

**POLICY ISSUE**  
**(Notation Vote)**

December 13, 2013

SECY-13-0135

FOR: The Commissioners

FROM: Mark A. Satorius  
Executive Director for Operations

SUBJECT: DENIAL OF PETITION FOR RULEMAKING REQUESTING AMENDMENTS  
REGARDING EMERGENCY PLANNING ZONE SIZE (PRM-50-104)

PURPOSE:

To obtain Commission approval to publish the enclosed *Federal Register* notice (FRN) (Enclosure 1) denying a petition for rulemaking (PRM) submitted by Mr. Michael Mariotte on behalf of the Nuclear Information and Resource Service (NIRS or the petitioner) (Enclosure 2). This paper does not address any new commitments or resource implications.

BACKGROUND:

The petitioner filed with the Commission a petition for rulemaking (PRM-50-104) on February 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12048B004). The petitioner requests that the Commission amend its regulations in Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) to expand existing emergency planning zones (EPZ) around nuclear power plants, create a new EPZ, and require the incorporation of concurrent natural disasters in the required periodic emergency plan drills. A notice of acceptance, docketing, and request for public comments was published in the *Federal Register* on April 30, 2012 (77 FR 25375). The comment period closed on July 16, 2012. The NRC received 5,993 comment submissions, 5,953 of which supported the petition and 40 opposed the petition.

DISCUSSION:

Petition:

The petitioner argues that real-world experience from the accidents at Chernobyl and Fukushima Dai-ichi demands larger EPZs because those accidents were more severe and

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affected a much larger geographical area than provided for in the NRC's regulations. The petitioner states that the current EPZ size is based on outdated studies and believes that ad hoc expansion may not be adequate. The NRC staff reviewed the petition and identified the following positions taken by the petitioner that require NRC consideration and response:

1. Expand EPZs because, in the event of a nuclear accident, the need for protective actions beyond 10 miles and 50 miles is highly likely.
2. Expand EPZs because the basis for the 10-mile EPZ is flawed.
3. Expand EPZs because the NRC urged U.S. citizens within 50 miles of the Fukushima Dai-ichi Nuclear Power Plant to evacuate.
4. There has been little change to emergency planning regulations in 30 years.
5. Expand EPZs because ad hoc expansion beyond 10 miles will not be adequate.
6. Expand EPZs because current planning is inadequate for increased populations around many U.S. nuclear power plants.
7. Expand EPZs because the U.S. reactor fleet is aging and more vulnerable to the occurrence of accidents.
8. Expand EPZs because risk from spent fuel pools is too high.
9. Emergency planning regulations must be strengthened because there are significant concerns related to pressure suppression containments.
10. Expand EPZs because expansion is supported by the current improved understanding of the health effects of radiation.
11. Expand EPZs because radiation does not stop at an EPZ boundary.
12. Expand EPZs because current regulations do not provide adequate protection. Amending the regulations as requested in the petition would more likely provide adequate protection.
13. Require EP exercises to include a regionally-relevant initiating or concurrent natural disaster because natural disasters can challenge nuclear safety systems.
14. Require EP exercises to include a regionally-relevant initiating or concurrent natural disaster because natural disasters may affect communications during emergency response.

Each of these positions is addressed separately in the enclosed FRN.

#### NRC Evaluation of Petition Requests:

The NRC's regulations in 10 CFR Part 50 require two EPZs around each nuclear power plant. The 10-mile zone establishes the area in which exposure from a radiological release would likely occur and protective actions such as sheltering in place or evacuation would be appropriate. The 50-mile zone is the ingestion exposure pathway EPZ, where human exposure to radionuclides would likely result from ingestion of contaminated food, milk, or surface water. Nuclear power plant licensees; Federal, State, and local governments; and offsite response organizations perform comprehensive planning for these zones and routinely test and evaluate these plans through full participation exercises. The licensee develops the onsite emergency plan for NRC review. The State and local governments develop and maintain the offsite emergency plans, which are evaluated by the Federal Emergency Management Agency. Through coordination of their emergency plans, the licensee and State and local governments establish the EPZ for the respective site.

The NRC staff concludes that the current size of EPZs is appropriate for existing reactors and that emergency plans will provide an adequate level of protection of the public health and safety in the event of an accident at a nuclear power plant. The current EPZs provide for a comprehensive emergency planning framework that would allow expansion of the response efforts beyond the designated distances should events warrant such an expansion.

The NRC concludes that emergency actions could be successfully carried out beyond the 10-mile EPZ for several reasons. The 10-mile emergency planning basis establishes an infrastructure similar to that used by other offsite response organizations, such as police and fire departments. The infrastructure consists of emergency organizations, communications capabilities, training, and equipment that can be used in the event of an accident at a facility. Coordination is enhanced by the practice of having offsite response organizations, which include local, State, and Federal responders, participate in training exercises with the licensee.

In addition, State and local response agencies have improved their incident response plans and guidance following the events of September 11, 2001. The Department of Homeland Security has issued guidance for Federal, State, and local response to emergencies which includes the National Response Framework, the National Incident Management System, and the Incident Command System. These guidance documents present a framework for use during an emergency that is scalable, flexible, and allows for an adaptable coordinating structure. The development and implementation of the National Incident Management System and Incident Command System under the National Response Framework enhances State and local response capabilities through uniform and logical management of response resources to facilitate prompt and effective protective measures for all populations that may be affected.

