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April 28, 2005
GO2-05-081

10 CFR 50.55a

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397 REQUEST TO IMPLEMENT 2ISI-29 ADDRESSING ASME SECTION XI, IWA-5213, TEST CONDITION HOLDING TIMES, FOR THE SECOND INSERVICE INSPECTION INTERVAL**

REFERENCE: Letter dated November 22, 2004 from DK Atkinson (Energy Northwest) to US Nuclear Regulatory Commission, same subject

Dear Sir or Madam:

In the referenced letter, pursuant to 10 CFR 50.55a(g)(5)(iii), Energy Northwest requested NRC approval to implement 2ISI-29 for the second inservice inspection interval. Specifically, Energy Northwest proposed a change to the hold time required by IWA-5213 for the pressure test performed on a segment of the Code Class 2 Standby Liquid Control (SLC) system. A few corrections were made to the 10 CFR 50.55a request which is enclosed as revised and the corrections are identified by revision bars in the document margins.

Energy Northwest requests approval of 2ISI-29 by June 15, 2005 to support scheduling of the pressure test prior to the end of the inspection interval on December 12, 2005.

If you have any questions or require additional information regarding this matter, please contact DW Coleman, Regulatory Programs Manager at (509) 377-4342.

Respectfully,

D.K. Atkinson acting for

WS Oxenford
Vice President, Technical Services
Mail Drop PE04

Enclosure: 10 CFR 50.55a Request Number 2ISI-29

cc: BS Mallett - NRC RIV
BJ Benney - NRC NRR
NRC Sr. Resident Inspector - 988C
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A047

10 CFR 50.55A REQUEST NUMBER 2ISI-29

Proposed Alternative
In Accordance with 10 CFR 50.55a(g)(5)(iii)

- Inservice Inspection Impracticality -

1. ASME Code Components Affected

The components affected by this request are in Examination Category C-H "All Pressure Retaining Components", Item Numbers C7.40 "Piping," C7.60 "Pumps," and C7.80 "Valves" for the standby liquid control (SLC) system. The portion of the ASME Section III Code Class 2 SLC system included in this request is from the 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. See attached piping diagram and isometric drawings for location of components affected.

The SLC system is designed to perform a once through injection of boron solution into the reactor pressure vessel (RPV) to bring reactivity to zero in the event the control rods are unable to insert. To confirm the operability of the system a functional test is performed on a quarterly basis by circulating demineralized water within the system. The system is pressurized to approximately 1240 psig during this test.

The SLC system consists of two loops, A and B. The scope of this request for each loop consists of approximately 5-1/2 feet of 1-inch and 1-1/2-inch schedule 80S SA 312 TP304 pipe, one 1-inch relief valve, one 1-1/2-inch check valve, and one 1-1/2-inch gate valve. Further details are shown on the attached isometric drawings.

The components are not insulated.

Design conditions

- Downstream of SLC-P-1A, 1B 1400 psig
- Upstream of SLC-P-1A, 1B 150 psig

2. Applicable ASME Section XI Code

ASME Section XI Code Case N-498-4.
This Code Case has been approved for use in Regulatory Guide 1.147, Revision 13 (January 2004) with the provision that IWA-5213, "Test Condition Holding Times" of ASME Section XI 1989 Edition be used.

ASME Section XI 1989 Edition.

3. Applicable Code Requirement

Columbia uses Code Case N-498-4 as an alternate rule to Table IWC-2500-1, Category C-H hydrostatic pressure tests. The pressure test for item numbers C7.40, C7.60, and C7.80 is defined in Code Case N-498-4. In accordance with NRC approved conditions for use of this Code Case, the pressure test requires a hold time of 10 minutes in accordance with IWA-5213 prior to performing the VT-2 examinations.

