

2006 International High-Level Radioactive Waste Management Conference

“Global Progress Toward Safe Disposal”

April 30 – May 4, 2006 • Las Vegas, Nevada • Texas Station Hotel



Photo credit (above and front cover): Larry McKague

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Take a peek at who is planning the sessions for this successful conference.

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Catch a glimpse of a listing of the sessions by day—a comprehensive list of the technical papers/presentations for the 2006 international High-Level Radioactive Waste Management Conference.



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2006 International High-Level Radioactive Waste Management Conference

“Global Progress Toward Safe Disposal”

CONFERENCE OFFICIALS

GENERAL CHAIR

Daniel B. Bullen, *Exponent*

TECHNICAL PROGRAM CHAIR

Budhi Sagar, *CNWR*

LEAD ORGANIZERS

NATURAL SYSTEMS

Cliff Ho, Stratis Vomvoris, and Jude McMurry

ENGINEERED SYSTEMS

Carl Di Bella and Asad Chowdhury

BIOSPHERE

Graham Smith and Mikael Jensen

TOTAL REPOSITORY SYSTEM

Sitakanta Mohanty, Andy Campbell, and Mick Apted

REGULATORY TOPICS

Ray Clark and Mikael Jensen

INSTITUTIONAL TOPICS

Barry Butterfield and Daniel Bullen

OTHER TOPICS

Leif Eriksson and Budhi Sagar



Photo from the 2006 HLW Paper Review at ANS Headquarters, November 21, 2005

(left to right)
Daniel Bullen, Mick Apted, Budhi Sagar,
Barry Butterfield, Asad Chowdhury,
Carl Di Bella, and Sitakanta Mohanty

Photo credit: Chuck Vincent

Conference Information

The conference is a forum for the discussion of the scientific, technical, social and regulatory aspects of the “back end” of the nuclear fuel cycle. These issues include waste generation, transportation, storage, treatment, disposal, and associated aspects (such as facility remediation, regulation, and stakeholder involvement). The conference is an opportunity for an exchange of information on current topics of interest among the international participants in nuclear-waste activities. The conference will appeal to an international audience as an opportunity to share information across programmatic, disciplinary, and international boundaries. Intended participants and audiences include personnel working on all aspects of irradiated fuel and HLW management such as: geologic waste-disposal systems, facility remediation systems, the governmental and private organizations using these systems, regulators, and those involved in scientific and societal issues related to policy questions for these systems.

Sponsors

American Nuclear Society, University of Nevada, Las Vegas, and the United States Department of Energy, in addition to numerous professional and technical societies, national laboratories, commercial and federal organizations throughout the world.

Conference Registration

Registration is required for all attendees and presenters. Badges are required for admission to all events.

- The **Full Conference Registration** fee includes admission to all technical sessions, the welcome reception, the conference luncheon, the poster session/reception, and the conference proceedings (CD-ROM).
- The **Daily Conference Registration** fee includes admission to technical sessions on the day registered and the conference proceedings (CD-ROM).
- The **Student Registration** fee includes admission to all technical sessions.

NOTE: Additional tickets can be purchased at the ANS Registration Desk for the welcome reception, the conference luncheon, the poster session/reception.

Registration Hours

The Conference Registration Desk and Message Desk will be located in the Dallas Ballroom Foyer at the Texas Station Hotel. You may register, purchase tickets for events, or pick up your registration packet during the following hours:

SUNDAY, APRIL 30TH

1:00 p.m. – 4:00 p.m.

MONDAY, MAY 1ST

7:00 a.m. – 4:00 p.m.

TUESDAY, MAY 2ND

7:00 a.m. – 4:00 p.m.

WEDNESDAY, MAY 3RD

7:00 a.m. – 4:00 p.m.

Conference Proceedings

This year's conference proceedings is available on CD-ROM. Copies of the conference proceedings will be available on-site. Each full and daily conference registrant will receive a copy of the proceedings as part of the full and one-day registration fees. Additional copies may be purchased at the conference registration desk for \$120.00. To purchase copies following the conference, you may contact the ANS Accounting Department at 708-579-8210 (telephone), 708-579-8314 (fax), accounting@ans.org (email), or submit your request in writing to: American Nuclear Society, 97781 Eagle Way, Chicago, IL 60678-9770. Payment information must accompany all orders.

Speaker Registration and Preparation Room

All speakers are required to register for the conference in advance and to submit a registration fee. A Speakers' Preparation Room located in the Austin Boardroom will be in operation for the duration of the conference to serve the needs of speakers and moderators. Speakers and session chairs are requested to check-in at the speakers' desk located in the Dallas Ballroom Foyer at least one day prior to their presentation.

Poster Competition

Posters have become an effective method to convey information at the Conference. In recognition of this, the Technical Program Committee will select the “best poster.” The winner will be announced and awarded a prize at the Conference Luncheon.

Technical Tour: Yucca Mountain

DATE: Thursday, May 4, 2006

TIME: Buses depart from the Texas Station Hotel at 6:15 a.m. and return between 4:30 p.m.- 5:00 p.m.

TOUR FEE: \$20.00 (includes box lunch)

MAXIMUM OCCUPANCY FOR THIS TOUR HAS BEEN REACHED!

Yucca Mountain, Nevada, is the U.S. Department of Energy's potential underground geologic repository for spent nuclear fuel and high-level radioactive waste. The Office of Repository Development is pleased to offer the opportunity to tour the Yucca Mountain site and the underground laboratory. This event will give you the chance to speak with project scientists, see current activities and learn about future plans. Featured tour stops include: a drive to the crest of Yucca Mountain for a geology, hydrology, and environmental briefing; a visit to the Site Information Facility and the Underground Laboratory.

PLEASE NOTE – ON THE DAY OF THE TOUR:

Since you will be entering a construction area, be sure to wear long pants, a shirt with sleeves (no tank tops), and sturdy, comfortable, closed-toe/heel shoes or boots (no sandals or high heels). Other parts of the tour will require walking on unpaved surfaces and desert terrain. You may want to bring a hat and sunglasses for sun protection. As the group leaves the mountain, we hope each member is better enlightened about one of the most important issues facing our nation in the 21st century. Please note that a box lunch will be provided as part of the tour fee.

Social Functions

OPENING RECEPTION

Monday, May 1, 2006 • 6:00 p.m. – 7:30 p.m.

Location: Houston 1, 2, 3

Each full conference registrant will receive a ticket for the reception. Additional tickets may be purchased on-site at the ANS Conference Registration Desk for \$35.00.

CONFERENCE LUNCHEON

Tuesday, May 2, 2006 • 11:30 a.m. – 1:00 p.m.

Location: Dallas D, E, G

Each full conference registrant will receive a ticket for the luncheon. Additional tickets may be purchased on-site at the ANS Conference Registration Desk for \$35.00.

POSTER SESSION/RECEPTION

Tuesday, May 2, 2006 • 4:00 p.m. – 6:00 p.m.

Location: Dallas D, E, G

Each full conference registrant will receive a ticket for the reception. Additional tickets may be purchased on-site at the ANS Conference Registration Desk for \$35.00.

Conference Schedule

2006 International High-Level Radioactive Waste Management Conference

“Global Progress Toward Safe Disposal”

MAY 1, 2006 – MONDAY

8:30 A.M. -11:30 A.M.

Opening Plenary

1:00 P.M. – 4:00 P.M.

Status of International Programs

Techniques for Site Characterization

U.S. Department of Energy Science and Technology Program on Natural Barriers—I

Waste Handling, Storage, and Emplacement

Waste Package Corrosion

Unsaturated Flow and Transport

Regulatory Development

4:00 P.M. – 6:00 P.M.

International and Regional Science and Technology Cooperation–Panel

MAY 2, 2006 – TUESDAY

8:30 A.M. – 11:30 A.M.

