



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 3, 1998

MEMORANDUM TO: Michael J. Bell, Acting Chief  
Performance Assessment and High-Level  
Waste Integration Branch  
Division of Waste Management

FROM: Michael P. Lee, Systems Analyst   
Performance Assessment and High-Level  
Waste Integration Branch  
Division of Waste Management

SUBJECT: FORTHCOMING U.S. DEPARTMENT OF ENERGY (DOE)/U.S.  
NUCLEAR REGULATORY COMMISSION (NRC) TECHNICAL  
EXCHANGE (INCLUDING VIDEOCONFERENCE)

DATE & TIME: March 17-19, 1998  
8:00 a.m. to 5:30 p.m. (CST)

LOCATIONS\*: Center for Nuclear Waste Regulatory Analyses  
6220 Culebra Road, Building 189  
San Antonio, Texas

NRC Headquarters – Two White Flint North  
11555 Rockville Pike, Room T-2B5 (videoconference room)  
Rockville, Maryland

PURPOSE: Technical exchange to discuss DOE's plans and methodology for  
conducting a total-system performance assessment in support of  
its forthcoming Viability Assessment. Also discussed will be the  
status of NRC efforts to develop its independent performance  
assessment review capability. (See attached agenda.)

PARTICIPANTS: NRC DOE State of Nevada  
T. McCartin *et al.* A. van Luik *et al.* S. Frishman *et al.*

**AFFECTED UNITS OF LOCAL GOVERNMENT**

M. Murphy, Nye County	M. Baughman, Lincoln County
D. Bechtel, Clark County	B. Mettam, Inyo County
V. Poe, Mineral County	W. Cameron, White Pine County
R. Williams, Lander County	L. Fiorenzi, Eureka County
J. Regan, Churchill County	J. Hoffman, Esmeralda County
L. Bradshaw, Nye County	P. Niedzielski-Eichner, Nye County
R. Arnold, Pahrump (NV)	M. Stellavato, Nye County

CONTACT: M. Lee/DWM  
(301) 415-6677

\* Meetings and technical exchanges between NRC and DOE are open to members of the public and other interested parties wishing to attend as observers, pursuant to the spirit of the "Open Meeting Statement of NRC Staff Policy" (59 FR 48340, dated September 20, 1994) which details the open meeting policy for applicants.

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PDR WASTE PDR  
WM-11



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**PROPOSED AGENDA**  
**MARCH 1998 TECHNICAL EXCHANGE ON**  
**YUCCA MOUNTAIN PERFORMANCE ASSESSMENTS**

Center for Nuclear Waste Regulatory Analyses  
San Antonio, Texas

*March 17, 1998*

**OVERVIEW OF DOE TSPA-VA AND NRC TPA CODE**

Introductions/Opening Remarks

General Approach/Methods of TSPA-VA and NRC TPA Code

General Description of Base Case for TSPA-VA and NRC TPA Code  
- *includes Reference Design for TSPA-VA and NRC TPA Code*

Results of Base Case for TSPA-VA and NRC TPA Code  
- *results consist of dose at 20-km plus all intervening results that lead to that dose*

Results of Uncertainty Analysis of Base Case for TSPA-VA and NRC TPA Code

Planned TSPA-VA and NRC TPA Code Sensitivity Analyses

Discussion

*March 18, 1998<sup>1</sup>*

**BASES AND UNCERTAINTY IN NATURAL BARRIER SYSTEM  
COMPONENTS IN TSPA-VA AND NRC TPA CODE**

**Water Contacting Waste Packages: TSPA-VA and NRC TPA Code**

Will include discussion of:

- o Climate change and effects on saturated and unsaturated hydrology
- o Unsaturated zone flow fields
- o Seepage
  - *includes detailed discussion of process model and relationship to niche studies*
- o Thermal hydrology
  - *includes detailed discussion of process model and relationship to single heater test*

Discussion

**Concentration of Radionuclides During Transport: TSPA-VA and NRC TPA Code**

Will include discussion of:

- o Unsaturated zone transport
  - *includes detailed discussion of process model and colloid facilitated transport*
- o Saturated zone flow and transport

Discussion

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<sup>1</sup> May include an evening session on the 18th.

*March 19, 1998*  
**BASES AND UNCERTAINTY IN ENGINEERED BARRIER SYSTEM (EBS)  
COMPONENTS IN TSPA-VA AND NRC TPA CODE**

**Waste Package Lifetime: TSPA-VA and NRC TPA Code**

Waste package degradation

- *includes detailed discussion of process model and relationship to short-term test data and expert elicitation*

Discussion

**Rate of Release of Radionuclides: TSPA-VA and NRC TPA Code**

Will include discussion of:

- o Near Field geochemical environment
- o Waste form degradation
  - *includes detailed discussion of cladding degradation process model*
- o Radionuclide mobilization and EBS transport
  - *includes detailed discussion of secondary phases controlling concentrations*
  - *includes detailed discussion of colloid formation and stability*
- o Design option sensitivity analyses

Discussion

**Closing remarks**

# Southwest Research Institute

6220 Culebra Road San Antonio, Texas

78238-5166 (210) 684-5111

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