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September 1, 2006
L-06-097

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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
Proposed Alternative to American Society of Mechanical Engineers Code System Leakage Test Requirements
(Request No. BV3-PT-1)

Pursuant to 10 CFR 50.55a(a)(3)(ii), FirstEnergy Nuclear Operating Company (FENOC) hereby requests NRC approval to use the following alternative for the Beaver Valley Power Station (BVPS) Unit No. 1 third and Unit No. 2 second ten-year interval inservice inspection programs.

The American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI requires hydrostatic pressure testing of Class 1 pressure retaining piping and valves once per ten-year interval. In lieu of these requirements, FENOC plans to perform a system leakage test in accordance with ASME Code Case N-498-1, and proposes alternative visual examinations of reactor coolant pressure boundary small diameter vent, drain and instrument connections during the system leakage test.

Compliance with the ASME Code Section XI requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The proposed alternative provides an acceptable level of quality and safety. The details of the 10 CFR 50.55a request are enclosed.

FENOC requests approval prior to the BVPS Unit No. 1 maintenance and refueling outage, scheduled for September 2007. If there is a reason to believe the alternative may not be found acceptable, please notify FENOC by December 2006 to support planning and scheduling efforts associated with implementation of the ASME Code requirements.

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No new regulatory commitments are contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Gregory A. Dunn, Manager, FENOC Fleet Licensing, at (330) 315-7243.

Sincerely,

Richard A. Mende

for James H. Lash

Enclosure: 10 CFR 50.55a Request - Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(ii)

c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. P. C. Cataldo, NRC Senior Resident Inspector
Mr. S. J. Collins, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

Enclosure to Letter L-06-097
10 CFR 50.55A REQUEST BV3-PT-1

Proposed Alternative
In accordance with 10 CFR 50.55a(a)(3)(ii)

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

1.0 ASME CODE COMPONENTS AFFECTED

Sixty-one (61) small diameter (less than 1 inch) Class 1 reactor coolant pressure boundary vent, drain and instrumentation connections at Beaver Valley Power Station (BVPS) Unit No. 1. See Table 1 for information about each connection including component number, function, configuration, and reference drawing.

Twelve (12) small diameter (less than 1 inch) Class 1 reactor coolant pressure boundary vent and drain connections at BVPS Unit No. 2. See Table 2 for information about each connection including component number, function, configuration, and reference drawing.

2.0 APPLICABLE CODE EDITION AND ADDENDA

American Society of Mechanical Engineers Code (ASME Code) Section XI, 1989 Edition, no Addenda for BVPS Unit No. 1, and Unit No. 2.

3.0 APPLICABLE CODE REQUIREMENT

Table IWB-2500-1, Category B-P, Item B15.51 requires hydrostatic testing of Class 1 pressure retaining piping once per ten-year interval. Code Case N-498-1 (referenced in the BVPS Ten-Year Inservice Inspection Program) allows a system leakage test in lieu of the ten-year hydrostatic testing. Note 2 of Table IWB-2500-1 and Paragraph (a)(2) of N-498-1 require that the test pressurization boundary extend to all Class 1 components.

Note 2 of Table IWB-2500-1 says, "The pressure retaining boundary during the system hydrostatic test shall include all Class 1 components within the system boundary."

Paragraph (a)(2) of N-498-1 says, "The boundary subject to test pressurization during the system leakage test shall extend to all Class 1 pressure retaining components within the system boundary."

4.0 REASON FOR REQUEST

Background Information

The affected ASME Code components consist of pipe segments including either two manually operated valves or a manually operated valve and end cap, blank flange or plug that provide for double isolation of the reactor coolant pressure boundary. For each pipe

segment, the inboard valve or first isolation valve (that is, the valve closer to primary loop piping) is maintained closed during normal plant operation. Thus, the piping outboard of the first isolation valve is not normally pressurized.

The system leakage test is performed during Mode 3 with the reactor coolant system at full operating pressure and temperature. Performance of the end of interval system leakage test requires that the first isolation valve be opened to pressurize the downstream section. Following the test, the first isolation valve must then be closed to restore double isolation for the reactor coolant pressure boundary.

Hardship or Unusual Difficulty

Two alternatives for meeting the applicable code requirement were considered as described below.

In order to test the small diameter (less than 1 inch) Class 1 reactor coolant pressure boundary vent, drain and instrumentation connections during the normal system leakage test, an operator would be required to change valve positions with the reactor coolant system at 2235 psig and a temperature greater than 500°F. The required valve manipulations would also be required under elevated containment air temperature and humidity conditions. Scaffold erection would be necessary to access the valves in most cases.

Alternatively, a test rig, connected to a pipe segment in place of a blind flange or end cap, could be used during plant shutdown to pressurize the segments. This alternative requires an increase in personnel, preparation, and test duration which would result in increased radiation exposure. Further, this alternative would not test the end cap or blind flange connection through which the test rig would pressurize the segment.

