



POLICY ISSUE

(Information)

January 02, 2024

FOR: The Commissioners SECY-24-0001

FROM: Mirela Gavrilas, PhD, Director
Office of Nuclear Security and Incident Response

SUBJECT: ANNUAL UPDATE ON THE STATUS OF THE EMERGENCY
PREPAREDNESS PROGRAM

PURPOSE:

The purpose of this paper is to provide the Commission with an assessment of the U.S. Nuclear Regulatory Commission's (NRC's) emergency preparedness (EP) program for fiscal year (FY) 2023. This paper does not address any new commitments or resource implications.

DISCUSSION:

In the staff requirements memorandum (SRM) to SECY-07-0182, "Semi-Annual Update on the Status of Emergency Preparedness Activities" (Agencywide Documents and Management System Accession No. ML073550647), the Commission directed the staff to provide an annual update as a self-assessment and communication tool that summarizes accomplishments and provides the status on improvement initiatives within the EP program. The NRC staff provided the last annual update in December 2022 (ML22332A403).

Across the broad spectrum of the EP program—from rulemaking to licensing to oversight—the staff met the challenges to evolve the EP program in the development and implementation of EP policy, especially in support of advanced and decommissioning reactors. In conducting its work, the staff collaborated with diverse stakeholders, including Federal partners and the international community, through routine engagement and novel outreach activities.

CONTACT: Christian Leatherbury, NSIR/DPR
301-415-3479

Rulemaking

Though the long-standing, risk-informed, graded approach to regulating EP remains constant, it has matured to support effective and efficient readiness for advanced reactor licensing and oversight in accordance with the Nuclear Energy Innovation and Modernization Act (Public Law 115-439) and the Commission's Policy Statement on Advanced Reactors (ML082750370). Over the last year, the staff worked on several rulemaking efforts to support EP advancements for the existing fleet of reactors, decommissioning sites, and small modular and advanced reactors. The staff ensured consistency across all rulemaking efforts in applying a graded approach to EP commensurate to the facility hazards and ensured that EP continued to be recognized as an essential component of the agency's defense-in-depth philosophy.

In response to a high level of interest from stakeholders, the staff worked to effectively communicate the technical basis for the NRC's rulemaking efforts through numerous public engagements. These opportunities included public meetings, national-level conferences, invited speaking engagements with State agencies, and conversations in academic settings. In addition, collaboration with international counterparts and Federal partners, like the Federal Emergency Management Agency (FEMA), the Environmental Protection Agency, the Department of Energy, and the 17 other members of the Federal Radiological Preparedness Coordinating Committee (FRPCC), resulted in the successful support and mutual understanding of emerging programmatic needs to inform rulemaking efforts.

Several rulemaking milestones were met during this period, including:

- Finalizing the rule and associated guidance for a risk-informed approach to EP for small modular reactors and other new technologies in Title 10 of the *Code of Federal Regulations* (10 CFR) section 50.160, "Emergency Preparedness for Small Modular Reactors and Other New Technologies." The final rule and guidance (ML23226A019) went into effect on December 18, 2023.
- Contributing EP-related expertise, consistent with 10 CFR 50.160, to the development of "Proposed Rule: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (Part 53)" (ML21162A093) that would require advanced reactor technology applicants and licensees to develop, implement, and maintain an emergency response plan that demonstrates compliance with either 10 CFR 50.47 and Appendix E to Part 50, or 10 CFR 50.160.
- Developing a draft final rule for decommissioning facilities, "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning," that would provide risk-informed levels of EP standards based on significant milestones in the decommissioning process. This approach is consistent with the long-standing approach to decommissioned reactor EP, which previously required license amendment requests and exemptions from the regulations to implement. The staff led the disposition of a large number of public comments on the proposed rule and participated in several public meetings to facilitate a clear and transparent rulemaking process. The result would be a more efficient and predictable framework for managing EP during the decommissioning process. The draft final rule is expected to be sent to the Commission in early 2024.

The Commissioners

Licensing

The staff provided subject matter expertise to multiple business lines to support the completion of a large number of licensing actions and public engagement with licensees and applicants.

