[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[Docket No. PRM-50-113; NRC-2015-0230]

Uninterruptible Monitoring of Coolant and Fuel in Reactors and Spent Fuel Pools

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking; notice of docketing.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) has received a petition for rulemaking (PRM) requesting that the NRC amend its "Domestic licensing of production and utilization facilities" regulations to require "installation of ex-vessel instrumentation for uninterruptible monitoring of coolant and fuel in reactors and spent-fuel pools." The petition, dated September 10, 2015, was submitted by Dr. Alexander DeVolpi (the petitioner). The petition was docketed by the NRC on September 21, 2015, and was assigned Docket Number PRM-50-113. The NRC is examining the issues raised in this petition to determine whether they should be considered in rulemaking. The NRC is not requesting public comment on PRM-50-113 at this time.

DATES: The PRM is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID NRC-2015-0230 when contacting the NRC about the availability of information for this petition. You may obtain publicly-available information related to this petition by any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID NRC-2015-0230. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at http://www.nrc.gov/reading-rm/adams.html. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided the first time that a document is referenced.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: For technical questions contact Jennifer Tobin, Office of Nuclear Reactor Regulation, telephone: 301-415-2328, e-mail: Jennifer.Tobin@nrc.gov. For questions related to the petition for rulemaking process contact Anthony de Jesús, Office of Administration, telephone: 301-415-1106, e-mail: Anthony.deJesus@nrc.gov. Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

I. The Petitioner

The petitioner, Dr. Alexander DeVolpi, states that he "has had a substantial technical career starting in the late 1950s in reactor safety and engineering, having worked for and been funded by U.S. nuclear development and regulatory agencies." The petitioner notes that he has carried out relevant research and development and published supportive technical papers and filed patent applications.

II. The Petition

The petitioner requests that the NRC amend part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), "Domestic licensing of production and utilization facilities," to require "installation of ex-vessel instrumentation for uninterruptible monitoring of coolant and fuel in reactors and spent-fuel pools." The petition is available in ADAMS under Package Accession No. ML15264A857.

III. Discussion of the Petition

The petitioner requests that the NRC amend its regulations in 10 CFR part 50 to require "installation of ex-vessel instrumentation for uninterruptible monitoring of coolant and fuel in reactors and spent-fuel pools." The petitioner cites a 2014 National Research Council report titled, "Lessons Learned from the Fukushima Nuclear Accident for Improving Safety of U.S. Nuclear Plants," that gave high priority to recommendation 5.1A, which stated that greater

"[a]ttention to availability, reliability, redundancy, and diversity of plant systems and equipment is specifically needed for…Instrumentation for monitoring critical thermodynamic parameters in reactors, containments, and spent fuel pools."[1] In addition, the petitioner cites to section 5.1.1.4 of the report, "Instrumentation for Monitoring Critical Thermodynamic Parameters," which states that "robust and diverse monitoring instrumentation that can withstand severe accident conditions is essential for diagnosing problems, selecting and implementing accident mitigation strategies, and monitoring their effectiveness."

The petitioner claims that requiring the "installation of ex-vessel instrumentation for uninterruptible monitoring of coolant and fuel in reactors and spent-fuel pools" might prevent or mitigate potential accidents at reactors and spent fuel pools. The petitioner asserts that the Three Mile Island accident "might have been prevented if realtime uninterruptible ex-vessel reactor water-level monitoring had been in place." Furthermore, the petitioner notes that one or both of the Fukushima meltdowns "might have been delayed or averted if uninterruptible ex-vessel real-time reactor water-level monitoring had been in place and operating on self-contained low-current battery supplies." The petitioner states that ex-vessel instrumentation "would provide autonomous and redundant measurements of reactor water level and density at all times, irrespective of power level." The petitioner asserts that amending the NRC's regulations to require ex-vessel instrumentation would be "[c]onsistent with a more anticipatory defense-in-depth strategy" and would enhance strategies to mitigate beyond-design-basis accidents. In addition, the petitioner suggests that requiring ex-vessel instrumentation would "reduce potential financial risk and public apprehension" and that ex-vessel monitoring could "supply routine operational nuclear-process information that might enhance fuel-consumption efficiency." Finally, the petitioner notes that ex-vessel instrumentation could be "designed to be

[1] The report can be accessed at http://www.nap.edu/catalog/18294/lessons-learned-from-the-fukushima-nuclear-accident-for-improving-safety-of-us-nuclear-plants.

functional and capable of providing data on fuel relocation" after a reactor shutdown and could "monitor post-accident reactor fuel reconcentration over a period of many years."

VI. Conclusion

The NRC has determined that the petition meets the threshold sufficiency requirements for docketing a petition for rulemaking under 10 CFR 2.802, "Petition for rulemaking," and the petition has been docketed as PRM-50-113. The NRC will examine the issues raised in PRM-50-113 to determine whether they should be considered in the rulemaking process.

Dated at Rockville, Maryland, this 23rd day of November, 2015.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.

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