



SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 4, 2019

COMMISSION VOTING RECORD

DECISION ITEM: SECY-19-0078

TITLE: REQUEST BY ENTERGY NUCLEAR OPERATIONS, INC. FOR
EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING
REQUIREMENTS FOR THE PILGRIM NUCLEAR POWER
STATION

The Commission acted on the subject paper as recorded in the Staff Requirements Memorandum (SRM) of November 4, 2019.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

A handwritten signature in black ink, appearing to read "Annette L. Vietti-Cook", written over a horizontal line.

Annette L. Vietti-Cook
Secretary of the Commission

Enclosures:

1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Svinicki
Commissioner Baran
Commissioner Caputo
Commissioner Wright
OGC
EDO
PDR

VOTING SUMMARY – SECY-19-0078

RECORDED VOTES

	<u>APPROVED</u>	<u>DISAPPROVED</u>	<u>ABSTAIN</u>	<u>NOT PARTICIPATING</u>	<u>COMMENTS</u>	<u>DATE</u>
Chrm. Svinicki	X				X	09/26/19
Cmr. Baran		X			X	10/23/19
Cmr. Caputo	X				X	10/01/19
Cmr. Wright	X				X	09/30/19

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: CHAIRMAN SVINICKI
SUBJECT: SECY-19-0078: Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements for the Pilgrim Nuclear Power Station

Approved XX Disapproved Abstain Not Participating

COMMENTS: Below XX Attached None

I approve the staff's request to grant approval of the exemptions based on the staff's analysis against the required parameters and the staff's conclusions that granting the exemptions would continue to provide reasonable assurance that (1) an offsite radiological release would not exceed the limits of the U.S. Environmental Protection Agency's early phase protective action guide of one roentgen equivalent man (REM) at the site's exclusion area boundary for remaining applicable design-basis accidents and (2) in the unlikely event of a beyond-design-basis accident resulting in a loss of all spent fuel pool cooling, there would be sufficient time to initiate appropriate mitigation actions.



SIGNATURE

9 / 26 /19

DATE

Entered on "STARS" Yes No

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Baran

SUBJECT: SECY-19-0078: Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements for the Pilgrim Nuclear Power Station

Approved Disapproved Abstain Not Participating

COMMENTS: Below Attached None

Entered in "STARS"

Yes

No



SIGNATURE

10/23/19

DATE

**Commissioner Baran's Comments on SECY-19-0078,
"Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency
Planning Requirements for the Pilgrim Nuclear Power Station"**

Entergy requested exemptions from a range of NRC emergency preparedness requirements at the Pilgrim Nuclear Power Station, which permanently shut down on May 31, 2019. These exemptions would eliminate dedicated radiological offsite emergency planning, including emergency planning zones (EPZs), ten months after the shutdown date. The NRC staff recommends that the exemptions be granted largely based on (1) "the very low probability of beyond-design-basis events" that could initiate a zirconium fire in the spent fuel pool and (2) the staff's conclusion that, if such an event occurred, ten hours from the loss of spent fuel pool cooling "would be sufficient time to initiate appropriate [spent fuel pool] mitigating actions" and take any necessary offsite protective actions using an all-hazards emergency plan.¹

With the benefit of FEMA's authoritative views as well as insights from numerous stakeholders shared in public comments on the power reactor decommissioning rulemaking, I conclude that the requested emergency planning exemptions should not be granted at this time.

