

# CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

## MEETING REPORT

**SUBJECT:** NRC-DOE Technical Exchange on KTI Resolution (20-1402-461 and 20-1402-471)

**DATE/PLACE:** April 25-26, 2000  
Las Vegas, Nevada

**AUTHOR:** Brittain E. Hill, John A. Stamatakos

**DISTRIBUTION:**

**CNWRA**

W. Patrick  
CNWRA Directors  
CNWRA Element Managers  
P. Maldonado  
C. Connor  
D Ferrill  
D. Sims

**NRC-NMSS**

J. Linehan  
D. DeMarco  
B. Meehan  
J. Holonich  
W. Reamer  
D. Brooks  
J. Trapp  
P. Justus  
A. Ibrahim

**SwRI Contracts**

T. Nagy (Contracts)

# CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

---

## MEETING REPORT

**SUBJECT:** NRC-DOE Technical Exchange on KTI Resolution (20-1402-461 and 20-1402-471)

**DATE/PLACE:** April 25-26, 2000  
Las Vegas, Nevada

**AUTHOR:** Brittain E. Hill, John A. Stamatakos

### PERSONS PRESENT:

About 75 people attended the meeting, including most NRC and CNWRA KTI leads and their DOE counterparts.

### MEETING SUMMARY:

This report summarizes discussions concerning the IA and SDS KTIs. John Trapp (NRC) outlined key technical concerns with the DOE igneous activity program that need to be addressed for subissue closure. The IA KTI has two subissues, probability and consequences of IA, both of which are open with respect to prelicensing issue resolution. Most of the technical concerns were presented in Revision 2 of the IA IRSR. Probability concerns focused on the need to account for significant differences between (i) DOE models and available site information, (ii) models used elsewhere in the DOE program, and (iii) models and data in the reviewed literature. Additional technical justifications also are needed for apparent modifications to the PVHA elicitation, which are used to derive the probability of volcanic disruption at the proposed repository site. For the consequences of IA subissue, DOE needs to address technical concerns with their models of (i) magma-repository interactions, (ii) entrainment and transport of HLW, (iii) biosphere characteristics, and (iv) evolution of contaminated tephra-fall deposits. A Technical Exchange meeting is scheduled with the DOE on May 22-23 to discuss these issues further.

Eric Smistad (DOE) replaces Tim Sullivan (DOE) as the new program manager for the DOE IA team. Smistad identified several AMRs and the Disruptive Events PMR as containing information that will address NRC technical concerns presented in Revision 2 of the IA IRSR. DOE concludes that the information provided in the relevant AMRs and PMR will address the acceptance criteria in Revision 2 of the IRSR. DOE will continue FEPs screening to identify IA consequences that will be included in the TSPA. DOE also continues to evaluate volcanism effects on postclosure performance.

Phil Justus (NRC) summarized the SDS KTI status of issue resolution. He emphasized recent changes in the status of two of the four SDS subissues, tectonic models and seismicity. Justus noted that the tectonic models subissue was re-opened because of apparent incongruities in the application of tectonic models as technical bases for DOE seismicity versus igneous activity probability calculations. Justus also noted that the seismicity subissue was closed pending because staff recently received the DOE seismicity data from the PSHA expert

elicitation. The status of the remaining two SDS subissues remains unchanged since last year. Faulting is closed pending review of the FEPs AMR and associated technical bases for exclusion of faulting from the DOE Repository Safety Strategy. Fractures and structural framework subissue remains open because of unresolved questions about adequate fracture characterization, especially potential fracture biases in sample density and fracture orientation. Justus remarked that the bias potential for fracture sampling was especially critical because of recent changes in the design of repository drifts. DOE has re-oriented the drifts to minimize block sizes, but if the fracture data used by the DOE to justify those changes is incorrect, then the proposed drift re-orientation may be premature.

The DOE response was given by Tim Sullivan. He noted that many of the remaining SDS questions and concerns will be resolved in the upcoming Disruptive Events PMR and associated AMRs. Sullivan also indicated that the final Topical Report on seismicity (TR#3) will not be available until November 2001, well after SR. This delay is significant in that many of the pending items in the SDS seismicity closed-pending subissue hinge on review of the results that will be given in TR#3. Sullivan allowed time at the end of his presentation for Steve Beason (Bureau of Reclamation) to summarize recent fracture data collected in the Cross Drift. Steve showed fracture orientation data from the Cross Drift and commented that because the new data were from full-periphery maps and not scan lines, the data were not contaminated by a sampling bias. SDS staff disagree with this assessment and will perform sensitivity studies to evaluate the new Cross Drift fracture data.

The presentations were followed by a short discussion that mainly centered on the tectonic models and fracture questions. DOE deferred many of our technical questions to upcoming DOE and NRC discipline-specific Appendix 7 and Technical Exchange meetings.

#### **CONCLUSIONS:**

DOE concludes that the information provided in relevant AMRs and the Disruptive Events PMR should be sufficient to resolve the IA probability subissue. Staff have no basis to evaluate this conclusion until these reports are reviewed, discussed, and finalized by the DOE. Status of the consequences subissue is more difficult to determine, as the DOE TSPA-SR model apparently is not finalized as of the meeting date. Similarly, SDS open subissues will be re-evaluated once AMRs in support of the Disruptive Events PMR are provided to the NRC.

#### **PROBLEMS ENCOUNTERED:**

None.

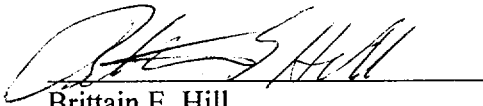
#### **PENDING ACTIONS:**

DOE is expected to provide several AMRs before the May 22–23 Technical Exchange on IA. Although these AMRs are in draft format, they likely will provide significant changes to the DOE modeling approach for IA since the TSPA-VA. SDS related AMRs also will have to be received prior to a planned interaction with DOE in the middle of June or early July.

#### **RECOMMENDATIONS:**

None.

**SIGNATURES:**



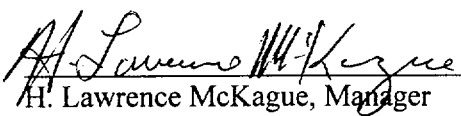
Brittain E. Hill  
Senior Research Scientist

5/11/00  
Date

*A. L. McKague FOR J. STAMATAKOS*  
John A. Stamatakos  
Senior Research Scientist

5/11/00  
Date

**CONCURRENCE:**



H. Lawrence McKague, Manager  
Geology and Geophysics

5/11/00  
Date



Budhi Sagar  
Technical Director

5/11/00  
Date

BH/JS/HM/BS/re

D:\Rebecca\HILL\TRIPRPT\kii\_te500.rpt.wpd