The dose for either of these alternatives is estimated to be between 500 mrem and 1500 mrem at BVPS Unit No. 1 and between 100 mrem and 300 mrem at BVPS Unit No. 2.

The system leakage test is performed during plant startup following each refueling outage and is typically a critical path activity. The valve manipulations necessary to pressurize the isolated portions of the noted vent and drain connections, and their return to normal position would directly impact the outage duration.

FirstEnergy Nuclear Operating Company considers that compliance with the requirement to pressurize the downstream portion of small diameter vent, drain and instrument piping would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

5.0 PROPOSED ALTERNATIVE AND BASIS FOR USE

Proposed Alternative

As an alternative to the ASME Code Section XI requirement to pressurize normally isolated small diameter (less than 1 inch) vent, drain and instrument connections in Class 1 systems:

1. The reactor coolant pressure boundary vent, drain and instrument connections will be visually examined for leakage and any evidence of past leakage, with the isolation valves in their normal closed position each refueling outage during the ASME Code Section XI, Class 1, System Leakage Test.

2. During operation, the reactor coolant system will be monitored for leakage in accordance with the requirements of the applicable Technical Specification.

Basis for Use

An acceptable level of quality and safety will be provided based on the following:

1. ASME Code Section XI, paragraph IWA-4700 provides requirements for the hydrostatic pressure testing of piping and components following repair or replacement. Paragraph IWA-4700(b)(5) exempts component connections, piping, and associated valves that are 1 inch nominal pipe size and smaller from hydrostatic testing following a repair or replacement.

2. The non-isolable portion of the reactor coolant pressure boundary will be pressurized and visually examined as required. Only the isolated portion of the small diameter vent, drain and instrument connections will not be pressurized.

3. Technical Specifications require reactor coolant boundary leakage to be monitored during normal operation. Should any of the leakage limits be exceeded, corrective actions including shutdown are required.

The small diameter (less than 1 inch) Class 1 reactor coolant pressure boundary vent, drain and instrumentation connections consist of stainless steel pipe, valves, end caps, blank flanges, plugs and weld material. There are no alloy 600/82/182 materials in these pipe segments. There are no known active degradation mechanisms at work in these pipe segments.

The portions of these vent and drain lines that are not isolated from the reactor coolant pressure boundary are constructed using the same material specifications as the isolated portions. These non-isolated portions are exposed to the higher reactor coolant pressure and are included in the Class 1 System Leakage Test performed every refueling outage.

6.0 DURATION OF PROPOSED ALTERNATIVE

The proposed alternative is requested to be implemented during the final 40-month period of the third ten-year inservice inspection interval at BVPS Unit No. 1 and the second ten-year inservice inspection interval at BVPS Unit No. 2.

7.0 PRECEDENT

The NRC has previously approved a similar request, as demonstrated in the correspondence listed below. The relief request for Beaver Valley Power Station is similar to this precedent in that FENOC proposes to perform the system leakage test of the reactor coolant pressure boundary (conducted at or near the end of the interval) with the first isolation valve in its normal closed position, and thus not pressurizing small diameter vent, drain, and instrument piping during the test. As stated in the correspondence listed below, the NRC staff determined that the requirement to pressurize the downstream portions of small diameter vent, drain, and instrument piping is a hardship without a compensating increase in the level of quality or safety.

Davis-Besse Nuclear Power Station, Unit No. 1, Docket No. 50-346, Requests for Relief for the Third 10-Year Interval Inservice Inspection Program Plan (TAC No. MB1607, Relief Request No. RR-A7), dated September 30, 2002.

Table 1, BVPS Unit No. 1 Segments			
Segment	**Description**	**Function**	**Inboard Valve Normally Closed**
1	1CH-33 on ¾ inch drain line with blank flange	Seal injection drain	Yes
2	1CH-34 on ¾ inch drain line with blank flange	Seal injection drain	Yes
3	1CH-325 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
4	1CH-326 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
5	1CH-327 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
6	1CH-328 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
7	1CH-329 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
8	1CH-330 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
9	1CH-331 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
10	1CH-332 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
11	1CH-333 on ¾ inch drain line with ½ inch test flange connection	Seal injection drain	Yes
12	1CH-368 on ¾ inch drain line with blank flange	Seal injection drain	Yes
13	1CH-404 on ¾ inch drain line with blank flange	Regenerative heat exchanger outlet drain	Yes
14	1CH-405 on ¾ inch vent line with blank flange	Regenerative heat exchanger outlet vent	Yes
15	1CH-406 on ¾ inch drain line with blank flange	Pressurizer auxiliary spray drain	Yes
16	1CH-412 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
17	1CH-413 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
18	1CH-414 on ¾ inch vent line with ½ inch test flange connection	Seal injection vent	Yes
19	1CH-422 on ¾ inch drain line with end cap	Fill header drain	Yes
20	1RC-12 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes
21	1RC-13 on ¾ inch vent line with end cap	Hot leg vent	Yes
22	1RC-26 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes
23	1RC-27 on ¾ inch vent line with end cap	Cold leg vent	Yes
24	1RC-38 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes

