

June 4, 2008

Mr. Peter P. Sena III  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Mail Stop A-BV-SEB-1  
P.O. Box 4, Route 168  
Shippingport, PA 15077

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. Clifford I. 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](mailto: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

June 4, 2008

Mr. Peter P. Sena III  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Mail Stop A-BV-SEB-1  
P.O. Box 4, Route 168  
Shippingport, PA 15077

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. Clifford I. 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](mailto: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

DISTRIBUTION: See following pages

**ADAMS Accession No.: ML081430687**

OFFICE	LA:DLR	PM:RPB2:DLR	BC:RPB2:DLR
NAME	Y. Edmonds	KHoward	RFranovich
DATE	6/4/08	6/4/08	6/4/08

OFFICIAL RECORD COPY

Letter to P. Sena from K. Howard, dated June 4, 2008

DISTRIBUTION:

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)

HARD COPY:

DLR RF

E-MAIL:

PUBLIC

RidsNrrDir

RidsNrrDirRlra

RidsNrrDirRlrb

RidsNrrDirRlrc

RidsNrrDirReba

RidsNrrDirRebb

RidsNrrDciCvib

RidsNrrDciCpnb

RidsNrrDraAfpb

RidsNrrDeEmcb

RidsNrrDeEeeb

RidsNrrDssSbwb

RidsNrrDssSbpb

RidsNrrDssScvb

RidsOgcMailCenter

-----

KHoward

ESayoc

NMorgan

MModes, RI

PCataldo, RI

DWerkheiser, RI

Beaver Valley Power Station, Units 1 and 2

cc:

Joseph J. Hagan  
President and Chief Nuclear Officer  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-19  
76 South Main Street  
Akron, OH 44308

James H. Lash  
Senior Vice President of Operations  
and Chief Operating Officer  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-14  
76 South Main Street  
Akron, OH 44308

Danny L. Pace  
Senior Vice President, Fleet Engineering  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-14  
76 South Main Street  
Akron, OH 44308

Jeannie M. Rinckel  
Vice President, Fleet Oversight  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-14  
76 South Main Street  
Akron, OH 44308

Paul A. Harden  
Vice President, Nuclear Support  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-14  
76 South Main Street  
Akron, OH 44308

David W. Jenkins, Attorney  
FirstEnergy Corporation  
Mail Stop A-GO-15  
76 South Main Street  
Akron, OH 44308

Manager, Fleet Licensing  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-2  
76 South Main Street  
Akron, OH 44308

Director, Fleet Regulatory Affairs  
FirstEnergy Nuclear Operating Company  
Mail Stop A-GO-2  
76 South Main Street  
Akron, OH 44308

Manager, Site Regulatory Compliance  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
Mail Stop A-BV-A  
P.O. Box 4, Route 168  
Shippingport, PA 15077

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 298  
Shippingport, PA 15077

Cliff Custer  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
P.O. Box 4, Route 168  
Shippingport, PA 15077

Steve Dort  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
P.O. Box 4, Route 168  
Shippingport, PA 15077

Beaver Valley Power Station, Units 1 and 2 - 2 -

cc:

Mike Banko  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
P.O. Box 4, Route 168  
Shippingport, PA 15077

BEAVER VALLEY POWER STATION (BVPS), UNITS 1 AND 2  
LICENSE RENEWAL APPLICATION (LRA)  
REQUESTS FOR ADDITIONAL INFORMATION (RAI) SECTION 2.4

**Section 2.4 (Generic)**

**RAI 2.4.XX-1**

To clarify the component identified as “Structural Steel: beams, columns, plates and trusses” in several Tables 2.4.XX of the LRA, please confirm that the connection components (gusset plates, welds, bolts, etc.) are in-scope and subject to an Aging Management Review (AMR).

**Section 2.4**

**RAI 2.4-1**

A number of structures (e.g., Guard House, Unit 1 Valve Pit, and Boric Acid Tank Building) have been included in the scope of license renewal. However, they are not shown/labeled on the license renewal (LR) Drawing LR-STRUCTURES. Please discuss this discrepancy.

**Section 2.4.1**

**RAI 2.4.1-1**

In Table 2.4-1 for Alternate Intake Structure, consistent with the intended function of metal siding, the intended function for the exterior walls above grade and the roof decking should include “EN” (Enclosure/Protection). Please discuss this discrepancy.

**Section 2.4.3**

**RAI 2.4.3-1**

Section 2.4.3 of the LRA identifies the intended function of Unit 1 Boric Acid Tank Building as support for 10 CFR 54.4(a)(2) requirement. Based on Table 9.2-2 of BVPS, Unit 1 UFSAR, the boric acid hold tank is protected from tornado by concrete walls. Please discuss the intended function of Boric Acid Tank Building exterior walls and roof slab relative to tornado protection.

