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Growing information on the health effects of low-level ozone pollution indicates current standards may not be sufficient to ensure protection of public health, according to a report by the U.S. General Accounting Office.

The U.S. Environmental Protection Agency is considering whether to add a chronic exposure standard to the one-hour exposure standard it currently has. Some industrial groups are opposed to such action.

The Baton Rouge area is unable to consistently meet the current air standard, which is a maximum concentration of .12 parts per million of ozone, and that failure is having an economic impact on the area.

Several local doctors have told the Morning Advocate the failure is also having a health impact, since they see increased respiratory and sinus problems when ozone levels are high, including during several recent violations.

Health effects from ozone are being noted nationally and internationally also.

"EPA has found that some children and adults exposed to ozone at the current standard while exercising can suffer loss in lung function," the GAO report states. "This finding has led EPA to conclude that the current standard may not provide an adequate margin of safety."

Controlled exposure studies on humans found statistically significant lung function reduction in healthy children and adults who were intermittently exercising for two hours while exposed to .12 ppm ozone, the report states. Chest pain, coughing and wheezing were shown in children at exposures above .10 ppm.

Another study found that children's lung function reduction following a four-day exposure to smog remained as long as a week.
Ozone

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More study is required before a conclusion is reached, he said.

In comments to EPA, other industrial groups question the agency's portrayal of the effects shown in some studies are necessarily adverse and question whether all the symptoms reported should be considered significant health effects.

EPA's ozone regulations should be revised to consider ozone averages over a longer period of time, said Dr. Morton Littmann, an ozone expert at the New York University Medical Center's Institute of Environmental Medicine.

For a long time it has been known that people experience a decline in respiratory function as a result of ozone exposure, he said.

"In the last 10 years, we're seeing effects at lower concentrations when people are exercising," he said.

Effects at the current standard of .12 ppm "are readily measurable" after about two hours, Littmann said. People exercising outside are the most susceptible. Among them are playing children, athletes and outdoor workers.

"The increasing concern is over the cumulative damage it is doing to the lungs," Littmann said. Animal studies show stiffening and premature aging of causes scar tissue in the lungs after repeated exposure, Thillmann said. It has also been linked to effects on blood enzymes, the endocrine system, the liver and the central nervous system.

Ozone also negatively affects tree growth and crop production, said Thillmann. It has been linked to a 35 percent reduction in tomato yield and a 26 percent reduction in bean yield.

The pollutant has been shown to cause a substantial, negative change in height of a number of different types of trees, he said.

A National Crop Loss Assessment Network study showed a decreased yield of 10 percent or more in soybeans, peanuts, corn and wheat when daylight ozone concentrations during the growing season exceeded .65 ppm.

"Ozone is the most common of the photochemical oxidants. It is formed when sunlight reacts with various hydrocarbons. Ethylene and propylene, which are heavily emitted in the Baton Rouge area, result in formation of more ozone than do many other types of hydrocarbons, according to Mike McDaniel of the Department of Environmental Quality."

While ozone is the photochemical oxidant most often monitored, other oxidants also cause problems, according to the American Lung Association.

In periods of high ozone pollution, people should stay indoors as much as possible in the late morning and afternoon when ozone levels are highest, said Littmann. That is particularly true for people taking part in physical activity, such as jogging.

Lungs and that is also being seen in limited data in humans from a California study.

The available data indicates there should be a more stringent standard averaged over a longer period of time, the doctor said.

Exposure to animals .08 ppm for three hours "resulted in increased susceptibility to acute respiratory infection," according to an EPA statement on the hazards of ozone.

The federal ozone standard was once .08 ppm, but it was loosened to .12 ppm when many cities complained they could not meet the stricter standard.

Baton Rouge has exceeded the current standard by a wide margin on several occasions this year. In the last two weeks, levels of .140, 147 and 197 ppm were recorded on separate days at the State Capitol monitor.

Last week when levels were high, Dr. Floyd Roberts, a pulmonary specialist, had to increase medication on several patients for no apparent reason other than the air pollution problem.

"A bunch of folks have been in with increased pulmonary problems," he said.

The physician said he has noticed the same trend in other periods of high ozone pollution.

An increase in asthmaic complaints, upper respiratory problems, eye irritation and sinus problems have been reported by other local physicians during periods of high ozone concentrations here.

Other symptoms, according to EPA, are sore throat, nausea, and chest pain.

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