Institutional Issues and Policies

U.S. Department of Energy Science and Technology Program on Natural Barriers—II

Underground Facilities

Waste Package Fabrication

Seismic, Volcanic, and Tectonic Processes

System-Level Assessment

1:00 P.M. – 4:00 P.M.

Alternatives to Deep Disposal–Panel

Communicating in a Political Environment–Panel

Climate and Infiltration

Natural Analogs

Near-Field Environment—I

Pathway Analysis and Dose Estimations

Sensitivity, Uncertainty, and Performance Confirmation

4:00 P.M. – 7:00 P.M.

Poster Session

MAY 3, 2006 – WEDNESDAY

8:30 A.M. -11:30 A.M.

Near-Field Processes—I

Waste Casks and Transportation

Studies in Underground Research Facilities

Waste Form

Waste Package Materials

Transport Processes—I

International Repositories–Panel

1:00 P.M. – 4:00 P.M.

Geochemical Processes

Waste Package, Storage, and Transportation Container Design

Model Abstraction

Heat Transfer: Estimation and Measurement

Near-Field Processes—II

Near-Field Environment—II

Transport Processes—II

Preclosure Safety and Environmental Impact Estimation

Technical Sessions

MONDAY, MAY 1, 2006 • 8:30 A.M.

Opening Plenary

Dallas D, F, & G

Session Chairs: Daniel Bullen (*Exponent*), Budhi Sagar (*CNWR*)

SPEAKERS:

- Jack Strosnider (*Director, Office of Nuclear Material Safety and Safeguards, NRC*)
- Elizabeth Cotsworth (*Director, Office of Radiation and Indoor Air, EPA*)
- Eric Knox (*Associate Director for System Operations and External Relations, DOE*)
- Harold F. McFarlane (*President-elect, ANS*)

MONDAY, MAY 1, 2006 • 1:00 P.M.

Status of International Programs

Dallas A

Session Chairs: Hiroyuki Umeki (*IAEA*), Piet Zuidema (*NCDRW*)

1:00 p.m.

Insights from NWMO's Study Process and Reflections on Path Forward, Jo-Ann Facella (*NWMO*)

1:30 p.m.

The Swiss High-Level Waste Programme: Status and Future Challenges, Piet Zuidema, Markus Fritschi, Andreas Gautschi, Lawrence Johnson, André Lambert, Jürg Schneider (*Nagra*)

2:00 p.m.

NUMO's Communication Initiatives in the Site Selection Stage, Mitsuo Takeuchi, Shigefumi Inatsugu, Toshiaki Kato (*NUMO*)

2:30 p.m.

Multinational and Regional Disposal Initiatives: Nearing a Turning Point, Charles McCombie, Neil Chapman (*Arius Assoc*)

3:00 p.m.

Dossier 2005: Andra's Feasibility Study of Geological Disposal, S. Mayer, B. Faucher, J.-M. Hoorelbeke (*Andra*)

3:30 p.m.

Generic Repository Concept Development and Assessment for UK High-Level Waste and Spent Nuclear Fuel, Ann McCall, Samantha King (*UK Nirex Ltd*)

Techniques for Site Characterization

Dallas B

Session Chairs: Grant Sheng (*York Univ*), Nathaniel Toll (*SNL*)

1:00 p.m.

Application of GIS and Remote Sensing for Site Characterization, Laura Xinglai Huang, Grant Sheng, Qingmou Li (*York Univ*)

1:30 p.m.

Testing the Concept of Drift Shadow with X-Ray Absorption Imaging, Susan J. Altman, Aleeca Forsberg, William Peplinski, Clifford K. Ho (*SNL*)

2:00 p.m.

Advances in Sinusoidal Aquifer Testing and Analysis, Nathaniel J. Toll (*SNL*), Todd C. Rasmussen, Mark Bakker (*Univ of Georgia*)

2:30 p.m.

Removal of Barometric Pressure Effects and Earth Tides from Observed Water Levels, Nathaniel J. Toll (*SNL*), Todd C. Rasmussen (*Univ of Georgia*)

3:00 p.m.

Lithostratigraphy and Shear-Wave Velocity in the Crystallized Topopah Spring Tuff, Yucca Mountain, Nevada, David C. Buesch (*USGS*), Kenneth H. Stokoe, Won Young Choi, Seonj Yeol Jeon, Jung Jae Lee (*Univ of Texas*), Michael D. Schuhen (*SNL*)

U.S. Department of Energy Science and Technology Program on Natural Barriers—I

Dallas E

Session Chairs: John Wengle (*DOE*), Claudia Newbury (*DOE*)

1:00 p.m.

Office of Science and Technology and International, Natural Barriers Thrust Overview, Bo Bodvarsson, Yvonne Tsang (*LBNL*)

1:30 p.m.

The Effect of Unheated Sections on Moisture Transport in the Emplacement Drift, G. Danko, D. Bahrami (*Univ of Nevada*), J. T. Birkholzer (*LBNL*)

2:00 p.m.

Field Investigation of the Drift Shadow, Grace W. Su, Timothy J. Kneafsey, Teamrat A. Ghezzehei, Paul J. Cook (*LBNL*), Brian D. Marshall (*USGS*)

2:30 p.m.

Paragenesis and Geochronology of the Nopal I Uranium Deposit, Mexico, M. Fayek (*Univ of Tennessee/ORNL*), M. Ren, P. Goodell (*Univ of Texas*), P. Dobson (*LBNL*), A. Saucedo (*UACH*), A. Kelts (*Univ of Texas*), S. Utsunomiya, R. C. Ewing (*Univ of Michigan*), L. R. Riciputi (*ORNL/Univ of Tennessee*), I. Reyes (*UACH*)

3:00 p.m.

U-Series Disequilibria in Soils, Peña Blanca Natural Analog, Chihuahua, Mexico, Diana French, Elizabeth Anthony, Philip Goodell (*Univ of Texas*)

3:30 p.m.

Pore Connectivity, Episodic Flow, and Unsaturated Diffusion in Fractured Tuff, Qinhong Hu (*LLNL*), Robert P. Ewing (*Iowa State Univ*), Liviu Tomutsa (*LBNL*), Michael J. Singleton (*LLNL*)

Waste Handling, Storage, and Emplacement

Houston 1

Session Chairs: Leslie Dole (*ORNL*), Simon Hsiung (*CNWR*)

1:00 p.m.

HABOG: One Building for All High-level Waste and Spent Fuel in the Netherlands. The First Years of Experience, J. Kastelein, H. D. K. Codée (*COVRA N.V.*)

1:30 p.m.

KBS-3H—Development of the Horizontal Disposal Concept, Erik Lindgren, Erik Thurner, Stig Pettersson (*SKB*), Margit Snellman, Jorma Autio (*Saario & Riekkä*)

2:00 p.m.

Challenges for Tele-handled Emplacement of the EBS for Japanese HLW, Hideki Kawamura (*Obayashi*), Ian G. McKinley (*McKinley Consult*), Fiona B. Neall (*Neall Consult*)

Waste Package Corrosion

Houston 2

Session Chairs: Fraser King (*Integrity Corrosion Consult*), Yi-Ming Pan (*CNWR*)

1:00 p.m.

A Framework for the Analysis of Localized Corrosion at the Proposed Yucca Mountain Repository, Joe H. Payer (*Case Western Reserve Univ*), Susan A. Carroll, Gregory E. Gdowski, Raul B. Rebak, (*LLNL*)

1:30 p.m.

EPRI's Engineered Barrier System Corrosion Model (EBSCOM), Fraser King (*Integrity Corrosion Consult*), Miroslav Kolar (*LS Computing*)

2:00 p.m.

Considerations of the Role of the Cathodic Region in Localized Corrosion, R. G. Kelly (*Univ of Virginia*), A. Agarwal (*Case Western Reserve Univ*), F. Cui (*Univ of Virginia*), Xi Shan, U. Landau, J. H. Payer (*Case Western Reserve Univ*)

2:30 p.m.

