

January 23, 2001

MEMORANDUM TO: C. William Reamer, Chief  
High-Level Waste Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

FROM: Kien Chang, Project Manager /RA/ K. Stablein for  
Projects and Engineering Section  
High-Level Waste Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

SUBJECT: FORTHCOMING U.S. NUCLEAR REGULATORY COMMISSION  
AND U.S. DEPARTMENT OF ENERGY TECHNICAL  
EXCHANGE AND MANAGEMENT MEETING TO DISCUSS  
REPOSITORY DESIGN AND THERMAL-MECHANICAL  
EFFECTS

DATE/TIME of MEETING: February 6 - 8, 2001  
8:00 a.m. - 6:00 p.m. (PST) 11:00 a.m. - 9:00 p.m. (EST)

LOCATION: The Regent Las Vegas  
Grand Ballroom C  
221 N. Rampart Blvd.  
Las Vegas, NV 89145

PURPOSE: Discuss resolution of open issues related to the Key Technical  
Issue of Repository Design and Thermal-Mechanical Effects

AGENDA: Attached

PARTICIPANTS: 

<u>NRC</u>	<u>DOE</u>	<u>Nevada</u>	<u>NV Counties</u>
KStablein	DLanier	SFrishman	DBechtcl
MNataraja	CHanlon	et. al.	et. al.
et. al.	DWililams		
	et. al.		

\* Meetings and technical exchanges between NRC and DOE are open to members of the public, petitioners, interveners, or other interested parties wishing to attend as observers pursuant to the spirit of "Policy Statement on Staff Meetings Open to the Public," 65 Federal Register 56964, dated September 20, 2000. The revised policy states that public notice of staff meetings open to the public will be provided via the Internet at the U.S. Nuclear Regulatory Commission Web site. Members of the public can also contact the staff toll free at 1-800-397-4209.

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cc:

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S. Echols, Winston & Strawn	J. Kessler, EPRI
B. Price, Nevada Legislative Committee	D. Duncan, USGS
J. Meder, Nevada Legislative Counsel Bureau	R. Craig, USGS
D. Bechtel, Clark County, NV	W. Booth, Engineering Svcs, LTD
E. von Tiesenhausen, Clark County, NV	J. Curtiss, Winston & Strawn
A. Kalt, Churchill County, NV	S. Besser, NV Congressional Delegation
G. McCorkell, Esmeralda County, NV	N. Rice, NV Congressional Delegation
L. Fiorenzi, Eureka County, NV	T. Story, NV Congressional Delegation
A. Johnson, Eureka County, NV	J. Reynoldson, NV Congressional Delegation
A. Remus, Inyo County, CA	S. Joya, NV Congressional Delegation
M. Yarbrow, Lander County, NV	J. Pegues, City of Las Vegas, NV

NRC/DOE TECHNICAL EXCHANGE  
KEY TECHNICAL ISSUES ON REPOSITORY DESIGN  
AND THERMAL-MECHANICAL EFFECTS  
REGENT HOTEL LAS VEGAS  
GRAND BALLROOM C  
221 RAMPART BLVD.  
LAS VEGAS, NEVADA  
FEBRUARY 6 - 8, 2001

*Interested parties may participate in the agenda-setting telecon scheduled for January 29, 2001, at 10:00 a.m. (PST)/1:00 p.m. (EST) by calling 1-301-231-5539 Pascode 1603.*

*Interested parties may participate in the technical exchange scheduled for February 6-8, 2001, by calling 1-702-295-4257.*

Objective: Provide the basis to resolve open issues related to the Key Technical Issue (KTIs) on Repository Design and Thermal-Mechanical Effects.

Times are approximate because the agenda items are expected to provide a framework for wider ranging discussions. Time allotted for each presentation includes time for the DOE presentation and time for accompanying discussion.

**Tuesday, February 6, 2001**

8:00-8:20 AM	Introduction/Objectives/Logistics – Opening Remarks (DOE/NRC) Purpose of the Interaction
8:20-8:40 AM	Key Technical Issue on Repository Design and Thermal-Mechanical Effects– Summary of Status from DOE Perspective (DOE-Lachman)
8:40-9:40 AM	Subissue 1- Status of implementation of an effective design control process within the overall quality assurance program (DOE/McKenzie) Subissue 2- Status of design of the geologic repository operations area for the effects of seismic events and direct fault disruption (DOE/Quittmeyer) Subissue 4- Design and Long-Term Contribution of Seals to Performance (DOE/McKenzie)
9:40-10:45 AM	Caucus on RDTME Subissues 1, 2 & 4
10:45-11:00 AM	BREAK
11:00-11:30 PM	DOE/NRC Discussion of Resolution Status of RDTME Subissues 1, 2 & 4
11:30-12:30 PM	LUNCH
12:30-1:00 PM	RDTME FEPS Overview (Peter Swift)

