

KS/HYDRO LETTER 11/14/90

DEC 17 1990

- 1 -

Mr. Dwight Shelor, Acting Associate Director
Office of Systems and Compliance
Office of Civilian Radioactive Waste Management
U. S. Department of Energy, RW 30
Washington, D.C. 20585

Dear Mr. Shelor:

SUBJECT: SUMMARY FOR THE SEPTEMBER 26-27, 1990 NRC-DOE TECHNICAL EXCHANGE
ON UNSATURATED ZONE HYDROLOGIC CHARACTERIZATION

Enclosed with this letter is the summary for the September 26-27, 1990 NRC-DOE Technical Exchange on Unsaturated Zone Hydrologic Characterization. The purpose of this exchange was for NRC and DOE to discuss progress in DOE's hydrology site characterization program, advances in understanding unsaturated flow processes, and the planned unsaturated zone hydrologic and hydrochemical tests described in DOE's Site Characterization Plan (SCP) for the Yucca Mountain site. NRC and DOE considered that the exchange provided a useful basis for further technical exchanges that are needed in the area of hydrology. The State of Nevada and its contractors participated in this interaction.

Should you have any questions on the enclosure, please contact King Stablein (FTS 492-0446) of my staff.

Sincerely,

ORIGINAL SIGNED BY

John J. Linehan, Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As Stated

- cc: R. Loux, State of Nevada
- C. Gertz, DOE/NV
- S. Bradhurst, Nye County, NV
- M. Baughman, Lincoln County, NV
- D. Bechtel, Clark County, NV
- D. Weigel, GAO

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SUMMARY OF NRC-DOE TECHNICAL EXCHANGE
ON UNSATURATED ZONE HYDROLOGIC CHARACTERIZATION
September 26-27, 1990
Denver, Colorado

Agenda: See Attachment 1.

List of Attendees: See Attachment 2.

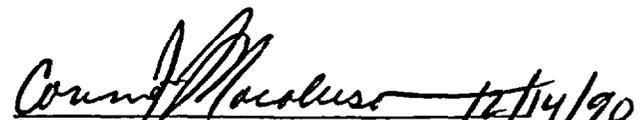
Summary:

On September 26-27, 1990, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) conducted a technical exchange on DOE's plans for hydrologic and hydrochemical characterization of the unsaturated zone at the Yucca Mountain site. The purpose of the exchange was for NRC and DOE to discuss progress in DOE's hydrology site characterization program, advances in understanding unsaturated flow processes, and the planned unsaturated zone hydrologic and hydrochemical tests described in DOE's Site Characterization Plan (SCP) for the Yucca Mountain site. Also on the agenda were a review of NRC's Site Characterization Analysis (SCA) comments that related to the planned tests and a presentation of the results of the Unsaturated Zone Hydrology Peer Review commissioned by DOE.

A member of the Peer Review group presented its programmatic and technical issues and recommendations, which are contained in a draft document to which DOE is currently preparing a response. NRC staff reviewed its SCA comments on the hydrologic and hydrochemical testing in the unsaturated zone described in the SCP. In addition, the NRC briefly discussed some of the hydrologic modeling that it has been doing recently. DOE then gave several presentations on various aspects of its hydrologic and hydrochemical testing program, with each presentation followed by numerous questions and considerable discussion. The State of Nevada participated in this exchange.

Both DOE and NRC considered that the exchange provided a useful basis for further technical exchanges that are needed in related areas, i.e., hydrologic modeling; data needs in the Calico Hills unit. The NRC took note of DOE's comprehensive program to investigate the flow processes within the unsaturated zone and indicated its interest in following DOE's efforts to incorporate into its site-scale flow modeling activities the data from all the diverse ongoing and planned investigations. The State of Nevada expressed disappointment that DOE's discussion of its hydrology program was not focused on the identification and evaluation of site suitability issues, which the State understood was what the Secretary of Energy had indicated would be the early focus of the DOE site characterization program. DOE clarified that site suitability issues were not intended to be the focus of this technical exchange.


King Stablein, Sr. Project Manager
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management
U.S. Nuclear Regulatory Commission


Corinne Macaluso
Regulatory Integration Branch
Office of Systems and Compliance
Waste Management
U.S. Department of Energy

September 17, 1990

AGENDA

DOE-NRC TECHNICAL EXCHANGE ON UNSATURATED ZONE
HYDROLOGIC CHARACTERIZATIONSeptember 26-27, 1990
Wednesday 8:30 - 5:00 PM
Thursday 8:30 - 4:00 PMStapleton Plaza Hotel - Arapahoe "A"
Denver, Colorado

PURPOSE: To discuss the planned unsaturated zone (UZ) hydrologic and hydrochemical tests described in the SCP and, to the extent possible, NRC's Site Characterization Analysis (SCA) comments that relate to these planned tests. In addition, the UZ Hydrology Peer Review results will be discussed.

SCOPE: This technical exchange will focus on planned testing to acquire hydrologic transport information at the site. Specifically, hypotheses and questions related to fracture vs. matrix flow and how the hypotheses will be tested during site characterization will be discussed.

Wednesday, September 26, 1990

<u>Agenda Topic</u>	<u>Discussion Leader</u>
Opening remarks	DOE, NRC, State
o Introduction	DOE
o Synopsis of UZ Hydrology Peer Review	DOE
Discussion	all
o Comments on Site Characterization of the UZ	NRC
Discussion	all
o Review of conceptual models of flow and flow processes in the UZ	DOE
Discussion	all
o Spatial variability and representativeness of hydrologic properties in the UZ	DOE
Discussion	all

DOE-NRC TECHNICAL EXCHANGE ON UNSATURATED ZONE
HYDROLOGIC CHARACTERIZATION
(continued)

<u>Agenda Topic</u>	<u>Discussion Leader</u>
o Deep borehole testing for flow processes	DOE
Discussion	all
o Air-permeability testing	DOE
Discussion	all
o Geochemical and isotopic methods for determining flow paths and travel time	DOE
Discussion	all
Adjourn	

Thursday, September 27, 1990

Opening remarks, comments from Day 1	DOE, NRC, State
o Small-scale fluid flow in fractured tuffs	
Discussion	all
o UZ infiltration: variability of precipitation input to repository block	DOE
Discussion	all
o Process-oriented modeling of flow in the UZ	DOE
Discussion	all
o Site-scale flow modeling and data requirements	DOE
Discussion	all
Concluding discussion and final remarks	DOE, NRC, State

ATTENDANCE LIST
DOE - NRC TECHNICAL EXCHANGE ON UNSATURATED
ZONE HYDROLOGIC CHARACTERIZATION

September 26-27, 1990

<u>Participant</u>	<u>Organization</u>	<u>Phone</u>
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September 26-27, 1990

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DOE - NRC TECHNICAL EXCHANGE ON UNSATURATED
ZONE HYDROLOGIC CHARACTERIZATION

September 26-27, 1990

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