Passive Corrosion Behavior of Alloy 22, Raul B. Rebak (*LLNL*), Joe H. Payer (*Case Western Reserve Univ*)

3:00 p.m.

Drip Shield Corrosion from Fluoride in Dents, Richard B. Codell, Bret W. Leslie (*NRC*)

Unsaturated Flow and Transport

Houston 3

Session Chairs: Clifford Ho (*SNL*), Stratis Vomvoris (*Nagra*)

Technical Sessions

1:00 p.m.

Yucca Mountain Unsaturated Zone Radionuclide Transport Uncertainty Assessment, Feng Pan, Ming Ye (*Desert Research Inst/UNLV*), Yu-Shu Wu (*LBNL*), Bill Hu (*Florida State Univ*), Craig Shirley (*Desert Research Inst*), Zhongbo Yu (*UNLV*)

1:30 p.m.

Contact Angle of Yucca Mountain Welded Tuff with Water and Brines, Hemendra N. Kalia (*LANL*)

2:00 p.m.

Methods for Pore Water Extraction from Unsaturated Zone Tuff, Yucca Mountain, Nevada, Kevin M. Scofield (*S.M. Stoller/USGS*)

2:30 p.m.

Microclimate Dynamics in Non-Ventilated Drift at Yucca Mountain, Rohit Salve, Timothy J. Kneafsey (*LBNL*)

3:00 p.m.

The Impact of Natural Convection on Near-Field TH Processes in the Fractured Rock at Yucca Mountain, J. T. Birkholzer (*LBNL*), N. Halecky (*LBNL/Univ of California*), S. M. Webb (*SNL*), P. F. Peterson (*Univ of California*), G. S. Bodvarsson (*LBNL*)

Regulatory Development

Dallas H

Session Chairs: Björn Dverstorp (*SSI*), Ray Clark (*EPA*)

1:00 p.m.

Quality Assurance Source Requirements Traceability Database, Ram Murthy (*DOE*), Anna Naydenova (*SAIC*), Richard DeKlever (*Navarro Quality Svc*), Alesia Boone (*DOE*)

1:30 p.m.

New Guidance for Geological Disposal of Nuclear Waste in Sweden, Björn Dverstorp, Anders Wiebert, Mikael Jensen (*SSI*)

2:00 p.m.

Regulatory Review of License Applications for Construction of an Encapsulation Plant and a Spent Fuel Repository in Sweden, Bo Strömberg, Christina Lilja, Eva Simic, Övind Toverud (*SKI*), Björn Dverstorp, Anders Wiebert (*SSI*)

2:30 p.m.

Proposed Amendments to the Environmental Radiation Protection Standards for Yucca Mountain, Nevada, Raymond L. Clark (*EPA*)

3:00 p.m.

Regulatory Supervision of Spent Nuclear Fuel and Radioactive Waste Management at Sites of Temporary Storage in North-West Russia, Malgorzata K. Sneve (*NRPA*), Leonid A. Ilyin, Oleg Kotchetkov, Natalya K. Shandala, (*State Research Centre-Inst of Biophysics*), Graham M. Smith (*Enviros*)

MONDAY, MAY 1, 2006 • 4:00 P.M. – 6:00 P.M.

International and Regional Science and Technology Cooperation—Panel

Dallas D, F, & G

Session Chairs: Lake Barrett (*L. Barrett Consulting*), Renee Jackson (*DOE*)

The ability to manage nuclear waste is an essential component of every country's nuclear program regardless of their approach. The goal of safe, secure, and environmentally acceptable management of these materials in an affordable timely manner that supports the intergenerational ethical principles is the same for all nations. Many of the issues that must be addressed by individual countries are similar in nature. This panel of executive leaders of national high-level radioactive waste management programs comprising the International Association for the Environmentally Safe Disposal of Radioactive Materials (EDRAM) will discuss the objectives and work underway of that organization as well as the status of member countries' programs on high-level radioactive waste and spent nuclear fuel management.

MODERATOR:

Lake Barrett (*L. Barrett Consulting*)

PANELISTS:

- Hans Issler (*EDRAM, Chairman & NAGRA, President*)
- Claes Thegerstrom (*SKB*)
- Ken Nash (*OPG*)
- Jean-Paul Minon (*ONDRAF/NIRAS*)
- Marie Claude Dupuis (*ANDRA*)
- Eric Knox (*DOE*)

TUESDAY, MAY 2, 2006 • 8:30 A.M.

Institutional Issues and Policies

Dallas A

Session Chairs: Bernard Neerdael (*IAEA*), Mikael Jensen (*SRPA*)

8:30 a.m.

Community Perspectives on the Voluntary Siting Model: Implications for Environmental Justice, Brenda L. Murphy (*Wilfrid Laurier Univ*), Anna Stanley (*Univ of Guelph*)

9:00 a.m.

Ranking of Geological Disposal and Long-Term Management Options for Used Nuclear Fuel in Canada, Nava C. Garisto, Stacey L. Fernandes, Morley W. Davis (*SENES Consult Ltd*)

9:30 a.m.

Multinational Approaches—Recent IAEA Activities on Radioactive Waste Storage and Disposal, Bernard Neerdael (*IAEA*)

10:00 a.m.

The Back End of the Fuel Cycle Moves Front and Center, Thomas Isaacs, Jor-Shan Choi (*LLNL*)

10:30 a.m.

A New Political Paradigm for the Management of Radioactive Wastes, Barry L. Butterfield (*HDR Eng*), Daniel B. Bullen (*Exponent*)

U.S. Department of Energy Science and Technology Program on Natural Barriers—II

Dallas E

Session Chairs: Abe VanLuik (*DOE*), Douglas Duncan (*USGS*)

8:30 a.m.

Scale Dependence of Effective Matrix Diffusion Coefficient: Evidence and Preliminary Interpretation, Hui-Hai Liu, Yingqi Zhang (*LBNL*), Fred J. Molz (*Clemson Univ*)

9:00 a.m.

Uranium-Series Constraints on Subrepository Water Flow at Yucca Mountain, Nevada, Leonid A. Neymark, James B. Paces (*USGS*), Steve J. Chipera, David T. Vaniman, (*LANL*)

9:30 a.m.

Uranium and Neptunium Desorption from Yucca Mountain Alluvium, Cynthia D. Scism, Paul W. Reimus, Mei Ding, Steve J. Chipera (*LANL*)

10:00 a.m.

Saturated Zone Plumes in Volcanic Rock: Implications for Yucca Mountain, Sharad Kelkar, Robert Roback, Bruce Robinson, Gowri Srinivasan Catherine Jones, Paul W. Reimus (*LANL*)

10:30 a.m.

Infiltration and Seepage Through Fractured Welded Tuff, T. A. Ghezzehei, P. F. Dobson (*LBNL*), J. A. Rodriguez (*Instituto de Ecologia, Aldama*), P. J. Cook (*LBNL*)

Underground Facilities

Houston I

Session Chairs: Wesley C. Patrick (*CNWRA*), John Kemeny (*Univ of Arizona*)

8:30 a.m.

Optimising Repository Design for the CARE Concept, Sumio Masuda, Hideki Kawamura (*Obayashi Corp*), Ian G. McKinley (*McKinley Consult*), Fiona B. Neall (*Neall Consult*), Hiroyuki Umeki (*IAEA*)

Technical Sessions

8:55 a.m.

Present Status of the Äspö Hard Rock Laboratory, K. A. Sjöland, Niclas Bockgård (SKB)

9:20 a.m.

Rockfall at Yucca Mountain due to Thermal, Seismic and Time-Dependence, John Kemeny (Univ of Arizona), Mick Apted (Monitor Scientific), Derek Martin (Univ of Alberta)

9:45 a.m.

Radially Configured Waste Package Designs for the Yucca Mountain Repository, P. Kar, G. Danko (Univ of Nevada)

10:10 a.m.

