



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

EPA-SAB-IAQC-94-009a

February 15, 1994

Honorable Carol M. Browner
Administrator
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

RE: Draft "Addendum to the Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions"

Dear Mrs. Browner:

On December 3, 1993, the Indoor Air Quality/Total Human Exposure Committee (the Committee) of the Science Advisory Board reviewed the draft document "Addendum to the Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions" (the Addendum). In view of pressing EPA and public concerns about incinerators, this interim letter was prepared to provide you with preliminary information on some of the major findings of the Committee. A more detailed report is in preparation and will follow soon (EPA-SAB-IAQC-94-009).

The assessment of risks from combustors entails a complex range of issues, including many different kinds of combustion devices and raw materials, direct and indirect exposure routes, and concerns regarding transportation and disposal of raw materials and combustion ash. It is thus important to emphasize, at the outset, that this letter and the report in preparation address only one of these aspects, namely the questions surrounding indirect exposure assessment which are the subject of the Addendum. Indirect exposures are those that occur via transfer of airborne contaminants into water, soil and the food chain. Direct airborne exposures from combustor emissions are being addressed with other methodologies by the Agency and are not the subject of this letter.

To grapple with these complex exposure pathway issues, the Agency needs to be able to estimate the environmental fate of combustor emissions and their consequent potential for human exposures. This task requires the development of models to predict accumulations of chemical contaminants in the environment and identification of the chemicals, environmental compartments, and exposure pathways most likely to be of concern so that appropriate actions

can be taken before there is widespread and/or irreversible damage. The Addendum we reviewed is a critical part of the Agency's effort to deal with these very difficult challenges.

The Committee's, principal conclusion is that the Addendum is not ready for release as an "EPA Methodology." The major scientific concerns were as follows:

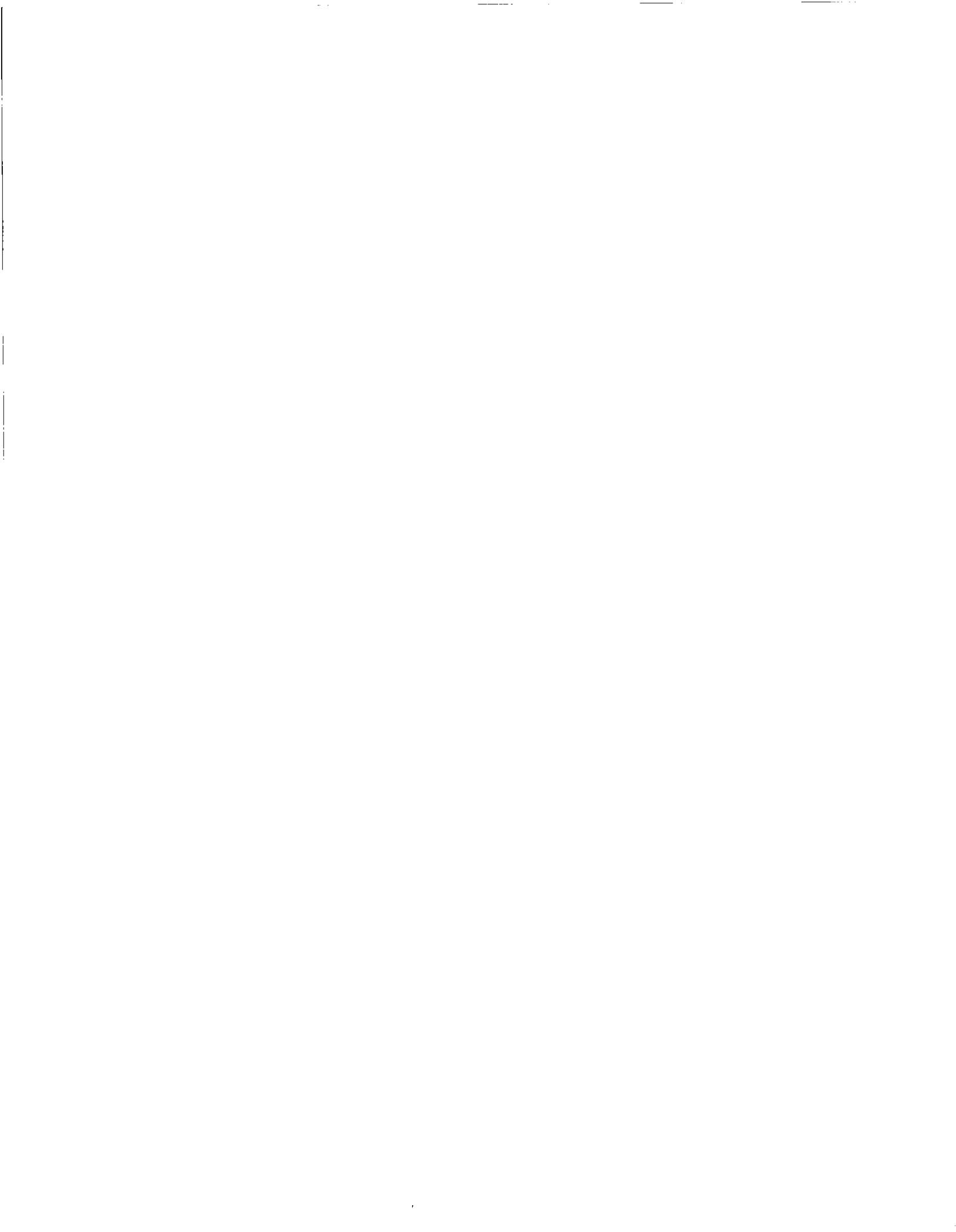
1) There is a general lack of measured data to estimate input parameters and very little validation of the exposure models. The general reliance on default input data and the large number of assumptions left the Committee with many reservations about widespread application of this document as an EPA methodology for all types of combustors and chemicals. The Committee recommends that the Agency develop and implement a strategic plan to collect critical input data for the models and to validate the methodology.

