



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

February 16, 2017

Mr. Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION – RELIEF REQUEST FOR ALTERNATIVE
4ISI-07 APPLICABLE TO THE FOURTH 10-YEAR INSERVICE INSPECTION
PROGRAM INTERVAL (CAC NO. MF7648)

Dear Mr. Reddemann:

By letter dated April 26, 2016 (Agencywide Documents Access and Management System Accession No. ML16117A508), Energy Northwest (the licensee) submitted a relief request to the U.S. Nuclear Regulatory Commission (NRC) for the use of an alternative to certain inservice inspection (ISI) requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code), Section XI, 2007 Edition through 2008 Addenda for the fourth 10-year ISI program at Columbia Generating Station (CGS).

The proposed alternative in Relief Request 4ISI-07 is to utilize a reduced VT-2 examination during the system pumps' operability tests and eliminate the 10-minute hold time requirement of the ISI ASME Code. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(2), the licensee requested the proposed alternative on the basis that complying with the specific requirement would result in unnecessary hardship or unusual difficulty without a compensating increase in the 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 all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the licensee's proposed alternative of a reduced VT-2 examination and elimination of the 10-minute hold time for the duration of the fourth 10-year ISI interval at CGS. This ISI interval commenced on December 13, 2015, and will end on December 12, 2025.

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

M. Reddemann

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If you have any questions regarding this matter, please contact the NRC project manager, John Klos at (301) 415-5136 or via e-mail at John.Klos@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "R. J. Pascarelli".

Robert J. Pascarelli, Branch Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST FOR ALTERNATIVE 4ISI-07

REGARDING REDUCED VT-2 EXAMINATION AND HOLD-TIME

ELIMINATION FOR THE STANDBY LIQUID CONTROL SYSTEM

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated April 26, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16117A508), Energy Northwest (the licensee) submitted Relief Request 4ISI-07 to the U.S. Nuclear Regulatory Commission (NRC). The licensee proposed an alternative to certain inservice inspection (ISI) requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code), Section XI, 2007 Edition through 2008 Addenda for the fourth 10-year ISI program at Columbia Generating Station (CGS).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(2), the licensee requested to use the proposed alternative on the basis that the alternative provides reasonable assurance that the components retain structural integrity, and that compliance with the ASME Code, Section XI requirements would result in unnecessary hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 REGULATORY EVALUATION

The regulations in 10 CFR 50.55a(g), "Inservice inspection requirements," requires, in part, that ISI of certain ASME Code Class 1, 2, and 3 components must meet the requirements of ASME Code, Section XI and applicable addenda, except where alternatives have been authorized by the NRC pursuant to paragraphs (z)(1) or (z)(2) of 10 CFR 50.55a.

In proposing alternatives, a licensee must demonstrate that: (1) the proposed alternative provides an acceptable level of quality and safety (10 CFR 50.55a(z)(1)); (2) 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)). Section 50.55a of 10 CFR allows the NRC to authorize alternatives to ASME Code, Section XI requirements upon making necessary findings.

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 Commission to grant the relief requested by the licensee.

Enclosure

3.0 TECHNICAL EVALUATION

The applicable ASME Code, Section XI is the 2007 Edition through 2008 Addenda.

3.1 Applicable Code Requirements

The applicable ASME Code, Section XI requirements for system pressure tests are contained in Article IWA-5000, "System Pressure Tests," Subarticle IWA-5200, "System Test Requirement," Paragraph IWA-5213, "Test Condition Holding Time." Subparagraph IWA-5213(a)(2) states that "[f]or Class 2 (IWC-2500-1, Examination Category C-H) and Class 3 (IWD-2500-1, Examination Category D-B) components not required to operate during normal plant operation, a 10 min holding time is required after attaining test pressure."

3.2 Components for Which Relief is Requested

The components affected by this request are the Class 2 piping segments from the standby liquid control (SLC) pumps 1A and 1B to valves SLC-V-3A and SLC-V-3B, and to relief valves SLC-RV-29A and SLC-RV-29B.

The SLC system consists of two loops, A and B. The scope of this request for each loop consists of approximately 5½ feet of 1 inch and 1½-inch schedule 80S SA 312 TP304 pipe, one 1-inch relief valve, one 1½-inch check valve, and one 1½-inch gate valve. The components are not insulated and the design conditions for the affected piping are 1400 per square inch gauge (psig) for the segment downstream of SLC-P-1A and SLC-PC-1B, and 150 psig upstream of SLC-P-1A, and SLC-PC-1B.