Table 1, BVPS Unit No. 1 Segments			
Segment	**Description**	**Function**	**Inboard Valve Normally Closed**
25	1RC-39 on ¾ inch vent line with end cap	Hot leg vent	Yes
26	1RC-53 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes
27	1RC-54 on ¾ inch vent line with end cap	Cold leg vent	Yes
28	1RC-58 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes
29	1RC-59 on ¾ inch vent line with end cap	Hot leg vent	Yes
30	1RC-66 on ½ inch drain line with blank flange	Loop stop valve vent line drain	Yes
31	1RC-67 on ¾ inch vent line with end cap	Cold leg vent	Yes
32	1RC-75 on ¾ inch vent line with end cap	Sample line vent	Yes
33	1RC-237 on ¾ inch line with test connection	Test connection	Yes
34	1RC-239 on ¾ inch vent line with end cap	Bypass line vent	Yes
35	1RC-240 on ¾ inch vent line with end cap	Bypass line vent	Yes
36	1RC-241 on ¾ inch vent line with end cap	Bypass line vent	Yes
37	1RC-256 on ¾ inch vent line with ½ inch test flange connection	Reactor vessel head vent	Yes
38	1RC-257 on ¾ inch vent line with blank flange	Pressurizer spray line vent	Yes
39	1RC-260 on ¾ inch drain line with blank flange	Pressurizer spray line drain	Yes
40	1RC-261 on ¾ inch drain line with blank flange	Pressurizer spray line drain	Yes
41	1SI-9 on ¾ inch instrumentation line	Pressure indication	Yes
42	1SI-18 on ¾ inch instrumentation line	Pressure indication	Yes
43	1SI-19 on ¾ inch instrumentation line	Pressure indication	Yes
44	1SI-329 on ¾ inch vent line with blank flange	Cold leg injection vent	Yes
45	1SI-330 on ¾ inch vent line with blank flange	Cold leg injection vent	Yes
46	1SI-331 on ¾ inch vent line with blank flange	Cold leg injection vent	Yes
47	1SI-336 on ¾ inch drain line with test flange connection	Hot leg Safety Injection drain	Yes
48	1SI-337 on ¾ inch drain line with test flange connection	Hot leg Safety Injection drain	Yes
49	1SI-338 on ¾ inch drain line with test flange connection	Hot leg Safety Injection drain	Yes
50	1SI-339 on ¾ inch vent line with test flange connection	Hot leg Safety Injection vent	Yes
51	1SI-340 on ¾ inch vent line with test flange connection	Hot leg Safety Injection vent	Yes

Table 1, BVPS Unit No. 1 Segments			
Segment	**Description**	**Function**	**Inboard Valve Normally Closed**
52	1SI-341 on ¾ inch vent line with test flange connection	Hot leg Safety Injection vent	Yes
53	1SI-377 on ¾ inch drain line with blank flange	Hot leg drain	Yes
54	1SI-378 on ¾ inch drain line with blank flange	Hot leg drain	Yes
55	1SI-379 on ¾ inch drain line with blank flange	Hot leg drain	Yes
56	1SI-400 on ¾ inch drain line with test flange connection	Safety Injection Accumulator drain	Yes
57	1SI-401 on ¾ inch drain line with test flange connection	Safety Injection Accumulator drain	Yes
58	1SI-402 on ¾ inch drain line with test flange connection	Safety Injection Accumulator drain	Yes
59	1SI-403 on ¾ inch vent line with blank flange	Safety Injection Accumulator vent	Yes
60	1SI-404 on ¾ inch vent line with blank flange	Safety Injection Accumulator vent	Yes
61	1SI-405 on ¾ inch vent line with blank flange	Safety Injection Accumulator vent	Yes

Table 2, BVPS Unit No. 2 Segments			
Segment	Description	Function	Inboard Valve Normally Closed
1	2RCS-12 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
2	2RCS-13 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes
3	2RCS-26 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
4	2RCS-27 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes
5	2RCS-38 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
6	2RCS-39 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes
7	2RCS-53 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
8	2RCS-54 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes
9	2RCS-58 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
10	2RCS-59 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes
11	2RCS-66 on ¾ inch valve body drain line with end cap	Loop Stop Valve Body vent line drain	Yes
12	2RCS-67 on ¾ inch valve body vent line with plug	Loop Stop Valve Body vent	Yes