Assessing Effects of Thermal Loading on the Stability of Emplacement Drifts, G. I Ofoegbu, B. Dasgupta, K. J. Smart (CNWRA)

10:35 a.m.

The Effect of Pre-Closure Ventilation on the Environmental Conditions at Yucca Mountain, G. Danko, D. Bahrami (Univ of Nevada)

11:00 a.m.

An Independent Analysis of External Radiation Dose Fields in an Underground Facility at the Potential High-Level Waste Geologic Repository at Yucca Mountain, Nevada, Oleg G. Poverko (CNWRA)

Waste Package Fabrication

Houston 2

Session Chairs: Yong Kim (NRC), David Bennett (Galson Sciences Ltd)

8:30 a.m.

Evaluation of the Canister Sealing Techniques in the Swedish KBS-3 Program, Håkan Rydén, Tommy Hedman (SKB)

9:00 a.m.

Eddy Current Examination of Spent Nuclear Fuel Canister Closure Welds, Arthur D. Watkins, Dennis C. Kunerth, Timothy R. McJunkin (INL)

9:30 a.m.

Yucca Mountain Waste Package Closure System, Kevin Skinner, Colleen Shelton-Davis, Greg Housley (INL)

10:00 a.m.

Yucca Mountain: Design of a Welding and Inspection System for Waste Package Closure, Herschel Smartt, Arthur Watkins, David Pace, Rodney Bitsoi, Eric Larsen, Timothy McJunkin, Charles Tolle (INL)

10:30 a.m.

Demonstration of Hanford HLW Canister For Federal Geological Repository Acceptance, Chris A. Musick (Bechtel Natl), William F. Hamel (DOE), Robert Tupling, Margaret T. Hawkins, Donald E. Larson (Bechtel Natl)

Seismic, Volcanic, and Tectonic Processes

Houston 3

Session Chairs: Phil Justus (NRC), Chuck Connor (Univ of South Florida)

8:30 a.m.

Neotectonic Considerations for Nuclear Waste Repository Site Selection in Japan, Mark Stirling, Kelvin Berryman, Laura Wallace, Nicola Litchfield (GNS Science), Mick Apted (Monitor Scientific), Mark Cloos (Univ of Texas)

9:00 a.m.

Probabilistic Methodology for Long Term Assessment of Volcanic Hazards, Olivier Jaquet (Colenco Power Eng), Charles Connor, Laura Connor (Univ of South Florida)

9:30 a.m.

Conceptual Models of Expected Events Associated with an Igneous Event at Yucca Mountain Repository, Meghan M. Morrissey (CSM), Mick Apted, Matthew Kozak (Monitor Scientific)

10:00 a.m.

Consequences Associated with Igneous Activity at Yucca Mountain, Matthew W. Kozak, Michael J. Apted (Monitor Scientific), Meghan M. Morrissey (CSM), Fraser King (Integrity Corrosion Consult), John H. Kessler (EPRI), George Mungov (Monitor Scientific)

10:30 a.m.

Alternative Lagrangian Model for Volcanic Plume Dispersion at Yucca Mountain, Leah Spradley (Vanderbilt Univ), Richard Codell (NRC)

11:00 a.m.

Expert Panel Elicitation of Seismicity Following Glaciation in Sweden, Mikael Jensen, Björn Dverstorp, Anders Wiebert (SRPA)

System-Level Assessment

Dallas H

Session Chairs: Allan Hedin (SKB), David Sevougian (SNL)

8:30 a.m.

EPRI's Total System Performance Assessment of Yucca Mountain using IMARC 9, John H. Kessler (EPRI), Matthew W. Kozak, Michael J. Apted, Wei Zhou, George Mungov (Monitor Scientific)

9:00 a.m.

Performance Assessment of Spent Nuclear Fuel Final Disposal for a Hypothetical Repository, Taiwan, David Ching-Fang Shih, Wen-Shou Chuang, Fu-Lin Chang, Chin-Lung Chen, Li-Hao Wu, Chung-Ding Lu, Neng-Chuan Tien, Cong-Zhang Tong, Chen-Chang Lee, Tzu-Feng Tseng, Ching-Tsuen Huang (INER)

9:30 a.m.

Safety Function Indicators in SKB's Safety Assessments of a KBS 3 Repository, Allan Hedin (SKB)

10:00 a.m.

Safety Assessment of the Horizontal Borehole Repository Concept for CANDU Fuel, F. Garisto (Ontario Power Generation), J. Avis, N. Calder (Intera Eng), P. Gierszewski, T. Kempe (Ontario Power Generation), C. Kitson, T. Melnyk (AECL), K. Wei (Ontario Power Generation), L. Wojciechowski (AECL)

10:30 a.m.

Post-closure Safety Assessment of Horizontal KBS-3-type Repository, F. L. Chang (INER), W. Zhou (Monitor Scientific), C.-F. Shih (INER), M. Apted (Monitor Scientific), C.-L. Chen, J.-C. Li (INER)

11:00 a.m.

Multidisciplinary Modelling of the Olkiluoto Site in Finland, Johan Andersson (JA Streamflow AB), John A. Hudson (Rock Eng Consult), Lasse Koskinen, Petteri Pitkänen (VTT), Liisa Wikström, Aimo Hautojärvi, Mia Ylä-Mella (Posiva Oy)

TUESDAY, MAY 2, 2006 • 1:00 P.M.

Alternatives to Deep Disposal-Panel

Dallas A

Session Chairs: Barry Butterfield (HDR Eng), Daniel Bullen (Exponent)

PANELISTS:

- Paul Craig (Univ of California)
- James Malone (Exelon)
- Allison MacFarlane (MIT)
- John Kessler (EPRI)

Communicating in a Political Environment-Panel

Dallas B

Session Chair: Allen Benson (DOE)

Managing high-level radioactive waste is a significant technical challenge made more complex by the political environment that surrounds it. Communicating high-level radioactive waste management issues clearly, completely, and factually within this political environment presents additional challenges. Learn more about the skills, messages, and strategies needed to improve your communication efforts in this interactive panel discussion with experienced members of local and national media, oversight organizations, and national high-level radioactive waste management organizations.

PANELISTS:

- Allen Benson (DOE)
- Irene Navis (Clark County Dep of Comprehensive Planning)
- Elaine Hiruo (Platts Nuclear Publications/NuclearFuel)
- Gérald Ouzounian (Andra)

Technical Sessions

Climate and Infiltration

Dallas B

Session Chairs: John Walton (*Univ of Texas*), Scott James (*SNL*)

2:35 p.m.

Climate Change Effects on Yucca Mountain Region Groundwater Recharge, Arturo Woocay, John C. Walton (*Univ of Texas*)

3:05 p.m.

Impact of Quaternary Climate on Seepage at Yucca Mountain, Nevada, Joseph F. Whelan, James B. Paces, Leonid A. Neymark (*USGS*), Axel K. Schmitt, Marty Grove (*Univ of California*)

3:35 p.m.

A Probabilistic Methodology to Determine Failure Probabilities and Acceptance Criteria for the KBS-3 Inserts Under Ice-Age Load Conditions, Karl-Fredrik Nilsson (*European Commission, DG-JRC, Inst for Energy*), Peter Dillström (*DNV Technical Consult*), Claes-Göran Andersson (*SKB*), Fred Nilsson (*RIT*), Mats Andersson (*ÅF System*), Philip Minnebo (*European Commission, DG-JRC, Inst for Energy*), Lars-Erik Björkegren (*Swedish Foundry Association*), Bo Erixon (*Reinertsen*)

Natural Analogs

Dallas E

Session Chairs: Neil Chapman (*Arius Assoc*), John Stuckless (*USGS*)

1:00 p.m.

Uranium-Series Constraints on Radionuclide Transport and Groundwater Flow at the Nopal I Uranium Deposit, Sierra Peña Blanca, Mexico, S. J. Goldstein (*LANL*), S. Luo (*Univ of Southern California/Natl Cheng-Kung Univ*), T. L. Ku (*Univ of Southern California*), M. T. Murrell (*LANL*)

1:30 p.m.

