

**Performance Assessment Community of Practice
Technical Exchange Meeting**

**Modeling the Performance of Engineered Systems
for Closure and Near-Surface Disposal**

Objective: The purpose of this technical exchange is to understand the current state-of-practice, state of evolving science and opportunities to improve fidelity and reduce uncertainty in models used to estimate the performance of the engineered systems for environmental assessments. The engineered system is defined to include the waste form(s), engineered barriers to contaminant release such as vaults, tanks, caps, and the near field physical-chemical interactions of these systems with the immediate surroundings that impact contaminant release. For each topic, the presentations and discussions are intended to provide (i) state of practice, and (ii) state of science, with discussion focused on opportunities, near-term and longer-term directions.

Date: July 13-14, 2009

Location: Salt Lake City Marriott University Park
Salt Lake City, Utah

Participants: DOE, NRC, EPA, State Regulators, National Laboratories, Academia, DOE Contractors, International

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Recorded video and presentation materials will be available through the CRESP website at <http://www.cresp.org/PACOP/index.html>.

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Agenda

All presentations are 20 minutes + 10 minutes discussion unless noted otherwise

Monday, July 13, 2009

- 8:00 Welcome, Introductions, and Meeting Objectives
Steve Krahn (USDOE Office of Waste Processing)
- 8:30 DOE HQ Perspectives on PAs
Martin Letourneau (USDOE Office of Compliance)
- 9:00 IAEA Activities on Safety Assessment and Radioactive Waste Management
John Rowat (International Atomic Energy Agency)
- 9:30 Overview of Data and Modeling Considerations for Engineered Features
Roger Seitz (Savannah River National Laboratory)
- 10:00 Break
- 10:30 Open Discussion
Moderator: James Clarke (Vanderbilt University/CRESP)
- 11:30 Introduction to WIPP and Yucca Mountain Assessment Frameworks
Roger Nelson/Paul Dixon (WIPP)

Working Lunch – Box Lunches Provided

Afternoon Session - State of the Practice for Modeling Engineered Features

- 12:30 Approaches used in Assessing Engineered Systems in Geologic Repositories
Yucca Mountain
Neil Brown (LANL) – 45 min (35/10)
- WIPP
Frank Hansen (Sandia) – 45 min (35/10)
- Uncertainty Analysis and Integration
David Sevougian (Sandia)
- 2:30 Break
- 3:00 NRC Perspectives on Modeling of Engineered Features
David Esh, USNRC
- 3:30 Approaches used in Assessing Engineered Systems in Near-Surface Facilities
Performance and Simulation of a Low-level Waste Disposal Vault
Pablo Zuloaga, (ENRESA, Spain) – 1 hr (40/20)
- Modeling the Engineered Systems for the F-Tank Farm Performance Assessment
Karthik Subramanian (SRR) – 45 min (30/15)
- 5:15 – Open Discussion
- 6:00 – Adjourn

Tuesday, July 14, 2009

- 8:00 Modeling Release from Different Waste Forms
 Glass and Ceramics
 Eric Pierce (EM-22/PNNL)
 Cementitious
 Greg Flach (SRNL)
 Soils and Sludges
 Kirk Cantrell (PNNL)
- 9:45 Break
- 10:15 Modeling Performance and Degradation of Barriers and Barrier Materials
 Liners and Caps
 Craig Benson (U.W./CRESP)
 Concrete Degradation (tanks, vaults, etc.)
 Sohini Sarkar, Sankaran Mahadevan & David Kosson (VU/CRESP)
- 11:15 Discussion
- 12:00 Lunch*
- 1:00 Composite Systems
 Modeling Interfaces involving Multiple Engineered Features
 John Walton (UTEP)
 Material-environment Interfaces (e.g., concrete-soil interfaces)
 Hans van der Sloot (ECN/CRESP) - 45 min (30/15)
 PA Modeling at the Hanford Site
 Michael Connelly (WRPS) & Marc Wood (CHPRC) – 45 min (30/15)
- 3:00 Break
- 3:30 Integration and Uncertainty
 Integration of System Components and Phenomena through Multiscale Modeling and
 Abstraction: Savannah River Examples
 Greg Flach (SRNL)
 Cement Barriers Partnership
 David Kosson (VU/CRESP)
- 4:30 Discussion and Conclusions
- 6:00 Adjourn

**Lunch is on your own. Allie's American Grill, conveniently located on-site at the hotel, is recommended. A list of area restaurants is available upon request.*