



POLICY ISSUE **(Notation Vote)**

May 5, 2020

SECY-20-0041

FOR: The Commissioners

FROM: Margaret M. Doane
Executive Director for Operations

SUBJECT: REQUEST BY EXELON GENERATION COMPANY, LLC FOR EXEMPTIONS
FROM CERTAIN EMERGENCY PLANNING REQUIREMENTS FOR THE
THREE MILE ISLAND NUCLEAR STATION

PURPOSE:

The purpose of this paper is to request Commission approval of Exelon Generation Company, LLC's (Exelon) request for exemptions from certain emergency preparedness and planning (EP) requirements of Part 50, "Domestic Licensing of Production and Utilization Facilities," to Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR). Exelon's proposed exemptions would scale the EP requirements placed by the U.S. Nuclear Regulatory Commission (NRC) on the licensee commensurate with the permanent cessation of operations and permanent removal of spent fuel from the Unit 1 reactor vessel to the spent fuel pool (SFP) at the Three Mile Island Nuclear Station (TMI) site. The proposed exemptions, if approved, would eliminate the requirement for the licensee to maintain formal offsite radiological EP plans, but would still require the licensee to maintain certain onsite capabilities to communicate and coordinate with offsite response authorities. This paper does not address any new NRC commitments or resource implications.

BACKGROUND:

The EP requirements of 10 CFR 50.47, "Emergency plans," and Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 continue to apply to a nuclear power reactor after certification of permanent cessation of

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operations and removal of fuel from the reactor vessel under 10 CFR 50.82(a)(1). The regulations in 10 CFR 50.12(a)(2)(ii) provide that the NRC may, upon request by a licensee or on its own initiative, grant exemptions from the requirements of the regulations in 10 CFR Part 50 when application of the regulation would not serve, or is not necessary to achieve, the underlying purpose of the rule.

To establish a level of EP commensurate with the risk of a radiological emergency at a decommissioning power reactor site, licensees typically request exemptions from certain EP requirements early in the decommissioning process. The NRC reviews each request on a case-by-case basis and grants exemptions only after conducting a thorough analysis of each request. Historically, given the significant reduction in radiological risk as a licensee transitions from an operating reactor site to a decommissioning site, the NRC has approved exemptions from certain EP requirements based on site-specific evaluations and the objectives of the regulations.

In the staff requirements memorandum to SECY-08-0024, "Delegation of Commission Authority to Staff to Approve or Deny Emergency Plan Changes That Represent a Decrease in Effectiveness," dated May 19, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081400510), the Commission directed that the NRC staff request Commission approval for any reduction in effectiveness of a licensee's emergency plan that requires an exemption from the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. Although the exemptions that the NRC staff proposes to grant will maintain the same level of effectiveness for the decommissioning reactor site that NRC regulations provide for operating power reactors, the NRC staff seeks Commission approval of Exelon's requested exemptions because of their regulatory significance.

ADJUDICATORY PROCEEDING RELATED TO THESE EXEMPTIONS:

The requested exemptions and a related license amendment request are the subject of a petition for intervention and hearing request filed by Eric J. Epstein and by Three Mile Island Alert (together, the Petitioners) on November 12, 2019. On January 23, 2020, the Atomic Safety and Licensing Board (the Board) denied the intervention petition and terminated the proceeding.¹ Mr. Epstein filed a pleading on February 16, 2020, titled "Motion to Stay Memorandum and Reply to Proposed Order Denying Intervention and Petition." On February 19, 2020, the Board denied that request insofar as it could be construed as a request for a stay of the Board's ruling or a motion seeking reconsideration of the Board's decision. The Board also referred the Petitioners' pleading to the Commission for appropriate action. In response to an NRC staff motion for clarification, the Commissioners granted NRC staff and Exelon 25 days to respond to the February 16 motion. The NRC staff and Exelon filled answers to the motion on March 12, 2020.

DISCUSSION:

TMI Unit 2 (TMI-2) has been in a non-operating status since the accident in 1979. General Public Utilities Nuclear, Inc. (GPU) retains the license for TMI-2 and is owned by FirstEnergy Corporation. The licensee conducted a substantial program to defuel the reactor vessel and decontaminate the facility. The plant defueling was completed in April 1990 and all spent fuel

¹ *Exelon Generation Co., LLC* (Three Mile Island Nuclear Power Station, Units 1 and 2), LBP-20-2, 91 NRC __ (Jan. 23, 2020) (slip op.).

has been removed, except for some debris in the reactor coolant system. The U.S. Department of Energy took title and possession of the fuel and stores it at the Idaho National Laboratory. GPU has a possession-only license (DPR-73) for TMI-2, which is currently maintained in a post-defueling monitored storage condition (method in which a nuclear facility is placed and maintained in a condition that allows it to be safely stored and subsequently de-contaminated), approved by the NRC in September 1993 (ADAMS Legacy Accession No. 9505190046).

GPU sold TMI Unit 1 (TMI-1) to AmerGen (now Exelon) in 1999. The existing site emergency plan encompasses both TMI units, and Exelon maintains the EP responsibilities for TMI-2 through a service agreement with FirstEnergy Corporation. Exelon states that this exemption request does not impact Exelon's ability to maintain the service agreement.

By letter dated June 20, 2017 (ADAMS Accession No. ML17171A151), Exelon certified to the NRC that it planned to permanently cease power operations at TMI-1 on or about September 30, 2019, in accordance with 10 CFR 50.82(a)(1)(i). TMI-1 subsequently permanently ceased power operations on September 20, 2019. By letter dated September 26, 2019 (ADAMS Accession No. ML19269E480), pursuant to 10 CFR 50.82(a)(1)(ii), Exelon certified that all fuel had been permanently removed from the TMI-1 reactor vessel and placed in the SFP on September 26, 2019. Upon the NRC's docketing of Exelon's certification that all fuel has been permanently removed from the TMI-1 reactor vessel and placed into the TMI SFP, pursuant to 10 CFR 50.82(a)(2), the 10 CFR Part 50 license for TMI-1 no longer authorizes operation of the reactor or emplacement or retention of fuel in the reactor vessel.

