FENOC
FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
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Lew W. Myers
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August 31, 2001
L-01-114

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

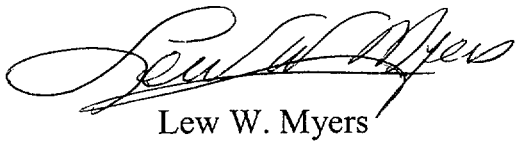
Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Response to Bulletin 2001-01 Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles

This letter provides the FirstEnergy Nuclear Operating Company (FENOC) response for Beaver Valley Power Station (BVPS) Units 1 and 2 to NRC Bulletin 2001-01 dated August 3, 2001. The Bulletin pertains to the structural integrity of the reactor pressure vessel head penetration (VHP) nozzles and requested a written response within 30 days.

The BVPS response is provided in Attachment A of this letter. The response to the Bulletin has been developed in conjunction with Industry recommendations provided by the EPRI MRP. In a conference call on Friday, August 17, 2001, the MRP (Material Reliability Program) advisory committee and NEI decided to issue generic responses to Questions 1a, 1b, 1c and 4b in the form of an MRP document, MRP-48. This document was forwarded to the NRC on Tuesday, August 21, 2001, under NEI cover letter. Therefore, portions of this response reference this document.

If there are any questions concerning this matter, please contact Mr. Thomas S. Cosgrove, Manager Regulatory Affairs, at 724-682-5203.

Sincerely,



Lew W. Myers

Attachment

A066

c: Mr. L. J. Burkhart, Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)
Ms. C. O'Clair, Ohio Emergency Management Agency

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Response to Bulletin 2001-01 Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles

I, Lew W. Myers, being duly sworn, state that I am Senior Vice President of FirstEnergy Nuclear Operating Company (FENOC), that I am authorized to sign and file this submittal with the Nuclear Regulatory Commission on behalf of FENOC, and that the statements made and the matters set forth herein pertaining to FENOC are true and correct to the best of my knowledge and belief.

FirstEnergy Nuclear Operating Company

Lew W. Myers
Senior Vice President - FENOC

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF BEAVER

Subscribed and sworn to me, a Notary Public, in and for the County and State above named, this 31 th day of August, 2001.

My Commission Expires:

Notarial Seal
Tracey A. Baczek, Notary Public
Shippingport Boro, Beaver County
My Commission Expires Aug. 16, 2005
Member, Pennsylvania Association of Notaries

Attachment A
BVPS Response to NRC Bulletin 2001-01

NRC Question:

1.a Provide the plant specific susceptibility ranking for your plant(s) (including all data used to determine each ranking) using the PWSCC susceptibility model described in Appendix B to the MRP-44, Part 2, report:

Response to Question 1.a:

Beaver Valley Unit 1 and Beaver Valley Unit 2 have been analyzed for susceptibility relative to Oconee 3 using the time-at-temperature model and plant-specific input data reported in the EPRI report, MRP-48.

This evaluation identified that Beaver Valley Unit 1 has approximately eleven and a half (11.5) Effective Full Power Years (EFPYs) of additional operation from March 1, 2001, to reach the same time at temperature as Oconee 3 at the time that leaking nozzles were discovered in March 2001. (Reference Table 2-1 of MRP-48)

This evaluation identified that Beaver Valley Unit 2 has approximately sixteen and a half (16.5) EFPYs of additional operation from March 1, 2001, to reach the same time at temperature as Oconee 3 at the time that leaking nozzles were discovered in March 2001. (Reference Table 2-1 of MRP-48)

Both Beaver Valley Unit 1 and Beaver Valley Unit 2 fall into the NRC category of plants identified in the Bulletin as greater than 5 EFPY and less than 30 EFPY relative to Oconee 3.

NRC Question:

1.b Provide a description of the VHP nozzles in your plant(s), including the number, type, inside and outside diameter, materials of construction, and the minimum distance between VHP nozzles;

Response to Question 1.b:

Beaver Valley Unit 1 and Beaver Valley Unit 2 each have 65 total RPV head Control Rod Drive Mechanism (CRDM) nozzles. The head arrangement and requested nozzle details are provided in Table 2-3 of MRP-48.

NRC Question:

1.c Provide a description of the RPV head insulation type and configuration;

Response to Question 1.c:

As reported in Table 2-1 of MRP-48, Beaver Valley Unit 1 and Beaver Valley Unit 2 have reflective stepped RPV head insulation.

