SECRETARY

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

October 25, 2017

COMMISSION VOTING RECORD

DECISION ITEM: SECY-17-0080

TITLE: REQUEST BY THE OMAHA PUBLIC POWER DISTRICT FOR EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING REQUIREMENTS FOR THE FORT CALHOUN STATION, UNIT 1

The Commission acted on the subject paper as recorded in the Staff Requirements Memorandum (SRM) of October 25, 2017.

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

Annette L. Vietti-Cook
Secretary of the Commission

Enclosures:
1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Svinicki
Commissioner Baran
Commissioner Burns
OGC
EDO
PDR

VOTING SUMMARY – SECY-17-0080

RECORDED VOTES

	APPROVED	DISAPPROVED	ABSTAIN	NOT PARTICIPATING	COMMENTS	DATE
Chrm. Svinicki	X				X	10/02/17
Cmr. Baran	X	X			X	10/18/17
Cmr. Burns	X				X	09/08/17

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: CHAIRMAN SVINICKI

SUBJECT: SECY-17-0080: REQUEST BY THE OMAHA PUBLIC POWER DISTRICT FOR EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING REQUIREMENTS FOR THE FORT CALHOUN STATION, UNIT 1

Approved XX **Disapproved** ____ **Abstain** ____ **Not Participating** ____

COMMENTS: **Below** XX **Attached** ____ **None** ____

I approve the staff's recommendation to grant Omaha Public Power District's request for exemption from specific portions of 10 CFR 50.47 and Appendix E to 10 CFR Part 50 for Fort Calhoun Station (FCS). The staff has concluded that granting the exemptions requested would provide the following: (1) an adequate basis for an acceptable state of emergency preparedness and (2) assurance that adequate protective measures can and will be taken in the highly unlikely event of a radiological emergency at FCS. The staff has further determined that, pursuant to 10 CFR 50.12, "Specific Exemptions," the exemptions 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. I concur in the staff's conclusions and approve issuance of the exemptions on that basis.

SIGNATURE

10/2/17

DATE

Entered on "STARS" Yes ✓ No ___

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Baran

SUBJECT: SECY-17-0080: REQUEST BY THE OMAHA PUBLIC POWER DISTRICT FOR EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING REQUIREMENTS FOR THE FORT CALHOUN STATION, UNIT 1

Approved __X__ Disapproved __X__ Abstain ____ Not Participating ____

COMMENTS: Below ____ Attached __X__ None ____

Entered in "STARS"
Yes __X__
No ____

Jeff Baran
SIGNATURE
10/18/17
DATE

Commissioner Baran's Comments on SECY-17-0080,
"Request by the Omaha Public Power District for Exemptions from Certain Emergency Planning Requirements for the Fort Calhoun Station, Unit 1"

The risk profile of a permanently shut down reactor entering decommissioning is very different than that of an operating reactor. However, NRC currently does not have regulations specifically tailored to the transition from operations to decommissioning. Because of this gap in NRC's regulatory framework, licensees with reactors transitioning to decommissioning routinely have sought exemptions to many of the regulations applicable to operating reactors. In order to address this gap and to take a fresh look at a range of decommissioning issues, the NRC staff is proceeding with the power reactor decommissioning rulemaking. The staff published an advanced notice of proposed rulemaking that received over 150 public comments, followed by a draft regulatory basis for the decommissioning rule. Currently, the staff is evaluating the public comments on the draft regulatory basis and preparing a final regulatory basis document. The staff is scheduled to provide a proposed rule to the Commission in May 2018 and a final rule to the Commission in October 2019. Until the rulemaking is completed, the Commission is reviewing exemption requests from certain emergency planning requirements for permanently shut down reactors on a case-by-case basis.

Omaha Public Power District seeks exemptions from a range of NRC emergency preparedness requirements at Fort Calhoun Station, which permanently shut down in October 2016. The NRC staff reviewed Omaha Public Power District's request and recommended that the exemptions be granted because:

> (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 (rem) at the site's exclusion area boundary for remaining applicable design-basis accidents (DBAs); and (2) in the unlikely event of a beyond DBA resulting in a loss of all SFP cooling, there would be sufficient time to initiate appropriate SFP mitigating actions and, if a release is projected to occur, there is sufficient time for offsite agencies to take protective actions to protect the health and safety of the public using a comprehensive, "all-hazards," emergency management plan.

