



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

January 21, 2022

Mr. Steven M. Snider  
Vice President, Oconee Nuclear Station  
Duke Energy Carolinas, LLC  
7800 Rochester Highway  
Seneca, SC 29672-0752

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 – PROPOSED  
ALTERNATIVE TO IMPLEMENT ASME CODE CASE OMN-24  
(EPID L-2021-LLR-0052)

Dear Mr. Snider:

By letter dated July 29, 2021, as supplemented by letter dated August 19, 2021, Duke Energy Carolinas, LLC (Duke Energy, the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for the use of an alternative to certain American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants* (OM Code) requirements at Oconee Nuclear Station (ONS), Units 1, 2, and 3, during the sixth 10-year inservice testing (IST) program interval.

Pursuant to the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a “Codes and Standards,” specifically 10 CFR 50.55a(z)(1), the licensee requested to implement ASME OM Code Case OMN-24, “Alternative Requirements for Testing ASME Class 2 and 3 Pressure Relief Valves (For Relief Valves in a Group of One),” on the basis that the alternative provides an acceptable level of quality and safety.

The NRC staff has reviewed the subject request, and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff authorizes the proposed alternative request ON-PRV-OMN-24 for the sixth 10-year IST program interval for ONS Units 1, 2, and 3.

All other ASME OM Code requirements for which relief or an alternative was not specifically requested and approved remain applicable.

S. M. Snider

- 2 -

If you have any questions, please email [Shawn.Williams@nrc.gov](mailto:Shawn.Williams@nrc.gov).

Sincerely,

Michael T. Markley, Chief  
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:  
Safety Evaluation

cc: Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED ALTERNATIVE REQUEST ON-PRV-OMN-24

RELATED TO THE INSERVICE TESTING PROGRAM SIXTH 10-YEAR INTERVAL

DUKE ENERGY CAROLINAS, LLC (DUKE ENERGY)

OCONEE NUCLEAR STATION, UNITS NO. 1, 2, AND 3

DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 INTRODUCTION

By a letter dated July 29, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21210A341), as supplemented by letter dated August 19, 2021 (ADAMS Accession No. ML21231A069), Duke Energy Carolinas, LLC (Duke Energy, the licensee), submitted to the U.S. Nuclear Regulatory Commission (NRC) a proposed alternative test plan (ON-PRV-OMN-24) in lieu of certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST [inservice testing] (OM Code) for the IST programs at Oconee Nuclear Station (ONS), Units 1, 2, and 3, during the sixth 10-year IST program interval.

Specifically, pursuant to subparagraph (1) in paragraph (z), "Alternatives to codes and standards requirements," of Section 55a, "Codes and standards," in Part 50, "Domestic Licensing of Production and Utilization Facilities," in Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR 50.55a(z)(1)), the licensee requested to implement ASME OM Code Case OMN-24, "Alternate Requirements for Testing ASME Class 2 and 3 Pressure Relief Valves (For Relief Valves in a Group of One)," on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

The NRC regulations in 10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," states, in part, "The inservice test requirements for pumps and valves that are within the scope of the ASME OM Code but are not classified as ASME B&PV [Boiler & Pressure Vessel] Code Class 1, Class 2, or Class 3 may be satisfied as an augmented IST program in accordance with paragraph (f)(6)(ii) of this section without requesting relief under paragraph (f)(5) of this section or alternatives under paragraph (z) of this section. This use of an augmented IST program may be acceptable provided the basis for deviations from the ASME OM Code, as incorporated by reference in this section, demonstrates an acceptable level of quality and safety, or that implementing the Code provisions would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety ..."

Enclosure

In proposing alternatives, a licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety (10 CFR 50.55a(z)(1)) or compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(z)(2)).

### 3.0 TECHNICAL EVALUATION

#### 3.1 Applicable ASME OM Code

The applicable ASME OM Code for the IST Programs at ONS Units 1, 2, and 3, for the sixth 10-year IST program interval, is the 2017 Edition, which is currently scheduled to commence on July 1, 2022, and end on June 30, 2032.