3.3 Licensee's Reason for Request

The relief request is to eliminate a 10-minute hold time requirement of IWA-5213(a)(2) for the small segment of the SLC system that cannot be pressurized using a hydro pump. The use of a hydro pump would require disconnecting pumps SLC-P-1A and SLC-P-1B and installing blind flanges with fittings, or a major system modification would be required to install a test connection on the affected piping portion of the system.

In lieu of using a hydro pump, the licensee proposed to perform the VT-2 examination when SLC-P-1A and SLC-P-1B are started for their respective pump operability test. The section of the SLC system subject to this pressure test contains a small volume of fluid, which is circulated through 1-inch, 1½-inch, 3-inch, and 4-inch nominal pipe size (NPS) pipes and a 210 gallon capacity test tank during the operability test. Since the small circulated volume of fluid heats up rapidly during the operability test, the pumps are run for approximately 3 to 5 minutes. A longer running time would cause erratic pump discharge and chattering of relief valves SLC-RC-29A and SLC-RC-29B. Chattering of these relief valves has caused damage to the seating surfaces.

As such, the licensee states that compliance with the 10-minute hold time requirement produces a higher potential of the relief valves being damaged so that they will not meet their functional requirements (test point) requiring repair or replacement of the valves.

3.4 Licensee's Proposed Alternative and Basis for Use

The proposed alternative to the 10-minute hold time required by IWA-5213(a)(2), is to perform the VT-2 examination when SLC-P-1A and SLC-P-1B are started for their respective pump operability test. The pump operability test runs each pump for approximately 3-5 minutes. In addition, the VT-2 examiner will continually observe each section of piping during the entire time the pump is operating for the pump operability test. During the test, the system pressure rapidly increases to the 1240 psig operating pressure when the pump starts. The high VT-2 test pressure (1240 psig) would reveal any through wall discontinuities in the uninsulated piping, thus providing reasonable assurance of structural integrity without implementing the 10-minute hold time required by IWA-5213(a)(2).

Note that a similar alternative request has been authorized for the third 10-year ISI program at CGS by the NRC, in a letter dated March 19, 2007 (ADAMS Accession No. ML070650661).

3.5 NRC STAFF EVALUATION

The system pressure tests are normally performed by use of a hydro pump and a 10-minute holding time as required by IWA-5213(a)(2). However, for the small piping segments of the SLC system, described in Section 3.3 of this safety evaluation, the system pressure test cannot be performed using a hydro pump. Use of a hydro pump would require disconnecting Pumps SLC-P-1A and SLC-P-1B and installing blind flanges with fittings, or a major system modification would be required to install a test connection(s) on the affected portion of the system. Therefore, imposing the Code requirements would be considered a hardship or unusual difficulty for the licensee.

In lieu of using a hydro pump, the licensee proposed to perform the VT-2 examination when SLC-P-1A and SLC-P-1B are started for their respective pump operability test. The section of the SLC system subject to this pressure test contains a small volume of fluid, which is circulated through 1-inch, 1½-inch, 3-inch, and 4-inch NPS pipes and a 210 gallon capacity test tank during the operability test. Since the small circulated volume of fluid heats up rapidly during the operability test, the pumps can only be run for approximately 3 to 5 minutes. Longer running time would cause erratic pump discharge and chattering of relief valves SLC-RC-29A and SLC-RC-29B. Chattering of these relief valves has caused damage to the seating surfaces, and produces a higher potential of the relief valves being damaged causing unnecessary repair or replacement of the valves. Therefore, it is not practicable to perform the pump operability test longer than 3 to 5 minutes. However, to ensure that any through wall discontinuities be readily detected in 3 to 5 minutes, the licensee proposed that the VT-2 examiner would continually observe the entire affected small piping section during the entire time the pump is operating.

On the basis that the system pressure rises rapidly to 1240 psig as soon as the pump starts, the NRC staff finds that this high VT-2 test pressure along with continual observation of a small piping segment should reveal immediately any through wall discontinuities or leaks in the uninsulated piping section.

Therefore, the NRC staff concludes that the licensee's proposal to perform continual VT-2 examination of a small section of uninsulated piping for 3-5 minutes provides adequate assurance that significant degradation, if occurring, will be detected, thus providing reasonable assurance of structural integrity.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative 4ISI-07 provides reasonable assurance of structural integrity or leak tightness of the SLC piping and that complying with the specified ASME Code requirement 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 all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2) and, therefore, authorizes the licensee's proposed alternative of a reduced VT-2 examination and elimination of the 10-minute hold time for the duration of the fourth 10-year ISI interval at CGS. This ISI interval commenced on December 13, 2015, and will end on December 12, 2025.

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

Principal Contributor: John Huang, NRR

Date: February 16, 2017

