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L-16-317

10 CFR 50.55a

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

SUBJECT:
Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Proposed Alternative VRR5 to Delay Valve Test

Pursuant to 10 CFR 50.55a(z)(2), FirstEnergy Nuclear Operating Company (FENOC) hereby requests approval of the enclosed proposed alternative to perform an as-found set-pressure test of the residual heat removal system relief valve at the next scheduled maintenance and refueling outage. The test is associated with the fourth 10-year interval of the Beaver Valley Power Station, Unit No. 1, inservice testing program for pumps and valves.

FENOC requests approval of the enclosed alternative by October 27, 2017. There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at (330) 315-6810.

Sincerely,

Marty L. Richey

Enclosure:
Beaver Valley Power Station, Unit No. 1, 10 CFR 50.55a Request Number VRR5, Revision 0

cc: NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
Director BRP/DEP
Site BRP/DEP Representative

Enclosure
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Beaver Valley Power Station, Unit No. 1,
10 CFR 50.55a Request Number VRR5, Revision 0

(3 Pages Follow)

Proposed Alternative In Accordance with 10 CFR 50.55a(z)(2)
-- Hardship Without a Compensating Increase in Quality and Safety –

1. ASME Code Components Affected

RV-1RH-721 Residual Heat Removal (RHR) Pump Relief Valve (Class 2, Category C)

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, 2001 Edition, with Addenda through OMb-2003

3. Applicable Code Requirements

Mandatory Appendix I, I-1350, "Test Frequency, Class 2 and 3 Pressure Relief Valves," Paragraph (c), "Requirements for Testing Additional Valves," states in part:

> Additional valves shall be tested in accordance with the following requirements.
>
> (1) For each valve tested for which the as-found set-pressure (first test actuation) exceeds the greater of either the ±tolerance limit of the Owner-established set-pressure acceptance criteria of I-1310(e) or ±3% of valve nameplate set-pressure, two additional valves shall be tested from the same valve group.

4. Reason for Request

Charging system letdown relief valve RV-1CH-203 has a cold differential test pressure (CDTP) of 606 pounds per square inch gauge (psig) with an upper acceptable limit of plus 3 percent or 624 psig. The CDTP is a temperature compensated test pressure used to account for the difference between the ambient temperature at the test stand and the higher temperature at the tested valve's installed location in the plant. During the 24th Beaver Valley Power Station, Unit No. 1 (BVPS-1), maintenance and refueling outage (1R24) when RV-1CH-203 was tested on the test stand at ambient conditions, the relief valve lifted at 631.7 psig, which was 4.25 percent above its CDTP. This exceeded the plus 3 percent limit specified in Paragraph I-1350(c)(1) requiring the only other valve in the sample group, RV-1RH-721, to be tested. However, because the ASME OM Code, Appendix I, Paragraph I-1350(c)(1) allows for the owner to establish set-pressure acceptance criteria (a plus or minus tolerance limit), a limit of plus 5 percent was calculated after the valve exceeded the plus 3 percent limit specified in the ASME OM Code. Relief valve RV-1CH-203 test results were within the plus 5 percent acceptance criteria. Therefore, valve RV-1RH-721 was not tested. When it was determined that FENOC was not permitted to provide an owner specified limit after the valve was tested, the plant lineup was being established for plant startup with the reactor core fully loaded with fuel.

Testing of RV-1RH-721 cannot be performed in-place. The relief valve must be removed from the system and tested on a test stand. In order to remove and test RV-1RH-721, the RHR system would have to be shut down and the entire system drained. This is normally performed when the RHR system is not required to be in operation, which is when fuel is removed from the reactor core.

Based on the plant lineup and the need to remove the valve from the system to perform the test, the sample size could not be expanded as required and is not in compliance with the ASME OM Code. Therefore, a delay is proposed to test RV-1RH-721 during the 25th BVPS-1 maintenance and refueling outage (1R25) when fuel is removed from the core (1R25 is scheduled for the spring of 2018). To unload the reactor core in order to test RV-1RH-721 provides a hardship without a compensating increase in quality and safety.

5. Proposed Alternative and Basis for Use

The proposed alternative is to delay testing of relief valve RV-1RH-721 until 1R25. At that time, the RHR system can be drained, and RV-1RH-721 can be tested.

Valve RV-1RH-721 is considered operationally ready until tested during 1R25 for the following reasons:

1) A work order history review shows that two different serial-numbered (S/N) valves have been swapped in and out of the installed location for RV-1RH-721 as follows:

1R11 (April 1996)	S/N 53237M1 installed (set at 610 psig)
1R13 (March 2000)	S/N 53237M1 removed (as-found set at 616 psig), and S/N N69973-01-0001 installed (set at 608 psig)
1R15 (March 2003)	S/N N69973-01-0001 removed (as-found set at 510 psig due to leakage), and S/N 53237M1 installed (set at 610 psig)
1R17 (January 2006)	S/N 53237M1 removed (as-found set at 603 psig), and S/N N69973-01-0001 installed (set at 610 psig)
1R20 (October 2010)	S/N N69973-01-0001 removed (as-found set at 611.2 psig), and S/N 53237M1 installed (set at 606 psig)

The setpoint testing listed above was performed on a test stand at ambient conditions.

The preceding data shows that valve S/N N69973-01-0001 has drifted high approximately 2 psig over a 3 to 4 year period while valve S/N 53237M1 has drifted high approximately 6 psig over a 4 year period. If the approximate 6 psig high drift for valve S/N 53237M1 is extrapolated over a 7.5 year period from 1R20 to 1R25, RV-1RH-721 would be expected to lift no higher than 618 psig. Therefore, based on past performance, there is reasonable assurance that RV-1RH-721 would not lift greater than plus 3 percent above its set-pressure when tested during the next maintenance and refueling outage.

2) Other than a three-year period from 1R13 to 1R15 when the valve was found to lift low due to leakage, RV-1RH-721 has shown a history of consistent performance. Therefore, there is reasonable assurance that valve RV-1RH-721 will continue to be operationally ready until the next scheduled test during 1R25. Further, the test

interval from 1R20 to 1R25 (7.5 years) is conservatively shorter than the maximum 10-year test interval requirement of ASME OM Code, Mandatory Appendix I, Paragraph I-1350(a).

In addition, during operation at power, a surveillance verification log monitors annunciator window A1-125, "Residual Heat Removal Pump Discharge Pressure HIGH." This annunciator alarms if pressure reaches 550 psig and provides corrective actions to take in accordance with an alarm response procedure. The corrective actions would relieve pressure before it reaches the RV-1RH-721 set-pressure of 600 psig.

The proposed alternative to ASME OM Code, Mandatory Appendix I, Paragraph I-1350(c) would delay the test of relief valve RV-1RH-721 until 1R25. Therefore, there is reasonable assurance that relief valve RV-1RH-721 will continue to be operationally ready until 1R25.

6. Duration of Proposed Alternative

The proposed alternative is requested for use during the remainder of the fourth 10-year inservice test interval.