NRC Question:

1.d Provide a description of the VHP nozzle and RPV head inspections (type, scope, qualification requirements, and acceptance criteria) that have been performed at your plant(s) in the past four years, and the findings. Include a description of any limitations (insulation or other impediments) to accessibility of the bare metal of the RPV head for visual examinations;

Response to Question 1.d:

As reported in Table 2-1 of MRP-48, neither Beaver Valley Unit 1 nor Beaver Valley Unit 2 have performed RPV head and nozzle inspections within the past four years that required accessibility to the bare metal of the RPV Head. During refueling activities the area around the Reactor Vessel Studs and the exterior of the insulation covering the RPV head are inspected for signs of leakage in accordance with the Beaver Valley Site response to Bulletin 88-05. The results of the inspections have not identified any evidence of gross leakage in the area of the RPV Head.

NRC Question:

1.e Provide a description of the configuration of the missile shield, the CRDM housings and their support/restraint system, and all components, structures, and cabling from the top of the RPV head up to the missile shield. Include the elevations of these items relative to the bottom of the missile shield.

Response to Question 1.e:

The attached sketch is a pictorial representation of the configuration at both Beaver Valley Unit 1 and Beaver Valley Unit 2. The major elements of the CRDM system are depicted in a pictorial fashion along with the relative elevation of the missile shield. Detailed site-specific drawings are available at the site if additional information is necessary.

NRC Question:

2. If your plant has previously experienced either leakage from or cracking in VHP nozzles, addressees are requested to provide the following information.

Response to Question 2:

This request for information is not applicable to either Beaver Valley Unit 1 or to Beaver Valley Unit 2 since neither unit has experienced any leakage or cracking of the RPV VHP nozzles.

NRC Question:

3. If the susceptibility ranking for your plant(s) is within 5EFPY of ONS3, addressees are requested to provide the following information.

Response to Question 3:

This request is not applicable to either Beaver Valley Unit 1 or to Beaver Valley Unit 2.

NRC Question 4:

If the susceptibility ranking of your plant(s) is greater than 5 EFPY and less than 30 EFPY of ONS3, addressees are requested to provide the following information:

4.a Your plans for future inspections (type, scope, qualification requirements, and acceptance criteria) and the schedule;

Response to Question 4.a:

Beaver Valley Unit 1 is planning to perform a bare head, under the insulation, remote (robotically assisted) visual examination during our next refueling outage scheduled to start in early September 2001. This inspection will be performed using site-specific approved procedures. The inspection scope is a 100% visual examination of the CRDM tube to RV head penetration joint of all 65 CRDM penetrations. The acceptance standard is no visual indication of leakage from the CRDM tubing penetration area.

Beaver Valley Unit 2 is currently planning to perform a bare head, under the insulation, remote (robotically assisted) visual examination during our next refueling outage scheduled to start in February 2002. This inspection will be performed using site-specific approved procedures. The inspection scope is a 100% visual examination of the CRDM tube to RV head penetration joint of all 65 CRDM penetrations. The acceptance standard is no visual indication of leakage from the CRDM tubing penetration area.

The requirements for VT-1 examination will be implemented for personnel, equipment, and technique qualifications due to the need for a more detailed examination and information needed for proper evaluation of the examination results.

4.b(1) If your future inspection plans do not include a qualified (effective) visual examination at the next scheduled refueling outage, provide your basis for concluding that the regulatory requirements discussed in the Applicable Regulatory Requirements section will continue to be met until the inspections are performed.

Response to Question 4.b(1):

Our plans are to perform a visual examination as noted in the response to Question 4.a.

4.b(2) The corrective actions that will be taken, including alternative inspection methods (for example, volumetric examination), if leakage is detected.

Response to Question 4.b(2):

If evidence of through-wall leakage from a CRDM penetration is found as a result of the visual examination noted in the response to Question 4.a, actions will be taken to confirm that a through-wall crack exists by performing confirmatory non-destructive examinations. If these confirmatory non-destructive examinations confirm the presence of a through-wall flaw, appropriate repair actions will be taken at that time.