The NRC has examined the accident at Fukushima Dai-ichi for lessons learned and established bases for its decisions related to EPZs. As explained in SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011 (ADAMS Accession No. ML11186A950), a senior level agency task force studied the basis for the current EPZs and did not recommend expansion of the EPZs. In SECY-12-0095, "Tier 3 Program Plans and 6-Month Update in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Subsequent Tsunami," dated July 13, 2012 (ADAMS Accession No. ML12208A210), the NRC staff determined that the existing basis for the EPZ size remains valid (including for multi-unit events). However, there are plans to further study the potential health effects for the released radioactivity from the Fukushima Dai-ichi site. The United Nations Scientific Committee on the Effects of Atomic Radiation is preparing a scientific report to assess the radiation doses and associated effects on health and the environment. Also, the Fukushima Prefecture launched the Fukushima Health Management Survey to investigate long-term low-dose radiation exposure caused by the accident. The survey attempts to estimate radiation exposure from the accident and more detailed dose assessments by recreating the whereabouts of every Fukushima prefecture resident for the four month period beginning with the March 11<sup>th</sup> nuclear accident. The stated primary purposes of this survey are to monitor the long-term health of residents, promote their future well-being, and confirm whether long-term low-dose radiation exposure has health effects. The NRC staff will continue to monitor the results of these efforts and their potential implications regarding the U.S. regulatory approach to emergency planning around nuclear power plants, including the EPZ size. In addition, the NRC is conducting a Level 3 probabilistic risk assessment to gain a better understanding of potential radiological effects of postulated accident sequences including sites with multiple units. If these research activities indicate that changes need to be made to the

existing emergency preparedness regulations, the NRC will commence a rulemaking effort to make those changes. However, at this time, the NRC does not find that an expansion of the EPZ is necessary based on the positions presented in the petition.

The majority of nuclear power plant licensees currently incorporate natural disasters into their drill and exercise scenarios to help them prepare for natural disasters that could coincide with a reactor emergency. All NRC-licensed sites in the United States have emergency action levels in their radiological emergency plans that include protective actions related to aspects of natural disasters. Moreover, current activities being undertaken by the NRC staff for the Near-Term Task Force recommendations resulting from the Fukushima Dai-ichi event are addressing the issue of additional requirements, including training and drills, for a beyond-design-basis event, such as a natural disaster (Order EA-12-049, "Order Modifying Licenses with regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012 (ADAMS Accession No. ML12054A736)). The requirement in the order for licensees to perform a drill for an event that originates from a beyond-design-basis external event and leads to a multi-unit prolonged station blackout involves licensees planning, preparing, and practicing for these unlikely natural events.

On a separate but related topic, the NRC staff has discussed the development of a scalable, dose-based, consequence-oriented emergency planning framework, including EPZs, in SECY-11-0152, "Development of an Emergency Planning and Preparedness Framework for Small Modular Reactors," dated October 28, 2011 (ADAMS Accession No. ML112570439). The NRC staff provided an update on this topic in a memorandum to the Commission, "Current Status of the Source Term and Emergency Preparedness Policy Issues for Small Modular Reactors," dated May 30, 2013 (ADAMS Accession No. ML13107A052). The NRC staff plans to continue to work with external stakeholders on this topic, but will not go further in proposing new policy or guidance for specific changes to emergency planning requirements for small modular reactors absent specific proposals from an applicant or other stakeholder.

#### STAKEHOLDER COMMENTS:

The NRC received 5,993 comment submissions on the petition: 5,942 were from individuals; 36 were from State or local government emergency management agencies or radiation control organizations; 10 were from environmental, nuclear, or energy oriented citizen activity groups; 3 were from local governments; and 2 were from organizations associated with the nuclear power industry. Of the 5,942 comment submissions from individuals, 5,702 were form letters. Overall, 5,953 comment submissions supported the petition, and 40 comment submissions opposed the petition.

RECOMMENDATION:

The NRC staff has reviewed the petition and the public comments and recommends that the Commission deny the petition for the reasons summarized in this document and further described in the FRN. The NRC staff does not find that the petitioner provides a sufficient basis for changing the existing regulations. The NRC staff recommends denying the petition because the NRC staff concludes that the current size of the EPZs is appropriate for existing reactors and proposed new reactors and that emergency plans will provide an adequate level of protection of the public health and safety in the event of an accident at a nuclear power plant. The current EPZs provide for a comprehensive emergency planning framework that would allow expansion of the response efforts beyond the designated distances should events warrant such an expansion.

The NRC staff requests the Commission's approval to publish the FRN denying PRM-50-104.

The enclosed letter for signature by the Secretary of the Commission (Enclosure 3) informs the petitioner of the Commission's decision to deny PRM-50-104. The NRC staff will inform the appropriate congressional committees.

COORDINATION:

The Office of the General Counsel has reviewed this package and has no legal objection to the denial of this petition.

*/RA/*

Mark A. Satorius  
Executive Director  
for Operations

Enclosures:

1. *Federal Register* Notice
2. NIRS Petition
3. Letter to the Petitioner

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**ADAMS Accession Nos:** ML13109A503 (Package), ML13109A506 (Commission Paper), ML13109A511 (FRN), ML12048B004 (NIRS Petition), ML13109A523 (NRC Response to Public Comments), ML13109A520 (Letter to the Petitioner), ML13109A526 (Weekly Highlight)

\*Concurrence via email

OFFICE	NRR/DPR/PRMB:PM	NRR/DPR/PRMB:RS	NRR/DPR/PRMB:BC	NRR/DPR:D	NRR/JLD*	ADM/DAS/RADB:BC*
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