

May 22, 2008

Mr. Peter P. Sena III
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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
BEAVER VALLEY POWER STATION, UNITS 1 AND 2, LICENSE RENEWAL
APPLICATION (TAC NOS. MD6593 AND MD6594)

Dear Mr. Sena:

By letter dated August 27, 2007, FirstEnergy Nuclear Operating Company submitted an application pursuant to 10 CFR Part 54, to renew the operating licenses for Beaver Valley Power Station, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Mr. Cliff Custer of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-2989 or e-mail kent.howard@nrc.gov.

Sincerely,

/RA/

Kent L. Howard, Sr., Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure:
As stated

cc w/encl: See next page

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Items in the enclosure were discussed with Mr. Cliff Custer of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-2989 or e-mail klh1@nrc.gov.

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BEAVER VALLEY POWER STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION, SECTIONS B.2, B.2.7, B.2.9, B.2.15, B.2.16,
B.2.17, B.2.20, B.2.22, 4.7.6 AND TABLE 3.3.2-14

Section B.2

RAI B.2-1 (Generic)

The “operating experience” element for several new programs states that this is a new program and that there is no plant-specific program operating experience. An example of this is B.2.15, “External Surfaces Monitoring.” Other new programs identify recent operating experience such as a 2003 incidence of a leaking service water pipe discussed in B.2.8, “Buried Piping and Tanks Inspection. However, the staff noted that some new programs do not identify recent operating experience. An example of this is B.2.22, “Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Component.” B.2.22 states that a 1999 internal inspection of a tank visually indicated that the protective coating was not degraded; however, rust scale was found on the tank bottom. Please discuss recent observed material degradation during the implementation of other existing activities that relate to the aging effects that will be managed by the new program and provide the results in the “operating experience” element for that new program. Additionally, as stated in SRP-LR, Appendix A.1.2.3.10.2, please include a commitment to provide operating experience in the future for new programs to confirm their effectiveness.

Section B.2.7

RAI B.2.7-1

- a) Clarify which components are included within the scope of this AMP, and whether the scope includes all Class 1 nickel alloy locations.
- b) For in-scope nickel alloy locations (if any), clarify whether the examinations will be implemented through this AMP or some other BVPS AMP in the LRA. If another AMP will be used for specific components, clarify which AMP will be implemented for the examination.
- c) Clarify which programs will be used to evaluate the evidence of leakage that is detected through this AMP or other AMPs.
- d) For the in-scope components, clarify what type of visual examinations (i.e., specify whether VT-1, VT-2 or VT-3, and whether the visual examinations are enhanced, bare-surface, qualified, etc.) will be performed on the components.

ENCLOSURE

Section B.2.9

RAI B.2.9-1

The B.2.9 Program Description identifies the closed cooling water systems that credit the Closed-Cycle Cooling Water System to manage the effects of aging. AMR Tables also identify systems that credit the Closed-Cycle Cooling Water System as an AMP; however, there are some system names that appear within the AMR Tables that are absent from B.2.9 Program Description. They are: Reactor Coolant, Chemical Volume and Control, Boron Recovery and Primary Grade Water, Reactor Plant Vents and Drains, Residual Heat Removal, Containment Depressurization, Liquid Waste Disposal, Gaseous Waste Disposal, Fuel Pool Cooling and Purification, Steam Generator Blowdown, Auxiliary Steam, Radiation Monitoring, Reactor Plant Sample, Post Accident Sample, Service Water, Area Ventilation – Control Area and Area Ventilation – Other. Explain the disparity between B.2.9 and the AMR Tables.

RAI B.2.9-2

LRA Tables A.4-1 and A.5-1 “Unit 1(2) License Renewal Commitments and B.2.9 state that the Unit 1 Diesel Driven Fire Pump and the Unit 2 Diesel Driven Standby Air Compressor will be added to the AMP as an enhancement. Further, B.2.9 does not identify any exceptions to the AMP. GALL XI.M21, “Parameters Monitored/Inspected,” identifies that for pumps, parameters monitored include flow, discharge pressure, and suction pressures. Explain whether the closed-cycle cooling water pumps for the Unit 1 Diesel Driven Fire Pump and the Unit 2 Diesel Driven Standby Air Compressor will undergo this parameter monitoring or explain why this is not an exception to GALL XI.M21.