The IST requirements of the ASME OM Code, as incorporated by reference in 10 CFR 50.55a related to this alternative request are as follows:

- ASME OM Code, Subsection ISTC, paragraph ISTC-5240, "Safety and Relief Valves," requires that safety and relief valves shall meet the inservice test requirements of the Mandatory Appendix I of the ASME OM Code.
- ASME OM Code, Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants."
- ASME OM Code, Mandatory Appendix I, Subsection I-1350, "Test Frequency, Classes 2 and 3 Pressure Relief Except PWR Main Steam Safety Valves," paragraph I-1350(a), "Test Interval," states that:
  - (1) The maximum allowable time between tests for any valve, with the exception of pressurized-water reactor (PWR) main steam safety valves, shall not exceed 10 year, starting with initial electric power generation.
  - (2) For valve groups containing only one valve, the valve shall be tested at least every 48 months.
  - (3) For valve groups containing more than one valve, a minimum of 20% of the valves from each valve group shall be tested within any 48-month interval. This 20% shall consist of valves that have not been tested during the current 10-yr test interval, if they exist. The test interval shall begin from the date of the as left set-pressure test for each valve. PWR main steam safety valves shall be tested in accordance with para. I-1320.
- ASME OM Code, Code Case OMN-24, "Alternative Requirements for Testing ASME Class 2 and 3 Pressure Relief Valves (For Relief Valves in a Group of One)."

3.2 ASME Code Components Affected

In its submittal, the licensee proposed alternative testing for the following relief valves:

**Table 1: ONS ASME Class 2 and 3 Relief Valves in a Group of One (1)**

| <b>Component ID</b> | <b>Description</b>  | <b>Category</b> | <b>Class</b> |
|---------------------|---|-----------------|--------------|
| 0FO-0052            | DIESEL ENGINE FUEL OIL TRANSFER PUMP DISCHARGE RELIEF                               | C               | 3            |
| 1HP-0079            | LDST [LETDOWN STORAGE TANK] RELIEF  | C               | 2            |
| 2HP-0079            | LDST RELIEF VALVE   | C               | 2            |
| 3HP-0079            | LDST RELIEF VALVE   | C               | 2            |
| 1HP-0404            | RC [REATOR COOLANT] MAKEUP PUMP DISCHARGE RELIEF                                    | C               | 2            |
| 2HP-0404            | RC MAKEUP PUMP DISCHARGE RELIEF   | C               | 2            |
| 3HP-0404            | RC MAKEUP PUMP DISCHARGE RELIEF   | C               | 2            |
| 1MS-0092            | MS [MAIN STEAM] SUPPLY TO TD EFDWP [TURBINE DRIVEN EMERGENCY FEEDWATER PUMP] RELIEF | C               | 3            |
| 2MS-0092            | MS SUPPLY TO TD EFDWP RELIEF  | C               | 3            |
| 3MS-0092            | MS SUPPLY TO TD EFDWP RELIEF  | C               | 3            |

3.3 Reason for Request

The relief valves listed in Table 1 are currently tested individually and are not grouped (i.e. there is only one relief valve in the group). As such, paragraph I-1350(a)(2) requires testing of each of these valves every 48 months. The ASME OM Code Case OMN-24 allows ASME Class 2 and 3 Relief Valves, where there is only one valve in a group, to have the test frequency extended out from 48 months by 24 months with good performance. This extension may be repeated with continued good performance until the valve is tested every 120 months. The published ASME OM Code 2020 Edition “Applicability Index for ASME OM Cases” includes the ASME OM Code Case OMN-24 and its applicability for ASME OM Code 2001 Edition through the 2020 Edition. This Code Case OMN-24 has not been approved for use in Regulatory Guide 1.192, “Operation and Maintenance Code Case Acceptability, ASME OM Code,” Revision 3, October 2019.

This Code Case establishes requirements when addressing a valve group of one (1), in lieu of the sample plan approach described by the ASME OM Code. ASME Appendix I Section I-1350(a), ASME Class 2 and 3 Relief Valves Except for PWR Main Steam Safety Valves, may be tested using the alternative method described in OMN-24.

