VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

January 31, 2018

10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Serial No.: 16-383B
NRA/DEA R0
Docket Nos.: 50-338/339
License Nos.: NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNITS 1 AND 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PROPOSED LICENSE AMENDMENT REQUEST FOR
SPENT FUEL STORAGE AND NEW FUEL STORAGE
(CAC Nos. MF9712 AND MF9713)

By letter dated May 2, 2017, Dominion submitted a license amendment request (LAR) to revise Technical Specifications (TS) 3.7.18, "Spent Fuel Pool Storage" and TS 4.3.1 "Criticality." Conforming changes were proposed to Technical Specifications Bases (TSB) B3.7.18.

In an email dated December 21, 2017, the NRC transmitted a request for additional information (RAI) related to the LAR. A January 31, 2018 response date was requested.

The response to the RAI is provided in Attachment 1. Attachment 2 provides a revised marked-up change to TS 4.3.1.1 and Attachment 3 provides the proposed change page for TS 4.3.1.1.

Should you have any questions in regard to this submittal, please contact Diane E. Aitken at (804) 273-2694.

Sincerely,

Gerald T. Bischof
Vice President – Nuclear Operations and Fleet Performance

Vicki L. Hull
NOTARY PUBLIC
Commonwealth of Virginia
Reg. # 140542
My Commission Expires May 31, 2018

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Gerald T. Bischof, who is Vice President – Nuclear Operations and Fleet Performance of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 31ST day of January, 2018.

My Commission Expires: 5-31-18.

Vicki L. Hull
Notary Public

A001
NRR

Commitments made in this letter: None

Attachments:

1. Response to Request for Additional Information
2. Marked-up Technical Specification page
3. Proposed Technical Specification change page

cc: U.S. Nuclear Regulatory Commission – Region II
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Attachment 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNITS 1 AND 2

Technical Basis for the Request

Section 2.2 of Attachment 1 of the LAR provides a description of the changes to TS 4.3.1.1. Attachment 2 of the LAR provides marked up technical specification pages showing the proposed changes, including TS page 4.0-2, which shows the proposed deletion of the text identifying a specific document providing the methodology used to calculate uncertainties in k_{eff}, in both TS 4.3.1.1.b. and c. Section 2.2 of Attachment 1 does not describe the basis for the proposed deletions of text.

NUREG-1431 contains the staff's guidance on one manner of format and content for TSs that would meet the regulatory requirements of 10 CFR 50.36. The current NAPS TS 4.3.1.1 and NUREG-1431 both cite the location of the methodologies used to calculate uncertainties in k_{eff}. It appears the LAR is proposing deletion of the location of the methodologies used to calculate uncertainties in k_{eff} in TS 4.3.1.1 without fully describing why the deletion is appropriate for NAPS.

RAI

Please provide a full description and justification for the proposed deletion of the location of the methodology used to calculate uncertainties in k_{eff} in TS 4.3.1.1, or, alternatively, provide a revised change to TS 4.3.1.1 that retains the citation of the location of the methodology used to calculate uncertainties in k_{eff}.

RAI Response

As indicated in the request for additional information (RAI), the license amendment request (LAR) submitted May 2, 2017, proposed the deletion of text identifying a specific document providing the methodology used to calculate uncertainties in k_{eff}, in both Technical Specification (TS) 4.3.1.1.b. and c without describing why the change was appropriate. The specific document cited in the current TS 4.3.1.1 as providing the methodology used to calculate uncertainties in k_{eff} is the LAR letter describing the analysis that was reviewed by the NRC prior to approval of the current TS 4.3.1.1. Deletion of this text was appropriate since the cited LAR letter was obsolete (superseded by the methodology provided in the LAR submittal dated May 2, 2017).

Guidance in NUREG-1431, *Standard Technical Specifications – Westinghouse Plants*, Volume 1, *Specifications*, indicates it is appropriate to include a reference to the Final Safety Analysis Report (FSAR) as the location of the methodology used to calculate uncertainties in k_{eff} in TS 4.3.1.1. Updated Final Safety Analysis Report (UFSAR) Section 9.1 will be revised to include the methodology used to calculate uncertainties in k_{eff} during implementation of the approved LAR. Therefore, a mark-up of Technical Specification 4.3.1.1 that adds UFSAR Section 9.1 as the location of the methodology used to calculate uncertainties in k_{eff} is provided in Attachment 2. The associated proposed change to Technical Specification 4.3.1.1 is provided in Attachment 3.

Attachment 2

MARKED-UP TECHNICAL SPECIFICATION PAGE

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNITS 1 AND 2

4.0 DESIGN FEATURES

4.3.1.1 (continued)

b. k_{eff} < 1.0 if fully flooded with unborated water, which includes an allowance for uncertainties and biases calculated in accordance with the methodology described in ~~Virginia Electric and Power Company letter dated September 27, 2000 (Serial No. 00-491)~~ UFSAR Section 9.1;

c. $k_{eff} \leq 0.95$ if fully flooded with water borated to 900 ~~350~~ ppm, which includes an allowance for uncertainties and biases calculated in accordance with the methodology described in ~~Virginia Electric and Power Company letter dated September 27, 2000 (Serial No. 00-491)~~ UFSAR Section 9.1; and

d. A nominal 10 9/16 inch center to center distance between fuel assemblies placed in the fuel storage racks.

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 ~~4.6~~ weight percent;

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties and biases;

c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties and biases, and

d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks.

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 285 feet, 9 inches, Mean Sea Level, USGS datum.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.

Attachment 3

PROPOSED TECHNICAL SPECIFICATION CHANGE PAGE

VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION ENERGY VIRGINIA)
NORTH ANNA POWER STATION UNITS 1 AND 2

4.0 DESIGN FEATURES

4.3.1.1 (continued)

b. $k_{eff} < 1.0$ if fully flooded with unborated water, which includes an allowance for uncertainties and biases calculated in accordance with the methodology described in UFSAR Section 9.1;

c. $k_{eff} \leq 0.95$ if fully flooded with water borated to 900 ppm, which includes an allowance for uncertainties and biases calculated in accordance with the methodology described in UFSAR Section 9.1; and

d. A nominal 10 9/16 inch center to center distance between fuel assemblies placed in the fuel storage racks.

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties and biases;

c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties and biases; and

d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks.

4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 285 feet, 9 inches, Mean Sea Level, USGS datum.

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.