

August 10, 2004

Ms. Dorothy Shimer
Research Division
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Shimer:

I reviewed the *Report to the California Legislature-Indoor Air Pollution in California* with interest. As a physician specialized in Occupational/Environmental Medicine and Medical Toxicology, I would like to offer my comments, which are limited to health related issues.

1. The quality of this report and the efforts spent on this report by the authors are to be commended.
2. Evidence-Based Medicine, or EBM, has become the “standard of care” in assessing health-related issues such as disease outcomes due to exposures. It appears this report does not indicate that an approach using EMB was considered. For example, the report indicates that exposures to carcinogenic chemicals, especially formaldehyde, “result in a significant increase in **cancer** risk...” I am unaware of any epidemiologic (human) studies of good quality, as utilized by the Institute of Medicine on *Damp Indoor Spaces and Health*, or by the US Preventive Task Force on health-related topics, that implicate formaldehyde or indoor pollutants in the occurrence of any type of human cancer in an indoor setting. This report indicates that current studies (assumed to be human) have not directly addressed the potential impact of indoor Particulate Matter (PM) on health; thus, a similar qualification should be noted in regard to formaldehyde and indoor pollutants with respect to specific cancers.
3. The report does not indicate specific cancer types and/or body parts (brain, blood, liver, lung, kidney, soft tissues, etc.) to which indoor carcinogenic chemicals would exert influences in humans that may result in cancer of such organ/tissue. It is understandably difficult to tease out whether a relationship exists between the chemicals and specific cancer types, yet it is important to indicate any study limitations regarding cancer and premature death. This is not to say that exposure to these indoor pollutants should not be minimized, yet as scientists, we have the obligation to be as specific as we possibly can, to avoid misleading the public in thinking, for instance, that perhaps prostate cancer (for lack of a better example) is one of the cancers linked to indoor carcinogens.
4. It appears that formaldehyde is well described in this report. However, an important citation on formaldehyde was not included. The *ATSDR Toxicological Profile for Formaldehyde* should be included in the References. It provides useful information on human health as well as environmental issues. For example, one of the sources of

formaldehyde is endogenous production by humans as a result of metabolism of polysaturated fatty acids.

5. Risk assessment is not an exact science due to assumptions that need to be factored in. It may also be useful to provide a bigger picture in regard to the Estimated Costs of Indoor Air Pollution by comparing, for example, the information with the morbidity/mortality and health care costs data due to obesity and smoking.

Overall, this is a great document. Thank you for your consideration if you decide to modify or revise this draft report. Please feel free to contact me at (619) 446 1510 if you would like to speak with me in person.

Sincerely,

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