

NRC Workshop on Structural Materials: What Research for 80 Years and Beyond
October 1 – 3, 2024
NRC Headquarters, TWFN Auditorium, Rockville, MD

Tuesday, October 1		
Introductory Session		
8:00	Welcome and Introduction	Rob Tregoning, NRC
8:05	Opening Remarks	John Tappert, NRC Susan Lesica, DOE Jim Cirilli, EPRI
8:20	Research for Long Term Operation	Jim Cirilli, EPRI
8:35	Overview of LWRS Materials Research Supporting LTO	Frank Chen, ORNL
8:50	NRC Research: Readiness for Long Term Operation	Rob Tregoning, NRC John Wise, NRC
Session 1: Reactor Pressure Vessel (Coordinator: Jeff Poehler)		
9:00	Irradiation Damage Behavior in RPV/Low Alloy Steels: Considerations for 80 years and beyond	Grace Burke, INL
9:20	Thermal Annealing: Fresh Look at Old Issue	Mikhail Sokolov, ORNL
9:40	EPRI MRP RPV Integrity LTO Research	Elliot Long, EPRI
10:00 – 10:30	Break	
10:30	Session 1 Panel Discussion	Tim Griesbach, SIA Susan Ortner, NNL Brian Hall, Westinghouse Akiyoshi Nomoto, CRIEPI
Session 2: Reactor Pressure Vessel Internals (Coordinator: Austin Young)		
11:15	Connecting the dots to support Long Term Operation – What out there and what is needed?	Pal Efsing, Vattenfall
11:35	Emerging material degradation issues in nuclear materials under extended in-service irradiation beyond 80 years	Maxim Gussev, ORNL
11:55	Irradiation Assisted Stress Corrosion Cracking: From Mechanisms to Mitigation	Steven Raiman, Univ. of Michigan
12:15 – 13:45	Lunch Break	
13:45	Session 2 Panel Discussion	Yiren Chen, ANL Kyle Amberge, EPRI
14:30 – 14:50	Break	
Session 3: Reactor Coolant Pressure Boundary Components (Coordinator: Eric Focht)		
14:50	Environmental Cracking During Extended LWR Operation	Peter Andresen, Andresen Consulting
15:10	Addressing Gaps for Life Beyond 80: Experience based on SCC Initiation Research on RCPB Structural Materials	Ziqing Zhai, PNNL
15:30	Long-Term Approach to Manage Stress Corrosion Cracking	Thierry Couvant, EDF
15:50	Session 3 Panel Discussion	Bogdan Alexandreanu, ANL Mychailo Toloczko, PNNL Takumi Terachi, INSS
Concluding Remarks		
16:35	Day One Wrap-Up Discussion	Rob Tregoning, NRC
17:00	Adjourn Day 1	

