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(3556) Experience and Research on the Interim Storage of High-Level and Intermediate-Level Long-Lived Waste in France 720

Jean-Michel Hoorelbeke, Thibaud Labalette, Gérald Ouzounian (Andra)

Track 8, Session 2: Advanced Fuel Cycles and Geological Disposal—I

Session Organizer: *Joonhong Ahn (Univ of California, Berkeley)*

Session Chairs: *Gene W. Rowe (NWTRB), Ernest L Hardin (SNL)*

(3384) Fuel Cycle Potential Waste for Disposition 728

Joe T. Carter (SRNS), Alan Luptak (INL)

(3444) Pyro-Processing and Its Implication to Radioactive Waste Disposal 735

Yongsoo Hwang (CSIS/KAERI), Kwangseok Lee (KAERI)

(3391) Thermal Management of Wastes from Advanced Fuel Cycles 740

Ernest Hardin, Laura Price, Peter Swift (SNL)

WEDNESDAY, APRIL 13, 1:20 P.M. – 2:35 P.M.

Track 1, Session 4: Sensitivity and Uncertainty Analysis Tools and Methods—II

Session Organizers: *Peter Swift (SNL), Matt Kozak (INTERA, Inc.), George Danko (Univ of Nevada, Reno)*

Session Chairs: *James Blink (LLNL), Scott James (SNL)*

(3409) Representative Pathway Length for Contaminant Transport in Performance Assessment Models 747

Stuart Stothoff, Osvaldo Pensado (CNWRA), Jin-Ping Gwo (NRC)

(3455) β -SOAR: A Flexible Tool for Analyzing Disposal of Nuclear Waste 753

Christopher Markley (NRC), E. Lynn Tipton, James Winterle, Osvaldo Pensado (CNWRA), Jin-Ping Gwo (NRC)

(3338) Monte Carlo Simulations for Generic Granite Repository Studies 759

Shaoping Chu (LANL), Joon H. Lee, Yifeng Wang (SNL)

Track 4, Session 1: Biosphere Description and Modeling in Support of Disposal—II

Session Organizer: *Andrew Sowder (EPRI)*

Session Chairs: *Ray Clark (EPA), Clare Bradshaw (SKB)*

(3417) Radioactive Disequilibria in the Saturated Zone Transport Model and the Biosphere Model for the Yucca Mountain Repository—The Case of Radon-222 767

Maryla A. Olszewska-Wasiolek, Bill W. Arnold (SNL)

(3440) Andra's Strategy and Approach Applied in Defining and Describing Biosphere(s) for Safety Assessment 773

L. Griffault, J. Brulhet, Y. Thiry, S. Voinis, E. Leclerc (Andra)

(3577) Field Study on Discharge of Natural Isotopes from the ²³⁸U and ²³²Th Series through Quaternary Deposit 782

Anders Wörman (The Royal Inst of Technology), Jose Luis Gutierrez Villanueva (The Royal Inst of Technology/SLU), Lars Marklund (The Royal Inst of Technology/The Swedish Meteorological and Hydrological Inst), Klas Rosén (SLU), Shulan Xu, Björn Dvererstorp (The Swedish Radiation Safety Authority)

Track 3, Session 3: Engineered Barriers: Container Corrosion—II

Session Organizers: *David Pickett (CNWRA), Frank Garisto (NWMO), Asadul Chowdhury (CNWRA)*

Session Chairs: *Carl Di Bella (NWTRB), Frank Garisto (NWMO)*

(3435) Estimating the Extent of Damage to Waste Package Surfaces by Localized Corrosion in Potential Disposal Environments 788

Pavan K. Shukla, Roberto Pabalan, Osvaldo Pensado (CNWRA)

(3519) Assessment of Stress Corrosion Cracking Susceptibility of 316 Stainless Steel in Different Disposal Environments 794

K. Chiang, P. Shukla (CNWRA)

Track 3, Session 5: Engineered Barriers: Geochemical and Nuclear Criticality Aspects—II

Session Organizers: *David Pickett (CNWRA), Frank Garisto (NWMO), Asadul Chowdhury (CNWRA)*

