

Curriculum Vitae for Mark Leyse
December 2016

Professional expertise

- Nuclear safety analyst and consultant, focusing on fuel-cladding issues, loss-of-coolant accidents, meltdowns, prevention of hydrogen explosions, spent fuel pool accidents, and improving the evaluations of postulated accidents.

Education

- Nuclear engineering at the University of Wisconsin at Madison from 1979 to 1980. Bachelor of Arts in Fine Arts from the University of California at Berkeley, completed in 1985.

Project sponsors and tasks

- Natural Resources Defense Council, 2011, wrote a 10 C.F.R. § 2.802 petition for rulemaking, PRM-50-103, requesting post-Fukushima Daiichi accident revisions to 10 C.F.R. § 50.44, “Combustible Gas Control for Nuclear Power Reactors.”
- NRDC, 2012, wrote a 10 C.F.R. § 2.206 enforcement action petition, requesting that the Nuclear Regulatory Commission order the licensee of Indian Point Unit 2 to remove passive autocatalytic recombiners from Unit 2’s containment.
- NRDC, 2013 declaration on behalf of NRDC on the NRC’s *Waste Confidence Generic Environmental Impact Statement: Draft Report for Comment*, NUREG-2157, Appendix F, “Spent Fuel Pool Fires.”
- Riverkeeper, 2011, wrote a 10 C.F.R. § 2.206 enforcement action petition, requesting that the NRC order the licensee of Indian Point Units 2 and 3 to lower the licensing basis peak cladding temperatures of Units 2 and 3 in order to provide necessary margins of safety—to help prevent a meltdown—in the event of a loss-of-coolant accident.
- Riverkeeper, 2012, wrote a 10 C.F.R. § 2.206 enforcement action petition, requesting that the NRC permanently shut down Indian Point Units 2 and 3 because the licensee failed to adequately mitigate the risk that hydrogen that would be produced in the event of a severe accident.
- New England Coalition, 2010, wrote a 10 C.F.R. § 2.206 enforcement action petition, requesting that the NRC order the licensee of Vermont Yankee to lower its reactor’s licensing basis peak cladding temperature in order to provide a necessary margin of safety—to help

prevent a meltdown—in the event of a LOCA. In 2010, the NRC docketed the Vermont Yankee petition as a 10 C.F.R. § 2.802 petition for rulemaking, PRM-50-95.

Publications

- *Considering the Thermal Resistance of Crud in LOCA Analysis*, a paper I coauthored with Rui Hu and Professor Mujid S. Kazimi of the Massachusetts Institute of Technology, presented at the American Nuclear Society’s 2009 Winter Meeting.
- *Preventing Hydrogen Explosions In Severe Nuclear Accidents: Unresolved Safety Issues Involving Hydrogen Generation And Mitigation*, a report for NRDC, March 2014.
- *Preventing Hydrogen Explosions at Indian Point Nuclear Plant: Fact versus Industry Spin*, an issue brief for NRDC, coauthored by Christopher Paine, February 2013.
- *Post-Fukushima Hardened Vents with High-Capacity Filters for BWR Mark Is and Mark IIs*, a report for NRDC, July 2012.

PRM-50-84, a 10 C.F.R. § 2.802 petition for rulemaking, submitted as an individual

- PRM-50-84, 2007, wrote a petition for rulemaking, requesting, among other things, that the NRC amend Appendix K to Part 50, *ECCS Evaluation Models I(A)(1), The Initial Stored Energy in the Fuel*, to require that the steady-state temperature distribution and stored energy in the fuel at the onset of a postulated LOCA be calculated by factoring in the role that the thermal resistance of crud and/or oxide layers on cladding plays in increasing the stored energy in the fuel. PRM-50-84 also requested that the same requirements apply to any NRC-approved best-estimate ECCS evaluation models used in lieu of Appendix K to Part 50 calculations.

In 2008, the NRC decided to consider the safety issues raised in PRM-50-84 in its rulemaking process. And in 2009, the NRC published “Performance-Based Emergency Core Cooling System Acceptance Criteria,” which gave advanced notice of a proposed rulemaking, addressing four objectives: the fourth being the issues raised in PRM-50-84. In 2012, the NRC Commissioners voted unanimously to approve a proposed rulemaking—revisions to Section 50.46(b), which will become Section 50.46(c)—that is partly based on the safety issues raised in PRM-50-84.

Expert Presentations to the NRC

- Presentation to the NRC Commissioners in their meeting, *Public Participation in NRC Regulatory Decision-Making*, 2013.
- Presentation on PRM-50-84 and how the thermal resistance of crud deposits and oxide layers on fuel cladding would increase the peak cladding temperature in the event of a LOCA, 2014, in the NRC's Category 3 Public Meeting, *Performance-Based Emergency Core Cooling Systems Cladding Acceptance Criteria (10 C.F.R. § 50.46(c)) Proposed Rule and Associated Draft Regulatory Guidance*.

Contact information

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