

POLICY ISSUE
NOTATION VOTE

RESPONSE SHEET

TO: Carrie M. Safford, Secretary

FROM: Commissioner Marzano

SUBJECT: SECY-22-0019: Rulemaking Plan for Revision of
Embrittlement and Surveillance Requirements for
High-Fluence Plants in Long-Term Operation

Approved X Disapproved Abstain Not Participating

COMMENTS: Below Attached X None

Entered in STARS

Yes X
No

Signature
Matthew J. Marzano

Date 07/08/2025

Commissioner Marzano Vote Comments on SECY-22-0019, “Rulemaking Plan for the Revision of Embrittlement and Surveillance Requirements for High-Fluence Nuclear”

I thank the staff for their foresight to examine the embrittlement of reactor pressure vessels (RPVs) for long-term operation of pressurized-water reactor plants. Appropriate modeling and performance monitoring of RPV embrittlement provide reasonable assurance of adequate safety margins to maintain RPV integrity over an extended plant operating lifetime.

I approve the staff’s recommended focused solution (Alternative 2), which presents a targeted rulemaking approach to address embrittlement issues associated with long-term plant operation. This alternative would revise Appendix H, “Reactor Vessel Material Surveillance Program Requirements,” to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities” to include additional surveillance testing requirements for long-term operation and revise the fluence function fit through appropriate updates to 10 CFR 50.61, “Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events,” and guidance, including Regulatory Guide 1.99, Rev. 2, “Radiation Embrittlement of Reactor Vessel Materials.”

To support effective embrittlement modeling and surveillance, the staff should develop options with input from stakeholders for revising the fluence fit function. The staff should ensure that these options do not unnecessarily limit licensees to a single calculation or model as part of a technology-inclusive and performance-based approach to regulation. Establishing technology-inclusive and performance-based regulatory requirements promotes efficiency as this rulemaking effort has the potential to limit the need for future rulemakings and other licensing actions (e.g., exemptions) to accommodate unique considerations or adapt to new information and data.

Updating these requirements demonstrates commitment to modernizing the U.S. Nuclear Regulatory Commission’s regulatory framework to efficiently license both advanced and currently operating reactors based on the weight of scientific evidence, consistent with Executive Order 14303, “Restoring Gold Standard Science.” Consistent with Executive Order (EO) 14300, “Ordering the Reform of the Nuclear Regulatory Commission,” and in accordance with the U.S. Nuclear Regulatory Commission’s (NRC’s) principles of good regulation, the staff should work with the Office of the General Counsel to identify rulemaking efficiencies, where appropriate, and ensure that this rulemaking is coordinated with any efforts to revise NRC’s regulations pursuant to Section 5 of EO 14300.