1:00-2:15 PM	<p>Subissue 3- Status of thermal-mechanical effects on underground facility design and performance. Component 1- Thermal-mechanical effects on design and performance</p> <ul style="list-style-type: none"> <li>Acceptance Criterion 1 – Design assumptions, codes, and standards used for the design of subsurface facility SSCs important to safety are acceptable(DOE/Thom)</li> <li>Acceptance Criterion 3 - Materials and material properties used for the subsurface facility design are appropriate (DOE/McKenzie)</li> <li>Acceptance Criterion 4 – Design analyses use appropriate load combinations for normal and Category 1 and 2 event sequence conditions (DOE/McKenzie)</li> </ul>
2:15-2:30 PM	Break
2:30-3:30 PM	<p>Subissue 3- Status of thermal-mechanical effects on underground facility design and performance. Component 1- Thermal-mechanical effects on design and performance (continued)</p> <ul style="list-style-type: none"> <li>Acceptance Criterion 5 – Design Analyses use appropriate models and site-specific properties of the host rock and consider spatial and temporal variation and uncertainties in such properties (DOE/Duan)</li> </ul>
3:30-4:30 PM	Caucus on RDTME Subissue 3, Component 1 - Acceptance Criteria 1 through 5
4:30-5:30 PM	DOE/NRC Discussion of Resolution Status of RDTME Subissue 3- Component 1, Acceptance Criteria 1 through 5
5:30-6:00 PM	Closing Comments
6:00 PM	Adjourn first day

**Wednesday, February 7, 2001**

	<p>Subissue 3- Status of thermal-mechanical effects on underground facility design and performance. Component 1- Thermal-mechanical effects on design and performance (continued)</p>
8:00-9:00 AM	Acceptance Criterion 6 – The design of ground support systems is based on appropriate design methodologies and interpretations of modeling results (DOE/Duan)

9:00-10:00 AM	Acceptance Criterion 7 – The subsurface ventilation systems are adequately designed (DOE/Yang)
10:00-10:15 AM	Break
10:15-11:45 AM	Caucus on RDTME Subissue 3, Component 1 – Acceptance Criteria 6 and 7
11:45-1:00 PM	LUNCH
1:00-1:30 PM	DOE-NRC discussion of resolution status of Subissue 3, Component 1, Acceptance Criteria 6 and 7
1:30-4:30 PM	<p>Subissue 3: Status of thermal-mechanical effects on underground facility design and performance. Component 2-Effects of seismically induced rockfall on the engineered barrier system performance</p> <ul style="list-style-type: none"> <li>Acceptance Criterion 1 – Important design features, physical phenomena and couplings, and consistent and appropriate assumptions have been identified and described sufficiently for incorporation into abstraction of mechanical disruption of EB components. (DOE/Kicker)</li> <li>Acceptance Criterion 2 – Sufficient data pertaining to the EB materials mechanical failure processes, and the characterization of potential disruptive events are available to adequately define relevant parameters and conceptual models. (DOE/Bennett)</li> <li>Acceptance Criterion 3 – Parameter values, assumed ranges, probability distributions, and bounding assumptions used in the MDEB abstraction are consistent, technically defensible, and account for uncertainties and variables. (DOE/Ceylan)</li> </ul>
4:30-5:00PM	Closing Comments
5:00 PM	Adjourn Second Day

#### **Thursday, February 8, 2001**

8:00-9:00 AM	<p>Subissue 3: Status of thermal-mechanical effects on underground facility design and performance. Component 2-Effects of Seismically induced rockfall on the engineered barrier system performance-(continued)</p> <ul style="list-style-type: none"> <li>Acceptance Criterion 4 –Alternative modeling approaches are investigated and results and limitations are appropriately factored into the MDEB abstraction (DOE/Kicker)</li> </ul>
9:00-10:00 AM	Caucus on RDTME Subissue 3, Component 2, Acceptance Criteria 1

through 4

10:00-10:15 AM	BREAK
10:15-11:15 PM	DOE-NRC discussion on RDTME Subissue 3, Component 2, Acceptance Criteria 1 through 4
11:15-12:15 PM	<p>Subissue 3: Status of thermal-mechanical effects on underground facility design and performance. Component 3 – Thermal-Mechanical Effects on Flow into Emplacement Drifts</p> <ul style="list-style-type: none"><li>· Degradation of Engineered Barriers.(DOE/Bodvarsson/Blair)</li></ul>
12:15-1:15 PM	LUNCH
1:15-2:15 PM	<p>Subissue 3: Status of thermal-mechanical effects on underground facility design and performance. Component 3 – Thermal-Mechanical Effects on Flow into Emplacement Drifts (continued)</p> <ul style="list-style-type: none"><li>· Quantity and Chemistry of Water Contacting Waste Packages and Waste Forms (DOE/Bodvarsson/Blair)</li><li>· Spatial and Temporal Distribution of Flow (DOE/Bodvarsson/Blair)</li></ul>
2:15-2:30 PM	BREAK
2:30-3:30 PM	Caucus on RDTME Subissue 3, Component 3
3:30-4:30 PM	DOE-NRC Discussion on RDTME Subissue 3, Component 3
4:30-5:30 PM	DOE caucus to discuss proposed agreements
5:30-6:00 PM	Closing Comments
6:00 PM	Adjourn Technical Exchange