



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

May 28, 2019

Ms. Tanya M. Hamilton  
Site Vice President  
Shearon Harris Nuclear Power Plant  
Mail Code NHP01  
5413 Shearon Harris Road  
New Hill, NC 27562-9300

**SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 – SUPPLEMENTAL INFORMATION NEEDED FOR ACCEPTANCE OF REQUESTED LICENSING ACTION REGARDING LICENSE AMENDMENT REQUEST TO MODIFY THE DEPARTURE FROM NUCLEATE BOILING RATIO SAFETY LIMIT TO ADDRESS TRANSITION TO NEW FUEL TYPE (EPID L-2019-LLA-0076)**

Dear Ms. Hamilton:

By letter dated April 10, 2019 (Agencywide Documents Access and Management System Accession No. ML19100A442), Duke Energy Progress, LLC (Duke Energy) submitted a license amendment request (LAR) for the Shearon Harris Nuclear Power Plant, Unit 1 (Harris). The proposed amendment would modify Technical Specification (TS) 2.1.1.a to add the departure from nucleate boiling ratio safety limit associated with the transition to the GAIA fuel design from the current high thermal performance fuel in the Harris reactor core. In addition, the TS will be revised to include the topical report for the U.S. Nuclear Regulatory Commission (NRC)-approved correlation associated with the fuel design transition. Duke Energy also requests the review and approval of DPC-NE-2005-P, "Thermal-Hydraulic Statistical Core Design Methodology," Revision 6 for the addition of Appendix J addressing the application of the ORFEO-GAIA critical heat flux correlation.

The purpose of this letter is to provide the results of the NRC staff's acceptance review of this LAR. The acceptance review was performed to determine if there was sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), whenever a holder of a license, including a construction permit and operating license under this part, or an early site permit, combined license, and manufacturing license under part 52 of this chapter, desires to amend the license or permit, application for an amendment must be filed with the Commission, as specified in §§ 50.4 or 52.3 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications. Sections 50.34 or 52.79 of 10 CFR, as applicable, addresses the content of technical information required, and stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your application and concluded that the information delineated in the enclosure to this letter is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements and the protection of public health and safety and the environment.

In order to make the application complete, the NRC staff requests that Duke Energy supplement the application to address the information requested in the enclosure by June 7, 2019. This will enable the NRC staff to begin its detailed technical review. If the information responsive to the NRC staff's request is not received by the above date, the application will not be accepted for review pursuant to 10 CFR 2.101, and the NRC will cease its review activities associated with the application. If the application is subsequently accepted for review, you will be advised of any further information needed to support the staff's detailed technical review by separate correspondence.

The information requested and associated timeframe in this letter were discussed with Mr. Art Zaremba on May 20, 2019.

If you have any questions, please contact me at (301) 415-2760 or [Martha.Barillas@nrc.gov](mailto:Martha.Barillas@nrc.gov).

Sincerely,



Martha Barillas, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure:  
Supplemental Information Needed

cc: Listserv

SUPPLEMENTAL INFORMATION NEEDED REGARDING LICENSE AMENDMENT REQUEST

TO MODIFY THE DEPARTURE FROM NUCLEATE BOILING RATIO SAFETY LIMIT TO

ADDRESS TRANSITION TO NEW FUEL TYPE

DUKE ENERGY PROGRESS, LLC

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

By letter dated April 10, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19100A442), Duke Energy Progress, LLC submitted a license amendment request for the Shearon Harris Nuclear Power Plant, Unit 1 (Harris). The proposed amendment would modify Technical Specification (TS) 2.1.1.a to add the departure from nucleate boiling ratio safety limit associated with the transition to the GAIA fuel design from the current high thermal performance fuel in the Harris reactor core. In addition, the TS will be revised to include the topical report (TR) for the Nuclear Regulatory Commission (NRC)-approved correlation associated with the fuel design transition. Duke Energy also requests the review and approval of DPC-NE-2005-P, "Thermal-Hydraulic Statistical Core Design Methodology," Revision 6 for the addition of Appendix J addressing the application of the ORFEO-GAIA critical heat flux correlation.

During the NRC staff's acceptance review of the requested license amendment, the NRC staff found the application insufficient, and more information is needed to accept the application for review. The NRC staff concluded that the following information is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment.

A licensee's use of unapproved codes or TRs (or the use of codes and TRs outside the limitations and conditions imposed by the NRC staff) may be acceptable if the licensee has provided a full analysis to justify that the proposed use satisfies NRC regulations and is appropriately conservative.

"Limitations and Conditions" are additional restrictions imposed by the NRC staff to further frame the scope of applicability of a TR and identify any additional plant-specific action items that will be required to support the staff's review of a licensee's request to implement the TR. Limitations and conditions identify the efforts needed by the licensee on subsequent individual plant applications that will reference the TR.

Acceptance Review Insufficiency Identified:

Duke's license amendment request, Attachment 6, "Application of the ORFEO-GAIA Correlation to the GAIA Fuel Design," references TR ANP-10342P, Revision 0, "GAIA Fuel Assembly Mechanical Design Topical Report," dated December 2016. The draft SE (DSE) was issued on June 25, 2018 (ADAMS ML18138A356). The DSE, section 4, lists the limitations and conditions on the use of the TR. The licensee is requested to address how the DSE limitations and conditions are met for implementation of the GAIA fuel in the Harris core.

Enclosure

**SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 – SUPPLEMENTAL INFORMATION NEEDED FOR ACCEPTANCE OF REQUESTED LICENSING ACTION REGARDING LICENSE AMENDMENT REQUEST TO MODIFY THE DEPARTURE FROM NUCLEATE BOILING RATIO SAFETY LIMIT TO ADDRESS TRANSITION TO NEW FUEL TYPE (EPID L-2019-LLA-0076) DATED MAY 28, 2019**

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**ADAMS Accession No. ML19136A271****\*via email**

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NAME	MBarillas	BClayton	JWhitman
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