**Section 2.4.8**

**RAI 2.4.8-1**

Based on the description of Decontamination Building in Section 2.4.8 of the LRA and Table 3.2-2 of the BVPS, Unit 2 UFSAR, flood barrier should be listed as an intended function in Table 2.4-8. Please discuss this discrepancy.

ENCLOSURE

**RAI 2.4.8-2**

Based on the description of Decontamination Building in Section 2.4.8 of the LRA, stainless steel lined floor and walls are provided for equipment wash-down. Table 2.4-8 does not include stainless steel liners nor does Table 3.5.2-8 identify the stainless steel liner material subject to an AMR. Please discuss this omission.

**Section 2.4.9**

**RAI 2.4.9-1**

Based on the description of Diesel Generator Building in Section 2.4.9 of the LRA and the BVPS Unit 1 UFSAR, Section 8.5.2.4, missile barrier (MB) should be listed as an intended function for the interior walls in Table 2.4-9. Please discuss this discrepancy.

**RAI 2.4.9-2**

Section 3.8.4.1.6 of BVPS, Unit 2 UFSAR, discusses Diesel Generator Building. The UFSAR references included in Section 2.4.9, "Diesel Generator Building", of the LRA does not include UFSAR Section 3.8.4.1.6. Please discuss this discrepancy.

**Section 2.4.11**

**RAI 2.4.11-1**

In description of the Emergency Response Facility Diesel Generator building in Section 2.4.11 of the LRA, it is noted that pea gravel was used to fill the space between the sheet piling, the tank and vault. Table 2.4-11, "Emergency Response Facility Diesel Generator Building (Common) Components Subject to Aging Management Review", of the LRA includes the fuel tank vault walls and roof. However, the sheet piling is not included in Table 2.4-11. Please discuss the sheet piling, and provide justification for excluding the sheet piling from the scope of the LR.

**Section 2.4.12**

**RAI 2.4.12-1**

In description of the Emergency Response Facility Substation building in Section 2.4.12 of the LRA, it is noted that a concrete retaining wall and sheet piling are located on the west side of the building. Table 2.4-12 "Emergency Response Facility Substation Building (Common) Components Subject to Aging Management Review", of the LRA does not include the concrete retaining wall and sheet piling. Please provide justification for excluding these components from the scope of the LR.

### **Section 2.4.13**

#### **RAI 2.4.13-1**

Unit 2 UFSAR, Section 3.8.4.1.12, discusses Equipment Hatch Platform. However, the UFSAR references included in Section 2.4.13, "Equipment Hatch Platform", of the LRA, does not include UFSAR Section 3.8.4.1.12. Please discuss this discrepancy.

#### **RAI 2.4.13-2**

Based on Section 2.4.13, "Equipment Hatch Platform", of the LRA both Units 1 and 2, equipment hatch platforms have reinforced concrete walls and slabs. In Table 2.4-13, "Equipment Hatch Platform Components Subject to Aging Management Review", of the LRA for Unit 1 equipment hatch platform, floor slabs have not been identified as an in-scope component (NOTE: Table 2.4-13 for Unit 2 includes "floor slabs" as a component subject to an AMR). Please discuss the scoping difference between Units 1 and 2 equipment hatch platforms.

### **Section 2.4.14**

#### **RAI 2.4.14-1**

From LRA Table 2.4-14, "Fuel Building Components Subject to Aging Management Review", it is not clear if the leak chase system for the spent fuel pool liner has been screened-in as components subject to an AMR. Please confirm and explicitly clarify its inclusion in Table 2.4-14 and ensure that the appropriate AMR results are identified, or justify its exclusion.

#### **RAI 2.4.14-2**

LRA Table 2.4-14 "Fuel Building Components Subject to Aging Management Review", of the LRA for Unit 2 Fuel Building does not include spent fuel rack neutron absorbers. Please confirm that Unit 2 spent fuel rack neutron absorbers are in-scope and subject to an AMR, or provide justification for excluding them from the scope of the LR.

#### **RAI 2.4.14-3**

In Table 2.4-14 "Fuel Building Components Subject to Aging Management Review", of the LRA, floor slab has not been identified as an in-scope component. Please provide justification for excluding floor slab from the scope of the LR.

### **Section 2.4.15**

#### **RAI 2.4.15-1**

As described in BVPS, Unit 2 UFSAR, Section 3.8.4.1.18, Gaseous Waste Storage Enclosure provides biological shielding where required. Table 2.4-15, "Gaseous Waste Storage Vault Components Subject to Aging Management Review", of the LRA does not show this intended function for Unit 2 Gaseous Waste Storage Vault (Enclosure). Please discuss and confirm that biological shielding is an intended function for Gaseous Waste Storage Enclosure.

