



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

August 19, 2020

Mr. Ernest J. Kapopoulos, Jr.
Site Vice President
H. B. Robinson Steam Electric Plant
Duke Energy Progress, LLC
3581 West Entrance Road, RNPA01
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2 – RELIEF REQUEST
RA-19-0428 FOR ONE-TIME PRESSURE RELIEF VALVE TEST FREQUENCY
EXTENSION (EPID-L-2019-LLR-0019)

Dear Mr. Kapopoulos:

By letter dated February 4, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20036F005), Duke Energy Progress, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for authorization of an alternative test plan in lieu of certain Inservice Testing (IST) Program requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), 2004 Edition through 2006 Addenda, for H.B. Robinson Steam Electric Plant, Unit 2 (Robinson), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a, "Codes and standards."

Specifically, pursuant to 10 CFR 50.55a(z)(2), the licensee submitted proposed alternative RA-19-0428 for a one-time extension of the test and replacement frequency for a pressure relief valve to the 32th refueling outage RO-32, which is scheduled to begin in November 2020, on the basis that compliance with the ASME OM Code relief valve required testing interval would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes use of RA-19-0428 at Robinson up to and including the 32th refueling outage, which is currently scheduled for the fall of 2024.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable, including the third-party review by the Authorized Nuclear Inservice Inspector.

E. Kapopoulos, Jr.

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If you have any questions, please contact the Project Manager, Andy Hon, at 301-415-8480 or Andrew.Hon@nrc.gov or Tanya Hood, at 301-415-1387 or Tanya.Hood@nrc.gov.

Sincerely,

Undine Shoop, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure:
Safety Evaluation

cc: Listserv



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST RA-19-0428 REGARDING

ONE-TIME PRESSURE RELIEF VALVE TEST FREQUENCY EXTENSION

DUKE ENERGY PROGRESS, LLC

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated February 4, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20036F005), Duke Energy Progress, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for authorization of an alternative test plan in lieu of certain Inservice Testing (IST) Program requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), 2004 Edition through 2006 Addenda, for H.B. Robinson Steam Electric Plant, Unit 2 (Robinson).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee submitted proposed alternative RA-19-0428 for a one-time extension of the test and replacement frequency for a pressure relief valve to refueling outage RO-32, which is scheduled to begin in November 2020, on the basis that compliance with the ASME OM Code relief valve required testing interval would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(f)(4), "Inservice testing standards requirement for operating plants," state, in part, that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, pumps and valves that are within the scope of the ASME OM Code must meet the IST requirements (except design and access provisions) set forth in the ASME OM Code and addenda that become effective subsequent to editions and addenda specified in 10 CFR 50.55a(f)(2) and (3) and that are incorporated by reference in 10 CFR 50.55a(a)(1)(iv), to the extent practical within the limitations of design, geometry, and materials of construction of the components. The current ASME OM Code of record for the IST Program at Robinson is the 2004 Edition through 2006 Addenda of the ASME OM Code as incorporated by reference in 10 CFR 50.55a, "Codes and standards."

The regulations in 10 CFR 50.55a(z) state that alternatives to the requirements of paragraphs (b) through (h) of 10 CFR 50.55a, or portions thereof, may be used when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and

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authorized prior to implementation. Section 50.55a(z)(2) of 10 CFR states that alternatives to the requirements of paragraphs (b) through (h) may be used when authorized by the NRC if the licensee demonstrates that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request, and the NRC to authorize, the proposed alternative requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Request

The licensee requests an alternative testing interval for a Code Class 3 Pressure Relief Valve CC-722B, Reactor Coolant Pump 'B' Thermal Barrier Outlet Relief Valve. The licensee references the following IST requirements of the ASME OM Code as incorporated by reference in 10 CFR 50.55a in its alternative request:

ASME OM Code (2004 Edition through 2006 Addenda), Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants," paragraph I-1350, "Test Frequency, Classes 2 and 3 Pressure Relief Valves," subparagraph (b), "Replacement with Pretested Valves," states:

The Owner may satisfy testing requirements by installing pretested valves to replace valves that have been in service, provided that

- (1) for replacement of a partial complement of valves, the valves removed from service shall be tested within 3 months of removal from the system or before resumption of electric power generation, whichever is later; or
- (2) for replacement of a full complement of valves, the valves removed from service shall be tested within 12 months of removal from the system.

3.1.1 Reason for Request

The licensee reports that the start of refueling outage RO-32 for Robinson, which was originally scheduled to begin on September 15, 2020, was rescheduled, and will now begin in November 2020. The reason for rescheduling the 2020 refueling outage was primarily due to a 23-day forced outage in 2019. As a result, pressure relief valve CC-722B, which is scheduled for testing during the outage, will exceed its ASME OM Code 10-year testing frequency on October 18, 2020.