### 3.4 Licensee's Proposed Alternative

The licensee proposes to utilize the provisions of Code Case OMN-24, which states, in part:

When addressing a valve group of one (1), in lieu of the sample plan approach described by ASME OM Code Section I-1350(a), ASME Class 2 and 3 Relief Valves, except for PWR Main Steam Safety Valves, may be tested using the alternative methods described below:

- a) The relief valve shall be tracked by its plant identification number as provided by its manufacturer or as applied by the Owner.
- b) Upon adoption of this Code Case, the initial test interval shall not exceed 48 months since its last set-pressure test. A 12 month period is allowed to complete testing once the relief valve is removed from the system.
- c) A relief valve that satisfies the as-found set-pressure test criterion may have its test interval extended by up to 24 months. The test interval shall begin from the date of the as-left set-pressure test for the installed valve.
- d) A relief valve that fails the as-found set-pressure test shall have its test interval reduced by 24 months. The minimum required test frequency for this circumstance is a 24 month interval.
- e) The test interval for any individual relief valve shall not exceed 120 months except that a six (6) month grace period is allowed to coincide with refueling outages to accommodate extended operation or shutdown periods.
- f) The Owner may satisfy testing requirements by installing a pretested valve to replace the valve that had been in service provided that the valve removed from service shall be tested within 12 months of removal from the system.

### 3.5 NRC Staff Evaluation

ASME OM Code, Section I-1350, requires Class 2 and 3 pressure relief valves to be tested on a 10-year interval, with the exception of PWR main steam safety valves, and that a minimum of 20 percent of a valve group be tested within any 48-month interval. A valve group is defined in Section I-1200, "Definitions" as "Valves of the same manufacturer, type, system application, and service media." A valve that has been determined to be one-of-a-kind and cannot be grouped is required to be tested every 48 months.

The published Code Case OMN-24 was approved by the ASME Operations and Maintenance Standards Committee on May 17, 2018, with the NRC representative voting in the affirmative on this Code Case. On February 2, 2021, NRC published the regulatory guides (RGs) proposed rule in the *Federal Register* (86 FR 7820) for public comments, the comment period ended on April 5, 2021. This proposed rule contains draft RG 1.192, Revision 4, which includes NRC approval of the Code Case OMN-24 without any conditions. The licensee proposed to adopt the language of the published Code Case OMN-24 in its entirety.

Code Case OMN-24 allows valves that are considered to be a group of one to be initially tested at a 48-month interval and if the as-found test is within acceptance criteria the next scheduled

test may be extended 24 months. This may be repeated until the valve reaches a maximum test interval of 10 years. Any valve that fails the as-found test shall have its test interval reduced by 24 months. The minimum required test frequency for this circumstance is a 24-month interval.

Based on the above, the NRC staff finds that extending the test interval of Class 2 and 3 safety relief valves in 2-year steps per interval with a maximum final interval of 10 years is acceptable. Extending or reducing the test interval in small increments is a reasonable approach in evaluating a component's performance over time. It will also help determine the best test interval for that component. The NRC staff finds that the licensee's proposed alternative to apply ASME OM Code Case OMN-24 provides an acceptable level of quality and safety.

#### 4.0 CONCLUSION

As described above, the NRC staff concludes that proposed Alternative Request ON-PRV-OMN-24 to utilize ASME OM Code Case OMN-24 as described in the licensee's letters dated July 29, 2021, and August 19, 2021, provides an acceptable level of quality and safety for the relief valve listed in Table 1. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

Therefore, the NRC staff authorizes proposed Alternative Request ON-PRV-OMN-24 for the implementation of ASME OM Code Case OMN-24 for the sixth 10-year IST program interval for ONS Units 1, 2, and 3.

All other ASME OM Code requirements for which relief or an alternative was not specifically requested and approved in the subject request remain applicable.

Principal Contributors: Jason Huang, NRR  
Gurjendra Bedi, NRR

Date: January 21, 2022

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 – PROPOSED  
ALTERNATIVE TO IMPLEMENT ASME CODE CASE OMN-24  
(EPID L-2021-LLR-0052) DATED JANUARY 21, 2022

DISTRIBUTION:

PUBLIC

LPLII-1 R/F

RidsACRS\_MailCtr Resource

RidsNrrPMOconee Resource

RidsNrrLAKGoldstein Resource

RidsNrrDorLp2-1 Resource

RidsRgn2MailCenter Resource

JHuang

GBedi

**ADAMS Accession No.: ML22019A135**

|        |               |               |                  |               |
|--------|---------------|---------------|------------------|---------------|
| OFFICE | NRR/LPL2-1/PM | NRR/LPL2-1/LA | NRR/DEX/EMIB/ABC | NRR/LPL2-1/BC |
| NAME   | SWilliams     | KGoldstein    | ITseng           | MMarkley      |
| DATE   | 1/20/2022     | 01/20/2022    | 1/18/2022        | 1/21/2022     |

OFFICIAL RECORD COPY