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September 3, 2004  
L-04-117

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

**Subject: Beaver Valley Power Station, Unit No. 1  
BV-1 Docket No. 50-334, License No. DPR-66  
Inservice Testing Program, Proposed Revision 1L**

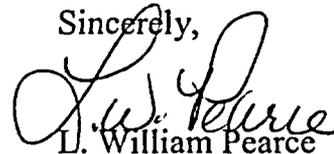
Attached for NRC review and approval is proposed Revision 1L to the Beaver Valley Power Station Unit 1 (BVPS-1) Inservice Testing (IST) Program. The proposed revision converts the present Pump Cold Shutdown Justification No. 2 for the Motor-Driven Auxiliary Feedwater Pumps into Pump Relief Request No. 9, and the present Pump Refueling Outage Justification No. 3 for the Turbine-Driven Auxiliary Feedwater Pump into Pump Relief Request No. 10.

This action is being taken as requested by the NRC during a conference call held on June 28, 2004. The proposed revision is being submitted for NRC review and approval in accordance with 10 CFR 50.55a(f)(5)(iii).

This relief is requested for the duration of the current ten-year testing interval. BVPS-1 is in its third ten-year testing interval using the 1989 Edition of ASME Code, Section XI.

There are no new regulatory commitments contained in this letter. If you have any questions concerning this matter, please contact Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement at 724-682-5284.

Sincerely,



L. William Pearce

Attachment

c: Mr. T. G. Colburn, NRR Senior Project Manager  
Mr. P. C. Cataldo, NRC Sr. Resident Inspector  
Mr. S. J. Collins, NRC Region I Administrator

A047

# Beaver Valley Power Station

## Unit 1

### INSERVICE TESTING (IST) PROGRAM FOR PUMP AND VALVES

#### Proposed Revision 1L

Preparer <i>[Signature]</i>	Date: 7/8/04
IQR (RAD #04-02173-00) <i>Joann H. West</i>	Date: 7-26-04
Owner Approval <i>[Signature]</i>	Date: 7-27-04
Approval Authority <i>[Signature]</i>	Date: 7/28/04

This "Proposed Revision" was made against Revision 11 of the present Unit 1 IST Program.

(PROPOSED REVISION 1L)

**PUMP RELIEF REQUEST 9**

**Pump No(s):** 1FW-P-3A **Code Class: 2**  
1FW-P-3B

**System:** 24 – Auxiliary Feedwater

**Function:** During any loss of normal feedwater flow, the Motor-Driven Auxiliary Feedwater Pumps are required to transfer a source of emergency make-up water from the Demineralized Water Storage Tank or, as a backup, from the River Water System to the Steam Generators.

**Test Requirement:** Per OM-6, Paragraph 5.2, "Test Procedure", and Table 2, "Inservice Test Parameters", flow rate shall be determined and recorded.

**Basis for Relief:** In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that compliance with the Code requirement above is impractical.

Aligning auxiliary feedwater flow to the Steam Generators is not practical during normal plant operation because the introduction of relatively cold auxiliary feedwater into the Steam Generators produces a potential for thermal shock to both the main feed piping (thermal sleeves) and the secondary side of the Steam Generators. Although the thermal sleeves and Steam Generators are designed for thermal shock, the exposure of the Station to these events shall be minimized in order to ensure that the benefits of plant life extension can be realized. In addition, feeding the Steam Generators with relatively cold water would also result in a large level transient in the Steam Generators and could cause a reactor trip. Therefore, it is impractical to test these pumps using this flow path during normal plant operation. In order to test these pumps quarterly, a recirculation flow path must be used. However, this flow path does not have installed flow instrumentation that meets ASME XI requirements.

Position 9 of Generic Letter 89-04 states, "In cases where flow can only be established through a non-instrumented minimum-flow path during quarterly pump testing and a path exists at cold shutdowns or refueling outages to perform a test of the pumps under full or substantial flow conditions, the staff has determined that the increased interval is an acceptable alternative to the Code requirements provided that pump differential pressure, flow rate, and bearing vibration measurements are taken during this testing and that quarterly testing also measuring at least pump differential pressure and vibrations is continued."

**Alternate Test:** These pumps will be tested quarterly using the recirculation flow path while measuring delta-p and vibrations per 1OST-24.2 and 3 (Motor-Driven Auxiliary Feedwater Pump Tests), with flow assumed to be fixed and at its reference value. They will also be tested during cold shutdowns and refueling outages (not more often than once every 92 days) when plant conditions permit directing flow to the Steam Generators. Full flow will be measured using the flow instrumentation in the Steam Generator supply headers while also measuring delta-p and vibrations per 1OST-24.8A and 8B (Motor-Driven Auxiliary Feedwater Pump Check Valve and Full-Flow Tests). Separate

## **PUMP RELIEF REQUEST 9**

**Alternate Test:** delta-p and vibration reference and acceptance criteria values will be used for the different test conditions of the recirculation and full-flow tests. Also note that 1OST-24.8A and 8B may be performed in lieu of the quarterly tests, 1OST-24.2 and 3, if their scheduled performances coincide.

