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

June 30, 2017

Kelvin Henderson
Senior Vice President, Nuclear Corporate
Duke Energy Carolinas, LLC
EC07H/ P.O. Box 1006
Charlotte, NC 28202

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 AND CATAWBA NUCLEAR STATION, UNITS 1 AND 2 – SUPPLEMENTAL INFORMATION NEEDED FOR ACCEPTANCE OF REQUESTED LICENSING ACTION RE: LICENSE AMENDMENT REQUEST PROPOSING CHANGES TO TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES – OPERATING" (CAC NOS. MF9667 THROUGH MF9674)

Dear Mr. Henderson:

By letter dated May 2, 2017, Duke Energy Carolinas, LLC (Duke Energy, the licensee) submitted a license amendment request (LAR) for the McGuire Nuclear Station, Units 1 and 2 and the Catawba Nuclear Station, Units 1 and 2. The proposed LAR would extend the Completion Time of Technical Specification (TS) 3.8.1 Required Action B.4 for an inoperable emergency diesel generator (EDG) and add a new Required Action for Condition B (one inoperable EDG) to ensure that at least one train of shared components has an operable emergency power supply.

The purpose of this letter is to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this LAR. The acceptance review was performed to determine if there is 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), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section 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 NRC staff to make an independent assessment regarding the acceptability of the proposed amendments in terms of regulatory requirements and the protection of public health and safety and the environment.

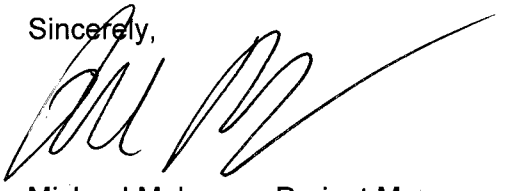
In order to make the application complete, the NRC staff requests that Duke Energy supplement the application to address the information requested in the enclosure by 13 working day from the date of this letter. This will enable the NRC staff to begin its detailed technical review. If the

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 NRC staff's detailed technical review by separate correspondence.

The information requested and associated time frame in this letter were discussed with Mr. Art Zeremba of your staff on June 22, 2017.

If you have any questions, please contact me at (301) 415-3867 or Michael.Mahoney@nrc.gov.

Sincerely,



Michael Mahoney, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-369, 50-370, 50-413, 50-414

Enclosure:
Supplemental Information Needed

cc w/encl: Distribution via Listserv

SUPPLEMENTAL INFORMATION NEEDED

LICENSE AMENDMENT REQUEST RELATED TO

TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES – OPERATING"

DUKE ENERGY CAROLINAS, LLC

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-369, 50-370

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413, 50-414

By letter dated May 2, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17122A116), Duke Energy Carolinas, LLC (Duke Energy, the licensee) submitted a license amendment request (LAR) for the McGuire Nuclear Station, Units 1 and 2 (McGuire) and the Catawba Nuclear Station, Units 1 and 2 (Catawba). The proposed LAR would extend the Completion Time (CT) of Technical Specification (TS) 3.8.1 Required Action B.4 for an inoperable emergency diesel generator (EDG) (risk-informed submittal) and add a new Required Action for Condition B (one inoperable EDG) to ensure that at least one train of shared components has an operable emergency power supply (not risk-informed).

The U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this LAR was performed to determine if there is 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), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section 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 NRC staff to make an independent assessment regarding the acceptability of the proposed amendments in terms of regulatory requirements and the protection of public health and safety and the environment.

1. The NRC staff position provided in RIS 2007-06 expects licensees to fully address all the scope elements consistent with Revision 2 of RG 1.200 in the licensee's PRA model that is used as a basis for risk-informed LARs. In March of 2009, the NRC issued Revision 2 of RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," which endorsed industry standards for

PRAs for internal events, internal floods, fires, and external events (i.e., seismic, external flooding, high winds, etc.).

Section 2.3.1, "Technical Adequacy of the PRA," of RG 1.177, Revision 1, states:

> The technical adequacy of the PRA must be compatible with the safety implications of the TS [technical specification] change being requested and the role that the PRA plays in justifying that change. That is, the more the potential change in risk or the greater the uncertainty in that risk from the requested TS change, or both, the more rigor that must go into ensuring the technical adequacy of the PRA.

The licensee may address the technical adequacy of the PRA by conforming to the peer review and self-assessment processes in RG 1.200, Revision 2. This regulatory guide provides one approach acceptable to the NRC for determining the technical adequacy of the PRA model. Regulatory Guide 1.200 endorses, with certain clarifications and qualifications, Addendum A to the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) RA-Sa 2009, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications" ("PRA Standard"). Section 4.2, "Licensee Submittal Documentation," of RG 1.200 states, in part, that the application should discuss the resolution of the peer review facts and observations (F&Os) that are applicable to the parts of the PRA required for the application.

In Attachment 6, Section 6.1.3 of the LAR, "PRA Quality/Technical Adequacy," the licensee indicates that most of the F&Os found during the June 2015 peer review of the internal events PRA (excluding large early release frequency (LERF)) were assessed by an independent review team in January 2016 to be resolved adequately based on the updated internal events PRA. As such, these F&Os were not submitted in the LAR. However, as discussed with the licensee on an request for additional information clarification call on May 17, 2017, concerning the submission of these F&Os for the McGuire LAR for Integrated Leakage Rate Test, the close-out of these F&Os appear to have occurred well before the guidance on this process was finalized and accepted by NRC letter dated May 3, 2017 (ADAMS Accession No. ML17079A427). Therefore, it is unclear whether the licensee closed these F&Os consistent with NRC-accepted guidance, and that these F&Os should have been submitted as part of the LAR.

