

# AIR QUALITY BASICS: National Ambient Air Quality Standards

In 1970, as more and more Americans were voicing concern about the environment, Congress passed monumental legislation known as the federal Clean Air Act. It included important improvements to the nation's air quality policy. It also directed the U.S. Environmental Protection Agency to develop National Ambient Air Quality Standards, or NAAQS, for several widespread pollutants.

There are two types of NAAQS – primary and secondary. The primary standards are designed to protect public health, while secondary standards are designed to prevent damage to the environment, including crops, buildings and animals. Both standards set allowable concentrations of a specific pollutant in the ambient (outdoor) air.

The EPA has set NAAQS for six pollutants, including ozone, carbon monoxide, lead, nitrogen dioxide, particulate matter, and sulfur dioxide. These pollutants were targeted partly because they are common across the U.S. and are therefore suited to a nationwide approach. They also come from diverse sources and require multiple control strategies.

It is estimated that these six criteria pollutants cause thousands of premature deaths and tens of thousands of emergency room visits each year. However, they are not necessarily the most dangerous to public health. Numerous other hazardous air pollutants are known to contribute to mortality, chronic disease and cancer at higher rates. However, a large percentage of U.S. residents are exposed to these six pollutants, and focusing on these pollutants provides the greatest benefits to the greatest number of people.

## Setting the Standards

The Clean Air Act specifies that the EPA must review each NAAQS every five years. This is a long process which involves the study of thousands of scientific documents published since the previous review. These are summarized in a report called a Criteria Document. The EPA staff then prepares another document, called a Staff Paper, which provides the agency's administrator with various options for revising the NAAQS. The public is invited to comment on the second draft Staff Paper.

Historically, both the Criteria Document and the Staff Paper have been reviewed by an independent agency called the Clean Air Scientific Advisory Committee (CASAC), which consists of seven members from academia and/or private research institutions, plus a panel of other experts. The committee's job is to see that the review process meets the highest scientific standards.

Next, the EPA Administrator signs the proposed regulation and sends a public hearing notice to the Federal Register. A real-life example of the process can be experienced in

Houston on September 5 when the EPA holds a public hearing for revisions to the ozone NAAQS (see page 4).

## Where Do the Pollutants Come From?

- **Ozone:** ground-level ozone is formed by nitrogen oxides (NOx) and volatile organic compounds (VOCs)
  - **NOx:** automobiles, construction equipment, marine vessels, industrial processes, incineration and power generation.
  - **VOCs:** gasoline and solvents, industrial sources such as oil refineries and petrochemical manufacturing plants, trains, planes and automobiles, trees and plants.
- **Particulate Matter:** gasoline and diesel-fueled automobiles, power generation, industrial processes and cigarette smoke.
- **Carbon Monoxide:** gasoline and natural gas combustion, improperly tuned vehicles.
- **Sulfur Dioxide:** primarily from coal burning power plants
- **Nitrogen Dioxide:** power plants, automobiles, furnaces and cooking stoves
- **Lead:** lead battery manufacturing plants, lead battery recovery plants, smelter operations and the combustion of coal that contains lead.

*Air Quality Reference Guide: Sixth edition. July 2002. Houston Galveston Area Council.*

## Attaining the NAAQS in Houston

The Houston region has exceeded the NAAQS for ozone since the early 1970s, and is borderline for particulate matter. Though ozone levels have decreased over the past 30 years, the area has yet to meet the federal health standards. Recently, Governor Rick Perry asked for yet another deadline extension, which would give Houston until 2019 to comply (see page 1).

Some local regulators and air quality advocates are frustrated with the slow pace, and feel that the state's failure to take adequate action to meet past deadlines threatens its ability to meet future goals. Also contributing to the challenge is a recent proposal by the EPA that would make the ozone standard slightly more stringent (see page 1). If the proposed standard is adopted, the Houston region will need to reduce pollution even further to reach its clean air target.

Dr. Maria Morandi, assistant professor at The University of Texas School of Public Health, and member of the CASAC, will be speaking about the NAAQS process at the next Air Exchange meeting (see page 4).