

comments on staff ozone report.txt

From: "Hal Levin" <hal.levin@buildingecology.com>

To: <ddrechsl@arb.ca.gov>

Subject: comments on staff ozone report

Date: Wednesday, July 21, 2004 10:33 AM

Dear Dr. Drechsler,

1. I support the recommendations in the report and commend the staff for suggesting a 70 ppb 8-hour limit and a 90 ppb one-hour limit, both not to be exceeded.
2. I recommend both the further study of 4 to 8-hour studies of exposures to ozone at concentrations in the 40-80 ppb concentration range as well as shorter-term exposures to concentrations of 70-100 ppb. I believe that these studies should include both health children and adults as well as more susceptible segments of the populations being studied. Without investigating the effects on a full range of individuals, I do not believe that ARB can adequately respond to its legislative mandate. I also believe that exposure studies should be conducted in the laboratory where carefully controlled conditions are attainable but also in "natural" settings where ozone is accompanied by other pollutants so that the effects of these combined exposures can be investigated. It is not acceptable to ignore the role of ozone in human health without considering its impact together with the other air contaminants that are found in the environments where Californians spend their time.
3. I urge the Air Quality Advisory Committee to consider the implications of ozone on human health in light of the dominance of indoor air in terms of total exposure. In much of California, people use open windows rather than air conditioning as a means of cooling their homes. This occurs in coastal climates where outdoor air temperatures are not excessively high as well as in drier inland climates where evaporative cooling can be used for control of the indoor thermal environment. In these cases, indoor to outdoor ozone ratios can be from 50 to 70%, as documented by Charles Weschler in his 1989 A&WMA Journal article on ozone indoors.
4. More recent research including work performed for the ARB has shown that reactions of ozone with common indoor materials and with indoor source chemicals such as cleaning products and solvents results in the formation of secondary products that are often more irritating or toxic than the chemicals from which they were formed. The recent article by WW Nazaroff and CJ Weschler reporting the results of their literature review for the ARB-funded study of cleaning products and their reactions with oxidants shows that this may be a very important source of human exposure to hazardous chemicals and even to fine and ultra-fine particles. I have attached a copy of that article for your information.
5. I recommend further study of ozone concentrations indoors in a variety of environments, especially in schools, health care facilities, and public assembly spaces where air exchange rates are high enough to result in elevated indoor-outdoor ozone concentration ratios. I also recommend more thorough characterization of ozone in homes in the full range of climates

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found in California and through various seasons but, especially, during the so-called ozone season as defined locally.

I hope these comments are useful and stand prepared to respond to any questions that they may raise during the Advisory Committee discussions.

Yours very truly,

Hal Levin

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