Volcanic Hazard and Radioactive Waste Disposal Problems in Armenia, Yura Ghukasyan (*Inst of Geological Sciences of Armenian Natl Academy of Sciences*)

2:00 p.m.

The Peña Blanca Natural Analogue Performance Assessment Model, George J. Saulnier, William Statham (*AREVA NP*)

2:30 p.m.

Natural Analogs for Future Volcanism in the Yucca Mountain Region, Meghan Morrissey (*CSM*), Mick Apted (*Monitor Scientific*)

3:00 p.m.

Analogues as a Check of Predicted Drift Stability at Yucca Mountain, Nevada, John Stuckless (*USGS*)

Near-Field Environment—

Houston 2

Session Chairs: Mick Apted (*Monitor Scientific*), Selvey Voinis (*ANDRA*)

1:00 p.m.

A 2-Phase, 3-D Flow Modeling for the Gas Migration Test, Koji Mori, Kazuhiro Tada (*Geosphere Environ Technol Corp*), Hiroyuki Tosaka (*Univ of Tokyo*), Stratis Vomvris (*Nagra*), Ai Fujiwara (*Radioactive Waste Mgmt Funding and Rsch Ctr*)

1:30 p.m.

Selected Results after 3 Years of the Mock-Up-CZ Experiment, Jiri Svoboda, Radek Vašiček (*CTU in Prague*)

2:00 p.m.

Double Diffusive Natural Convection in a Nuclear Waste Repository, Yue Hao, John J. Nitao, Thomas A. Buscheck, Yunwei Sun (*LLNL*)

2:30 p.m.

Groundwater Pathways from Regions Upgradient of Potential Yucca Mountain Repository, Jianting Zhu, Karl F. Pohlmann, Ming Ye, David S. Shafer, Rosemary W. H. Carroll (*Desert Rsch Inst*)

3:00 p.m.

Boundary Layer Analysis of Seepage into Drifts at Yucca Mountain, Benjamin Ross (*Disposal Safety Inc.*)

3:30 p.m.

Thermohydrological Model Uncertainty Reduction Using Physical Analog Models, R. T. Green, S. L. Painter (*CNWRA*)

Pathway Analysis and Dose Estimations

Houston 3

Session Chairs: Graham Smith (*Enviros QuantiSci*), Roland Benke (*CNWRA*)

1:00 p.m.

Fluvial Redistribution of Contaminated Tephra: Description of an Abstracted Model, Roland R. Benke (*CNWRA*), Brittain E. Hill (*NRC*), Donald M. Hooper (*CNWRA*)

1:30 p.m.

Fluvial Redistribution of Contaminated Tephra: Process-Level Modeling and Parameter Estimation, Donald Hooper, Roland Benke (*CNWRA*)

2:00 p.m.

Updated Biosphere Dose Conversion Factors for the Groundwater Release Scenario Taking Account of Climate Change and Natural Groundwater Discharge, Graham Smith, Duncan Jackson, Martin Herben (*Enviros Consult*), Juan Merino (*Enviros*), Matt Kozak (*Monitor Scientific*)

2:30 p.m.

Impact of Repository Depth on Residence Times for Leaking Radionuclides in Land-Based Surface Water, Anders Wörman, Lars Marklund (*Swedish Univ of Agricultural Sciences*), Shulan Xu, Bjorn Dverstorp (*SRPA*)

3:00 p.m.

Application of a Regulatory Performance Assessment Approach for Comparison with the Proponent's Calculations, Shulan Xu, Björn Dverstorp (*SRPA*), Ryk Klos (*Aleksandria Sciences*), Anders Wörman, Lars Marklund (*Swedish Univ of Agricultural Sciences*)

3:30 p.m.

Surface System Characterization—A Strategy to Integrate Biosphere Descriptions, Tobias Lindborg, Anders Löfgren, Erik Wijnblad, Björn Söderbäck, Ulrik Kautsky (*SKB*)

Sensitivity, Uncertainty, and Performance Confirmation

Dallas H

Session Chairs: Sitakanta Mohanty (*CNWRA*), Matthew Kozak (*Monitor Scientific*)

1:00 p.m.

Identification of Important Parameters in Large Safety Assessment System Models, T. W. Melnyk (*AECL*), P. Gierszewski (*Ontario Power Generation*), C. I. Kitson, L. C. Wojciechowski (*AECL*)

1:30 p.m.

Application of Regionalized Sensitivity Analysis to a Performance Assessment Model of a High-Level Waste Repository, Olufemi Osidele, Sitakanta Mohanty (*CNWRA*)

2:00 p.m.

Uncertainty Analysis of Multiple Canister Repository Model by Earth Simulator, Keiichi Tsujimoto (*Mitsubishi Materials Co.*), Joonhong Ahn (*Univ of California*)

2:30 p.m.

Analysis of DOE Spent Nuclear Fuels for Repository Disposal, Layne F. Pincock, Wendell D. Hintze (*INL*), James Duguid (*JKRA*)

3:00 p.m.

Monitoring of Human Activities for Performance Confirmation, Richard L. Beauheim (*SNL*)

3:30 p.m.

Development of the Performance Confirmation Program at Yucca Mountain, Nevada, Gary D. Lecain (*USGS*), Deborah Barr (*DOE*), Douglas Weaver (*LANL*), Richard Snell, Stephen W. Goodin (*BSC*), Francis D. Hansen (*SNL*)

Technical Sessions

TUESDAY, MAY 2, 2006 • 4:00–7:00 P.M.

Poster Session

Dallas D, F, & G

Session Chairs: Jude McMurry (CNWRA), Charles Forsberg (ORNL)

Natural Systems Poster Papers

Preliminary Safety Evaluations of the Host Rock at Candidate Sites for a Swedish SNF Repository, Johan Andersson (*JA Streamflow AB*), Allan Hedin (*SKB*)

A Revised Lithostratigraphic Framework for the Southern Yucca Mountain Area, Nye County, Nevada, Richard W. Spengler, Frank M. Byers (*USGS*), Robert P. Dickerson (*S. M. Stoller*)

Biosphere Dose Conversion Factors for the Extrusive Igneous Release Scenario as Evaluated in the EPRI TPSA for Yucca Mountain, Graham Smith, Duncan Jackson, Martin Herben (*Enviros Consult*), Matt Kozak (*Monitor Scientific*)

IP FUNMIG: The European Far-Field Project, Bernhard Kienzler (*Forschungszentrum Karlsruhe*)

Modeling Approaches for the Design and Analysis of the Gas Migration Test (GMT) at the Grimsel Test Site, Switzerland, R. Senger (*INTERA*), A. Fujiwara, T. Shimura (*RWMC*), B. Lanyon (*Fracture Systems*), P. Marschall, S. Vomvoris (*NAGRA*), S. Yamamoto, K. Ando (*Obayashi*)

Engineered Systems Poster Papers

Comparative Localized Corrosion Behavior Between High and Low-Pd Ti Alloys, Tiangan Lian, Raul B. Rebak (*LLNL*), Takashi Yashiki, Tomoaki Nakanishi, Takenori Nakayama (*Kobe Steel*)

Long-term Performance Issues for Disposal Canisters for Spent Fuel and HLW in Switzerland, L. H. Johnson, P. Zuidema (*Nagra*)

Rhenium Uptake, as Analogue for ⁹⁹Tc by Steel Corrosion Products, Kenneth M. Krupka, Christopher F. Brown, H. Todd Schaefer, Steve M. Heald, Michelle M. Valenta, Bruce W. Arey (*PNNL*)

The Consequence of Seismic Activity on Waste Package Structural Integrity, Randy J. James (*ANATECH*), Fraser King (*Integrity Corrosion Consul*), John H. Kessler (*EPRI*)