To be consistent with Section 4.2 of RG 1.200, Revision 2, and to demonstrate the technical adequacy of the McGuire internal events PRA (excluding LERF) against RG 1.200 at Capability Category II, the NRC staff requests that the licensee provide (a) or (b) below for acceptance of this application for McGuire:

a. Please provide all F&Os characterized as findings from the June 2015 peer review of the internal events PRA (excluding LERF). For each F&O, include details of its disposition or why not meeting the corresponding Capability Category II requirements has no impact on the application.

b. Alternatively, please discuss the close out of the F&Os by the January 2016 independent review of the internal events PRA (excluding LERF), which evaluated the technical adequacy of the additional analysis performed to address the F&Os from the 2015 peer review. This discussion should be consistent with

that of the "Final Report" developed in accordance with Section X.1.3, "Close Out F&Os by Independent Assessment," of the Nuclear Energy Institute letter dated February 21, 2017 (ADAMS Accession No. ML17086A431).

2. The LAR requests extension of CT for an inoperable DG in TS 3.8.1 (Condition B) from 72 hours to 14 days. In Section 1.0 of the LAR the licensee states that "This LAR provides both a deterministic and a risk-informed technical justification for extending the CTs and has been developed using the guidelines established in NUREG-0800, Branch Technical Position (BTP) 8-8, Regulatory Guide 1.174 and Regulatory Guide 1.177 (References 1, 2, and 3)."

   Please provide technical justification for the duration of the requested 14-day AOT [allowable outage time] (actual hours plus margin based on plant-specific past operating experience).

3. NRC BTP 8-8 and NUREG 1431 were written for a single unit and does not fully account for shared systems and emergency power supplies from other units.

   Please clarify that the CT extension LCO is entered for only one EDG per site to avoid loss of safety functions for shared systems.

4. Currently, Catawba and McGuire TS LCO 3.8.1 requires two EDGs per unit (i.e., EDGs 1A and 1B for Unit 1 or EDG 2A and 2B for Unit 2) capable of supplying the Onsite Essential Auxiliary Power Systems to be operable during modes 1-4. According to Catawba TS 3.7.8 and McGuire TS 3.7.7, NSWS (a shared system) requires two trains of NSWS to be operable.

   The McGuire NSWS system is different than the Catawba in that the McGuire NSWS pumps are unitized, i.e. not shared. But the supply to the McGuire NSWS pumps from the ultimate heat sink (UHS) including the motor operated valves (MOVs) that operate during a DBA are shared. The emergency power supply to these MOVs and the implication of sharing the supply from the UHS to the NSWS pumps was not addressed or discussed in the application. The LAR did not address the differences between Catawba and McGuire in regards to shared systems.

   If both CNS and MNS need two NSWS pumps on each NSWS loop at any time (e.g. to mitigate the effects of an accident on one unit while the other unit is in Modes 1-4) and each NSWS pump only receives emergency power from a single emergency bus powered by a single DG in the case of a LOOP, then it is not apparent how proposed Required Action B.4 effectively "... [moves] the operability requirements from the TS bases to TS 3.8.1" as stated on page 38 of the LAR.

   It is not apparent how the licensee's proposed changes are sufficient to meet the TS definition of operability for the various possible configurations of shared systems because it appears the proposed changes do not adequately consider emergency power sources to shared components needed.

   Please clarify how 10 CFR 50.36(c)(2) would be met with your proposed changes without a conforming change to the LCO and/or remedial Actions table for the required number of DGs.

Additionally, the NRC staff requests the following:

a. Provide in detail the effects of a loss of each DG would have upon the shared SSCs of the Catawba and McGuire NSWS system to evaluate the effect upon each unit.

b. Provide a listing of shared components in both Catawba and McGuire and the associated DG that powers each shared component.

c. Provide details (preferably in tabular format) of the differences between Catawba and McGuire, in regards to electric power supplies and shared systems.

d. Please identify (preferably in tabular form) the emergency power sources (DGs) associated with each train ("A" and "B" trains) of each shared system (e.g., NSWS, Control Room Area Ventilation System (CRAVS), Control Room Area, Chilled Water System (CRACWS), and Auxiliary Building Filtered Ventilation Exhaust System (ABFVES)) for both units at Catawba and McGuire.

e. For each TS associated with a shared system at both Catawba and McGuire, identify any DG that would not be necessary to mitigate a design basis accident with (i.e., site wide loss of offsite power and a loss of coolant accident with a single failure). For each DG identified as not necessary, discuss why it would not be needed.

f. For McGuire and Catawba, please provide a detailed justification on how the proposed TS changes would satisfy 10 CFR50.36(c)(2)(ii)(C), Criterion 3.

g. For McGuire and Catawba, please provide detailed descriptions of all additional sources of AC power that are required to be operable from the opposite units in TS LCO 3.8.1 as a means of emergency power sources for each unit.

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ADAMS Accession No. ML17167A317 ***via email**

OFFICE	NRR/DORL/LPL2-1/PM	NRR/DORL/LPL2-1/LA	NRR/DE/EEEB/BC*	NRR/DSS/SBPB/BC*
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DATE	6/20/17	6/20/17	6/22/17	6/21/17
OFFICE	NRR/DSS/STSB/BC*	NRR/DRA/APLA/BC*	NRR/DORL/LPL2-1/BC	NRR/DORL/LPL2-1/PM
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