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L-11-023

10 CFR 50.55a

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

SUBJECT:
Beaver Valley Power Station, Unit Nos. 1 and 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
10 CFR 50.55a Request (VRR5) Regarding Turbine Driven Auxiliary Feedwater Valve Test Frequency

In accordance with 10 CFR 50.55a, FirstEnergy Nuclear Operating Company (FENOC) requests Nuclear Regulatory Commission (NRC) approval of proposed alternatives for the Beaver Valley Power Station (BVPS), Unit No.1 fourth interval Inservice Testing Program for Pumps and Valves (IST Program) and the BVPS, Unit No. 2 third interval IST Program. The proposed alternative is associated with full-stroke open exercise tests of turbine driven auxiliary feedwater pump discharge valves.

In support of the spring 2012 refueling outage, FENOC requests approval of the proposed requests by March 14, 2012.

There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Thomas A. Lentz, Manager - Fleet Licensing, at 330-761-6071.

Sincerely,

Paul A. Harden

Enclosure:
10 CRF 50.55a Request Number: VRR5, Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(ii)

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

Proposed Alternative
in Accordance with 10 CFR 50.55a(a)(3)(ii)

--Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety--

1.0 ASME Code Components Affected

1FW-33, Turbine-Driven Auxiliary Feedwater Pump (TDAFWP) Discharge Check Valve (Class 3, Category C)

2FWE*FCV122, TDAFWP Discharge Check and Recirculating Valve
(Class 3, Category B/C)

2.0 Applicable Code Edition and Addenda

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

3.0 Applicable Code Requirement

ISTC-3510, "Exercising Test Frequency," states in part: "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months…"

4.0 Reason for Request

2FWE*FCV122 is a three-way automatic recirculation control valve that acts as both a manual automatic flow control valve in one direction and a check valve in the other direction. 1FW-33 is a check valve only. Both 2FWE*FCV122 and 1FW-33 are normally closed during plant operation and are required to open in order to allow auxiliary feedwater flow to the steam generators (SGs) during an accident. The relatively cold auxiliary feedwater is drawn from a demineralized water storage tank, which is not routinely treated for pH or oxygen control.

In accordance with ISTC-5221, "Valve Obturator Movement," and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Revision 1, Section 4.1.3, "Full Flow Testing of Check Valves," a full-stroke exercise in the open direction may be achieved by passing the maximum required accident condition flow through the valve. A full-stroke open exercise of these check valves can only be performed when auxiliary feedwater flow is aligned to the SGs during the full-flow (comprehensive pump) test of the TDAFWP. The TDAFWP full-flow test can only be performed in Modes 1, 2, or 3 because steam from any of the three SGs is required to drive the pump.

The following information describes why aligning auxiliary feedwater flow to the SGs in order to perform a full-stroke exercise test in the open direction on a three-month frequency results in hardship:

a) The introduction of relatively cold auxiliary feedwater into the SGs produces a potential for thermal shock to both the main feed piping (thermal sleeves) and the secondary side of the SGs. Although the thermal sleeves and SGs are designed for thermal shock, exposure to such events should be minimized in order to ensure the benefits of plant life extension are realized.
b) Feeding the SGs with a large volume of relatively cold water could also result in a large level transient in the SGs and could cause a reactor trip. Therefore, in order to avoid a reactor trip, it is necessary to reduce reactor power to 97 percent or less, which places additional burden on plant operators.
c) The TDAFW pumps receive their suction from a demineralized water storage tank. The water in these demineralized water storage tanks is not routinely treated for pH or oxygen control, which could impact the corrosion rates in the secondary system. From a chemistry perspective, based on the lack of oxygen control in this water source, it is prudent to minimize the use of this water while in Modes 1, 2, or 3.

5.0 Proposed Alternative and Basis for Use

Per ISTC-3522(c), “Category C Check Valves,” "If exercising is not practicable during operation at power and cold shutdown, it shall be performed during refueling outages." Because it has been considered not practicable to perform during operation at power and cold shutdown, the quarterly testing of valves 1FW-33 and 2FWE*FCV122 required by ISTC-3510 has, to date, only been performed at a refueling outage frequency, in Mode 3, during startup.

On the basis of an analysis performed by Westinghouse in September 2010, “Beaver Valley Units 1 and 2 Transient Analysis of at Power Auxiliary Feedwater Functional Test – Final Report,” performance of the test during power operation is now considered acceptable at an initial power level no greater than 97 percent.

Although testing during power operation has been determined to be acceptable, FENOC desires to test the pump and associated discharge check valve at the two-year frequency. As an alternative to the testing required at a nominal quarterly frequency by ISTC-3510, FENOC proposes to perform full-stroke exercises of valves 1FW-33 and 2FWE*FCV122 in the open direction when auxiliary feedwater flow is aligned to the SGs during the full-flow (comprehensive pump) test of the TDAFWP, to be performed once every two years.

A review of the Beaver Valley Power Station, Unit Nos. 1 and 2 Inservice Testing Programs trending database indicated that over the past 10 years, these valves have consistently passed the full-stroke exercise test in the open direction. Testing at a refueling outage frequency has been adequate to demonstrate the continued reliability and acceptable operation of the valves. Testing these check valves during power operation at the nominal quarterly frequency required by ISTC-3510 would result in the hardship described above, without a compensating increase in the level of quality and safety.

6.0 Duration of Proposed Alternative

The proposed alternatives identified in this relief request shall be utilized during the remainder of the BVPS Unit No. 1 fourth 10-Year Inservice Test Interval, which began on September 20, 2007 and the BVPS Unit No. 2 third 10-Year Inservice Test Interval, which began on November 18, 2007.

7.0 References

Westinghouse Report, Beaver Valley Units 1 and 2 Transient Analysis of at Power Auxiliary Feedwater Functional Test, LTR-PCSA-10-5, dated September 2, 2010.