

Science Advisory Board Review of the Update to the EPA Risk Assessment Forum's Guidelines for Exposure Assessment

The practice of exposure assessment has been evolving rapidly and has changed significantly since the 1992 publication of the Guidelines for Exposure Assessment. The science has advanced in the areas of personal monitoring and modeling, activity pattern analysis, and addressing susceptible populations and life stages. The EPA has published specific guidance in such areas as probabilistic analyses, exposure factors, aggregate exposure and cumulative risk, and community-based research. The updated Guidelines incorporate and refer to advances and changes in the theory and practice of exposure assessment. Input on specific topics to include was sought from internal and external sources, including other federal agencies, and members of the Societies for Risk Analysis and Exposure Analysis.

The document also takes a more interdisciplinary approach to exposure science than the first guidance in 1992. It is recommended that the exposure assessor first confer with various experts, as well as risk managers, to define the problem to be considered. The presence of particular sensitive populations or life stages may drive the exposure assessment, or those groups may provide information invaluable to refining exposure or risk estimates. Determining the scope of the assessment, and data and resources available, helps the assessor determine which tools to use. Planning and scoping is also important when addressing highly uncertain situations, such as acute or catastrophic exposure events.

The SAB provided a consultation on the general goals, topic areas, and approach for the Update in September 2006. The consultation, jointly focusing on risk and exposure assessment, recommended that cumulative, population or community-centered approaches be used that in turn would better address public health issues. Where possible, the SAB recommended full explanation of uncertainty and variability, and the use of probabilistic methods for analysis of both.

Finally, the updated Guidelines include a section on emerging sciences that hold promise for refining exposure assessment, e.g., by addressing the variability in human exposure and risk. Topics include the various “-omics,” nanoscale materials, and computational biology and toxicology.

Tentative Charge

- The SAB is asked to provide expert scientific peer review, and to specifically comment on the scope and content of the updated Guidelines, the completeness and clarity of the text, the suitability of figures and tables, the appropriateness of references and examples, and the inclusion of appropriate emerging areas in this field.