



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

February 11, 2020

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

FROM: Michael Mahoney, 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 LICENSE  
AMENDMENT REQUEST TO REVISE THE LICENSING BASIS  
FOR HIGH ENERGY LINE BREAKS OUTSIDE OF THE  
CONTAINMENT BUILDING (EPID NO. L-2019-LLA-0184)

By letter RA-19-0253 dated August 28, 2019, Duke Energy Carolinas, LLC submitted a License Amendment Request for Oconee Nuclear Station, Units 1, 2, and 3, as described in the Updated Final Safety Analysis Report (UFSAR), regarding revisions to the licensing basis for high energy line breaks (HELB) outside of the containment building.

Staff from the U.S. Nuclear Regulatory Commission's (NRC's) Office of Nuclear Reactor Regulation will conduct an audit to support its review of this request at NRC Headquarters in Rockville, Maryland, from February 18, 2020, to March 31, 2020. Based on information reviewed in the Headquarters-based audit, requests for additional information and/or an on-site audit may be required. The audit plan is enclosed.

Sincerely,

/RA/

Michael Mahoney, 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: 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 RA-19-0253 dated August 28, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19240A814), Duke Energy Carolinas, LLC submitted a License Amendment Request for Oconee Nuclear Station, Units 1, 2, and 3, as described in the Updated Final Safety Analysis Report (UFSAR), regarding revisions to the licensing basis for high energy line breaks (HELB) outside of the containment building.

The licensee proposed to revise the UFSAR to establish normal plant systems, proposed service water (PSW), and/or the standby shutdown facility (SSF) as the assured mitigation path following a HELB. The licensee also proposed to credit several plant modifications to enhance the station's capability to withstand the dynamic effects of a damaging HELB.

A public meeting was held on November 6, 2019 (meeting summary found at ADAMS Accession No. ML19331A520). The U.S. Nuclear Regulatory Commission (NRC) staff asked questions related to time critical operator actions, human performance, thermal hydraulic analysis, impact of HELB on radiation protection, environmental qualification of the safe shutdown facility related components located in the east and west penetration rooms (EPR and WPR) and cask decontamination tank rooms, and certain piping analysis.

The NRR Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195), states that a regulatory audit is a planned, license or regulation-related activity that includes the examination of primarily non-docketed information. A regulatory audit is conducted with the intent to gain understanding, to verify information, and/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 proposed amendments can be approved in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90.

3.0 REGULATORY AUDIT SCOPE AND METHODOLOGY

The NRC staff will review the licensee's information related to time critical operator actions, impact of HELB on radiation protection, environmental qualification of the safe shutdown facility related components located in the east and west penetration and the cask decontamination tank rooms, location of all postulated breaks and critical cracks, including sizes, and other analysis and documents to determine if any additional information will require docketing to support or develop conclusions for the NRC staff's safety evaluation.

Enclosure

#### 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 NRC staff's review, via an internet-based portal:

Information related to:

1. Details of the new time critical operator actions. Specifically, those discussed in Attachment 11, "Time Critical Operator Actions" of the licensee submittal dated August 28, 2019.
2. a. Detailed arrangement drawings of:
  - i. Turbine Building
  - ii. Auxiliary Building
  - iii. Penetration Rooms
- b. Descriptions for the systems credited for HELB mitigation (i.e., SSF systems, PSW, emergency feedwater (EFW), and high head safety injection).
3. Environmental qualification of electrical equipment.
  - a. The change and temperature and pressure profile change for components located inside the EPR & WPR, as a result of the new analysis for postulated Main Steam (MS) HELB and Main Feedwater (MFW) HELB – a diagram would be useful to show the change in the profiles.
  - b. Environmental qualification reports or documentation of the components located in EPR, including the information for the equipment below and specify where the equipment is located.

