2020 to 2037 to meet the health standard, with deadlines depending on the severity of an area's ozone problem.

For More Information

- To read the standards and additional fact sheets, visit http://www3.epa.gov/ozonepollution/actions.html
- EPA's agriculture and air quality page: http://www3.epa.gov/airquality/agriculture/