Evaluation of Potential Formation and Impacts of Deliquescent Brines, Michael J. Apted, Matt Kozak (*Monitor Scientific*), Don Langmuir (*Hydrochem Systems Corp*), Fraser King (*Integrity Corrosion Consul*), John Kessler (*EPRI*)

Testing of Flow Through Stress Corrosion Cracks, Zane Walton (*DOE*), Clifford Ho (*SNL*), Michael D. Schuhen (*DOE*)

Second Generation Waste Package Design and Operating Concept for Disposal of High Level Waste at the Yucca Mountain Repository, J. S. Armijo, P. Kar, M. Misra (*Univ of Nevada*)

Porous Matrixes From High-Melting Compounds for the Immobilization of Radioactive Wastes, B. G. Ershov, D. G. Kuznetsov, A A Mineav, M. M. Afonin, (*Inst of Physical Chemistry and Electrochemistry*)

Qualification Plan of Spent TRISO Fuel for Permanent Disposal, Joshua Peterson, Mary Lou Dunzik-Gougar (*Idaho State Univ*)

Iron(III) Matrix Effects on Mineralization and Immobilization of Actinides, Cynthia-May S. Gong, Tyler A. Sullens, Kenneth R. Czerwinski (*UNLV*)

Template Criticality Analyses to Qualify DOE Fuels for Repository Acceptance, Larry L. Taylor, Leland Montierth (*INL*)

Institutional Topics Poster Papers

Estimation of Terrorist Attack Resistibility of Dual-purpose Cask TP-117 with DU (Depleted Uranium) Gamma Shield, O. G. Alekseev, A. B. Galkina, V. Z. Matveev, A. I. Morenko, V. I. Shapovalov (*RFNC*), B. A. Zhabrov (*Uziymo Faee Rosatom*)

Possibility of Using Russian Nuclear Fuel Cycle Infrastructure for Solving Global Problems of Spent Fuel and Radwaste, Igor Rybalchenko, Valery Safutin, Natalja Shafrova (*VNIPIET*), Eugeny Kudrjavcev (*Rosatom, Bolshaja Ordynka*), Larion Lebedev (*GNTCEPT*)

Adaptive Phased Management Technical Description, Sean Russell (*Nucl Waste Mgmt Organization*)

Factors Affecting Risk Predictions: Proposed Rule and Other Risk Metrics, Robert W. Rice (*SRT*), John C. Walton (*Univ of Texas*)

Knowledge Management: The Emperor's New Clothes?, Tomio Kawata, Hiroyuki Umeki (*JAEA*), Ian G. McKinley (*McKinley Consult*)

High-Power Accelerator Target Design for the AFCI RACE Project, Timothy Beller, Brice Howard, Ryan Lecounte, Denis Beller (*UNLV*)

Strategy for Design of the Swedish Deep Repository for Spent Fuel, Eva Widing, Rolf Christiansson (*SKB*)

Development of the Web-Based Site Investigation Flow Diagram For HLW Repository Development, Kimitaka Yoshimura (*Radioactive Waste Mgmt Funding and Rsch Ctr*), Shuichi Yamamoto, Shoko Sato, Kenichi Ando (*Obayashi Corp*), Jin Ohuchi, Takao Tsuboya (*Radioactive Waste Mgmt Funding and Rsch Ctr*)

WEDNESDAY, MAY 3, 2006 • 8:30 A.M.

Near-Field Processes—I

Dallas A

Session Chairs: Richard B. Codell (*NRC*), Joonhong Ahn (*Univ of California*)

8:30 a.m.

The Influence of Proposed Repository Thermal Load on Multiphase Flow and Heat Transfer in the Unsaturated Zone of Yucca Mountain, Yu-Shu Wu, Sumit Mukhopadhyay, Keni Zhang, G. S. Bodvarsson (*LBNL*)

9:00 a.m.

Influence of Hydrologic Heterogeneity on Thermal-Hydrologic Behavior in Emplacement Drifts, Yunwei Sun, Thomas A. Buscheck, Yue Hao (*LLNL*)

9:30 a.m.

Multiscale Thermohydrologic Model Supporting the License Application for the Yucca Mountain Repository, Thomas A. Buscheck, Yunwei Sun, Yue Hao (*LLNL*)

10:00 a.m.

Geomechanical/Geochemical Modeling Studies Conducted Within the International DECOVALEX Project, J. T. Birkholzer, J. Rutqvist, E. L. Sonnenthal (*LBNL*), D. Barr (*DOE*), M. Chijimatsu, (*Hazama Corperation*), O. Kolditz (*Univ of Tuebingen*), Q. Liu (*Chinese Acad of Sciences*) Y. Oda (*JAEA*), W. Wang, M. Xie (*Univ of Tuebingen*), C. Zhang (*Chinese Acad of Sciences*)

10:30 a.m.

Results from an International Simulation Study on Coupled Thermal, Hydrological, and Mechanical (THM) Processes near Geological Nuclear Waste Repositories, J. Rutqvist, J. T. Birkholzer (*LBNL*), M. Chijimatsu (*Hazama Corperation*), O. Kolditz (*Univ of Tuebingen*), Quan-Sheng Liu (*Chinese Acad of Sciences*), Y. Oda (*JAEA*), Wenqing Wang (*Univ of Tuebingen*), Cheng-Yuan Zhang (*Chinese Acad of Sciences*)

11:00 a.m.

A Mountain-Scale Monitoring Network for Yucca Mountain Performance Confirmation, Barry Freifeld, Yvonne Tsang (*LBNL*)

Waste Casks and Transportation

Dallas B

Session Chairs: Charles Forsberg (*ORNL*), John Kessler (*EPRI*)

8:30 a.m.

Calculation of Incident-Free Spent Fuel Transportation Risk, Eileen M. Supko (*Energy Resources Intl*), John Kessler (*EPRI*)

9:00 a.m.

Transportation of Commercial Spent Nuclear Fuel in Canisters to Repository, Robert D Quinn, Robert A Lehnert (*BNG Fuel Solutions*)

9:30 a.m.

Benchmarking RADTRAN Loss of Shielding Model for a SNF Cask, Adam M. Boyd, Danielle K. Worthy (*Univ of Michigan*), Douglas Osborn, Ruth Weiner (*SNL*)

Technical Sessions

10:00 a.m.

Cladding Splitting During Short-term Cask Loading in an Oxidizing Atmosphere, R. E. Einziger, C. L. Brown (*NRC*)

10:30 a.m.

Manufacturing and Economic Studies for DUO₂—Steel Cermet Spent Fuel Casks, C. W. Forsberg, T. N. Tieg (*ORNL*)

11:00 a.m.

Full Burnup Credit in Transport and Storage Casks: Benefits and Implementation, C. V. Parks, J. C. Wagner, D. E. Mueller (*ORNL*)

Studies in Underground Research Facilities

Dallas E

Session Chairs: Bernhard Kienzler (*Forschungszentrum Karlsruhe*), James Paces (*USGS*)

8:30 a.m.

Monitoring of Underground Rock Characterization Facility, Onkalo, K. Lehto, J. Vira (*Posiva Oy*)

9:00 a.m.

Hydrogeological Research at the Äspö Hard Rock Laboratory, Sweden, Niclas Bockgård (*SKB*), Patrik Vidstrand (*Berggeologiska Undersökningar*), Urban Svensson (*Computer-aided Fluid Eng*), K. Anders Sjöland (*SKB*)

9:30 a.m.

Experiences with Underground Laboratory Experiments, Bernhard Kienzler, Peter Vejmelka, Jürgen Römer, Dieter Schild (*Forschungszentrum Karlsruhe*), Mats Jansson (*RIT*)

10:00 a.m.

Testing the Concept of Drift Shadow at Yucca Mountain, Nevada, James B. Paces, Leonid A. Neymark (*USGS*), Teamrat Ghezzehei, Patrick F. Dobson (*LBNL*)

10:30 a.m.