The ASME Section XI hydrostatic pressure test of the SLC pump discharge piping is performed at Columbia by two methods. The system downstream of valves SLC-V-3A and SLC-V-3B uses a hydro pump to pressurize the system. After a ten-minute hold time the VT-2 visual examination is performed. Gate valves SLC-V-3A and SLC-V-3B are used to isolate the portion of the system upstream of the pumps (design pressure of 150 psig) from the higher downstream pressure (design pressure 1400 psig). The remaining portion of the discharge piping from the pumps to valves SLC-V-3A and SLC-V-3B is pressurized in accordance with Code Case N-498-4 during the quarterly SLC functional test and VT-2 performed. It is not possible to pressurize this portion of the system with the hydro pump without disconnecting the pumps from the system and installing blind flanges with fittings to connect the hydro pump to. This would involve major maintenance on the system and is not considered prudent to perform for this visual examination.

4. Impracticality of Compliance

This 10 CFR 50.55a request is to eliminate the 10-minute hold time requirement of IWA-5213 for the small segment of the SLC system that cannot be pressurized using the hydro pump.

The code requirement for a 10-minute hold time prior to performing the VT-2 visual examination is impractical in this case, because the hold time increases the potential of damage to relief valves SLC-RV-29A and SLC-RV-29B. The section of the SLC system subject to this pressure test contains a small volume of fluid, which is circulated through 1-inch, 1-1/2-inch, 3-inch, and 4-inch NPS pipe and a small test tank (210 gallon capacity). The pump suction pressure is approximately 50 psig and the pump discharge pressure is approximately 1240 psig. The system test fluid (demineralized water) rapidly heats up causing chattering of the system relief valves and erratic pump discharge.

Relief valves SLC-RV-29A and SLC-RV-29B have experienced frequent set point failures. Investigation into the frequent failures of relief valves SLC-RV-29A and SLC-RV-29B to meet their set points concluded that excess operation of the SLC system during the quarterly functional test leads to relief valve chatter, which damages the sealing surfaces. Damaged sealing surfaces prevent the relief valves from meeting

their set point requirement. Procedure enhancements made after this investigation have significantly reduced the valves' failure rate. These enhancements include limiting the time of operation during the system functional test. To reduce the likelihood of damage to the relief valves, the system is now normally operated for 3 to 5 minutes during the functional test. If the functional test cannot be completed in this time frame, the system is allowed to cool and restarted to continue the test. Prior to the procedure enhancements, SLC-RV-29A failed 2 of its 5 tests in a five-year period (1990-1995). During the same five-year period, SLC-RV-29B failed in 4 of its 5 tests. Since making the procedure changes in 1996, there have been two failures of SLC-RV-29A and one failure to SLC-RV-29B. The three failures occurred with the valves that were installed during the functional tests when the ASME Section XI first and second inspection period VT-2 examinations where performed. For these examinations the system was in operation for greater than 10 minutes due to the 10-minute hold time requirement. Running the system during the functional test for the length of time to meet the 10-minute hold time increases the potential to damage the relief valve sealing surface resulting in set point failure.

5. Burden Caused by Compliance

The burden caused by compliance to the 10-minute hold time is the higher potential of the relief valves being damaged so that they will not meet their functional requirements (set point). This results in operating with incorrect set points and requiring repairs to the valves.

6. Proposed Alternative and Basis for Use

The proposed alternative to the 10-minute hold time required by IWA-5213 "Test Condition Holding Time" is to perform the VT-2 during the 3-5 minute operating time without implementing a hold time for this small section of piping. In addition, the VT-2 examiner will continually observe this section of piping during the entire time the pump is operating (approximately 3-5 minutes).

The system pressure rapidly increases to the 1240 psig operating pressure when the pump starts. The high VT-2 test pressure (1240 psig) should reveal any through wall discontinuities rapidly thus providing reasonable assurance of structural integrity without implementing the 10-minute hold time required by IWA-5213.

7. Duration of Proposed Alternate

The duration of this alternate will be for the second inspection interval that ends December 12, 2005.