



Electric Power  
Research Institute

Leadership in Science and Technology

September 18, 1991

Dr. Robert Bernero  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Materials  
Safety and Safeguards  
Washington, D.C. 20555

Dear Bob:

Subject: Workshop on Earthquakes and Tectonics  
EPRI HLW Performance Assessment for the Proposed Repository  
Yucca Mountain, Nevada  
November, 14-15, 1991  
Washington, D.C. (hotel to be determined)

We would like to invite the participation of your organization as observers at the upcoming Workshop on Earthquakes and Tectonics for the EPRI High Level Waste (HLW) performance assessment project on November 14 and 15, 1991. We ask that you identify the names of a few individuals within your organization to attend the workshop as observers. As we discuss below, the purpose of this workshop is very focused and the attendance is limited.

The objective of the EPRI HLW project is to conduct performance assessments for the proposed repository at Yucca Mountain for early site suitability assessment and prioritization of activities. In this assessment, information from various technical disciplines is integrated to develop performance scenarios and the associated probability distributions of radionuclide release. During the first phase of this project in 1990, a methodology was developed and applied to demonstrate the feasibility of performing a risk-based evaluation of underground high-level waste repositories. To develop this model, contributors in the fields of tectonics, volcanology, climatology, hydrology, geochemistry, rock mechanics, and waste package engineering developed input assumptions in the form of logic trees to reflect current understandings and uncertainties in scientific techniques and data. The emphasis during this first phase was to develop a viable methodology and to demonstrate its use, without attempting to systematically quantify the associated uncertainties. The results were reported in EPRI report NP-7057.

During the second phase of the EPRI HLW project, we are focussing on two areas: 1) improvements and refinements to the methodology, and 2) quanti-

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cation of the uncertainties associated with the performance assessment model. We plan to accomplish the latter through the elicitation of expert opinion, coupled with the conduct of topical workshops for the experts to share their data sets and interpretations. The first technical issue selected is the hazard associated with earthquakes and tectonics. Subsequent issues related to performance assessment will be handled in a similar way. So this first workshop is, in many ways, a demonstration for how later workshops might be conducted.

The panel of Earthquakes and Tectonics experts, who will be responsible for quantifying the uncertainties, are the following:

<b>John Bell</b>	<b>Univ. Nevada, Reno</b>
<b>Al Rogers</b>	<b>U.S. Geological Survey</b>
<b>Burt Slemmons</b>	<b>Consultant</b>
<b>Bert Swan</b>	<b>Geomatrix Consultants</b>
<b>John Whitney</b>	<b>U.S. Geological Survey</b>
<b>Ivan Wong</b>	<b>Woodward-Clyde Consultants</b>

The individuals were selected for the panel based on their technical contributions to understanding the tectonics of the Yucca Mountain region or similar regions, and on the high regard that members of the professional community have for their work. We believe that the panel represents a balanced group of individuals having diverse opinions, areas of technical expertise, and institutional/organizational backgrounds. It is quite likely that other individuals could be identified with equivalent skills and backgrounds. However, it is important to remember that the purpose of the panel is to reasonably quantify the uncertainties associated with earthquake and tectonics issues for the performance assessment model. We are interested in their personal technical interpretations and uncertainties and they are specifically asked to not act as representatives of technical positions taken by their organizations. The EPRI HLW performance assessment methodology is particularly well-suited to incorporate diverse technical models and their implications.

The topic of earthquakes and tectonics will be handled through two workshops. The first is scheduled for November 14-15, 1991 and will include: identification of technical issues and models, review of available data bases, and training in expert opinion elicitation. During the period following the first workshop, the experts will identify or develop models to address the technical issues and will assess the values of the parameters to define these

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models. At the second workshop, to be held in about February, 1992, the experts will share and defend their models to the group as a whole, and will have their opinions elicited individually. The results of the assessments and their technical bases will be documented and published.

Given that the focus of the workshop in November is the dissemination of information among the earthquake and tectonics experts, we will limit the number of observers. As noted previously, the workshop is not a forum for a general discussion of earthquake issues, but rather an opportunity for the experts to focus on the particular technical issues and models for quantifying the impact of these issues on repository performance. We expect that broad interest in these technical issues and in performance assessment might generate the desire for a large number of people to attend this first workshop. However, the opportunity for observers to participate will be quite limited. We are therefore asking that you identify a few individuals within your organization to attend this workshop. Upon receipt of your recommendations, we will formally invite these individuals and send them information on the workshop.

We are quite interested in the involvement of key individuals within your organization. During the course of the workshop we will make some time available for observers to make statements and to ask questions. Informal discussions during breaks and meals will also be encouraged.

Please note that the workshop will fully occupy both November 14 and 15 and attendees should arrange their schedule to provide for a 5:00 pm adjournment on Friday.

We are pleased in your interest in the EPRI HLW performance assessment project and look forward to receiving your recommendations for attendees. If you have any questions regarding this workshop, please feel free to give either of us a call.

Sincerely,

Electric Power Research Institute

Geomatrix Consultants, Inc.



**Robert A. Shaw**  
**HLW Project Manager**  
**(415) 855-2026**



**Kevin J. Coppersmith**  
**Project Manager**  
**(415) 434-9400**

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