

PUBLIC HEALTH IMPROVEMENT PARTNERSHIP

‘WHAT IS HEALTHY’ (*submitted by DOE*)

The current federal standard for PM2.5 is not protective of public health.

The current federal Air Quality Index (AQI) indicates PM2.5 pollution levels are ‘unhealthy for sensitive populations’ beginning at levels above 40 ug/cm, and ‘unhealthy’ for all persons at levels above 65 ug/cm.

Data from numerous studies show that death and illness from exposure to PM2.5 occur at levels much lower than the AQI and the federal standard, and that health effects are not limited to highly sensitive populations. In fact, epidemiologic data have not identified a threshold for PM2.5 exposure below which no health effects are observed.

The ‘What is Healthy’ Team was asked to consider what level(s) of pollution constituted a ‘healthy’ level. The team isolated PM2.5 as the pollutant on which to concentrate its efforts because there is a significant body of research available and there is an on-going federal review of the national standard.

The team discussed whether or not its charge was to establish a new regulatory standard for Washington, and concluded that it was not. It was thought that the program did not have the political standing or analytical horsepower to establish a regulatory standard for Washington more stringent than federal law. However, it was determined that it was within the Air Quality program’s authority, if not responsibility, to establish a goal toward which resources, strategies, and implementation programs could be directed.

The ‘What is Healthy’ team considered a number of factors in developing a goal level. It considered the findings of numerous studies that show health effects occur at very low levels of PM2.5 exposure. It considered the EPA staff recommendations and the Agency’s Clean Air Advisory Committee (CASAC) recommendation for significantly reducing the federal standard. It observed that a revised AQI for PM2.5 (using a similar formula) would significantly reduce the level at which air pollution would be considered ‘unhealthy for sensitive groups.’ It considered Canadian national standards (30ug/cm). It considered that a local air authority had already established a goal at 25ug/cm, and that that group had not set their goal level lower due to economic and political, rather than health, considerations.

There are two standards for PM2.5: a 24-hour average standard (the average concentration of particulate matter 2.5 microns or less measured over a 24-hour period); and an annual average standard (the average concentration of particulate matter 2.5 microns or less measured over a 1 year period).



The federal government is currently re-evaluating its PM2.5 standard. Environmental Protection Agency staff and the Agency's CASAC recommended reducing both the 24-hour average and annual average standards. The 24-hour average was proposed between 30 and 35ug/cm, and the annual average standard was proposed between 12-15ug/cm. The newly proposed federal standard is 35ug/cm for the 24-hour average and 15ug/cm for the annual average.

In deliberations, the team concentrated its efforts mostly on the 24-hour goal. The team believes both 24-hour measurements and annual measurements are important and are recommending a change to both. But Washington's experience is that the annual standard is far higher than actual annual measurements around the state, and that reducing the annual goal similar to that recommended by EPA staff and the CASAC would be easily achievable.

The 24-hour goal level was of greatest concern. Due to wood smoke and wintertime inversions, 24-hr. PM2.5 levels can frequently climb high in certain areas of the state. Studies have shown that health effects for short-term exposure to PM2.5 may occur at levels as low as 9ug/cm, and that the incidence and types of health effects increase in number and severity as levels get higher. Therefore, the team was most concerned about establishing a lower 24-hour goal.

In 2004 and 2005, monitors around the state measured levels above the current AQI for sensitive groups (40ug/cm) 37 and 31 times, respectively. It is estimated that more than 1 million people were exposed at least once to levels 'unhealthy for sensitive groups.' Tens of thousands of people were exposed to these levels multiple times. There were no measurements recorded above the daily standard (65ug/cm).

In comparison, the numbers of times monitors around the state measured levels above 20ug/cm in 2004 and 2005 were 603 and 619, respectively. Millions of Washington citizens are exposed by PM2.5 pollution at this level, and likely hundreds of thousands of citizens are exposed multiple times.

The team recommends that a state goal level that would be more protective of public health would be 20ug/cm for a 24-hour average, and 12ug/cm for an annual average. The team believed that the 24-hr goal was a stretch for the state, but could be used effectively to educate citizens, advocate for behavior change, and seek funding to implement pollution reduction strategies and programs.

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