RAI B.2.9-3

LRA Tables A.4-1 and A.5-1 “Unit 1(2) License Renewal Commitments and B.2.9 state that the Unit 1 Diesel Driven Fire Pump and the Unit 2 Diesel Driven Standby Air Compressor will be added to the AMP as an enhancement. Further, B.2.9 does not identify any exceptions to the AMP. GALL XI.M21, “Parameters Monitored/Inspected,” identifies that for heat exchangers, parameters monitored include flow, inlet and outlet temperatures, and differential pressures. Explain whether the closed-cycle cooling water heat exchangers for the Unit 1 Diesel Driven Fire Pump and the Unit 2 Diesel Driven Standby Air Compressor will undergo this parameter monitoring or explain why this is not an exception to GALL XI.M21.

RAI B.2.9-4

B.2.9 Operating Experience explains that EDG Jacket Water system bolting for the temperature control valve may be subject to unexpected corrosion as indicated by INPO and manufacturer notifications. Further, it states that BVPS is tracking this operating experience with the Corrective Action Program. The staff noted that there is no bolting subject to Jacket Water or managed by the Closed-Cycle Cooling Water Program in the LRA. Explain where this bolting is described in the LRA.

Section B.2.15

RAI B.2.15-1

The GALL AMP XI.M36 is credited for managing the aging effect of loss of material due to general, pitting and crevice corrosion for steel components.

- a) Please justify how this program will manage reduction of heat transfer of ERF diesel generator jacket water radiator fins.
- b) Please justify how this program will manage hardening, loss of strength and cracking of elastomers.
- c) The LRA is crediting this program for managing loss of material for aluminum, CASS, stainless steel, copper alloy and nickel alloy also. Please justify why this is not considered an enhancement to the GALL Report.

Section B.2.16

RAI B.2.16-1

LRA B.2.16, Fire Protection Program, in the Exception paragraph, it states:

Previous inspections and testing of the halon and carbon dioxide systems at the 18-month frequency have not identified aging degradation issues...However, to ensure the optimum integrity of the in-scope halon and carbon dioxide systems, each will be inspected at least once every 6 months during the period of extended operation.

Since the above implies that the existing inspection interval is 18 months, please confirm if the program will be enhanced to change this inspection interval to 6 months. If so, please justify why this enhancement has not been identified as an enhancement in LRA Section B 2.16.

RAI B.2.16-2

In LRA Section A.1.16, the applicant provided the USAR supplement for the Fire Protection Program.

NUREG-1800, Rev.1, section 3.X.2.4, FSAR Supplement, states that the summary description of the programs and activities for managing the effects of aging for the period of extended operation in the FSAR Supplement should be sufficiently comprehensive such that later changes can be controlled by 10 CFR 50.59. The description should contain information associated with the bases for determining that aging effects will be managed during the period of extended operation.

The description in LRA Section A.1.16 is not sufficiently comprehensive. It states that the program manages the aging effects; however, it does not state how it manages the aging effects. The LRA states that the program comprised of tests and inspections that follow the applicable National Fire Protection Association (NFPA) recommendations. This does not

provide an adequate basis since none of the NFPA standards are identified nor what kind of tests and inspections are performed. Please provide a more comprehensive summary.

RAI B.2.16-3

In LRA section B.2.16, the applicant stated that the frequency of functional testing for the BVPS Halon and carbon dioxide systems will be at least once every 18 months, which is less frequent than the NUREG-1801, XI.M26 guideline of at least one test every 6 months for the detection of aging degradation. This is an exception to the GALL AMP XI.M26. The staff reviewed the BVPS UFSAR section 9.10.4 for Unit 1 and section 9.5.1.7.4 for Unit 2 CO₂ and Halon systems. The UFSAR only states that in-service inspection and testing will be periodically performed and does not provide any frequencies.

Since the CLB does not specify any frequency, please provide the bases for using a different frequency than the GALL AMP recommended frequency of once every six months.

Section B.2.17

RAI B.2.17-1

The LRA Section B.2.17 in the subsection on Enhancements, in the “detection of aging effects” element, last bullet states:

“Also, the program enhancement described under the Scope of Program program element is necessary for consistency with this program element.”

However, there is no enhancement described under the “scope of program” element. Please clarify.

RAI B.2.17-2

LRBV-PED-XI.27, item 4.10, gasket inspection states that unit 1 gasket inspections are performed every 18 months, however it is not considered as an exception to the GALL AMP frequency of 12 months, because gaskets were considered consumables and will be replaced as necessary. The document also cites Table 2.1-3 of SRP-LR to justify the above. However, in the Statement of Consideration, it states that this does not intend to preclude a license renewal applicant from providing site-specific justification in a license renewal application that a replacement program on the basis of performance or condition for a passive structure or component provides reasonable assurance that the intended function of the passive structure or component will be maintained in the period of extended operation.

Please justify why this frequency difference is not considered an exception.