Although the events that could trigger a zirconium fire in a spent fuel pool of a shutdown reactor are fewer and less likely to occur than accident scenarios involving an operating nuclear power plant, radiological emergency planning has never been exclusively based on the likelihood of an accident occurring. The joint NRC-EPA task force that introduced the emergency planning zone (EPZ) concept in 1978 specifically stated: "Emergency planning is not based upon quantified probabilities of incidents or accidents."² Its foundational task force report, referred to as NUREG-0396, explained that "[r]adiological emergency planning is not based upon probabilities, but on public perceptions of the problem and what could be done to protect health and safety."³ NRC and EPA understood that beyond-design-basis accidents were unlikely, but they also knew that EPZs should be in place to provide defense-in-depth because "the probability of an accident involving a significant release of radioactive material, although small, is not zero."⁴

Forty years later, stakeholders are emphasizing these same points in the specific context of decommissioning. For example, the Committee on Emergency Response Planning of the Conference of Radiation Control Program Directors (CRCPD) notes that "[a]lthough the risk is greatly reduced for a reactor during decommissioning, it does not go to zero."⁵ CRCPD argues that probabilistic risk assessment and "new risk studies should not be the sole basis for emergency planning policy with respect to spent fuel accidents."⁶ Similarly, the State of Ohio focuses on the importance of being prepared for low-probability, high-consequence events, stating: "How can you not have an offsite emergency response plan? Until you can say there is no evacuation potential, then the offsite response capability is still needed."⁷ Massachusetts,

¹ SECY-19-0078 at 3, Enclosure 2 at 15. In the absence of an EPZ and dedicated offsite radiological emergency planning, emergency responders would be left with more generalized, all-hazards planning.

² *Id.* at I-2.

³ *Id.*

⁴ *Id.* at II-1.

⁵ Comment of CRCPD Committee on Emergency Response Planning (June 13, 2017) at 1. CRCPD's membership includes many state and local radiation professionals.

⁶ *Id.* at 1-2.

⁷ Comment of State of Ohio (June 13, 2017) at 1.

Vermont, Connecticut, and New York agree that “even if NRC Staff is correct that the probability of such an incident is ‘low,’ the consequences are so significant that the NRC cannot permit licensees to eliminate these straightforward but important emergency preparedness activities.”⁸

FEMA and the states also dispute the NRC staff’s premise that all-hazards planning would be adequate in responding to a spent fuel pool accident. According to FEMA, “Radiological [emergency planning] is not sufficiently addressed within the All Hazards framework – radiological [emergency planning] is unique. In a Worst-Case Scenario, our [offsite response organizations] could be challenged to effectively protect the health and safety of the public using an ad hoc [emergency planning] construct.”⁹ FEMA explains that “[a]dvanced planning – such as provided by an EPZ – reduces the complexity of the decision-making process during an incident.”¹⁰ And FEMA “stress[es] that the proven best way to ensure offsite readiness is to develop, exercise, and assess [offsite response organization] radiological capabilities, as is now done throughout the offsite EPZ.”¹¹ While a radiological emergency plan could be “scaled up” to address a more severe accident than what was planned for, FEMA notes that it is “unrealistic” to scale up “non-existent plans” and that the resulting “lack of necessary equipment, and shortage of trained emergency personnel could have unfortunate consequences.”¹² Similarly, Massachusetts, Vermont, Connecticut, and New York contend that “[b]ecause EPZs are what ensure that prompt and effective actions occur, the elimination of EPZs removes that assurance.”¹³ And CRCPD notes that “[t]here is no supporting evidence that an all-hazards plan would have the same effect” of reducing the risk of early fatalities as a dedicated radiological emergency plan would.¹⁴

In short, there is broad agreement that all-hazards planning would not be as effective as dedicated radiological emergency planning in an actual radiological emergency. As FEMA explains in its analysis of the Pilgrim exemption request:

The belief expressed by the NRC staff that State and local governments surrounding a decommissioning plant which are not involved in formal radiological emergency planning would nonetheless respond expeditiously and with optimum effectiveness to an actual radiological emergency in a coordinated fashion using its [all-hazards plan] is open to question. FEMA has no data that would indicate what State and local government reactions might be in such circumstances.¹⁵

An emergency response to a spent fuel pool accident based on an all-hazards plan would be even more challenging within the 10-hour timeframe assumed by the NRC staff. The staff did not consult with FEMA about whether 10 hours would be a sufficient amount of time for

⁸ Comment of Vermont, Massachusetts, New York, and Connecticut (June 13, 2017) at 7.