<b>Equipment ID</b>	<b>Equipment Type</b>	<b>Manufacturer/Model</b>
xFDWVA0103	Motor-operated valve	Limitorque
xFDWIP0315	Signal Converter	Fisher 546NS
xHPISV0090	Solenoid Valve	ASCO NP8316
xHPIFT0159	Flow Transmitter	Rosemount 1154
xLP VA0018	Motor-operated valve	Rotork
xLPIFT0005P	Flow Transmitter	Rosemount 1153B
xLPITE0209	Thermocouple	Conax 7S22
xLPSP0013	Pressure Transmitter	Rosemount 1154
xLPSSV1054	Solenoid Valve	Valcor V70900-65
xLPSVA0021	Motor-operated Valve	Limitorque
xRC PS0455	Pressure Switch	Barton 581
	Electrical Penetration Assemblies	Conax
	Electrical Penetration Assemblies	D. G. Obrien
	Electrical Penetration Assemblies	Viking
	States Terminal Blocks	
	Cabling	

4. Location of all postulated breaks and critical cracks, including sizes.

If arrangement drawings lack sufficient detail to establish separation of structures, systems and components credited with HELB mitigation, an on-site audit will be performed to evaluate the potential for spatial interactions between HELB locations and equipment that mitigates the event.

The NRC staff will determine whether it needs to request any additional documents to be available on the portal after reviewing the above information.

## 5.0 TEAM ASSIGNMENTS AND LOGISTICS

The audit team will consist of the following NRC staff:

- Michael Breach, Mechanical Engineering and Inservice Testing Branch (EMIB)
- Steve Jones, Containment and Plant Systems Branch (SCPB)
- Gordon Curran, Containment and Plant Systems Branch (SCPB)
- Sheila Ray, Electrical Engineering New Reactors and License Renewal Branch (EENB)
- DaBin Ki, Operator Licensing and Human Factors Branch (IOLB)
- Brian Green, Operator Licensing and Human Factors Branch (IOLB)
- Matthew McConnell, Electrical Engineering New Reactors and License Renewal Branch (EENB)
- Michael Mahoney, Plant Licensing Branch 2-1 (LPL2-1)

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

The audit will occur via an internet-based portal at NRC Headquarters in Rockville, Maryland, from February 18 through March 31, 2020. Based on information on the internet-based portal, requests for additional information and/or an on-site audit may need to be performed. The NRC staff requests the licensee to have the information discussed in Section 4.0 readily available and accessible for the NRC staff's review via an internet-based portal. The NRC staff also requests the licensee to have its staff available at mutually agreeable times during normal business hours (e.g., Monday - Thursday, 9:00 a.m. to 4:00 p.m., Eastern Time) by telephone if the NRC staff has any questions during the audit. The NRC staff will not conduct an exit meeting; however, the NRC's licensing project manager will inform the licensee via routine communications when the NRC staff no longer needs access to the portal.

## 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 NRC staff intends to issue an audit summary report within 90 days of completion of the audit.

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 – REGULATORY AUDIT IN  
SUPPORT OF REVIEW OF LICENSE AMENDMENT REQUEST TO REVISE  
THE LICENSING BASIS FOR HIGH ENERGY LINE BREAKS OUTSIDE OF  
THE CONTAINMENT BUILDING (EPID NO. L-2019-LLA-0184)  
DATED FEBRUARY 11, 2020

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S. Jones, NRR  
G. Curran, NRR  
M. Breach, NRR  
S. Ray, NRR  
D. Ki, NRR  
B. Green, NRR  
M. McConnell, NRR

**ADAMS Accession No.: ML20036E390**

**\*by email**

OFFICE	NRR/DORL/LPL2-1/PM	NRR/DORL/LPL2-1/LA	NRR/DSS/SCPB/BC*
NAME	MMahoney	KGoldstein	BWittick
DATE	02/03/2020	02/07/2020	02/05/2020
OFFICE	NRR/DEX/EENB/BC*	NRR/DORL/LPL2-1/BC	NRR/DORL/LPL2-1/PM
NAME	TMartinez	MMarkley	MMahoney
DATE	02/05/2020	02/11/2020	02/11/2020

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