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Randy Lott (BSE, nuclear engineering, University of Michigan; M.S., Ph.D., nuclear engineering, University of Wisconsin) is a Consulting Engineer at Westinghouse Electric Company with over 35 years of experience in nuclear materials and radiation effects. Since joining Westinghouse in 1979, Dr. Lott has been a lead test engineer in the Remote Metallographic (Hot Cell) Facility. In this capacity, he has been responsible for numerous investigations of materials-related issues in PWRs. He has supervised testing of RPV surveillance capsules and conducted research programs on irradiation embrittlement and annealing of RPV steels. In addition, he has pioneered the application of the Master Curve testing to characterize the ductile-to-brittle fracture toughness transition in RPV steels. His contributions have provided the basis for the reconsideration of Nuclear Regulatory Guide 1.99, *Radiation Embrittlement of Reactor Vessel Materials, Revision 2* (May 1988), the development of Westinghouse RPV annealing technology, the safety analysis of reactor tanks at Savannah River, the determination of crack growth rates used in alternative plugging criteria for nuclear steam generators and the evaluation of RVI performance.

During his career at Westinghouse Dr. Lott has participated in the evaluation of aging degradation or failure of numerous reactor components including steam generator tubing, BMI flux thimbles, control rod guide tube “split” pins, baffle-former bolts and clevis insert bolts. He has also conducted numerous research programs on highly irradiated stainless steels, including tensile, fracture toughness and IASCC testing. For the past eight years, he has been actively involved in the design and implementation of AMPs for RVIs. As a member of the MRP Reactor Internals Inspection and Evaluation Core Group, Dr. Lott contributed to the EPRI Materials Reliability Program *Pressurized Water Reactor Internal Inspection and Evaluation Guidelines* (MRP-227-A). His work on aging management strategies for the Westinghouse and Combustion Engineering plants provided the basis for the recommended guidelines. The same recommendations have been adopted in the most recent revision of the NRC’s Generic Aging Lessons Learned (GALL) Report (NUREG-1801).

Representative Publications

- T.R. Mager, S.E. Yanichko and R.G. Lott, “Recent Experience in Pressure Vessel Materials Irradiation,” *Int. J. Pres. Ves. & Piping*, 34, 1988.
- R.C. Birtcher, A.N. Goland, R. Lott and G.R. Odette, Materials Irradiation Subpanel Report to BESAC Neutron Sources and Research Panel, BNL-48820, Brookhaven National Lab, 1992.
- R.G. Lott and T.R. Mager, Relationship of Radiation-Induced Segregation Phenomena to Irradiation Assisted Stress Corrosion Cracking, EPRI TR-101987, Electric Power Research Institute, 1993.
- R.L. Sindelar, G.R. Caskey, J.K. Thomas, J.R. Hawthorne, A.L. Hiser, R.G. Lott, J.A. Begley and R.P. Shogan, “Mechanical Properties of 1950’s Vintage Type 304 Stainless Steel Weldment Components After Low Temperature Neutron Irradiation,” Effects of Radiation on Materials, ASTM STP 1175, ASTM, 1993.
- C. Pezze and R.G. Lott, “An Approach for Reactor Vessel Life Assessment Following an Anneal,” ASME/JSME Pressure Vessel and Piping Symposium, 1994.
- G.F. Williams, R.G. Lott, E.N. Friedman, J.R. Kneedland, Jr., W.L. Server, E. Terek, “The Annealing Recovery of the Palisades Nuclear Power Plant Surveillance Material Using Weld Reconstitution,” Effects of Radiation on Materials, ASTM STP 1325, ASTM, 1997.
- H. Kanasaki, T. Okubo, I. Satoh, M. Koyama, T.R. Mager and R.G. Lott, “Fatigue and Stress Corrosion Cracking Behaviors of Irradiated Stainless Steels in Primary Water,” 5th International Conference on Nuclear Engineering, Nice, France, 1997.
- R. G. Lott, et al., “Determination of Margins and Heat Adjustments for Master Curve Applications in RPV Integrity Analysis,” Pressure Vessel and Piping Symposium, Seattle, WA, April 2000.

- S.T. Rosinski, W.L. Server and R.G. Lott, “A Mechanistically-Guided Charpy Embrittlement Correlation for Reactor Pressure Vessel Integrity Assessment,” Effects of Radiation on Materials, ASTM STP 1447, ASTM, 2004.
- W.L. Server, S.T. Rosinski and R. G. Lott, “Development of International Guidelines for Application of the Master Curve Approach to Reactor Pressure Vessel Integrity,” Effects of Radiation on Materials, ASTM STP 1447, ASTM, 2004.
- R.G. Lott, S.T. Rosinski and W.L. Server, “The Technical Foundations of a Unified Adjusted Reference Temperature for RPV Fracture Toughness,” Effects of Radiation on Materials, ASTM STP 1447, ASTM, 2004.
- J.K. McKinley, E.W. Deemer, R.J. Jacko, and R.G. Lott, “Crack Growth Rate and Fracture Toughness of Austenitic Stainless Steels in a PWR Primary Water Environment,” 14th Int. Conference on Environmental Degradation of Materials in Nuclear Power Systems, ANS, 2009

Technical Editor

- *Effects of Radiation on Materials: 21st International Symposium*, ASTM STP-1447, ASTM, 2004.
- *Effects of Radiation on Materials: 22nd International Symposium*, ASTM STP-1475, ASTM, 2006.
- *Effects of Radiation on Materials: 23rd International Symposium*, ASTM STP-1492, ASTM, 2008.