Notable examples include the following:

- In support of licensing advanced reactors and consistent with the 10 CFR 50.160 rulemaking, the staff made significant progress on the development of interim staff guidance to facilitate readiness for licensing small modular reactors and other new technologies; completed the review of the Kairos Hermes construction permit application; and completed a pre-application readiness assessment for the Carbon-Free Power Project for the NuScale US460 small modular reactor.
- Completed the once-a-decade review of 54 nuclear power reactor licensees' evacuation time estimate (ETE) studies. In preparation for this infrequent review, staff devised and implemented a work plan to develop the specialized skills needed to perform these highly technical reviews effectively and efficiently. The staff completed all reviews within 180 days of receipt of the updated reports, ensuring licensees were able to use the updated ETEs to form protective action recommendations and to share ETE reports with State and local governments for their use as required under Appendix E to 10 CFR Part 50. Staff plans to document the lessons learned from these reviews in a knowledge management series to inform the next decennial ETE review.
- Implemented and completed many licensing actions and pre-application activities, including pre-application readiness assessments for the Tennessee Valley Authority and X-Energy. Staff also issued two complex license amendments to consolidate and relocate the emergency operations facilities for Xcel Energy's Monticello and Prairie Island nuclear generating stations.

In addition, the staff pursued meaningful engagement with international counterparts in licensing EP for operating reactors, small modular reactors and advanced reactors, including: actively participating in the International Atomic Energy Agency's Emergency Preparedness and Response Standards Committee; approving the Emergency Management Working Group Roadmap for 2023-2025 under the U.S.-Japan Bilateral Commission on Civil Nuclear Cooperation; hosting foreign assignees from Argentina and Slovakia; and participating in a tri-lateral collaboration effort with the United Kingdom's Office of Nuclear Regulation and the Canadian Nuclear Safety Commission.

Oversight

Staff proposed and led the development of changes in the oversight program to support regional inspectors and application of enforcement policy. A key consideration in the development of these changes was the incorporation of advancements in technology that will modernize NRC oversight.

Notable completed and planned changes in the oversight program include:

- Developed and gained Commission approval on a recommendation to modernize the Significance Determination Process in the EP cornerstone (ML23040A378) that uses a

The Commissioners

risk-informed methodology to evaluate the significance of EP inspection findings and align the findings with the associated risk. Once implemented, this revision will enable resource efficiencies by focusing oversight activities on those with the most significant impacts.

- Developed and gained Commission approval on a recommendation to retire the Alert and Notification System performance indicator and develop a performance indicator for emergency response facility and equipment readiness (ML23244A282). This staff-led innovation enables use of modern notification tools, will require fewer inspection resources, and supports the development of the Advanced Reactor Construction Oversight Program. The transition is planned to be complete by the beginning of FY 2025.
- Began efforts to develop inspection procedures for the oversight of performance-based EP programs licensed under 10 CFR 50.160.
- Established a working group to address issues related to the maintenance and calibration of radiation monitors and their use within the emergency plan for dose assessment modeling or emergency action level thresholds to promote oversight consistency.
- Attained agreement from the FRPCC, led by FEMA, to reinstate the subcommittee on potassium iodide, to examine the efficacy of the current potassium iodide policy regarding SMRs and advanced reactors. Current Federal potassium iodide policy and guidance reflects lessons learned from Chernobyl, but do not reflect insights from the past 20 years or reflect technologies other than large light-water reactors.
- Built on a solid relationship with FEMA through successful collaboration in the use of a strategic plan with a shared mission to promote public safety and resilience through EP and response for commercial nuclear power plants. Notable accomplishments include several joint presentations to common stakeholders, establishment of a Tribal Working Group to bolster equity and environmental justice, and ongoing contributions to the update of FEMA regulations and guidance related to NRC equities.

CONCLUSION:

The NRC's EP program satisfied priorities in FY 2023 that directly supported the NRC's mission and strategic plan. The staff continues to demonstrate its ability to maintain a stable and predictable EP program and support the agency's responsibilities in the national response structure.

The Commissioners

COORDINATION:

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



Signed by Gavrilas, Mirela
on 01/02/24

Mirela Gavrilas, PhD, Director
Office of Nuclear Security
and Incident Response

The Commissioners

SUBJECT: ANNUAL UPDATE ON THE STATUS OF THE EMERGENCY PREPAREDNESS PROGRAM DATED: JANUARY 02, 2024

ADAMS Accession Number: ML24002B147 *via email

OFFICE	NSIR/DPR	NSIR/DPR	OGC*	NSIR
NAME	CLeatherbury	KBrock	AGhosh Naber	CRaynor
DATE	12/07/2023	12/07/2023	12/07/2023	12/07/2023
OFFICE	EDO	NSIR		
NAME	SMorris	MGavrilas <small>/for/ G. Bowman</small>		
DATE	12/28/2023	1/02/2024		

OFFICIAL RECORD COPY