



Organized by:
 Office of Nuclear Regulatory Research
 United States Nuclear Regulatory Commission
 Washington, DC 20555



Nuclear Safety Research Conference 2002

SESSION SCHEDULE & ROOM LOCATIONS			
MONDAY	8:30 am	Plenary Session and Keynote Speech	Grand Ballrooms A, B, C
	10:00 am	Panel Discussion	Grand Ballrooms A, B, C
	12:00 am	Lunch – On Your Own	See Hotel for Restaurant Specials
	1:30 pm	Session 1 Session 2	Salon A Salon C
TUESDAY	8:30 am	Plenary Session: NRC Chairman, Speaker	Grand Ballrooms A, B, C
	9:45 am	Session 3 Session 4	Salon A Salon C
	11:45 am	Lunch – On Your Own	See Hotel for Restaurant Specials
	1:15 pm	Session 5 Session 6	Salon A Salon C
WEDNESDAY	8:30 am	Plenary Session: NRC Commissioner, Speaker	Grand Ballrooms A, B, C
	9:30 am	Panel Discussion	Grand Ballrooms A, B, C
	11:45 am	Lunch – On Your Own	See Hotel for Restaurant Specials
	1:00 pm	Session 7 Session 8	Salon A Salon C
	3:15 pm	Plenary Session	Grand Ballrooms A, B, C

Susan Monteleone, BNL, Conference Coordinator

- 8:30** **Plenary Session (Grand Ballroom)**
Opening remarks and welcome
Ashok C. Thadani, Director, Office of Nuclear Regulatory Research
- 8:45** **Keynote speaker:**
William D. Travers, Executive Director for Operations, NRC
- 9:45** Break
- 10:00** **Panel Discussion: Advanced Reactors**
Panel Members: F.P. Ford (ACRS)
E. Grecheck (Dominion Energy, Inc.)
A. Kadak (MIT)
S. Levy (Levy & Associates)
T. Miller (DOE)
Jeffrey S. Merrifield, Commissioner, NRC, Panel Moderator
- 12:00** Lunch
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1 DEGRADATION OF REACTOR COOLANT PRESSURE BOUNDARY MATERIALS

Chaired by: W. Cullen (NRC),
L. Mathews (Southern Nuclear Co.)

Objective: To describe the results of research addressing the response of reactor coolant pressure boundary materials to active degradation mechanisms and mitigation/repair methodologies.

- 1:30 Summary of US NRC's Research to Address Pressure Boundary Degradation Issues, W. Cullen (NRC)
- 2:00 Parametric Studies of the Probability of Failure of CRDM Nozzles, W. Shack (ANL)
- 2:30 Significant Findings of the Davis-Besse Reactor Vessel Head Degradation Lessons Learned Task Force, E. Hackett (NRC)
- 3:00 Break
- 3:15 EPRI Materials Reliability Program for Alloy 600, L. Mathews (Southern Nuclear Co.)
- 3:45 In-service Inspection of PWSCC in Alloy 600\182\82 Material, S. Doctor (PNNL)
- 4:15 Summary of Ongoing NRC Efforts to Define Circumferential Crack-Driving Force Solutions for CRDM Nozzles, G. Wilkowski, et al. (Engineering Mechanics Corp. of Columbus), W. Norris (NRC)
- 4:45 Boric Acid Corrosion of Reactor Vessel Heads Resulting from CRDM Nozzle PWSCC, G. White, E. Hunt (Dominion Engineering, Inc.)

2

ADVANCED REACTORS

Chaired by: J. Flack, J. Lyons (NRC)

Objective: To present specific work or planned work on gas cooled reactors and present DOE's vision for Generation IV reactors.

- 1:30 Thermal-Hydraulic Research Issues Relevant to Advanced Water Reactors, S. Bajorek (NRC)
- 2:00 Modeling Issues for HTGR Designs, R. Lee, F. Odar, D. Carlson (NRC)
- 2:30 Safety Margin Testing: High-Temperature Gas-Cooled Reactor Fuel, S. Rubin (NRC)
- 3:00 Break
- 3:15 Materials Research Needs for Advanced Reactors, C. Greene, J. Muscara, M. Srinivasan (NRC)
- 3:45 Generation IV Roadmap Research and Development Plan, R. Versluis (DOE)

8:30

Plenary Session (Grand Ballroom) Guest speaker: Richard Meserve, Chairman, NRC

9:30

Break

3

FUELS I

Chaired by: R. Meyer (NRC), R. Yang (EPRI)

Objective: To describe recent work on the technical basis for embrittlement criteria and evaluation models that are applicable at high burnup for loss-of-coolant accident (LOCA) analysis and for establishing optional performance-based criteria in 10 CFR 50.46.

- 9:45 LOCA Ductility Tests, R. Meyer (NRC)
- 10:15 Understanding LOCA-Related Ductility in E110 Cladding, V. Asmolov, L. Yegorova, K. Lioutov (Kurchatov Institute), V. Smirnov et al. (Research Institute of Atomic Reactors)
- 10:45 LOCA Research Results for High-Burnup BWR Fuel, Y. Yan, R. Strain, M. Billone (ANL)
- 11:15 Characterization of High-Burnup PWR and BWR Rods, H. Tsai, M. Billone (ANL)

11:45

Lunch

5

FUELS II

Chaired by: R. Meyer (NRC), R. Yang (EPRI)

Objective: To describe recent work on the technical basis for fuel enthalpy criteria applicable at high burnup for reactivity-initiated accident (RIA) analysis and for modifying Regulatory Guide 1.77.