**References:** OM-6, Paragraph 5.2 and Table 2.  
Generic Letter 89-04, Position 9.

(PROPOSED REVISION 1L)

**PUMP RELIEF REQUEST 10**

**Pump No(s):** 1FW-P-2 **Code Class: 2**

**System:** 24 – Auxiliary Feedwater

**Function:** During any loss of normal feedwater flow, the Turbine-Driven Auxiliary Feedwater Pump is required to transfer a source of emergency make-up water from the Demineralized Water Storage Tank or, as a backup, from the River Water System to the Steam Generators.

**Test Requirement:** Per OM-6, Paragraph 5.2, "Test Procedure", and Table 2, "Inservice Test Parameters", flow rate shall be determined and recorded.

**Basis for Relief:** In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that compliance with the Code requirement above is impractical.

Aligning auxiliary feedwater flow to the Steam Generators is not practical during normal plant operation because the introduction of relatively cold auxiliary feedwater into the Steam Generators produces a potential for thermal shock to both the main feed piping (thermal sleeves) and the secondary side of the Steam Generators. Although the thermal sleeves and Steam Generators are designed for thermal shock, the exposure of the Station to these events shall be minimized in order to ensure that the benefits of plant life extension can be realized. In addition, feeding the Steam Generators with relatively cold water would also result in a large level transient in the Steam Generators and could cause a reactor trip. Therefore, it is impractical to test this pump using this flow path during normal plant operation. In order to test this pump quarterly, a recirculation flow path must be used. However, this flow path does not have installed flow instrumentation that meets ASME XI requirements.

Position 9 of Generic Letter 89-04 states, "In cases where flow can only be established through a non-instrumented minimum-flow path during quarterly pump testing and a path exists at cold shutdowns or refueling outages to perform a test of the pumps under full or substantial flow conditions, the staff has determined that the increased interval is an acceptable alternative to the Code requirements provided that pump differential pressure, flow rate, and bearing vibration measurements are taken during this testing and that quarterly testing also measuring at least pump differential pressure and vibrations is continued."

As stated above, Generic Letter 89-04 requires full flow testing during cold shutdowns or refueling outages. Note that full-flow testing of the Turbine-Driven Auxiliary Feedwater Pump can only be performed in Mode 3 because the pump requires steam from any of three Steam Generators to drive the pump. In addition, it is not desired to test the pump during cold shutdowns, but rather only in Mode 3 during shutdown or during startup after a refueling outage for the following reasons.

In Mode 3, the introduction of relatively cold auxiliary feedwater into the Steam Generators produces a potential for thermal shock to both the main feed piping (thermal sleeves) and the secondary side of the Steam Generators. Although

## **PUMP RELIEF REQUEST 10**

**Basis for Relief:** the thermal sleeves and Steam Generators are designed for thermal shock, the exposure of the Station to these events shall be minimized in order to ensure that the benefits of plant life extension can be realized.

As stated above, this pump takes suction from the Demineralized Water Storage Tank. The water in the Demineralized Water Storage Tank is not treated for pH or Oxygen, therefore, it could have some impact on the corrosion rates in the Steam Generators. For this reason from a Chemistry perspective, it is preferred to minimize the use of this water while in Modes 1, 2, or 3.

In addition during startup, this test can only be performed once the steam pressure exceeds 600 psig. Testing at this time during startup causes a temperature transient. The turbine draws steam from the Steam Generators, causing the Reactor Coolant System (RCS) to cool down. In addition, the relatively cold auxiliary feedwater is injected into the Steam Generators, causing the RCS to cool even more. This cooldown delays startup and is critical path time. At this point in the outage, the only heat source for the RCS is the Reactor Coolant Pumps. Therefore, any cooldown is costly in the amount of time required to heat back up again.

For these reasons, performing a full-flow test of the Turbine-Driven Auxiliary Feedwater Pump at each cold shutdown is not desired. Testing will be performed in Mode 3 during shutdown or during startup after a refueling outage.

**Alternate Test:** This pump will be tested quarterly using the recirculation flow path while measuring delta-p and vibrations per 1OST-24.4 (Steam Turbine-Driven Auxiliary Feedwater Pump Test), with flow assumed to be fixed and at its reference value. It will also be tested in Mode 3 during shutdown or during startup after refueling outages when plant conditions permit directing flow to the Steam Generators. Full flow will be measured using the flow instrumentation in the Steam Generator supply headers while also measuring delta-p and vibrations per 1OST-24.9 (Turbine-Driven Auxiliary Feedwater Pump Operability Test). Separate delta-p and vibration reference and acceptance criteria values will be used for the different test conditions of the recirculation and full-flow tests. Also note that 1OST-24.9 may be performed in lieu of the quarterly test, 1OST-24.4, if their scheduled performances coincide.

**References:** OM-6, Paragraphs 5.2 and Table 2.  
Generic Letter 89-04, Position 9.