⁹ Letter from Michael S. Casey, Director, Technological Hazards Division, FEMA to NRC (July 8, 2019).

¹⁰ *Id.*

¹¹ *Id.*

¹² Letter from Michael S. Casey, Director, Technological Hazards Division, FEMA to NRC (Aug. 24, 2019).

¹³ Comment of Vermont, Massachusetts, New York, and Connecticut (June 13, 2017) at 7.

¹⁴ Comment of CRCPD Committee on Emergency Response Planning (June 13, 2017) at 2, 4-5.

¹⁵ Letter from Michael S. Casey, Director, Technological Hazards Division, FEMA to NRC (Feb. 20, 2019).

such an offsite response.¹⁶ According to FEMA, “NRC is believing that the ‘muscle memory’ of formal [radiological emergency planning] knowledge and skill will carry the day,” but “[e]mergency preparedness should not be based on the efficacy of residual knowledge.”¹⁷ Several states share this concern. For instance, the California Energy Commission argues that the “overly optimistic 10-hour timeline ignores the full impact of a disaster event. An event that triggers a nuclear incident has a high probability of introducing significant barriers to transportation and communication.”¹⁸

Based on these concerns, FEMA and many states recommend that NRC require dedicated radiological emergency planning, including a 10-mile EPZ, until all spent nuclear fuel at a site is removed from the spent fuel pool and placed in passive, dry cask storage.¹⁹ I support this approach, which would provide defense-in-depth to protect the public, while ensuring that FEMA will continue to play its vital role in assessing the adequacy of offsite emergency response plans at decommissioning nuclear power plants.

This approach also accounts for the earthquake risks at the Pilgrim site, which are greater than previously understood. In May 2014, as part of the post-Fukushima seismic hazard re-evaluation, NRC published updated ground motion response spectra for Pilgrim. The results revealed the potential for an earthquake at Pilgrim significantly stronger than the safe shutdown earthquake the plant was designed to handle.²⁰ In fact, the gap between the previously understood seismic risk and the updated seismic risk was larger at Pilgrim than at any other nuclear power plant in the country.

For these reasons, I disapprove issuance of the requested emergency planning exemptions until all spent fuel at the Pilgrim site is transferred to dry cask storage.

¹⁶ Letter from Jonathan M. Hoyes, Director, Technological Hazards Division, FEMA to NRC (June 13, 2017).

¹⁷ *Id.*

¹⁸ Comment on California Energy Commission (June 13, 2017) at 9.

¹⁹ See, e.g., Letter from Jonathan M. Hoyes, Director, Technological Hazards Division, FEMA to NRC (June 13, 2017) at 4 (“Emergency preparedness in communities near decommissioning nuclear power plants should be based on the unique nature of the radiological hazard and the capabilities required to successfully mitigate, respond to, and recover from the offsite consequences of a possible zirconium fire as long as spent fuel remains in the spent fuel pool”); Comment on New York State Energy Research and Development Authority (June 13, 2017) at 6 (“until all fuel has been removed from spent fuel pools, NRC should require licensees to maintain emergency planning and evacuation protocols”); Comment of Vermont, Massachusetts, New York, and Connecticut (June 13, 2017) at 6 (“reductions in emergency preparedness ... should await a licensee’s transition to Level 3, when spent fuel has been removed from the spent fuel pools”); California Energy Commission (June 13, 2017) at 9 (“a 10-mile EPZ must remain in place while fuel is stored in a spent fuel pool”); Comment of State of Ohio (June 13, 2017) at 1 (“Offsite radiological emergency response capabilities should not be relaxed until fuel is in dry cask storage”); Comment of Illinois Emergency Management Agency (June 13, 2017) at 2 (“adequate emergency planning is necessary as long as there is fuel stored in spent fuel pools”).

²⁰ NRC memorandum (May 21, 2014) (ADAMS Accession No. ML14136A126).