Session Chairs: *Paul E. Mariner (SNL), J. M. Scaglione (ORNL)*

(3587) Review of Yucca Mountain Disposal Criticality Studies 800

J. M. Scaglione, J. C. Wagner (ORNL)

Track 7, Session 1: International Experience in Dry Interim Storage—II

Session Organizers: *Vincenzo Rondinella (ITU), Brady Hanson (PNL)*

Session Chairs: *Vincenzo Rondinella (ITU), Roland Hueggenberg (GNS)*

(3344) Development of a Long-Term Spent Fuel Integrity Demonstration Methodology 811

Ho Jin Ryu, Donghak Kook, Jong Won Choi (KAERI)

(3332) Long-Term Containment Performance Test of Metal Cask 816

Koji Shirai, Masumi Wataru, Toshiari Saegusa, Chihiro Ito (CRIEPI)

(3333) SCC Evaluation Test of Multi-Purpose Canister **824**
Koji Shirai, Junichi Tani, Taku Arai, Masumi Wataru, Hirofumi Takeda, Toshiari Saegusa (CRIEPI)

Track 8, Session 2: Advanced Fuel Cycles and Geological Disposal—II

Session Organizer: *Joonhong Ahn (Univ of California, Berkeley)*
Session Chairs: *Gene W. Rowe (NWTRB), Ernest L Hardin (SNL)*

(3387) Low Level Waste Generation From Various Fuel Cycle Options **832**
Robert H. Jones (SRNS)

(3399) Cradle-to-Grave Analysis of Fusion-Fission Transmutation Fuel Cycles **837**
Christian D. Di Sanzo, Joonhong Ahn (Univ of California, Berkeley)

(3346) Nuclear Waste Assessment System for Technical Evaluation (NUWASTE) **845**
Gene Rowe, Mark Abkowitz, Nigel Mote, Bruce Kirstein (NWTRB)

WEDNESDAY, APRIL 13, 2011, 3:00 P.M. – 5:30 P.M.

Track 1, Session 2: Evaluation of Scenarios

Session Organizers: *Peter Swift (SNL), Matt Kozak (INTERA, Inc.), George Danko (Univ of Nevada, Reno)*
Session Chairs: *Kenichi Kaku (NUMO), Osvaldo Pensado (CNWRA)*

(3570) A Storyboard-Led Hybrid Development Method for Safety Assessment Scenarios **853**
Shoko Yashio, Hideki Kawamura (Obayashi Corp), Keiichiro Wakasugi (JAEA), Takeshi Ebashi, Katsuhiko Ishiguro (NUMO), Ian G. McKinley (McKinley Consulting)

(3573) Hydrothermal Scenario Development for Japanese Geological Disposal Systems **861**
Hideki Kawamura (Obayashi Corp), Ian G. McKinley (McKinley Consulting), Shigeyuki Saito (JNES)

(3407) Modeling Disruptive Events Using the β -SOAR Model: Levels of β -SOAR Model Flexibility in Applications and Initial Insights **867**
J. Gwo, T. Ahn (NRC), X. He (CNWRA)

(3357) Safety Assessment for a Glaciation Scenario **875**
F. Garisto (NWMO), R. Walsh (Geofirma Engineering), L. Wojciechowski (AECL), J. Avis (Geofirma Engineering), T. Chshyolkova (AECL), P. Gierszewski (NWMO), M. Gobien (Geofirma Engineering), C. Kitson (NWMO), T. Melnyk, J. Miller (AECL)

(3516) Scenario Development Methodology for Dynamic System Evolution in Coastal Areas **884**
Takeshi Ebashi, Katsuhiko Ishiguro, Keisuke Ishida (NUMO), Hiroyasu Takase, Masaaki Yamaguchi, Daisuke Kawasaki (Quintessa Japan)

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(3433) Features, Events and Processes (FEPS) for the Used Fuel Disposition Campaign

James A. Blink (LLNL), Florie Caporuscio (LANL), James C. Cunnane (ANL), Geoff Freeze (SNL), Harris R. Greenberg (LLNL), James E. Houseworth (LBNL), Paul Mariner (SNL)

