



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

January 4, 2018

MEMORANDUM TO: Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Audrey L. Klett, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 –
REGULATORY AUDIT IN SUPPORT OF REVIEW OF PROPOSED
ALTERNATIVE (CAC NOS. MF7365, MF7366, AND MF7367; EPID
NO. L-2016-LLR-0001)

By letter ONS-2016-17 dated February 15, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16062A052), Duke Energy Carolinas, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to portions of Institute of Electrical and Electronic Engineers (IEEE) Standard 279-1971, "Criteria for Protection Systems for Nuclear Power Stations," for specific configurations at the Oconee Nuclear Station, Units 1, 2, and 3 (Oconee).

Staff from the NRC's Office of Nuclear Reactor Regulation, Division of Engineering and Division of Operating Reactor Licensing will conduct an audit to support its review of this request. The audit will occur at NRC Headquarters in Rockville, Maryland from January 4 - 31, 2018. The audit plan is enclosed.

Sincerely,

A handwritten signature in black ink, appearing to be "AK", is located below the word "Sincerely,".

Audrey L. Klett, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

Enclosure: As stated

cc w/encls: Distribution via Listserv

REGULATORY AUDIT PLAN
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 BACKGROUND

By letter ONS-2016-17 dated February 15, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16062A052), Duke Energy Carolinas, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) to authorize the use of alternatives at the Oconee Nuclear Station, Units 1, 2, and 3 (Oconee). The licensee requested the NRC to authorize alternatives to the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Paragraph 50.55a(h)(2); specifically, Institute of Electrical and Electronic Engineers (IEEE) Standard (Std.) 279-1971, "Criteria for Protection Systems for Nuclear Power Stations," Section 4.2, "Single Failure Criterion," for certain cable configurations. Pursuant to 10 CFR 55a(z)(1), the licensee proposed that the NRC authorize permanent acceptance of the current (i.e., "as-is") cable configuration in certain locations and application of Paragraph 6.1.4, "Limited Hazard Areas," of IEEE Std. 384-1992, "IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits," as a means of providing acceptable cable separation in certain areas.

Staff from the NRC's Office of Nuclear Reactor Regulation (NRR), Division of Engineering have developed a draft request for additional information (RAI). The staff would like to better understand the cable configuration by reviewing detailed drawings and documentation that are not available in ADAMS. The staff believes this information can better focus the RAI questions.

The NRR Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195), states that a regulatory audit is a planned, licensed or regulation-related activity that includes the examination of primarily non-docketed information with the intent to gain understanding, to verify information, or to identify information that will require docketing to support the basis of the licensing or regulatory decision.

2.0 REGULATORY AUDIT BASIS

The NRC staff will perform the audit to support its evaluation of whether the licensee's request can be authorized per Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(z)(1).

3.0 REGULATORY AUDIT SCOPE OR METHODOLOGY

The NRC staff will review electrical system drawings and documentation to determine if it will require docketing to support or develop conclusions for the staff's safety evaluation of the proposed alternatives.

During its review of the licensee's application, the staff developed the following **draft** request for additional information (RAI).

1. During routine discussions with the NRC's licensing project manager for Oconee in summer 2017, the licensee indicated that it has completed the modifications discussed in the proposed alternative. Therefore, the staff requests the licensee to confirm the status of the modifications discussed in the application and discuss any impacts or needed changes or clarifications to the proposed alternatives as a result.
2. In Sections 4.2.3 and 4.3.2 of the licensee's application, the licensee requested the NRC to allow acceptance of the "as-is" configuration of the normally de-energized 13.8-kV power feed from the KHS to the PSW building as an alternative configuration to meeting the requirements of 10 CFR 50.55a(h)(2). The staff notes that the phrasing of this request would include Trench 3; however, in Section 6 of the application, the licensee states that Trench 3 is not addressed by the submittal. Therefore, the staff requests the licensee to clarify that the scope of the request in Sections 4.2.3 and 4.3.2 does not include Trench 3 and is only applicable to the length of cable present in the applicable areas (i.e., KHS Mechanical Equipment Gallery and the PSW Building Cable Spreading Area).
3. Regarding the proposed alternative for the PSW System Ductbank Manholes, and assuming 13.8-kV Fant line modification is complete, the staff requests the licensee to provide the following:
 - (a) Dimensional drawings for Manholes 1 through 6 that show the horizontal and vertical separation distances among all power, control and instrument cables associated with the proposed alternative involving the "as-is" configuration.
 - (b) Cross-sectional details of all power, control, and instrument cables associated with the proposed alternative involving the "as-is" configuration.
 - (c) Description of the criteria for grounding the shields of all power, control, and instrument cables associated with the proposed alternative involving the "as-is" configuration, as applicable.
 - (d) Documentation that supports the licensee's statement that approximately 180 feet of power cable will have potential for interaction with control cables.
 - (e) Relay and Breaker coordination curves that show that all power cables are protected by the upstream protected devices in case of any downstream fault.
 - (f) Description of the criteria used for tying cables to the cable supports.
4. Regarding the proposed alternative for the KHS Mechanical Equipment Gallery, and assuming the related modifications are complete, the staff requests the licensee to provide the following:
 - (a) Dimensional drawings for raceways showing the horizontal and vertical separation distances among all power and control cables, which would assist the staff in verifying whether the configuration meets the separation requirements of IEEE Std. 384-1992.