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: Commissioner Caputo
SUBJECT: SECY-19-0078: Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements for the Pilgrim Nuclear Power Station


Approved XX Disapproved _____ Abstain _____ Not Participating _____

COMMENTS: Below _____ Attached XX None _____

Entered in STARS

Yes X

No _____



Signature

10/01/19

DATE

Commissioner Caputo's Comments
SECY-19-0078

This paper provides the staff's detailed assessment and recommendations for the Entergy Nuclear Operations, Inc.'s (Entergy) request for exemptions from certain emergency preparedness and planning (EP) requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for its recently shut down Pilgrim Nuclear Power Station (PNPS). Since 1987, NRC has received requests from, and issued EP exemptions to 16 commercial nuclear power plants that have also begun decommissioning. NRC has been able to approve such requests on a case-by-case basis, based on the merits of the request and of the significant reduction in radiological risk from a decommissioning site versus an operating nuclear power reactor.

I commend the staff for its thoroughness in evaluation and review. Staff reviewed recent, similar exemptions granted for other decommissioned nuclear power reactors, including assessment of spent fuel pool (SFP) studies, hostile action-based events and post-Fukushima mitigation strategies, including seismic safety. NRC regulatory activities and studies have reaffirmed the safety and security of spent fuel stored in pools and shown that SFPs are effectively designed to prevent accidents and minimize damage from malevolent attacks as well as from natural disasters. Studies such as NUREG-2161¹ concluded that SFPs are robust structures likely to withstand severe earthquakes without leaking, and that the likelihood of a radiological release from the spent fuel resulting from a severe earthquake at the reference plant to be about one time in 10 million years or lower. Based on these detailed technical evaluations, I find that granting the proposed exemptions would provide both an adequate basis for an acceptable state of emergency preparedness and assurance that adequate protective measures can and will be taken in the highly unlikely beyond design basis event of a radiological emergency at PNPS.

I also appreciate the staff's coordination efforts with the Department of Homeland Security's Federal Emergency Management Agency and the inclusion of the letters of agreement (LOAs) between the PNPS and the Town of Plymouth and the Commonwealth of Massachusetts. These LOAs clearly outline and establish conditions regarding the timeliness for classification of emergency events and notification of the Town of Plymouth and the Commonwealth of Massachusetts. These conditions will take effect when all agreements and requirements for the maintenance and existence of an off-site emergency planning zone are no longer in effect.

While the proposed exemptions eliminate the requirement for the licensee to maintain formal offsite radiological emergency preparedness plans (including the 10-mile plume exposure pathway and 50-mile ingestion pathway emergency planning zones), the licensee is still required to maintain an onsite emergency plan addressing the classification of an emergency, notification of emergencies to licensee personnel and offsite authorities, and coordination with designated offsite government officials following an event declaration. In addition, in the unlikely event of an SFP accident, the licensee will still be required to maintain effective strategies,

¹ NUREG-2161, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor," dated September 2014 (ADAMS Accession No. ML14255A365).

sufficient resources and adequately trained personnel available on-shift to promptly initiate mitigative actions without the support of offsite response organizations. Granting the proposed exemptions therefore provides assurance that such actions will not present an undue risk to the public health and safety and will be consistent with the common defense and security.

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: Commissioner Wright
SUBJECT: SECY-19-0078: Request by Entergy Nuclear Operations, Inc. for Exemptions from Certain Emergency Planning Requirements for the Pilgrim Nuclear Power Station


Approved Disapproved Abstain Not Participating

COMMENTS: Below Attached None

I approve the staff's recommendation that the Commission grant the licensee's request for exemptions from certain emergency planning requirements for the Pilgrim Nuclear Power Station. This approval reflects the significant reduction in radiological risk at a decommissioning site, relative to an operating site. I appreciate the staff's thorough review and analysis of this request.

Entered in STARS

Yes
No



SIGNATURE
9/30/19

DATE