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Wednesday, October 2		
Introductory Session		
8:00	Welcome and Introduction	Jeff Poehler, NRC
8:05	Opening Remarks	Christian Araguas, NRC
Session 4: Secondary Side Components (Coordinator: Mekonen Bayssie)		
8:10	Evaluation of Hydrazine Alternatives as Oxygen Scavenger in PWR Secondary Systems	Yudai Yamamoto, CRIEPI
8:30	EPRI Research on Flow-Accelerated Corrosion and Erosion in Nuclear Power Plants	Ryan Wolfe, EPRI
8:50	Session 4 Panel Discussion	Jared Smith, EPRI Frank Gift, EPRI
9:35 – 10:00	Break	
Session 5: Service Water, Buried Tanks and Piping (Coordinator: Amy Hull)		
10:00	Service Water Systems at Nuclear Plants	George Licina, SIA
10:20	Technical advances in Cured-in-Place-Pipe (CIPP) linings	John Cavallo
10:40	Session 5 Panel Discussion	Dylan Cimock, EPRI Chris Burton, Structural Technol. John Wise, NRC
11:25 – 13:00	Lunch Break	
Session 6: Fatigue (Coordinator: Rob Tregoning)		
13:00	EPRI MRP Perspectives on Fatigue-Related Issues for 80 Years and Beyond	Tom Damiani, EPRI
13:20	Fatigue Evaluation for Additive Manufacturing Materials	Seiji Asada, Mitsubishi Heavy Industries
13:40	Uncomfortable with Uncertainty?	Andrew Morley, Rolls-Royce
14:00	Session 6 Panel Discussion	Mark Gray, Westinghouse Tim Gillman, SIA Jonathan Mann, Amentum
14:45 – 15:10	Break	
Session 7: Mitigation (Coordinator: Dale Delisle)		
15:10	Mitigation of Material Degradation Associated with Long Term Operation	Darren Barborak, EPRI
15:30	Advanced Laser Welding Techniques for Repair of Irradiated Light Water Reactor Components	Jian Chen, ORNL
15:50	Session 7 Panel Discussion	Taku Arai, CRIEPI Carol Moyer, NRC Darren Barborak, EPRI
Concluding Remarks		
16:35	Day Two Wrap-Up Discussion	Robert Tregoning, NRC
17:00	Closing Remarks	Steve Ruffin, NRC
17:05	Adjourn Day 2	

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Thursday, October 3, 2024		
Introductory Session (Coordinator: Jose Pires)		
9:00	Welcome and Introduction	Laurel Bauer, NRC
9:05	Opening Remarks	Marissa Bailey, NRC Sue Lesica, DOE
9:20	Overview of LWRS Materials Research	Frank Chen, ORNL
Session 8: Civil Structures Concrete and Components (Coordinators: Madhumita Sircar, Jose Pires)		
9:35	Research for Beyond 80 Years – Civil Structures	Mita Sircar/Jose Pires, NRC George Wang/Ata Istar, NRC
9:45	Operation Beyond 80: Knowledge Gaps and Synergistic Degradation Modes in Concrete	Yann Le Pape, ORNL
10:15 – 10:30	Break	
10:30	EPRI Research on Long Term Operations: Considerations for Life Beyond 80	Samuel Johnson, EPRI
11:00	AMPs and Future Research Need for LTO on Concrete Structures	Masa Kojima, NRA-Japan, Ippei Maruyama, Univ. of Tokyo
11:20	Research Results on Concrete Using the Decommissioning Plant of the Hamaoka Nuclear Power Plant	Takashi Osaki, CEPCO
11:40 – 13:10 Lunch		
13:10	NRC Workshop: What Research for Beyond 80 Years for Civil Structures - IRSN contribution	Fabienne Ribeiro, IRSN
13:30	NRC – EDF LTO – EDF Approach	Benoit Masson, EDF (R)
13:50	CNSC Perspective on Gaps in Knowledge for Concrete Containment Structures for LTO	Cedric Androuet, CNSC (R)
14:10	Aging Management of Nuclear Civil Structures - Potential Areas for Enhancements	Julia Tchner, AtkinsRealis
14:30 – 14:45	Break	
14:45	Crevice Corrosion Assessment of Steel Liners & Cement Interface in Nuclear Power Plants	Dr. Valdir de Souza, SCKCEN (R)
15:00	Crevice Corrosion Modelling of Steel Liners & Cement Interface in Nuclear Power Plants	Anssi Laukkanen, VTT (R)
15:15	Creep and Creep-cracking in PCCV	Randy James, SSC (R)
15:35-15:50	Break	
15:50	Panel Discussion	Yann LePape, ORNL Samuel Johnson, EPRI Ippei Maruyama, Univ. of Tokyo Chris Jones, Kansas State Univ. Julia Tchner, AtkinsRealis
Concluding Remarks		
16:40	Day Three Wrap-Up: Key Takeaways	Jose Pires/Mita Sircar, NRC
16:55	Closing Remarks	Laurel Bauer, NRC
17:00	Adjourn Day 3	John McKirgan, NRC