Pressure relief valve CC-722B, 'B' Reactor Coolant Pump (RCP) thermal barrier outlet relief valve, is required to maintain Component Cooling Water (CCW) system pressure integrity by providing overpressure protection. Pressure relief valve CC-722B relieves excess pressure from the piping between 'B' RCP CCW inlet check valve CC-721B and RCP thermal bearing cooling water outlet isolation valve CC-735. To perform removal, testing, repairing (if needed), and reinstallation, pressure relief valve CC-722B must be isolated from the CCW System, and the line must be vented and/or drained. Exercising RCP thermal bearing cooling water outlet isolation valve CC-735 during power operation would result in a temporary loss of CCW flow to all three RCP thermal barrier coolers. This action increases the potential for RCP damage and

failure of this valve in the closed position will require that the unit be shut down and RCPs secured. Therefore, to satisfy Mandatory Appendix I, paragraph I-1350, for pressure relief valve CC-722B, Robinson must be in a Cold Shutdown (Mode 4) or Refueling (Mode 5) mode.

The licensee states that there are no planned plant shutdowns or outages of sufficient duration prior to the start of the rescheduled 2020 refueling outage to complete the necessary pressure relief valve testing. The licensee considers that requiring a plant shutdown or outage of sufficient duration solely to test pressure relief valve CC-722B within its ASME OM Code 10-year testing frequency results in an adverse impact on plant operation (an unplanned plant shutdown); and hardship or unusual difficulty without a compensating increase in the level of quality or safety.

3.1.2 Proposed Alternative

In lieu of the 10-year testing frequency requirements of the ASME OM Code, Mandatory Appendix I, paragraph I-1350, the licensee proposes a one-time extension of the testing frequency of pressure relief valve CC-722B to account for the rescheduled 2020 refueling outage. The short duration extension through the end of the 2020 refueling outage would allow Robinson to avoid implementing an unplanned plant shutdown solely to test pressure relief valve CC-722B within its ASME OM Code 10-year testing frequency.

Consistent with 10 CFR 50.55a(z)(2), the licensee indicates that this one-time extension request will allow Robinson to avoid undue hardship or unusual difficulty resulting from an unplanned shutdown. At the conclusion of the rescheduled 2020 refueling outage and the proposed testing extension, pressure relief valve CC-722B will have been replaced with a suitable pretested valve. The licensee states that the testing history for pressure relief valve CC-722B shows it has satisfactorily passed the two tests performed since 2001. The licensee considers that this satisfactory testing history provides reasonable assurance that pressure relief valve CC-722B will continue to safely operate during the requested period of the extension of the testing interval. The licensee reports that the Robinson testing history of similar pressure relief valves, CC-722A and CC-722C, have been satisfactory dating back to their last two inspections since the years 2008 and 2004, respectively.

The licensee requests the proposed alternative through the end of the 2020 refueling outage, currently scheduled to start in November 2020. The ASME OM Code required testing per Mandatory Appendix I, paragraph I-1350, for pressure relief valve CC-722B will be completed prior to plant startup from the 2020 refueling outage.

3.2 NRC Staff Evaluation

ASME OM Code (2004 Edition through 2006 Addenda), Mandatory Appendix I, paragraph I-1350, subparagraph (a), "10-Year Test Interval," states, in part, that Classes 2 and 3 pressure relief valves, with the exception of pressurized water reactor main steam safety valves, shall be tested every 10 years, starting with initial electric power generation. In lieu of performing the ASME OM Code testing at the prescribed interval, the licensee has proposed an extension of the required test interval to the next refueling outage scheduled to begin in November 2020. Specifically, the licensee proposes to extend the 10-year test interval on a one-time basis for pressure relief valve CC-722B to account for the delay in the start of the upcoming refueling outage.

The NRC staff has reviewed the historical performance data on pressure relief valve CC-722B,

with satisfactorily passing the two tests performed since 2001. The staff considers that the short extension of the required test interval from September 2020 to November 2020 will not result in an adverse impact of the capability of pressure relief valve CC-722B to perform its safety function. Therefore, the staff finds that the proposed alternative provides reasonable assurance of the operational readiness of pressure relief valve CC-722B for the duration of the proposed alternative. The staff considers that implementing a shutdown of Robinson shortly before its planned refueling outage to conduct testing of pressure relief valve CC-722B to meet the specified ASME OM Code test interval is not necessary because of the valve's successful operating history and the minimal test interval extension needed to the next refueling outage.

Based on the review of the information provided by the licensee, the NRC staff finds that allowing a one-time extension of the ASME OM Code 10-year test interval for pressure relief valve CC-722B will continue to provide reasonable assurance of the operational readiness of this valve during the test interval extension. The staff also finds that compliance with the specified ASME OM Code test interval for pressure relief valve CC-722B would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety, because of the need to shut down Robinson to conduct valve testing of before the next planned refueling outage later in 2020.

4.0 CONCLUSION

As set forth above, the NRC staff concludes that proposed alternative request RA-19-0428 provides reasonable assurance that pressure relief valve CC-722B at Robinson will remain operationally ready to perform its safety function during the short extension of the ASME OM Code test interval until the planned refueling outage scheduled to begin in November 2020. The staff finds that compliance with the specified ASME OM Code test interval would require a plant shutdown to conduct pressure relief valve CC-722B testing before the planned refueling outage later in 2020. This would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

All other ASME OM Code requirements for which relief or an alternative was not specifically requested and approved as part of this subject request remain applicable.

Principal Contributor: Jason Huang, NRR

Date: August 19, 2020

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RA-19-0428 FOR ONE-TIME PRESSURE RELIEF VALVE TEST FREQUENCY
EXTENSION (EPID-L-2019-LLR-0019) DATED AUGUST 19, 2020

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