According to the staff paper, the main risk at Fort Calhoun is a beyond-design basis event resulting from an extreme earthquake or large aircraft impact. These events potentially could initiate a zirconium fire in the spent fuel pool if they were to result in a substantial loss of water in the pool. The staff explains that this is "the only accident scenario that might lead to a significant radiological release." The staff also concluded that since the Fort Calhoun auxiliary building crane is licensed as being single-failure-proof, a spent fuel cask drop accident "is not considered a credible accident for the permanently defueled Fort Calhoun."

Whether to grant the exemption requests, as the NRC staff recommends, is a significant decision. After careful review of the specific circumstances at Fort Calhoun, I approve the staff recommendation in part and disapprove it in part.

During my time on the Commission, I voted on three previous emergency planning exemption requests. I approved the exemption request for Crystal River Unit 3 and approved in part and denied in part the exemption requests for Vermont Yankee and San Onofre Units 2 and 3. My analysis for each focused on the relative likelihood of a zirconium fire in the spent fuel pool. The key variables in the analysis were the time that had passed from the permanent

shutdown of the reactor (and the resulting time for spent fuel decay) and the seismicity of the site. Here, Omaha Public Power District is seeking exemptions for Fort Calhoun that would take effect in April 2018, 17.5 months after its shutdown. In May 2014, NRC published calculated ground motion response spectra for Fort Calhoun that are above the plant's original design safe shutdown earthquake.[1] In my view, while some of the requested exemptions for Fort Calhoun are appropriate once the spent fuel has decayed for 17.5 months, others are not. In evaluating when certain exemptions from emergency planning regulatory requirements are appropriate, the prior work of the NRC staff is instructive.

In the late 1990's, the Commission directed the staff to develop a single, integrated decommissioning rulemaking. This effort was halted in the wake of the September 11, 2001, attacks, when other initiatives took priority. Before the effort was suspended, the NRC staff presented a rulemaking plan to the Commission that recommended a tiered approach to emergency planning for decommissioning plants.[2] This tiered approach defined four periods of operation after a reactor permanently shuts down and described the appropriate emergency planning requirements for each period. For the first year after shutdown, the plant would be required to meet the emergency planning requirements for operating plants and no emergency planning exemptions would be issued.[3] Between one year after shutdown and five years of post-shutdown spent fuel decay, emergency planning requirements would be similar to those for a monitored retrievable storage installation except that licensees would still be required to classify events up to a General Emergency level and make protective action recommendations to offsite officials. In this phase, detailed offsite radiological emergency response plans applicable to operating reactors would no longer be required, but Federal Emergency Management Agency (FEMA) approved all-hazards emergency plans would remain in effect. After five years of spent fuel decay, all fuel is removed from the pool, or a licensee has demonstrated through conservative adiabatic analysis that the decay heat level of spent fuel in the pool is low enough that the fuel would not be susceptible to a zirconium fire, emergency planning requirements would be reduced and similar to those for an independent spent fuel storage installation. Finally, once all spent fuel was removed from the site, no emergency planning would be required.

This thoughtful approach recommended by the NRC staff was risk-informed and performance-based. I have applied it in evaluating exemption requests in the past, and in the absence of a completed decommissioning rulemaking, I believe this approach continues to provide a useful framework for evaluating pending emergency planning exemption requests.