Track 1, Session 7: Evaluations of Alternatives and Policy

Session Organizers: *Peter Swift (SNL), Matt Kozak (INTERA, Inc.), George Danko (Univ of Nevada, Reno)*

Session Chairs: *Bjorn Dverstorp (Swedish Radiation Safety Authority), Abe Van Luik (DOE-WIPP)*

(3342) Belgian Feasibility Strategy and Assessment Methodology for Geological Disposal **898**

William Wacquier, Hughes Van Humbeeck (ONDRAF/NIRAS), Steve Wickham, Liz Harvey (Galson Sciences Ltd)

(3428) A Simplified Performance Assessment Model for Radioactive Waste Disposal Alternatives **906**

Geoff Freeze, Joon H. Lee (SNL)

(3310) Policy Issues Associated with Deep Borehole HLW Disposal **914**

K. G. Jensen, M. J. Driscoll (MIT)

(3319) Risk-Informed Evaluations of Waste Form Performance in Disposal Systems **919**

Michael Apted (INTERA Inc.)

(3325) Safety Strategy and Assessment for a German HLW-Repository in Salt **924**

Jan Richard Weber, Siegfried Keller, Sabine Mrugalla (Bundesanstalt für Geowissenschaften und Rohstoffe), Jens Wolf, Dieter Buhmann, Jörg Mönig (GRS), Wilhelm Bollingerfehr, Jürgen Krone, Andree Lommerzheim (DBE TECHNOLOGY)

(3379) Geologic Disposal Options in the USA **932**

F. D. Hansen, E. Hardin, A. Orrell (SNL)

Track 10, Session 1: Security, Safeguards, and Non-Proliferation—I

Session Organizers: *Al Aziz Eddebbarh (ENEC), Erik Kremer (NWMO)*

Session Chairs: *Andrew W. Prichard (PNNL), Al Aziz Eddebbarh (ENEC)*

(3558) Securing and Safeguarding High Level Waste **941**

Markku Koskelo, Steve Kadner, Mike Ondrik, Dennis Mangan (Aquila Technologies)

(3373) Role of Neutron Detection in the High Reliability Safeguards Approach **946**

R. A. Borrelli (University of California, Berkeley)

(3437) Decay of Dose Rates Surrounding Commercial Spent Nuclear Fuel **954**

Jabo Tang (Independent), John H. C. Wang (URS)

(3562) Technologies for Monitoring Containers of Highly Radioactive Nuclear Material **959**

Dennis L. Mangan, Markku J. Koskelo, Michael A. Ondrik, Steven P. Kadner (Aquila Technologies)

(3532) U.S. Nuclear Regulatory Commission Involvement in Developing International Safeguards for Geologic Repositories **965**

Timothy Harris, Thomas Grice, Eric Freeman (NRC)

Track 3, Session 6: Engineered Barriers: Modeling Near Field Conditions

Session Organizers: *David Pickett (CNWRA), Frank Garisto (CWMO), Asadul Chowdhury (CNWRA)*

Session Chairs: *Lara Duro (Amphos 21), Scott Painter (LANL)*

(3465) Radionuclide Release in Performance Assessment Under Future Waste Management Scenarios **970**

David A. Pickett (CNWRA), Tae Ahn (NRC)

(3288) Calculation of pH Inside a Breached Waste Package **971**

Paul E. Mariner, Yifeng Wang (SNL), Paul S. Domski (S. M. Stoller)

(3329) Thermal Performance of a Generic High-Level Waste Salt Repository **977**

D. J. Clayton (SNL)

(3360) Disturbed Zone Evolution Around a Geological Repository for Nuclear Waste **984**

Liz Harvey (Galson Sciences Ltd), Philippe Van Marcke (SCK•CEN), Clive Kent, Steve Wickham (Galson Sciences Ltd), Maarten Van Geet, Xavier Sillen (ONDRAF/NIRAS)

(3469) Modeling of Coupled Geomechanical Processes Associated with Bentonite-Backfilled Repository Tunnels in Clay Formations **992**

J. Rutqvist, J. T. Birkholzer, J. Houseworth, H. H. Liu (LBNL)

(3511) Potential Microbial Effects on Near-Field Chemistry for Alternative Waste Management Scenarios **1000**