- 1:15 Oxidation of Zirconium Alloys in High Pressure Steam and Some Results under Atmospheric Pressure, G. Hache (IRSN)
- 1:45 Investigation of the Impact of In-Reactor Short-Term Dry-Out Incidents on Fresh and Pre-Irradiated Fuel Cladding, M. McGrath (OECD Halden Project), B. Oberlander (Institut for Energiteknikk), T. Anegawa, T. Hara (TEPCO)
- 2:15 US NRC - PSU Rod Bundle Heat Transfer Program, L. Hochreiter, F-B. Cheung (Pennsylvania State U.)
- 2:45 Main Outcomes from the PATRICIA Program on Clad-to-Coolant Heat Transfer During RIAs, V. Bessiron (IRSN)
- 3:15 Break
- 3:30 NSRR High Burnup Fuel Tests for RIAs and BWR Power Oscillations without Scram, T. Nakamura, et al. (JAERI)
- 4:00 The Influence of Hydride Distribution on the Failure of Zircaloy, O. Pierron, D. Koss, A. Motta (Pennsylvania State U.), R. Daum (ANL), K. Chan (Southwest Research Inst.)

4

Panel Discussion: Formal Decision Methods and Nuclear Safety Research

Chaired by: J. Johnson (NRC)

Objective: To describe research activities for developing the technical basis and enhancing the transparency and objectivity of decision-making in the regulatory environment.

- 9:45 Topics and panel members include the formal decision-making framework (J. Johnson), NMSS risk-informed activities (M. Virgilio), industry decision-making processes (T. Marston, (EPRI), NRR perspectives (B. Sheron, NRC), research activities in the field of regulatory decision-making (R. Youngblood, ISL, Inc.), and stakeholder input to the decision-making process (G. Apostolakis, MIT).

6

DRY CASK STORAGE AND TRANSPORTATION OF SPENT NUCLEAR FUEL

Chaired by: A. Hsia (NRC), A. Machiels (EPRI)

Objective: To communicate recent accomplishments and future plans to assess key safety issues related to spent fuel transportation and storage in dry casks.

- 1:15 A Pilot PRA of a Dry Cask Storage System, L. Abramson, C. Ryder (NRC)
- 1:40 EPRI Perspective on R&D in Support of Practical Approaches for Dry Storage and Transport of Spent Nuclear Fuel, A. Machiels (EPRI)
- 2:05 A Perspective on Spent Fuel Integrity Under Dry Storage and Transportation Conditions, J. Rashid (ANATECH), A. Machiels (EPRI)
- 2:30 Thermal Creep of Dry-Cask-Stored Surry PWR Cladding, H. Tsai, M. Billone (ANL)
- 2:55 Break
- 3:10 The Package Performance Study: An Investigation of the Response of Transportation Casks to Severe Rail and Highway Accidents, A. Murphy, R. Lewis, C. Fairbanks (NRC), K. Sorenson, et al. (SNL)
- 3:35 Drop Impact Analyses of Spent Fuel Dry Cask Storage Systems, J. Braverman et al. (BNL), S. Shaukat (NRC)
- 4:00 Using MACCS in Assessing Dry Cask Vulnerability E. Keegan, S. Bush-Goddard (NRC)
- 4:25 Seismic Evaluation Method of Design Ground Motion at Gravelly Soil Site for Interim Spent Fuel Storage Facilities, S. Tsurumaki (NUPEC), S. Midorikawa (Tokyo Institute of Technology), M. Kamata, T. Nozawa (Kajima Corp.)
- 4:50 Evaluation of Seismic Behavior of HI-STORM 100 Casks at Private Fuel Storage Facility, V. Luk, D. Aube (SNL), S. Shaukat (NRC), I. Lam (Earth Mechanics, Inc.), R. Dameron (ANATECH Corp.)

8:30

Plenary Session (Grand Ballroom)
Guest Speaker: Greta J. Dicus, Commissioner, NRC

9:15

Break

9:30

Panel Discussion: Risk Informed Initiatives
Panel members:
G. Apostolakis (MIT)
S. Floyd (NEI)
J. Laaksonen (STUK)
D. Lochbaum (UCS)
L. Reyes (NRC)
Commissioner Edward McGaffigan, Panel Moderator

11:45

Lunch

7

**CONTROL OF SLIGHTLY
CONTAMINATED MATERIALS**

Chaired by: C. Trottier (NRC), S.Y. Chen (ANL)

Objective: To discuss the status on the development of the technical basis for control of slightly contaminated materials.

- 1:00 Finalization of NUREG-1640: Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities, R. Meck (NRC), R. Anigstein et al. (Sanford Cohen and Assoc.)
- 1:30 Finalization of Inventory Report Materials Having Very Low Levels of Radioactivity, C. Feldman (NRC), W. Thurber et al. (Sanford Cohen and Associates)
- 2:00 Surveys of Volumetric Contamination and Difficult Geometries, G. Powers (NRC)

8

**PRA: METHODS / ANALYSIS AND
OPERATIONAL EXPERIENCE**

Chaired by: N. Siu (NRC)

Objective: To communicate recent advances in risk analysis methods as well as recent advances in using operational data in agency regulatory activities.

- 1:00 Fire Risk Research Program: Addressing Key Uncertainties, J. Hyslop (NRC)
- 1:25 Narrowing the Uncertainties in Human Reliability Analysis, E. Lois, N. Siu (NRC)
- 1:50 On Principles and Techniques for Concurrent, Integrated, Uncertainty Analysis in Technical Assessments, A. Moseh (U. Maryland)
- 2:15 Standardized Plant Analysis Risk (SPAR) Model Development Program, P. O'Reilly (NRC)
- 2:40 Human Reliability Data: Maximizing the Applicability of Simulator Studies, S. Collier (OECD Halden Project)

3:00

Break

3:15

Plenary Session (Grand Ballroom)
Closing remarks and audience feedback, A. Thadani