



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 WASHINGTON, D.C. 20555

OCT 21 1991

MEMORANDUM FOR: Raymond F. Fraley, Executive Director  
 Advisory Committee on Nuclear Waste

FROM: Robert M. Bernero, Director  
 Office of Nuclear Material Safety  
 and Safeguards

SUBJECT: USE OF FORMAL ELICITATION OF EXPERT JUDGMENT  
 IN THE HIGH-LEVEL WASTE REPOSITORY PERFORMANCE-  
 ASSESSMENT PROGRAM

I am responding to Dade W. Moeller's July 31, 1991, memorandum, which presented the Advisory Committee on Nuclear Waste's (ACNW's) views on the role of formal elicitation of expert judgment in the site characterization, performance assessment, and eventual licensing of a geologic repository for the disposal of high-level radioactive waste. In that memorandum, the ACNW recommends that the U.S. Nuclear Regulatory Commission (NRC) staff prepare and provide guidance to the U.S. Department of Energy (DOE) on the appropriate use of, and reliance on, explicit expert judgment (which we interpret to refer to expert judgment developed by means of a formal elicitation process). The use of expert judgment in DOE's Calico Hills Risk Benefit Analysis was specifically mentioned in the memorandum. The NRC staff has discussed this with the ACNW staff and both have agreed that no written response is required in that regard.

The NRC staff agrees with the ACNW that guidance should be issued on the use of elicited expert judgment in the high-level waste program. The staff is developing guidance for using elicited expert judgment during licensing. Currently, the staff has no guidance available for use in the pre-licensing phase of repository development. However, the staff will evaluate the use of expert judgment in pre-licensing issues in accordance with its current thinking, if the need to do so arises before guidance is issued. Such reviews will assist the staff in developing formal guidance.

The NRC staff has developed an approach to providing guidance to DOE that it believes will ensure that needed information is available to DOE in a timely fashion. This approach is meant to be systematic and is consistent with the role of NRC during the prelicensing phase of the program, as mandated by the Nuclear Waste Policy Act of 1982 and the Nuclear Waste Policy Amendments Act of 1987. NRC systematic guidance will focus on two major programmatic licensing-related documents: DG-3003, Draft Regulatory Guide, "Format and Content for the License Application for the High-Level Waste Repository" (FCRG) and the "License Application Review Plan" (LARP). The FCRG describes to DOE the

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information that should be provided in the license application. In it, the staff attempts to provide DOE with general guidance on the need for accountability and transparency in data collection and presentation methods. This document will provide guidance on the presentation of licensing information developed through any method, including formal elicitation of expert judgment. More specific guidance will be provided in the LARP. The LARP, although designed for the staff's use in the review of the license application, will be available to DOE. It will describe, in detail, the kind of review that the staff will need to undertake for each component of the license application. The LARP would include approaches and criteria the staff would use in reviewing DOE's use of expert judgment, including the extent to which formal elicitation processes may help to support the applicant's position. Furthermore, the staff intends to develop guidance for reviewing DOE's use of elicited expert judgment in demonstrating compliance with the overall system performance standard. Additional guidance may be provided through a limited number of staff technical positions, and through periodic meetings and technical exchanges with DOE, which are open to all parties.

In addition to the observations and questions included in your letter, the following issues will need to be addressed, as the staff develops its guidance for the LARP.

1. Often there will be no single, "correct" approach for eliciting expert judgment or using judgment to support an application. Rather, a range of methods will be available, and DOE will need to select a method suitable for the problem at hand. Overly prescriptive guidance by the staff could unnecessarily constrain the options available to DOE. The staff will need to strike a balance between its desire to provide useful guidance and its intent to avoid being overly prescriptive with that guidance.
2. Your memorandum notes that "[formally elicited expert] judgments represent only 'snapshots' in time of prevalent opinion. Expert judgment should not be characterized as a means for revealing truths." One of the difficult aspects of developing guidance on elicited expert judgment is establishing what role it should play in making licensing decisions.
3. Appendix B of the memorandum seems to imply that the judgments of multiple experts will be aggregated to provide a representation of prevalent opinion. The staff is concerned about the admissibility and value of such information in an NRC licensing review. When the views of several experts have been combined, perhaps by an analyst without expertise in the subject of concern, it is not clear how the combined view can or should be introduced as evidence in support of a license application, nor is it clear who would defend the combined view during cross-examination by other parties. The staff needs to examine more

carefully both the technical and legal issues involved in aggregating the views of multiple experts.

I trust that this memorandum responds to the ACNW's concerns. The staff will continue to keep the ACNW informed of activities regarding guidance development in this area.

*for* John W. Hickey  
Robert M. Bernero, Director  
Office of Nuclear Material Safety  
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*no legal objection*

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