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RA-20-0113

10 CFR 50.90

April 6, 2020

ATTN: Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Duke Energy Carolinas, LLC  
Oconee Nuclear Station, Units 1, 2 and 3  
Renewed Facility Operating Licenses Numbers DPR-38, DPR-47, and DPR-55  
Docket Numbers 50-269, 50-270, and 50-287

**Subject: Supplemental Information for Measurement Uncertainty Recapture Power Uprate License Amendment Request**

**References:**

1. Duke Energy letter, *License Amendment Request for Measurement Uncertainty Recapture Power Uprate*, dated February 19, 2020 (ADAMS Accession No. ML20050D379)
2. Nuclear Regulatory Commission letter, *Oconee Nuclear Station, Units 1, 2 and 3 – Supplemental Information Needed for Acceptance of License Amendment Request for Measurement Uncertainty Recapture Power Uprate (EPID L-2020-LLS-0000)*, dated March 27, 2020 (ADAMS Accession No. ML20084G372)

By letter dated February 19, 2020 (Reference 1), Duke Energy Carolinas, LLC (Duke Energy) submitted a License Amendment Request (LAR) for Oconee Nuclear Station (ONS) Units 1, 2 and 3 to support a measurement uncertainty recapture (MUR) power uprate. The proposed amendment to the Technical Specifications (TS) of Renewed Facility Operating License Nos. DPR-38, 47 and 55 would increase each unit's authorized core power level from 2568 megawatts thermal (MWt) to 2610 MWt; an increase of 42 MWt and approximately 1.64% of Rated Thermal Power (RTP).

The Nuclear Regulatory Commission (NRC) staff has requested supplemental information (Reference 2). Duke Energy is submitting the enclosed additional information to support acceptance review of the proposed amendment.

The content of this supplemental correspondence does not change the No Significant Hazards Consideration provided in the original submittal (Reference 1).

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No regulatory commitments are contained in this letter.

Please refer any questions regarding this submittal to Art Zarembo, Director - Fleet Licensing, at (980) 373-2062.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 6, 2020.

Very truly yours,



J. Ed Burchfield, Jr.  
Vice President  
Oconee Nuclear Station

Enclosure      Supplemental Information Needed for Acceptance of License Amendment  
Request for ONS Measurement Uncertainty Power Uprate

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cc w/enclosure:

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Enclosure

SUPPLEMENTAL INFORMATION NEEDED FOR  
ACCEPTANCE OF LICENSE AMENDMENT REQUEST  
FOR ONS MEASUREMENT UNCERTAINTY  
RECAPTURE POWER UPRATE

Enclosure  
(2 pages including cover)

By letter dated February 19, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20050D379), Duke Energy Carolinas, LLC (Duke Energy, the licensee) submitted a license amendment request for the Oconee Nuclear Station, Units 1, 2 and 3. Duke Energy proposes to amend the Technical Specifications (TSs) of Renewed Facility Operating License Nos. DPR-38, DPR-47 and DPR-55 (Oconee, Units 1, 2, and 3, respectively), to support a measurement uncertainty recapture (MUR) power uprate.

The NRC staff reviews spent fuel pool criticality in consideration of the requirements of Title 10 of the *Code of Federal Regulations*, Part 50, Section 68 (10 CFR 50.68), "Criticality accident requirements." In part, 10 CFR 50.68 requires for licensees that do not credit soluble boron in the criticality analyses, that the k-effective ( $k_{\text{eff}}$ ) of the spent fuel pool (SFP) storage racks must not exceed 0.95 at a 95-percent probability, 95-percent confidence level.

Although the licensee addressed the systems effects of the proposed MUR on the Fuel Storage and Handling System in Section VI of Enclosure 2 of its license amendment request, the effects of the proposed MUR on the SFP criticality analyses are not addressed.

### **NRC Request for Supplemental Information**

The NRC staff reviewed the application and concluded that it needs the following information to make an independent assessment regarding the acceptability of the application in terms of regulatory requirements and the protection of public health and safety and the environment.

1. Describe the effects that the MUR would have on the SFP criticality analyses (burnup credit, burnable poison removal (BP-Pull) penalty, etc.), considering the content and formatting guidelines provided in Section II or III (analyses that are bounded or not bounded, respectively, by the proposed MUR) of Attachment 1 to Regulatory Issue Summary (RIS) 2002-03, "Guidance on the Content of Measurement Uncertainty Recapture Power Uprate Applications" (ADAMS Accession No. ML013530183).

### **Duke Energy Response**

The analysis of record for the criticality safety analysis of the ONS spent fuel pools was included in the ONS LAR to revise Technical Specifications to account for the degradation of Boraflex panels (Duke Energy letter to NRC dated December 28, 2000, ML010050297), which was approved by the NRC in the Safety Evaluation for that LAR dated April 22, 2002 (ML020930470). The criticality analysis of record was reviewed for the proposed MUR conditions and was determined to remain bounding. The effects of the MUR power uprate on SFP criticality safety, due to impacts to parameters such as fuel temperature, moderator temperature, and fuel power density changes, were evaluated using methods consistent with the NRC-reviewed analysis. The conclusion of this evaluation was that the anticipated fuel design for uprated cores remains less reactive in the SFP than the bounding fuel design, throughout the burnup of the fuel, in the analysis of record. There are no changes to burnup credit or allowable fuel assembly configurations in the SFP currently described in the Technical Specifications due to MUR uprate.