RAI B.2.17-3

LRPD-PED-XI.M27, item 4.9, fire hydrant hose hydrostatic tests are performed at various frequencies, which are different than the GALL AMP frequencies of once per year. However, it is not considered as an exception to the GALL AMP frequency of 12 months, because hoses

were considered consumables and will be replaced as necessary. The document also cites Table 2.1-3 of SRP-LR to justify the above. However, in the Statement of Consideration, it states that this does not intend to preclude a license renewal applicant from providing site-specific justification in a license renewal application that a replacement program on the basis of performance or condition for a passive structure or component provides reasonable assurance that the intended function of the passive structure or component will be maintained in the period of extended operation.

Please justify why this frequency difference is not considered an exception.

RAI B.2.17-4

Several CRs have been generated to address pinhole leaks in fire protection piping. The cause of the leaks appears to be loss of material due to MIC. CRs 05-3940, 06-5051, and 07-13290 were reviewed. In CR05-3940, it was found that the chemical treatment of the piping did not eliminate MICs already established in the piping. UT inspections confirmed areas in the piping system having a wall thickness loss of 50% or more.

Please identify what preventive measures will be taken to assure that the program will adequately manage loss of material due to MIC prior to loss of intended function.

Section B.2.20

RAI B.2.20-1

B.2.20 takes as an exception to the "Preventive Actions" element of GALL XI.M30 that no biocides, stabilizers, and corrosion inhibitors in fuel oil subsystems in part, because that due to the materials of construction of the fuel oil tank, there would be no benefit from the additives. Identify the fuel oil tanks for which the exception applies, their materials of construction, and provide a summary of the tank's evaluation concerning microbiologically induced corrosion.

RAI B.2.20-2

B.2.20 states that BVPS does not use ASTM Standard D2709 as identified in GALL XI.M30, "Parameters Monitored/Inspected." Instead B.2.20 uses ASTM Standard D1796 for guidance on the determination of water and sediment contamination as required by Technical Specifications. Provide a summary of the evaluation for the use of ASTM Standard D1796 criteria instead of D2709 criteria in determining water and sediment contamination. Additionally, since not all fuel oil tanks within the scope of the program are subject to Technical Specification Requirements, identify the specific fuel oil tanks subject to testing for water and sediment.

RAI B.2.20-3

B.2.20 states that BVPS does not use a filter with a pore size of 3.0 microns when testing fuel oil for particulates, as identified in GALL XI.M30, "Monitoring and Trending." Instead, B.2.20 states that BVPS uses a .8 micron pore size as recommended by ASTM D 2276 and that ASTM D 2276 is a Technical Specification requirement. Provide the evaluation and basis for using the .8 micron filter instead of the 3.0 micron filter in determining fuel oil particulates. Further, identify

which fuel oil tanks are sampled for particulates. Additionally, since not all fuel oil tanks within the scope of the program are subject to Technical Specification Requirements, identify the specific fuel oil tanks subject to testing for particulates.

RAI B.2.20-4

LRA Tables 3.3.2-14, 3.3.2-17, and 3.3.2-29 identify copper alloy (>15% zn) components in a fuel oil environment that are subject to cracking. For each of the components, the Fuel Oil Chemistry Program, as confirmed by the One-Time Inspection Program is identified as the AMP and points to Note H. Describe how the Fuel Oil Chemistry Program will be used to mitigate the aging effects.

Section B.2.22

RAI B.2.22-1

The “acceptance criteria” element states that the program will inspect for indications of material degradation such as corrosion, cracking, fouling, etc. and that inspection results not meeting the acceptance criteria will be processed in accordance with the corrective action program. However, the acceptance criteria are not defined. Please provide the acceptance criteria.

RAI Table 3.3.2-14-1

In Table 3.3.2-14, line 3, stainless steel bolting component in an outdoor air external environment, the LRA has identified the aging effect of loss of material. However, in other Tables such as Table 3.2.2-1, lines 63, 71, 126, etc., the LRA has identified aging effects as “none”. Please justify why there is no aging effect identified.

Section 4.7.6

RAI 4.7.6-1

In Section 4.7.6, the applicant states that two cranes in Unit 1 and three cranes in Unit 2 have TLAAAs associated with their design. The LRA further states that total load cycles are well below 20,000 and mean effective load factors are maintained within or below the Service Class A bounds (0.35 - 0.53) for 60 years. Therefore, crane allowable stress ranges as defined in CMAA-70 will remain valid through the period of extended operation in accordance with 10 CFR 54.21(c)(1)(i).

However, the LRA does not provide any information on how the load cycles were calculated to conclude that the stress ranges remain valid through the period of extended operation. Please provide the projected number of cycles calculated for sixty years for each of these cranes.

Letter to P. Sena from K. Howard, dated May 22, 2008

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