Applying this framework to the Fort Calhoun exemption request provides for a gradual reduction in emergency planning requirements as the spent fuel cools and the risks diminish over time. Fort Calhoun was permanently shut down in October 2016. After 17.5 months of natural decay, the likelihood of a zirconium fire and subsequent offsite release would be greatly reduced. According to the NRC staff's analysis, in the worst case scenario of no water or air cooling of the spent fuel, it would take approximately ten hours for the temperature of the fuel rods to increase enough for a zirconium fire to start. Of course, it likely would have taken several additional hours or even days for the spent fuel pool to drain enough to trigger this scenario in which there was no water cooling of the spent fuel. This would provide a significant

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[1] NRC memorandum dated May 21, 2014 (ADAMS Accession No. ML14136A126).
[2] SECY-00-145, "Integrated Rulemaking Plan For Nuclear Power Plant Decommissioning," June 2000.
[3] The one-year timeframe was the approximate amount of time that would need to pass to ensure that, in the worst case scenario of no water or air cooling of the spent fuel, it would take ten hours for the temperature of the fuel rods to increase enough for a zirconium fire to start.

amount of time for the licensee to take actions using the post-9/11 spent fuel pool mitigating strategies, such as using fire hoses and portable pumps to inject water into the spent fuel pool to restore cooling.[4] There would also be a significant amount of time for offsite response agencies to take protective actions pursuant to their FEMA-approved comprehensive emergency management plan. Based on these factors, I agree with the NRC staff that some elements of offsite radiological emergency planning are not necessary after April 2018.

However, for the period beginning in April 2018 and continuing until October 2021 (or until all spent fuel has been removed from the spent fuel pool, whichever is earlier), I disapprove those requested emergency planning exemptions that are inconsistent with the tiered approach described in the June 2000 SECY paper. During this period, the licensee would not be required to maintain a detailed offsite radiological emergency response plan, but would continue to be subject to the requirements to classify events up to a General Emergency level, to make protective action recommendations to offsite officials, and to maintain the post-9/11 spent fuel pool mitigating strategies. In addition, I would require Omaha Public Power District to continue to maintain an emergency public notification system and the capability to notify responsible state and local officials within 15 minutes of declaring an emergency.

After five years of spent fuel decay in the pool, a zirconium fire should no longer be reasonably conceivable. Beginning in October 2021 (or the date on which all spent fuel has been removed from the spent fuel pool, whichever is earlier), I approve the remainder of the requested emergency planning exemptions. This would result in emergency planning requirements similar to those for an independent spent fuel storage installation. The license will continue to require the post-9/11 spent fuel pool mitigating strategies as long as fuel remains in the pool.

Consistent with the tiered approach, I also approve the requested exemptions for Fort Calhoun in the event that Omaha Public Power District demonstrates to the NRC staff's satisfaction through a conservative analysis that the decay heat level of the spent fuel is so low that the fuel is no longer susceptible to a zirconium fire.

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[4] These post-9/11 measures require that the licensee have the equipment and staff available to take appropriate mitigating actions in the event of a beyond design basis occurrence. The measures are required by the license as long as spent fuel remains in the pool.

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Burns

SUBJECT: SECY-17-0080: REQUEST BY THE OMAHA PUBLIC POWER DISTRICT FOR EXEMPTIONS FROM CERTAIN EMERGENCY PLANNING REQUIREMENTS FOR THE FORT CALHOUN STATION, UNIT 1

Approved __X__ **Disapproved** ____ **Abstain** ____ **Not Participating** ____

COMMENTS: **Below** __X__ **Attached** ____ **None** ____

I approve OPPD's requested exemptions from certain emergency planning requirements in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, as described in SECY-17-0080. In 2015, the NRC staff issued interim staff guidance in NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants," based on its experience with exemption requests for a number of plants that had recently made the transition to decommissioning. The staff verified that OPPD provided the analyses suggested in NSIR/DPR-ISG-02 for Fort Calhoun Station. Based on its evaluation of the OPPD analyses and its own independent confirmatory calculations, the staff concluded that granting the requested exemptions to OPPD 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 (rem) at the site's exclusion area boundary for remaining applicable design-basis accidents (DBAs); and (2) in the unlikely event of a beyond DBA resulting in a loss of all spent fuel pool cooling, there would be sufficient time to initiate appropriate mitigating actions and, if a release is projected to occur, there is sufficient time for offsite agencies to take protective actions to protect the health and safety of the public using a comprehensive, all-hazards, emergency management plan.

Entered in "STARS"

Yes __X__ **No**____

SIGNATURE

8 **September 2017**

DATE