- (b) Cross-sectional details of all power and control cables associated with the proposed alternative.
 - (c) Description of the criteria for grounding the shields of all power and control cables associated with the proposed alternative, as applicable.
 - (d) Documentation that supports the licensee's statement that approximately 100 feet of power cable will have potential interaction with the control cables.
 - (e) Relay and Breaker coordination curves that show that all power cables are protected by the upstream protected devices in case of any downstream fault.
 - (f) Description the criteria used for tying cables to the cable supports.
5. Regarding the proposed alternative for the PSW Building Cable Spreading Area, and assuming the related modifications are complete, the staff requests the licensee to provide the following:
- (a) Dimensional drawings for raceways showing the horizontal and vertical separation distances among all power, control and instrument cables, which would assist the staff in verifying whether the configuration meets the separation requirements of IEEE Std. 384-1992.
 - (b) Cross-sectional details of all power, control and instrument cables associated with the proposed alternative.
 - (c) Description of the criteria for grounding the shields of all power, control, and instrument cables associated with the proposed alternatives, as applicable.
 - (d) Documentation that supports the licensee's statement that approximately 90 feet of power cable will have potential for interaction with the control and instrument cables.
 - (e) Relay and Breaker coordination curves that show that all power cables are protected by the upstream protected devices in case of any downstream fault.
 - (f) Description the criteria used for tying cables to the cable supports.
6. The staff requests the licensee to provide a copy of the following reference documents referred in its application:
- (a) Reference 8.12: OSC-11504, "Medium Voltage Cable Testing Analysis," Revision 1.
 - (b) Duke Energy Design Specification OSS-0218.00-00-0019, "Cable and Wiring Separation Criteria," Revision 17.

4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE AUDIT

The NRC staff requests the licensee to have the following information readily available and accessible for the staff's review via an internet-based portal:

- Information requested in Draft RAIs 3(a), (b), and (e); 4(a), (b), and (e); 5(a), (b), and (e); and 6(a) and (b).

The staff will then determine whether it needs to formally request the RAIs after reviewing this information.

5.0 TEAM ASSIGNMENTS AND LOGISTICS

The audit team will consist of Ms. Audrey Klett, the NRC's licensing project manager for Oconee; Mr. Vijay Goel, Electrical Engineer of the Electrical Engineering Operating Reactor Branch (EEOB).

The NRC staff will conduct a teleconference with the licensee for the purposes of introductions and discussing the purpose of the audit and information needs. The staff will also confirm the sensitivity of any information discussed or presented on the online portal.

The audit will occur intermittently via an internet-based portal at NRC Headquarters Office in Rockville, Maryland, from January 4 - 31, 2018. The NRC staff requests the licensee to have the information discussed in Sections 3 and 4 readily available and accessible for the staff's review via an internet-based portal. Although the NRC staff expects to complete its review of the documents by January 31, 2018, the staff requests the licensee to provide the staff access to the documents via the internet-based portal until the staff completes its review of the licensee's request. The NRC staff also requests the licensee to have its staff available at mutually agreeable business day times (e.g., Monday - Thursday, 8:00 a.m. to 4:00 p.m., Eastern Time) by telephone if the NRC staff has any questions during the audit related to any information on the portal. The NRC staff will not conduct an entrance or exit meeting; however, the NRC's licensing project manager will inform the licensee via routine communications when the staff no longer needs access to the information.

6.0 DELIVERABLES

After the audit, the NRC staff will develop any additional requests for information, as needed, which it will provide the licensee via separate docketed correspondence. The staff intends to issue an audit report by February 28, 2018.

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ADAMS Accession No.: ML18004A012

***by email**

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