



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

September 5, 2018

LICENSEE: Duke Energy Carolinas, LLC

FACILITY: Oconee Nuclear Station, Units 1, 2, and 3

SUBJECT: SUMMARY OF AUGUST 1, 2018, MEETING WITH DUKE ENERGY CAROLINAS, LLC TO DISCUSS PROPOSED LICENSE AMENDMENT REQUEST FOR OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 REGARDING TORNADO MITIGATION LICENSING BASIS (EPID L-2018-LRM-0003)

On August 1, 2018, the U.S. Nuclear Regulatory Commission (NRC) staff held a Category 1 public meeting with representatives from Duke Energy Carolinas, LLC (the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss a proposed license amendment request (LAR) to clarify and change the tornado mitigation licensing basis for the Oconee Nuclear Station, Units 1, 2, and 3 (Oconee). The meeting notice and agenda, dated July 18, 2018, are available in NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML18199A621. A list of attendees is enclosed. The meeting presentation material is available in ADAMS at Accession No. ML18227B321.

The licensee presented background material for its planned LAR to modify the Oconee Updated Final Safety Analysis Report (UFSAR) related to tornado mitigation. Enclosure 2 of this meeting summary contains the presentation slides that the licensee provided to the NRC staff. The licensee stated that it plans to submit the LAR in August 2018; however, subsequent to the meeting, the licensee informed the staff that its schedule for submittal moved to September 2018. The licensee stated that it intends the planned LAR to supersede its previous LAR dated June 26, 2008 (ADAMS Accession No. ML081840371), as supplemented, for which the NRC suspended its review.

The licensee described the purpose of the planned submittal, including assumptions used in the analyses and the plant's design features for mitigating a tornado. The licensee stated that it completed a comprehensive review of its tornado licensing basis. The licensee stated that in a previous licensing action, the NRC approved an application where TORMIS was used; however, it was not clear whether the staff approved its use and whether licensee could credit TORMIS for tornado mitigation. The licensee plans to credit the standby shutdown facility (SSF) as the deterministically protected path for tornado mitigation within a 72-hour mission time and use TORMIS as an acceptable method for evaluating systems and components necessary for the SSF to fulfill its credited mission that are not physically protected from tornado induced missiles. The licensee plans to revise the licensing basis to eliminate reliance on other redundant and

diverse systems that are not fully protected from a tornado; however, these systems would still be available for defense-in-depth. The licensee also plans to eliminate the spent fuel pool to high pressure injection flow path for reactor coolant makeup from the licensing basis. However, the capability to provide this flow path would still be available for defense-in-depth.

The licensee's proposed analysis assumes that a tornado significantly damages one unit with all units experiencing a loss of all alternating current electrical power. The licensee plans to use a new application of previously-approved thermal hydraulic methodologies for evaluating reactor coolant system conditions after a tornado. The thermal hydraulic success criteria for the reactor coolant system following a tornado assume a main feedwater line breaks resulting in an overheating event or that a main steam line breaks resulting in an overcooling event. The NRC staff questioned justification for selective damage to exposed systems, structures, and components.

The licensee plans to credit completed and future modifications, which may not be completed unless the NRC approves the application, for which it is not seeking NRC prior approval. The licensee stated it planned to treat the future modifications as regulatory commitments in its application. The NRC staff stated that if the staff's approval of the application relies on the proposed regulatory commitments, then the commitments would need to be converted into requirements as part of the staff's approval (e.g., license conditions). One of the licensee's planned modifications involved routing of instrumentation and control cables, and the NRC staff stated that the licensee should ensure that there would not be any issues with meeting cable separation requirements.

The NRC staff asked questions about the licensee's assumed tornado paths and operator actions during a tornado. The staff asked if the pressurizer would go water-solid, and the licensee stated that it would not go water-solid. The staff also asked whether the licensee intended to credit FLEX equipment, and the licensee responded no. The staff suggested that the licensee's application fully explain the basis for its assumptions (e.g., that only one unit is damaged during the tornado event given the proximity of the non-missile-protected turbine buildings). The licensee stated that it does not plan to propose any changes to its Technical Specifications. The NRC staff questioned whether removing any redundancy and diversity credit could affect existing specifications. The staff referred to requests for additional information related to another plant's TORMIS application regarding the use of Boolean logic and an AND gate. The staff requested the licensee to provide references to the documentation associated with the previous application (i.e., dates of the original application and its supplements) that was suspended for the purposes of noticing the application in the *Federal Register*. The NRC staff stated that it would use NUREG-1764, "Guidance for the Review of Changes to Human Actions," Revision 1 (ADAMS Accession No. ML072640413) to review operator actions for mitigating the event.

The staff did not make any regulatory decisions or commitments at the meeting. No members of the public were in attendance at the meeting nor announced over the telephone.

Any inquiries can be directed to me at 301-415-0489 or via e-mail at Audrey.Klett@nrc.gov.



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:
List of Attendees

Cc: Listserv

LIST OF ATTENDEES

August 1, 2018, MEETING WITH DUKE ENERGY CAROLINAS, LLC

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

PROPOSED LICENSE AMENDMENT REQUEST REGARDING

TORNADO MITIGATION LICENSING BASIS

U.S. Nuclear Regulatory Commission

Jessie Quichocho
Stewart Bailey
Shaun Anderson
Greg Casto
Robert Beaton
John Hughey
Gordon Curran
Robert Pettis
Khoi Nguyen
Mehdi Reisi-Fard
Audrey Klett

Duke Energy Carolinas, LLC

Timothy Brown
Dave Baxter
Jason Patterson
Lee Kanipe
Eric Henshaw
David Wilson
Philip North
Chris Wasik*
Cam Eflin*
Bob Leatherwood*

*Participated by phone

Enclosure

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RidsNrrDeEeob Resource
RidsNrrDssSrxs Resource
RidsNrrDssSbpb Resource
R. Beaton, NRR/DSS
R. Pettis, NRR/DE
G. Curran, NRR/DSS
M. Breach, NRR/DE
K. Nguyen, NRR/DE
J. Hughey, NRR/DRA
M. Reisi-Fard, NRR/DRA
B. Wittick, NRR/DE

ADAMS Accession Nos.:

Package: ML18227B355

Meeting Summary: ML18227B212

Meeting Slides: ML18227B321

***by email**

OFFICE	NRR/DORL/LPL2-1/PM	NRR/DORL/LPL2-1/LA	NRR/DSS/SBPB/BC*
NAME	AKlett	KGoldstein	SAnderson
DATE	8/24/18	8/23/18	9/4/18
OFFICE	NRR/DSS/SRXB/BC*	NRR/DE/ESEB/BC*	NRR/DE/EEOB/BC*
NAME	JWhitman	BWittick	JQuichocho
DATE	9/4/18	8/24/18	8/30/18
OFFICE	NRR/DE/EMIB/BC*	NRR/DRA/APHB*	NRR/DRA/APLB*
NAME	SBailey	CJFong (John Hughey for)	GCasto
DATE	8/24/18	8/24/18	9/4/18
OFFICE	NRR/DORL/LPL2-1/BC	NRR/DORL/LPL2-1/PM	
NAME	MMarkley	AKlett	
DATE	9/5/18	9/5/18	

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