Characterization of Seepage in the Exploratory Studies Facility, Yucca Mountain, Nevada, Thomas A. Oliver (*S.M. Stoller*), Joseph F. Whelan (*USGS*)

Waste Form

Houston 1

Session Chairs: Carl Di Bella (*NWTRB*), Tae Ahn (*NRC*)

8:30 a.m.

Preservation of Archaeological Materials in Arid Environments Relevant to Yucca Mountain, Neil Chapman (*Chapman Consult*), Amy Dansie (*Independent Consult*), Charles McCombie (*McCombie Consult*)

9:00 a.m.

Dosimetry Modeling for Predicting Radiolytic Production at the Spent Fuel - Water Interface, William H. Miller, Amanda Kline (*Univ of Missouri*), Brady Hanson (*PNNL*)

9:30 a.m.

Fluorapatite as a Nuclear Waste Form Material for the FLEX Process, C. Silva, O. Hemmers, A. Johnson, D. Lindle (*UNLV*), Thomas Hartmann (*Harry Reid Center for Environmental Studies*)

10:00 a.m.

Stability Constants of Np(V) Complexes with Phosphate at Variable Temperatures, Yuanxian Xia, Judah I. Friese, Dean A. Moore (*PNNL*), Linfeng Rao (*LBNL*)

Waste Package Materials

Houston 2

Session Chairs: John F. Grubb (*Allegheny Technol*), Marissa Bailey (*NRC*)

8:30 a.m.

Base and Weld Metal Composition Effects on Weldment Mechanical Properties, J. F. Grubb, A. Nichols (*Allegheny Technol*)

9:00 a.m.

Development of a Weldable Neutron Absorbing Structural Material, W. L. Hurt, R. E. Mizia (*INL*), C. V. Robino (*SNL*), J. N. Dupont (*Lehigh Univ*)

9:30 a.m.

Remote Handling Equipment for a High-Level Waste Package Closure System, K. M. Croft, S. M. Allen, M. W. Borland (*INL*)

10:00 a.m.

Performance of the Waste Package During an Igneous Disruptive Event, Fraser King (*Integrity Corrosion Consult*), Randy J. James (*ANATECH Corp*), Shane Findlan (*EPRI*), Mick Apted (*Monitor Scientific*), John H. Kessler (*EPRI*)

10:30 a.m.

Independent Evaluation of Waste Package Corrosion Performance under Potential Repository Conditions, Y.-Ming Pan, K. T. Chiang, D. S. Dunn, X. He, O. Pensado, P. Shukla, L. Yang (*CNWRA*)

Transport Processes—I

Houston 3

Session Chairs: Scott Painter (*CNWRA*), Thomas Buscheck (*LLNL*)

8:30 a.m.

Time-Domain Random Walk Algorithms for Simulating Radionuclide Transport in Fractured Porous Rock, Scott L. Painter (*CNWRA*), Vladimir Cvetkovic (*RIT*), Osvaldo Pensado (*CNWRA*)

9:00 a.m.

Evidence for Ground-Water Stratification near Yucca Mountain, Nevada, Kiyoto Futa, Brian D. Marshall, Zell E. Peterman (*USGS*)

9:30 a.m.

Analysis of Single-hole and Cross-Hole Tracer Tests Conducted at the Nye County Early Warning Drilling Program Well Complex, Nye County, Nevada, Amjad Umari, John D. Earle, Mike F. Fahy (*USGS*)

10:00 a.m.

Results of Tracer Testing in the Saturated Alluvium South of Yucca Mountain, Paul Reimus (*LANL*), Robert Jones (*SNL*), Ezra Wasson (*Bechtel SAIC*), John Kelly, Alexander Sanchez (*SNL*), Walter Slack (*Bechtel SAIC*), Jeanette Daniels (*UNLV*)

10:30 a.m.

Effect of Kinetic Limitations on Colloid-Facilitated Radionuclide Transport at the Field Scale, Scott L. Painter (*CNWRA*), Vladimir Cvetkovic (*RIT*)

11:00 a.m.

Development of a System for Integrated Geological Modelling and Groundwater Flow Simulation, Hiromitsu Saegusa (*JAEA*), Matthew J. White (*Galson Sciences*), Peter Robinson (*Quintessa*), Jordi Guimera (*Enviros*)

International Repositories—Panel

Dallas H

Session Chair: Charles McCombie (*Arius*)

MODERATOR:

Lake Barrett (*DOE*), (*Former acting head of OCRWM*)

PANELISTS:

- Bernard Neerdael (*IAEA*)
- Tom Isaacs (*LLNL*)
- Igor Rybalchenko (*Vniipiet*)
- Hans Codee (*COVRA, NL*)
- Charles McCombie (*Arius*)

WEDNESDAY, MAY 3, 2006 • 1:00 P.M.

Geochemical Processes

Dallas A

Session Chairs: Zell Peterman (*USGS*), Bo Stromberg (*SKI*)

1:00 p.m.

Thermodynamics of Neptunium(V) Fluoride and Sulfate at Elevated Temperatures, Linfeng Rao, Guoxin Tian (*LBNL*), Yuanxian Xia, Judah I. Friese (*PNNL*)

Technical Sessions

1:30 p.m.

Sorption of NP and Tc in Underground Waters by Uranium Oxides, T. V. Kazakovskaya, V. I. Shapovalov, N. V. Kushnir (*RFNC*), E. V. Zakharova, S. N. Kalmykov, O. N. Batuk (*RAS*), M. J. Haire (*ORNL*)

2:00 p.m.

Sorption Characteristics of Radionuclides on Clays in Yucca Mountain Alluvium, Mei Ding, Paul W. Reimus, Steve Chipera, Cindy Scism (*LANL*)

2:30 p.m.

Vertical Variability in Saturated Zone Hydrochemistry Near Yucca Mountain, Nevada, Gary L. Patterson, Peter S. Striffler (*USGS*)

3:00 p.m.

Sorption of ^{237}Np by UO_2 under Repository Conditions, M. Jonathan Haire (*ORNL*), E. V. Zakharova (*Inst of Physical Chemistry*), T. V. Kazakovskaya (*Inst of Experimental Physics*)

Waste Package, Storage, and Transportation Container Design

Dallas B

Session Chairs: Asadul H. Chowdhury (*CNWRA*), Sheryl L. Morton (*INL*)

1:00 p.m.

Concrete Shield Performance of the VSC-17 Spent Nuclear Fuel Cask, Sheryl L. Morton, Philip L. Winston (*INL*), Toshiari Saegusa, Koji Shirai, Akihiro Sasahara, Takatoshi Hattori (*CRIEPI*)

1:30 p.m.

Design of Transport Casks with Depleted Uranium Gamma Shield and Advanced Safety, V. Z. Matveev, A. I. Morenko, V. I. Shapovalov (*RFNC*), A. A. Maslov, V. K. Orlov, A. G. Semenov, V. M. Sergeev, O. I. Yuferov, A. M. Visik (*VNIINM*)

2:00 p.m.

Melted and Granulated Depleted Uranium Dioxide for Use in Containers for Spent Nuclear Fuel, Vitaly T. Gotovchikov, Victor A. Seredenko, Valentin V. Shatalov, Vladimir N. Kaplenkov, Alexander S. Shulgin, Vladimir K. Saranchin, Michail A. Borik (*ARRICT*), Charles W. Forsberg (*ORNL*)

2:30 p.m.

Analyses of U.S. and R.F. Depleted-Uranium Concrete/Steel Transport and Storage Cask for Spent Nuclear Fuel, Juan J. Ferrada, Les R. Dole (*ORNL*), Sergey Grigorievich Ermichev (*Inst of Experimental Physics*)

3:00 p.m.

High-Density Concrete with Ceramic Aggregate Based on Depleted Uranium Dioxide, S. G. Ermichev, V. I. Shapovalov, N. V. Sviridov (*RFNC-VNIIEF*), V. K. Orlov, V. M. Sergeev, A. G. Semyenov, A. M. Visik, A. A. Maslov, A. V. Demin, D. D. Petrov, V. V. Noskov, V. I. Sorokin, O. I. Uferov (*VNIINM*), L. Dole (*ORNL*)

3:30 p.m.

