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BY FAX

John H. Austin  
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Division of Waste Management  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

RE: Draft Branch Technical Position on the Use of Expert  
Elicitation in the High-Level Radioactive Waste Program. February,  
1996.

Dear Mr. Austin:

We have reviewed the subject Draft Branch Technical Position  
and find that it is, in general, favorably responsive to concerns  
I transmitted in my letter of July 25, 1995, to Joseph J. Holonich,  
of the NRC staff, regarding DOE's June 5, 1995, Principles and  
Guidance for Formal Use of Expert Judgement by the Yucca Mountain  
Project.

The BTP properly emphasizes the need to formalize and  
thoroughly document the process of preparing for and eliciting  
expert opinion, aggregating judgements, and performing follow-up,  
when appropriate. However, missing from the discussion is explicit  
guidance that it is equally important that the DOE's decision, and  
its basis, to employ the expert elicitation process be thoroughly  
documented and transparent to future reviewers. Also, the  
documentation of the decision should be maintained as part of the  
record of the expert elicitation process.

It will be particularly important to know at the time of  
license application review whether cost was a primary consideration  
in the decision to employ expert judgement rather than performing  
theoretical analyses and/or gathering additional field and  
experimental data, as the BTP suggests it might be (pages 11 and

24). This is important because the Yucca Mountain Project has a continuing history of changing priorities on field and lab data collection and analysis that often is driven from year to year by available funds. What may seem to DOE to be practical and necessary one year can be deemed impractical the next year, with the issue then set aside as if it were closed and unnecessary to pursue. An example of this which may persist into a license application is the question of additional field study to understand the high hydrologic gradient north of Yucca Mountain. At present it appears that some informal "expert judgement" has determined that it is not important to understand why this condition exists, whereas in the past it has been considered important by DOE when more money was available to the project for surface-based testing.

The BTP states the four conditions under which the use of expert elicitation should be considered (page 17 and elaborated on pages 24-25):

- (a) Empirical data are not reasonably obtainable, or the analyses are not practical to perform;
- (b) Uncertainties are large and significant to a demonstration of compliance;
- (c) More than one conceptual model can explain, and be consistent with, the available data; or
- (d) Technical judgements are required to assess whether bounding assumptions or calculations are appropriately conservative.

Throughout the text of the BTP, the use of expert judgement is described in various manners that are only in some cases obviously consistent with the above list, eg. an alternative when other means of obtaining data and information are not practical to implement; a means of reducing uncertainty; an assessment of the state of scientific uncertainty; a means of exploring the state of knowledge on a particular topic; complementing and supplementing other sources of scientific and technical information; etc. It would be helpful for the BTP to collect and discuss all of the various descriptions of the beneficial use of expert judgement in one place in order for the reader to better interpret the Staff's apparently broader view on when the use of expert elicitation might be appropriate, and to what purpose. This further discussion possibly could be added to Chapter 4 (1) as a supplement.

It also appears that the final three items in the above list of conditions are often simply a subset of the first condition. Each of the final three conditions can be the result of a DOE decision that further data collection and analysis is not practical, but, in some cases such as the above example, the condition likely could be mitigated by additional data collection and analysis. The BTP repeatedly admonishes against substituting expert judgement for traditional analyses, but in each case makes cost and practicality a prominent consideration. As the regulator,

the NRC should be most concerned with safety considerations, which can only be derived from a high quality license application firmly grounded on data and analyses. As in every regulatory arena, it is the applicant's responsibility to weigh cost against quality in the preparation of its license application, and it is the regulator's responsibility to judge whether the product is adequate. The BTP gives helpful guidance regarding how the regulator might view the quality of DOE's application, but, I believe, errs in emphasizing cost and practicality on the part of the applicant as a potential measure of compromise in determining the "reasonable assurance" that the applicant's safety case is adequately proven. The text of this BTP should be revised to reflect that the NRC's primary regulatory role, and highest priority, is to promote safety. As it stands, the unfortunate implication in this BTP is that cost and practicality for the applicant are acceptable measures against which to weigh safety in the regulatory proceeding.

And finally, despite DOE's view that much of Chapter 1 and 2 of the BTP is an unnecessary review of past experience with the use of formal expert judgement exercises, we believe that it is a useful description that adds basis to the Staff's positions as set out in Chapter 3 and further discussed in Chapter 4. The use of expert judgement in a licensing proceeding in this unique case will remain a prominent issue throughout, and it will be important to understand as thoroughly as possible the current Staff's basis for the guidance which it provided to the applicant and other parties prior to preparation of the license application. It must be remembered that, in the licensing proceeding the product of this guidance may or may not be found acceptable, and the original basis for the guidance could be integral to that decision.

Thank you for the opportunity to comment on this Draft Branch Technical Position on the Use of Expert Elicitation in the High-Level Radioactive Waste Program. If you have questions about our comments please contact me or Carl Johnson, Administrator of Technical Programs for this Office.

Sincerely,



Robert R. Loux  
Executive Director

RRL/cs