By letter dated July 1, 2019 (ADAMS Accession No. ML19182A104), as supplemented by letters dated October 9, 2019, and December 10, 2019 (ADAMS Accession Nos. ML19282C285 and ML19344C115, respectively), Exelon requested exemptions from specific portions of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for the TMI site.

Evaluation of EP Exemptions

In evaluating Exelon's proposed exemptions, the NRC staff reviewed recent similar EP exemptions granted for decommissioning nuclear power reactors, recent SFP studies, SFP mitigation strategies, and hostile action-based event considerations, which are discussed in Enclosure 1, "Historical Perspective and Staff Evaluation Considerations." The NRC staff also performed a technical evaluation of Exelon's requested exemptions using the evaluation criteria specified in Section 5, "Evaluation of Exemptions to EP Regulations," to an Office of Nuclear Security and Incident Response (NSIR), Division of Preparedness and Response (DPR) Interim Staff Guidance (ISG) document, NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (ADAMS Accession No. ML14106A057). The outcome of this evaluation, as well as the NRC staff's evaluation of Exelon's requested exemptions against the requirements in 10 CFR 50.47, Appendix E to 10 CFR Part 50, and 10 CFR 72.32, "Emergency Plan," are detailed in Enclosure 2, "Evaluation of Request by Exelon Generation Company, LLC for Exemptions from Certain Emergency Planning Requirements for the Three Mile Island Nuclear Station."

Based on its evaluation, the NRC staff concluded that granting the requested exemptions to Exelon would provide reasonable assurance that: (1) an offsite radiological release will not exceed the limits of the U.S. Environmental Protection Agency's early phase protective action guide of one roentgen equivalent man at the site's exclusion area boundary for remaining

applicable design-basis accidents (DBAs); and (2) in the highly unlikely event of a beyond-DBA resulting in a loss of all SFP cooling, there would be sufficient time to initiate SFP mitigating actions. Although not the basis for the NRC staff's proposal to approve the exemptions, the NRC staff notes that if State or local governmental officials determine that offsite protective actions are warranted, then sufficient time and capability would also be available for offsite response organizations to implement these measures using a comprehensive emergency management plan or "all-hazards" approach.²

The TMI-1 analysis concluded, and the NRC staff confirmed, that after the spent fuel has decayed for 488 days, for beyond-design-basis events where the SFP is drained and air cooling is not possible, at least 10 hours would be available from the time spent fuel cooling is lost until the hottest fuel assembly reaches a temperature of 900°C. This 10-hour minimum threshold provides sufficient time for TMI to take mitigative actions, or if governmental officials deem warranted, for offsite protective actions to be initiated using a comprehensive approach to emergency planning.

Per the cited analysis, Exelon requests that the approved exemptions become effective 488 days following the permanent cessation of power operations at TMI-1. The permanent cessation of power operations occurred on September 20, 2019. Therefore, implementation of the proposed exemptions cannot occur prior to January 20, 2021.

FEMA Consultation

Consistent with the December 7, 2015, "Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Response, Planning and Preparedness" (ADAMS Accession No. ML15344A371), the NRC staff transmitted to FEMA, by electronic mail, a draft of this SECY paper to provide the opportunity to ask questions, obtain clarification, and comment on the paper before the Commission received it for review. A letter dated November 14, 2019 (ADAMS Accession No. ML19308A877) was also sent to FEMA documenting the transmittal of the draft SECY paper to FEMA via electronic mail.

In a letter dated December 20, 2019 (ADAMS Accession No. ML19360A127), FEMA provided comments on offsite radiological EP considerations, which are provided in Enclosure 1 with the NRC staff's perspectives and views on FEMA's comments.

CONCLUSION:

The NRC staff concludes that granting the exemption request, as justified in Enclosure 2, would provide: (1) an adequate basis for an acceptable state of EP; and (2) reasonable assurance that adequate protective measures can and will be taken in the highly unlikely event of a radiological emergency at the TMI site.

² A comprehensive emergency management plan or "all-hazards" approach in this context, also referred to as an emergency operations plan, is addressed in Federal Emergency Management Agency's (FEMA) Comprehensive Preparedness Guide 101, "Developing and Maintaining Emergency Operations Plans," Version 2.0, dated November 2010. <https://www.fema.gov/media-library/assets/documents/25975>

The NRC staff has determined that pursuant to 10 CFR 50.12, "Specific exemptions," the exemptions described in the enclosure are authorized by law, will not present an undue risk to the public health and safety, and will be consistent with the common defense and security, and that special circumstances are present.

RECOMMENDATION:

The NRC staff recommends that the Commission approve Exelon's requested exemptions from certain EP requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50.

COORDINATION:

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

Margaret M. Doane
Executive Director
for Operations

Enclosures:

1. Historical Perspective and
NRC Staff Evaluation
Considerations
2. Evaluation of Request by
Exelon Generation Company,
LLC for Exemptions from
Certain Emergency Planning
Requirements for the Three
Mile Island Nuclear Station

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EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING
REQUIREMENTS FOR THE THREE MILE ISLAND NUCLEAR STATION
DATED MAY 5, 2020

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ADAMS Accession Nos: ML19311C762 (Package); ML19311C763 (SECY Paper);
ML19311C764 (Enclosure 1); ML19311C765 (Enclosure 2) *via e-mail

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