Jude McMurry (CNWRA)

Track 6, Session 5: Used Fuel Management Programs and Planning

Session Organizers: *Charles McCombie (Arius), Bob Gamble (NYE County, Nevada)*

Session Chairs: *Ken Sorenson (SNL), Erik Kremer (NWMO)*

(3382) Nuclear Fuel Cycle Management in Emerging Nuclear Countries **1003**

Lance Kim, Joonhong Ahn (Univ of California, Berkeley), Jorshan Choi (Univ of Tokyo), Yongsoo Hwang (Center for Strategic and International Studies), Per F. Peterson (Univ of California, Berkeley)

(3394) Role of Flexible Design in Staged Development of Repositories for Spent Nuclear Fuel and High-Level Waste **1011**

Jeffrey R. Williams (DOE), Thomas A. Cotton (Complex Systems Group LLC), Rob F. Rechar (SNL)

(3471) Used Fuel and HLW Management Programs in Different Countries **1017**

Michael Stenhouse, Michael Apted, Wei Zhou (INTERA Inc.), Andrew Sowder, John Kessler (EPRI)

1025

(3340) Office of Fuel Cycle Technologies, Used Fuel Disposition Campaign Objective, Mission, Plans, and Activity Status

Mark Nutt, Mark Peters (ANL), Peter Swift, Kevin McMahon, Ken Sorenson (SNL), Patrick Schwab (DOE)

(3464) Integrated Waste Management System for Spent Nuclear Fuel and High-Level Waste **1033**

Rob P. Rechard (SNL), James A. Blink, William G. Halsey (LLNL), Thomas A. Cotton (Complex Systems Group)

THURSDAY, APRIL 14, 2011, 8:30 A.M. – 11:35 A.M.

Track 1, Session 5: Approaches for Conceptual Model Uncertainty

Session Organizers: *Peter Swift (SNL), Matt Kozak (INTERA, Inc), George Danko (Univ of Nevada, Reno)*

Session Chairs: *Matt Kozak (INTERA), Francis D. Hansen (SNL)*

(3429) Yucca Mountain 2008 Performance Assessment: Incorporation of Seismic Hazard Curve Uncertainty **1041**

Jon C. Helton, Cédric J. Sallaberry (SNL)

(3328) Model-Based Decision Making: A New Perspective **1049**

John Doherty (Flinders Univ), Scott C. James (SNL), Paul W. Reimus (LANL)

(3378) Comparisons of Release Probabilities Obtained in Recent WIPP Performance Assessments **1059**

R. Chris Camphouse, Daniel J. Clayton, Moo Y. Lee (SNL)

(3383) Performance Confirmation Monitoring **1067**

F. D. Hansen (SNL)

(3364) A Quantitative Risk Assessment Description of a Radionuclide Source Term **1074**

Bruce E. Kirstein (NWTRB), B. John Garrick (NWTRB/Independent Consultant), William M. Murphy (NWTRB/California State Univ)

Track 7, Session 2: DOE Nuclear Energy (NE) Program for Long Term Storage

Session Organizers: *Vincenzo Rondinella (ITU), Brady Hanson (PNL)*

Session Chairs: *Nigel Mote (NWTRB), Andrew Sowder (EPRI)*

(3526) Overview of the DOE Program Supporting the Very Long Term Storage and Transportation of Used Nuclear Fuel **1081**

Ken B. Sorenson (SNL)

(3529) Extended Storage of Used Nuclear Fuel: Objective, Methodology and Evaluation Criteria **1084**

Abdelhalim A. Alsaed (Enviro Nuclear Services)

(3454) Security for Very Long-Term Storage of Used Fuel **1086**

Felicia A. Durán and Gregory D. Wyss (SNL)

(3528) Extended Storage of Used Nuclear Fuel: Research and Development Needs for Neutron Poisons and Shields **1091**

Abdelhalim A. Alsaed (Enviro Nuclear Services)

(3535) Research Needs for Extended Storage of Used Nuclear Fuel: Container and Overpack **1092**

Christine T. Stockman, David G. Enos (SNL)

