



UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD  
2300 Clarendon Boulevard, Suite 1300  
Arlington, VA 22201

**Panel on the Natural System**  
**Crowne Plaza Hotel**  
**4255 South Paradise Road**  
**Las Vegas, NV 89109**  
**Tel: (702) 369-4400**  
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**Unsaturated Zone Fluid Flow and Radionuclide Transport**  
**Tuesday March 9, 2004**

- 8:00 a.m. Call to order and introductory remarks**  
Richard R. Parizek, Chair, Panel on the Natural System,  
U.S. Nuclear Waste Technical Review Board
- 8:25 a.m. Geological evidence of past climatic and hydrologic regimes of the Great Basin**  
Eric McDonald,  
Desert Research Institute
- 8:50 a.m. Questions and discussion*
- 9:05 a.m. Past, present, and future climate of Yucca Mountain**  
Saxon Sharpe,  
Desert Research Institute
- 9:35 a.m. Questions and discussion*
- 9:55 a.m. Break**
- 10:10 a.m. Climate change and Yucca Mountain unsaturated zone hydrology**  
James Paces,  
U.S. Geological Survey/Yucca Mountain Project
- 10:40 a.m. Questions and discussion*
- 11:00 a.m. Conceptual models of Yucca Mountain unsaturated zone flow**  
Alan Flint,  
U.S. Geological Survey
- 11:30 a.m. Questions and discussion*
- 11:50 a.m. Public comments**
- 12:10 p.m. Lunch**

- 1:10 p.m. Session introduction**  
Thure Cerling, member, Panel on the Natural System,  
U.S. Nuclear Waste Technical Review Board
- 1:20 p.m. Role of secondary minerals in unsaturated zone radionuclide transport at the Peña Blanca analog site**  
William Murphy,  
California State University, Chico
- 1:45 p.m. Questions and discussion*
- 2:00 p.m. Science and Technology program work at the Peña Blanca analog site**  
Ardyth Simmons,  
BSC/Los Alamos National Laboratory
- 2:15 p.m. Questions and discussion*
- 2:25 p.m. Conceptual models and independent lines of evidence for evaluating DOE unsaturated zone model calculations**  
James Houseworth,  
BSC/Lawrence Berkeley National Laboratory
- 3:05 p.m. Questions and discussion*
- 3:25 p.m. Break**
- 3:40 p.m. Sorption, matrix diffusion, and colloid-facilitated transport in unsaturated zone radionuclide transport models**  
George Moridis,  
BSC/Lawrence Berkeley National Laboratory
- 4:10 p.m. Questions and discussion*
- 4:30 p.m. Unsaturated zone radionuclide transport predictions and abstractions for Total System Performance Assessment**  
Bruce Robinson,  
BSC/Los Alamos National Laboratory
- 5:00 p.m. Questions and discussion*
- 5:20 p.m. Public comments**
- 5:50 p.m. Adjourn for the day**

# Saturated Zone Fluid Flow and Radionuclide Transport

## Wednesday March 10, 2004

**8:00 a.m. Session introduction**

Priscilla Nelson, Member, Panel on the Natural System,  
U.S. Nuclear Waste Technical Review Board

**8:10 a.m. Ground-water flow system of the Death Valley region**

Claudia Faunt,  
U.S. Geological Survey/Yucca Mountain Project

*8:40 a.m. Questions and discussion*

**9:00 a.m. Inyo County investigations of flow in fault zones south of Yucca Mountain**

John Bredehoeft,  
The Hydrodynamics Group

*9:30 a.m. Questions and discussion*

**9:50 a.m. Break**

**10:10 a.m. Ground-water flow system of the Yucca Mountain area**

James Winterle,  
Center for Nuclear Waste Regulatory Analysis, Southwest Research Institute

*10:40 a.m. Questions and discussion*

**10:55 a.m. Conceptual model of saturated zone flow and transport and independent lines of evidence for evaluating DOE saturated zone model predictions**

Ken Rehfeldt,  
BSC/Los Alamos National Laboratory

*11:25 a.m. Questions and discussion*

**11:40 a.m. Public Comments**

**12:00 p.m. Lunch**

**1:15 p.m. Session introduction**

Daniel Bullen, Member, Panel on the Natural System,  
U.S. Nuclear Waste Technical Review Board

**1:25 p.m. Geochemical mapping of the ground-water system**

Gary Patterson,  
U.S. Geological Survey/Yucca Mountain Project

*1:40 p.m. Questions and discussion*

- 1:50 p.m. Sorption, matrix diffusion, and colloid-facilitated transport in saturated zone radionuclide transport models**  
Stephanie Kuzio,  
BSC/Sandia National Laboratory
- 2:10 p.m. Questions and discussion*
- 2:20 p.m. Saturated zone radionuclide transport predictions and abstractions for Total System Performance Assessment**  
Bill Arnold,  
BSC/Sandia National Laboratory
- 2:50 p.m. Questions and discussion*
- 3:10 p.m. Break**
- 3:30 p.m. Roundtable discussion**
- 5:00 p.m. Public comments**
- 5:30 p.m. Adjourn**