Conception of Universal Cask Based on Cermet for SNF Transportation and Storage, V. I. Shapovalov, V. Z. Matveev (*RFNC-VNIIEF*), A. G. Semenov, V. M. Sergeev, V. K. Orlov (*All-Russian Research Inst of Inorganic Materials*), V. T. Gotovchikov, V. A. Seredenko, V. V. Shatalov (*All-Russian Research Inst of Applied Chemistry*), Jonathan M. Haire, Charles V. Forsberg (*ORNL*)

Model Abstraction

Dallas E

Session Chair: Andrew Campbell (*NRC*)

1:00 p.m.

Compartment Model for Particle Migration with Residence Time Distributions, Daisuke Kawasaki (*Univ of Tokyo*), Joonhong Ahn (*Univ of California*)

1:30 p.m.

Implementation of Localized Corrosion in the Performance Assessment Model for Yucca Mountain, Vivek Jain (*Bechtel SAIC*), S. David Sevougian, Patrick D. Mattie (*SNL*), Kevin G. Mon (*Framatome ANP*), Robert J. Mackinnon (*SNL*)

Heat Transfer: Estimation and Measurement

Dallas E

Session Chair: George Danko (*Univ of Nevada*)

2:05 p.m.

Evolution of Rock Drying During Thermal Conductivity Testing, Daniel P. Neubauer (*Bechtel SAIC*), Norman E. Kramer (*PBS&J*)

2:35 p.m.

Heat Transfer by Natural Convection Through Rubble Generated by Drift Degradation, Sitakanta Mohanty, Amitava Ghosh, George Adams (*CNWRA*)

3:05 p.m.

Modelling Temperature Distribution Around Very Deep Borehole Disposals of HLW, Neil A. McTaggart, Fergus G. F. Gibb, Karl P. Travis, David Burley (*Univ of Sheffield*), Kevin W. Hesketh (*Nexia Solutions*)

Near-Field Processes—II

Houston 1

Session Chairs: Dana K. Morton (*INL*), Osvaldo Pensado (*CNWRA*)

1:00 p.m.

Can Canister Containment Be Maintained After Accidental Drop Events?, Dana K. Morton, Spencer D. Snow, Tommy E. Rahl, Robert K. Blandford, Thomas J. Hill (*INL*)

1:30 p.m.

Bentonite Extrusion in Planar Fracture Based on Net Water Flow, R. A. Borrelli, J. Ahn (*Univ of California*)

2:00 p.m.

Large-Scale Gas Migration Test at Grimsel Test Site, T. Shimura, A. Fujiwara (*Radioactive Waste Management Funding and Rsch Ctr*), S. Vomvoris, P. Marschall (*Nagra*), G. W. Lanyon (*Fracture Systems Ltd*), K. Ando, S. Yamamoto (*Obayashi Corp*)

2:30 p.m.

Large-Scale Gas Injection Test (Lasgit)—Current Status, Patrik Sellin (*SKB*), Jon Harrington (*British Geological Survey*)

3:00 p.m.

Advanced-High-Temperature-Reactor Spent-Fuel Characteristics and Repository Impacts, Charles W. Forsberg (*ORNL*)

3:30 p.m.

Impact of Advanced Fuel Cycles on Geological Disposal in a Clay Formation, Jan Marivoet, Eef Weetjens (*SCK • CEN*)

Near-Field Environment—II

Houston 2

Session Chairs: Richard Codell (*NRC*), David Bennett (*Galson Sciences*)

1:00 p.m.

Maximum Neptunium Concentrations at the Proposed Yucca Mountain Repository, Donald Langmuir (*Hydrochem Systems Corp*), Mick Apted (*Monitor Scientific*)

1:30 p.m.

Gas Generation and Migration Analysis for TRU Waste Disposal in Japan, Kenichi Ando (*Obayashi Corp*), Morihiro Mihara (*JAEA*), Masaru Noda, (*Obayashi Corp*), Mikihiko Yamamoto (*Toyo Eng Corp*)

2:00 p.m.

Numerical Simulation of Non-isothermal Reactive Transport Processes of Dual-Geochemical Systems in FEBEX-Type Repositories, Mingliang Xie (*Univ of Tuebingen*), Hua Shao (*BGR, Hanover*), Olaf Kolditz (*Univ of Tuebingen*)

Technical Sessions

2:30 p.m.

The Role of the Engineered Barrier System in Safety Cases for Geological Radioactive Waste Repositories: An Nuclear Energy Agency (NEA) Initiative in Co-operation with the European Commission (EC). Process Issues and Modelling, David G. Bennett (*Gaslon Sciences*), Alan Hooper (*UK Nirex*), Sylvie Voinis (*OECD-NEA*), Hiroyuki Umeki (*JAEA*), Abe Van Luik (*DOE*), Jesus Alonso (*ENRESA*)

3:00 p.m.

Gas Generation and Migration in the Near Field of a Supercontainer-based Disposal System for Vitrified High-Level Radioactive Waste, Eef Weetjens, Xavier Sillen (*Belgian Nucl Rsch Ctr*)

3:30 p.m.

Iron(II) and Silicate Effects on Mineralization and Immobilization of Actinides, Tyler Andrew Sullens, Cynthia-May Gong, Kenneth Czerwinski (*UNLV*)

Transport Processes—II

Houston 3

Session Chairs: Lawrence Johnson (*Natl Cooperative for the Disposal of Rad Waste*), Tim McCartin (*NRC*)

1:00 p.m.

New Ghost-Node Method for Linking Different Models with Varied Grid Refinement, Scott C. James (*SNL*), Jesse E. Dickinson, Steffen W. Mehl, Mary C. Hill, Stanley A. Leake (*USGS*), George A. Zyvoloski, Al-Aziz Eddebarh (*LANL*)

1:30 p.m.

Impacts of Reducing Conditions in the Saturated Zone at Yucca Mountain, Bill W. Arnold (*SNL*), Arend Meijer (*GCX*), Elena Kalinina (*RHYM, LLC*), Bruce Robinson, Sharad Kelkar (*LANL*), Carlos Jove-Colon, Stephanie Kuzio, Scott James (*SNL*), Ming Zhu (*Bechtel/SAIC*)

2:00 p.m.

Barometric Pressure Variation Effects on Emplacement Drift Environmental Conditions at Yucca Mountain, G. Danko, D. Bahrami (*Univ of Nevada*)

2:30 p.m.

On Evaluation of Recharge Model Uncertainty: a Priori and a Posteriori, Ming Ye, Karl Pohlmann, Jenny Chapman, David Shafer (*Desert Research Inst*)

3:00 p.m.

The Impact of Different Geological Parameters on Transport of Radionuclides, Lars Marklund (*Swedish Univ of Agriculture Sciences*), Eva Simic (*SKI*), Anders Wörman (*Swedish Univ of Agricultural Sciences*)

Preclosure Safety and Environmental Impact Estimation

Dallas H

Session Chairs: Mahendra Shah (*NRC*), Goodluck Ofoegbu (*CNWRA*)

1:00 p.m.

Reversibility and Monitoring of Geological Disposal, S. Mayer, J. Ph Dubois, O. Ozanam (*Andra*)

1:30 p.m.

Consequences of Retrieval in the Spanish HLW Concept, Jordi Bruno (*Enviros*), Carlos del Olmo (*Ingemisa*), Carmen Ruiz (*CSN Spanish Nucl Safety Council*)

2:00 p.m.

Pre-Closure Safety Analysis: Sensitivity Studies and Preliminary Dose Results, S. Kamas, T. Ahn, M. Bailey (*NRC*)

Radwaste Solutions

THE MAGAZINE OF RADIOACTIVE WASTE MANAGEMENT AND FACILITY REMEDIATION

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