Track 8, Session 4: Alternate Waste Forms

Session Organizer: *Joonhong Ahn (Univ of California, Berkeley)*

Session Chairs: *Tae Ahn (NRC), Joonhong Ahn (U. of California, Berkeley)*

(3371) Potential Impacts of Alternative Waste Forms on Long-Term Performance of Geological Repositories for Radioactive Waste **1094**

Clifford W. Hansen, Peter N. Swift, Ernest Hardin, Robert J. MacKinnon, David Sassani, S. David Sevougian (SNL)

(3705) Numerical Evaluation of Super-Compacted Radioactive Waste **1102**

S. Schneider (Forschungszentrum Jülich GmbH), H. Tietze-Jaensch (Forschungszentrum Jülich GmbH/Produktkontrollestelle für Radioaktive Abfälle), D. Bosbach, R. Odoj (Forschungszentrum Jülich GmbH)

(3386) Iodine Capture in Silver-Loaded Zeolites and Metal Organic Frameworks and Storage in Novel Low Temperature GCM Waste Forms **1103**

James L. Krumhansl, Tim Nenoff, Dorina Sava, Terry Garino, Davie Rademacher (SNL), Karena W. Chapman, Peter J. Chupas (ANL)

Track 6, Session 4: Used Fuel Management Policy Issues

Session Organizers: *Charles McCombie (Arius), Robert Gamble (NVE County, Nevada)*

Session Chairs: *Leif G. Eriksson (Nuclear Waste Disposition), Robert Gamble (NVE County, Nevada)*

(3443) The Dynamics of Technical Communities Through the Multiple Phases of a Nuclear Waste Management Project **1104**

Hank Jenkins-Smith, Carol Silva, Tim Davidson (Univ of Oklahoma), Evaristo J. (Tito) Bonano (SNL)

(3211) Deep Geological Repositories—Really Necessary? **1111**

Christopher M. Timm, Cassandra Mueller, (PECOS Management Services, Inc.)

THURSDAY, APRIL 14, 2011, 10:10 A.M. – 11:35 A.M.

Track 2, Session 1: Site Characterization Techniques and Facilities

Session Organizers: *Stratis Vomvoris (Nagra), Jude McMurry (CNWRA), Scott James (SNL)*

Session Chairs: *Bill Arnold (SNL), Douglas B. Rigby (NWTRB)*

(3520) Methodology for Early-Stage Site Evaluation in Japan and Technical Challenges **1118**

Junichi Goto, Ryuta Hataya, Kimitaka Yoshimura, Hirofumi Moriya, Hiroyuki Tsuchi (NUMO)

(3317) Hydrogeology Associated with the Waste Isolation Pilot Plant 1126

Kristopher L. Kuhlman, Kevin S. Barnhart (SNL)

(3583) Influence of Cavities on Mechanical Properties of Tuff-Like Rock 1133

Douglas B. Rigby (NWTRB), Moses Karakouzian, James A. Nott (Univ. of Nevada Las Vegas)

(3537) Nagra's Activities in the URLs in Switzerland: Update and Outlook 1140

S. Vomvoris, I. Blechschmidt, T. Vietor, L. Johnson (Nagra)

Track 10, Session 2: Security, Safeguards, and Non-Proliferation—II

Session Organizers: *Al Aziz Eddebbbarh (ENEC), Erik Kremer (NWMO)*

Session Chairs: *Markku Koskelo (Aquila Technologies), Robert Angelo Borrelli (U. of California, Berkeley)*

(3453) Assurance of Non-proliferation for Pyro-Processing 1148

Yongsoo Hwang (CSIS/KAERI), Kwangseok Lee (KAERI)

(3502) Nuclear Material Attractiveness: An Assessment of Used-Fuel Assemblies 1152

Charles G. Bathke, Paul G. Edelmann (LANL), Bartley B. Ebbinghaus, Brad W. Sleaford (LLNL), Brian A. Collins (PNNL), Kevin R. Hase (LANL), Martin Robel (LLNL), Andrew W. Prichard, Brian W. Smith (PNNL)

(3584) A Comparison of the Isotopic Characteristics of WG-MOX and UOx Fuel in Extended Dry Storage 1153

A. Mendez Torres, D. W. Vinson, S. Branney (SRNL)