

## **Backgrounder:** ***It's More Than Just a Number—*** **Five Key Parts to the Standard**



There are five main attributes of the national air quality standards that determine how effective the standard will be at protecting public health. The **indicator pollutant, averaging time, level, form, and monitoring strategy** work in combination to determine the stringency of the standards. All five are at play in this decision.

EPA's proposed standard will be defined by all five characteristics. EPA staff scientists made recommendations on these five in their "Staff Paper." EPA's outside scientific review panel, the Clean Air Scientific Advisory Committee, thoroughly vetted the Staff Paper and came up with its own recommendations to EPA.

### **1. Indicator Pollutant:** *What specific pollutants will be regulated and how will they be defined?*

The Staff Paper recommended keeping the category of **PM<sub>2.5</sub> for fine particles** and adding a new category, **PM<sub>10-2.5</sub> for "coarse" particles**. PM<sub>2.5</sub> are the smallest particles, less than 2.5 microns in diameter. The Staff Paper also recommends creating a new standard for slightly larger, or "coarse" particles, defined as "PM<sub>10</sub> minus PM<sub>2.5</sub>" (PM<sub>10-2.5</sub>), particles smaller than 10 microns but larger than 2.5 microns. The coarse particle standards would replace the existing standards for PM<sub>10</sub>.

### **2. Averaging Time:** *Over what time period will EPA measure compliance with the standard?*

- The Staff Paper recommended keeping two standards based on two different time periods for PM<sub>2.5</sub>: a 24-hour and an annual averaging time. The 24-hour standard limits short-term peaks of pollution while the annual average standard limits day in and day out exposures.
- For coarse particles, the Staff Paper recommended setting a 24-hour standard only.

### **3. Level of the Standard:** *What is the actual level (number value) of the standard?*

**The EPA staff recommended** these ranges for the PM<sub>2.5</sub> standards:

- Option A: Keep the annual standard at 15 µg/m<sup>3</sup> and lower the 24-hour standard to 25-30 µg/m<sup>3</sup> if measured at 98th percentile, or 30-35 µg/m<sup>3</sup> if measured at the 99<sup>th</sup> percentile; or
- Option B: Annual standard of 12-14 µg/m<sup>3</sup> together with a 24-hour standard of 30 to 40 µg/m<sup>3</sup>.

**The CASAC recommended** a narrower range: 13-14 µg/m<sup>3</sup> for the annual average and 30-35 µg/m<sup>3</sup> for the 24-hour standard

**Over one hundred scientists, American Lung Association and other health and environmental groups recommended** the most protective level under EPA consideration: an annual standard of 12 µg/m<sup>3</sup> and a 24-hour standard of 25 µg/m<sup>3</sup>, measured at the 99<sup>th</sup> percentile.

**4. Form of the Standard:** *How many times can air pollution levels go over or “exceed” the standards? How will EPA decide how communities will meet the standard?*

For the 24-hour standard

The Staff Paper recommended that the level of the 24-hour standard be tied to how many times the air pollution levels would be allowed to be higher than, or “exceed” the standard.

Two options were discussed:

- A “98<sup>th</sup> percentile” form of the 24-hour standard allows the states to exempt—ignore—the top two percent of the days with the highest pollution levels *before* they start to calculate how polluted the air is. Since the rules base compliance on three years of monitoring data, **the 98<sup>th</sup> percentile allows the 21 most polluted days over a three year period to be ignored during the review.**
- A “99<sup>th</sup> percentile” form would allow the states to drop only the top one percent of the days with the highest levels. Over the three years, the 11 most polluted days would be dropped before the calculations began. **The Staff Paper analysis found the 99<sup>th</sup> percentile to better protect public health.** The Staff Paper recommended that if EPA decided to use the more lenient 98<sup>th</sup> percentile, then EPA should select more stringent levels.

For the annual PM<sub>2.5</sub> standard

- For the annual average standard, the Staff Paper recommended the compliance with the annual average standard be based on the highest concentration measured at any community-oriented monitor in an area. The current standards are based on “spatial averaging”; that is, **areas can average the readings from monitors in polluted areas with monitors in cleaner sites** to see if they meet the standards. EPA’s staff found that this spatial averaging provision could allow many metropolitan areas to avoid clean up and place certain socioeconomic groups at higher risk.

**5. Monitoring Protocol:** *How will air quality be measured to determine compliance with the standards?*

EPA establishes a “Federal Reference Method” that defines standards for monitoring instruments to measure ambient air quality. In addition, regulations specify how many monitors will be needed in metropolitan areas and where they should be deployed. The regulations also spell out quality assurance and reporting requirements and specify monitoring frequency. We expect EPA to propose new monitoring requirements for coarse particles.

The 1997 PM<sub>2.5</sub> standards relied on filter-based monitoring method and **allowed some areas to collect the filters to send to the lab for analysis only every six days.** The regulations also directed states to site the monitors away from factories or bus depots where the highest concentrations of pollution would be expected.