NRC Question 5:

Addressees are requested to provide the following information within 30 days after plant restart following the next refueling outage:

5.a A description of the extent of VHP nozzle leakage and cracking detected at your plant, including the number, location, size, and nature of each crack detected;

Response to Question 5.a:

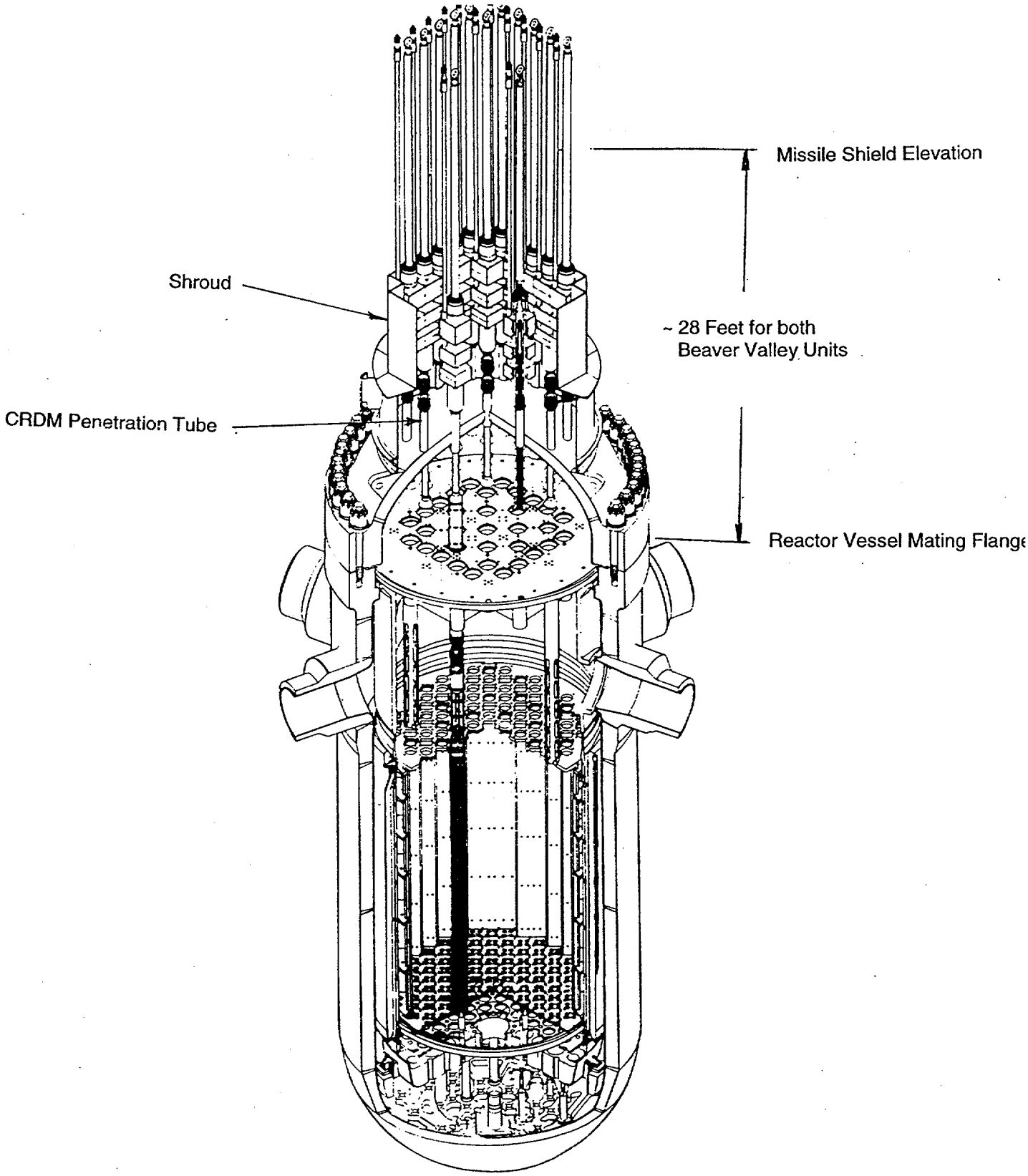
Beaver Valley Unit 1 will provide a description of the visual inspection performed and identify the results of the inspection within 30 days of plant restart following the end of 1R14 Refueling Outage.

Beaver Valley Unit 2 will provide a description of the visual inspection performed and identify the results of the inspection within 30 days of plant restart following the end of 2R09 Refueling Outage.

5.b If cracking is identified, a description of the inspections (type, scope, qualification requirements, and acceptance criteria), repairs, and other corrective actions you have taken to satisfy applicable regulatory requirements. This information is requested only if there are any changes from prior information submitted in accordance with this bulletin.

Response to Question 5.b:

If cracking is identified, the information requested in 5.b will be provided as part of our 30 day response noted in response to Question 5.a.



Reactor Vessel Configuration

Typical Pictorial for Beaver Valley Units