2) The Committee is concerned about the lack of information on the frequency and impact of upset conditions (e.g., upsets in the combustion process that result in less complete combustion, as well as breakdown of filters, precipitators, or other controls on stack emissions) on both the chemical composition and the character of emissions from incinerators. The model relies on measured data from four California incinerators. These limited data suggest that upset conditions can contribute significantly to the total emissions from an incinerator but the frequency of upset conditions has not been determined for sufficient numbers and types of incinerators to be reasonably confident of the adequacy of the default values recommended for use.

3) The Committee is concerned that the Addendum does not require the risk assessor to account for the impact of multiple combustor sources. While a single new facility may not result in a significant risk, the cumulative effect of the addition of a facility to an area with a number of existing combustors may well cause an unacceptable health risk. There is a need for a more regional approach to evaluating risks from indirect exposures. There were also concerns that the impact beyond 50 km (the maximum distance considered in the Addendum) may be of concern for areas with large numbers of combustors.

4) Although the Addendum nominally addresses all combustors (incinerator, fossil fuel, etc.), the document as now written appears to place more emphasis on incinerators and does not adequately address all combustors. It is known that the chemical nature of the emissions and the frequency of upset conditions will differ substantially among various types of combustors but the document does not reflect this body of information. For example, there is a substantial body of information on emissions from coal combustors that should be referenced if the document is to be all inclusive.

5) The Committee noted that EPA's re-permitting process for incinerators offers a unique opportunity to obtain existing data on the frequency and duration of upset conditions for various types of incinerators in the U.S. Other useful data may be available that could be required as part of the re-permitting process, such as emissions measurements.



Many of the above issues have been noted by previous SAB committees in their review of hazardous waste and domestic waste incineration. In addition, various incineration studies and emission data sets exist in other countries. It is highly recommended that the Agency compile and review these previous efforts as a way of focusing its future directions.

In summary, the Committee is very aware of the difficulties inherent in the "state of the science" nature of the work which the Addendum effort entails, especially when the work must be done under the combined pressures of severely limited resources and public demands for "something" to be done quickly. The Committee, however, does not recommend the release of the Addendum as an "EPA Methodology" due to the substantial scientific uncertainties in the models and the absence of information in the Addendum concerning those uncertainties and limitations.

Sincerely,

Genevieve M. Matanoski
Dr. Genevieve M. Matanoski, Chair
Executive Committee
Science Advisory Board

Joan M. Daisey
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