



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

November 8, 1994

**MEMORANDUM TO:** Joseph J. Holonich, Chief  
High-Level Waste and Uranium Recovery  
Projects Branch  
Division of Waste Management

**FROM:** Anne Garcia, Licensing Assistant *Anne Garcia*  
High-Level Waste and Uranium Recovery  
Projects Branch  
Division of Waste Management

**SUBJECT:** FORTHCOMING NUCLEAR REGULATORY COMMISSION/U.S. DEPARTMENT  
OF ENERGY (DOE) TECHNICAL EXCHANGE ON GROUND-WATER FLOW AND  
GROUND-WATER TRAVEL TIME

**DATE:** November 29 - December 1, 1994

**TIME:** November 29, 1994, 8:00 a.m. - 5:45 p.m.  
November 30, 1994, 8:00 a.m. - 5:30 p.m.  
December 1, 1994, 8:00 a.m. - 5:30 p.m.

[NOTE: Each day will continue until all scheduled topics  
have been presented]

**LOCATION:** Sheraton Denver West Hotel and Conference Center, Bergen  
Park Room, 360 Union Boulevard, Lakewood Colorado

**PURPOSE:** To discuss technical issues concerning (1) characterization  
of site hydrology and hydrology prototype testing, and (2)  
ground-water travel time (See attached agenda).

**PARTICIPANTS:** NRC M. Federline et al. DOE T. Bjerstedt et al.  
C. Einberg et al. STATE OF NEVADA S. Frishman  
C. Johnson  
T. Hickey, NV

AFFECTED LOCAL GOVERNMENTS

M. Murphy, Nye County	M. Baughman, Lincoln County
D. Bechtel, Clark County	B. Mettam, Inyo County
V. Poe, Mineral County	F. Mariani, White Pine County
R. Williams, Lander County	L. Fiorenzi, Eureka County
C. Schank, Churchill County	J. Hoffman, Esmeralda County
L. Bradshaw, Nye County	P. Niedzielski-Eichner, Nye Cty.

**CONTACTS:** (1) Ground-water Flow Technical Exchange, W. Ford, NMSS  
(301) 415-6630  
(2) Ground-water Travel Time Technical Exchange, J. Pohle, NMSS  
(301) 415-6703

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**Meeting Notice**

Meetings between NRC technical staff and the Department of Energy are open for interested members of the public, petitioners, intervenors, or any parties to attend as observers pursuant to the spirit of "Open Meeting Statement of NRC Staff Policy," 43 Federal Register 28058, 06/28/78 which details the open meeting policy for applicants and licensees.

**Anne Garcia, Licensing Assistant  
Repository Licensing and Uranium  
Recovery Projects Branch  
Division of Waste Management**

**Attachment: Meeting Agenda**

cc: T. Hickey, NEV  
S. Goldberg, OMB  
D. Weigel, GAO  
J. Meder, NEV  
F. Parker, NAS  
W. Barnard, NWTRB  
A. Kadak, YAEC  
R. Holden, NCAI  
E. Lowrey, NIEC

**Agenda**  
**DOE/NRC Technical Exchange**  
**Ground-Water Flow and Travel Time**

November 29, 1994

**Site Characterization and Ground – Water Flow (Patterson DOE Moderator)**

8:00	<u>Opening Remarks</u>	A11
8:30	<u>Introduction – Site Characterization Activities and Relation to Travel Time</u>	DOE
9:00	<u>Infiltration Studies</u>	DOE
9:45	<u>Unsaturated Zone Studies</u>	DOE
10:30	<u>BREAK</u>	
10:45	<u>Regional and Site-Scale Saturated Zone Studies</u>	DOE
11:30	<u>Overview of Age Dating Studies</u>	DOE
12:00	<u>LUNCH</u>	

**Mechanisms of Fracture Flow (Ford/Nicholson NRC Moderators)**

1:30 pm	<u>Pneumatic Testing at Apache Leap, and Uncertainty and Scale Effects in Flow and Transport</u>	NRC
2:15	<u>Bulk Fracture/Matrix Flow Parameters</u>	DOE
3:00	<u>BREAK</u>	
3:15	<u>Fracture Characterization and Discrete Fracture Representation</u>	DOE
4:00	<u>Laboratory Characterization of Fracture Flow</u>	DOE
4:45	<u>Laboratory Testing of a Fractured Block</u>	DOE
5:00	<u>Open Discussion</u>	ALL
5:45	<u>ADJOURN</u>	

**Agenda  
DOE/NRC Technical Exchange  
Ground-Water Flow and Travel Time**

November 30, 1994

**Mechanisms of Fracture Flow (Continued, Ford/Nicholson NRC Moderators)**

8:00	<u>Centrifuge Determination of Unsaturated parameters</u>	DOE
8:45	<u>Chemical Transport at Apache Leap</u>	NRC
9:30	<u>Prototype Testing at the Raymond Quarry Field Site</u>	DOE
10:15	<u>BREAK</u>	
10:30	<u>Infiltration Scenarios and Fault Control of Ground-Water Flow</u>	NV

**Thermal Effects Related to Definition of the Disturbed Zone (Duguid M&O Moderator)**

11:15	<u>Numerical Experiments in Non-Isothermal Flow</u>	NRC
11:45	<u>LUNCH</u>	
1:15	<u>Calculational Approach</u>	DOE
1:45	<u>Thermal Effects on Flow</u>	DOE
2:30	<u>Thermal and Mechanical Effects</u>	DOE
3:00	<u>BREAK</u>	
3:15	<u>Thermal Effects on Geochemistry</u>	DOE
4:00	<u>Status of Prototype Testing in Support of ESF</u>	DOE
4:30	<u>Open Discussion</u>	ALL
5:30	<u>ADJOURN</u>	

**Agenda**  
**DOE/NRC Technical Exchange**  
**Ground-Water Flow and Travel Time**

December 1, 1994

**Ground-Water Travel Time (Smistad/Patterson DOE Moderators)**

8:00	<u>Introduction</u>	DOE
8:30	<u>Interpretation of Regulations and Calculational Philosophy</u>	DOE
9:00	<u>Calculational Approach</u>	DOE
9:30	<u>Implementation of Approach</u>	DOE
10:00	<u>BREAK</u>	
10:15	<u>Unsaturated Zone Model</u>	DOE
10:45	<u>Site Scale Unsaturated Zone Model</u>	DOE
11:30	<u>LUNCH</u>	
1:00	<u>Uncertainty in Compliance Demonstration</u>	NRC
1:30	<u>Stochastic Analysis of Flow and Transport</u>	NRC
2:00	<u>BREAK</u>	
2:15	<u>Recent and Planned FEHM Developments</u>	DOE
3:00	<u>Saturated Zone Model</u>	DOE
3:30	<u>Open Discussion</u>	
4:00	<u>NRC Comments</u>	NRC
4:30	<u>State of Nevada Comments</u>	NV
5:00	<u>Closing Remarks</u>	ALL
5:30	<u>ADJOURN</u>	

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DATE	11/8/94		11/11/94		11/08/94		11/8/94	11/ /94	

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