## **Section 2.4.20**

### **RAI 2.4.20-1**

Unit 2 UFSAR, Section 3.8.4.1.10, discusses Primary Demineralized Water Tank Enclosure. However, the UFSAR references included in Section 2.4.20, "Primary Demineralized Water Storage Tank Pad and Enclosure", of the LRA does not include UFSAR Section 3.8.4.1.10. Please discuss this discrepancy.

### **RAI 2.4.20-2**

Based on the description of Units 1 and 2 Primary Demineralized Water Storage Tank pad/enclosure in Section 2.4.20 of the LRA, missile barrier (MB), fire barrier (FB), and flood barrier (FLB) should be listed as intended functions for the relevant components in Table 2.4-20, "Primary Demineralized Water Storage Tank Pad and Enclosure Components Subject to Aging Management Review," for both units. Please discuss this discrepancy.

## **Section 2.4.21**

### **RAI 2.4.21-1**

Based on Section 2.4.21, "Primary Water Storage Building (Unit 1 Only)", of the LRA, there is no safety related equipment in the Primary Water Storage Building (also known as Primary Grade Water Pump Room). Also, this section states that the building is classified as safety related and provides tornado protection. It appears that the safety classification and intended functions of this building are not consistent with the equipment classification inside the building. Please discuss this inconsistency.

## **Section 2.4.22**

### **RAI 2.4.22-1**

In Section 2.4.22 "Reactor Containment Building" of the LRA, it is stated that the floor liner plate is installed on top of the foundation slab and is then covered with concrete. Please confirm that the inaccessible floor liner plate of the base mat including the leak chase system and the concrete fill slab above this liner are included in the components listed in Table 2.4-22, "Reactor Containment Building Components Subject to Aging Management Review", and are subject to an AMR. If they are not included, please provide justification for their exclusion.

### **RAI 2.4.22-2**

Table 2.4.22, "Reactor Containment Building Components Subject to Aging Management Review", of the LRA lists the Equipment Hatch, Emergency Air Lock, and Personnel Airlocks as Containment components subject to an AMR. Please confirm that the hatch locks, hinges, bolts, and closure mechanisms that help prevent loss of sealing/leak-tightness for these listed hatches are included in the scope of LR and subject to an AMR. As appropriate, please provide a description of their scoping and aging management review or provide the basis for their exclusion.

**RAI 2.4.22-3**

Table 2.4-22, "Reactor Containment Building Components Subject to Aging Management Review", of the LRA for Unit 1 reactor containment building does not include blowout panels as a component subject to an AMR. The blowout panels are included in Table 2.4-22 of the LRA for Unit 2 reactor containment building. Please discuss the scoping difference between Units 1 and 2 reactor containment building relative to blowout panels.

**RAI 2.4.22-4**

Table 2.4-22, "Reactor Containment Building Components Subject to Aging Management Review", of the LRA for Unit 2 reactor containment building does not include vortex baffles and refueling cavity cofferdam as components subject to an AMR. The vortex baffles and refueling cavity cofferdam are included in Table 2.4-22 of the LRA for Unit 1 reactor containment building. Please discuss the scoping difference between Units 1 and 2 reactor containment building relative to these items.

**RAI 2.4.22-5**

From Table 2.4-22, "Reactor Containment Building Components Subject to Aging Management Review", of the LRA, it is not clear if the following components of the Containment Structure have been screened-in and subject to an AMR. Please confirm and explicitly clarify their inclusion in Table 2.4-22, and ensure that the appropriate AMR results are identified or justify their exclusion.

1. Interior concrete floors
2. Primary shield walls
3. Grouted area between the neutron shield tank and primary shield wall
4. Leak chase channels/angles that have been used at the containment liner welded joints (including those at penetrations)
5. Leak chase system (if any) for the refueling cavity liner
6. Floor and/or wall embedded plates/anchorage for Reactor Coolant System (RCS) primary equipment (e.g., reactor vessel, pressurizer, steam generators, reactor coolant pump)
7. Reactor vessel support (foot) assembly (BVPS Unit 1 UFSAR Figure 5.2-2 and BVPS Unit 2 UFSAR Figure 5.4-10)
8. Missile shields (Unit 1)
9. Radiation shield panels (Unit 2)
10. Penetration bellows (Unit 2)

11. Neutron shields (Unit 2)
12. Sheet piling and concrete wales shown in BVPS UFSAR Figure 5.1-5 (Unit 1) and Figure 3.8-6 (Unit 2)
13. In reference to the NRC Information Notice 98-26, the 4 inch (minimum) porous concrete sub-base under the containment base mat providing drainage for the emergency seepage removal system as described in Section 5.2.1 and 3.8.1.1.1 of Units 1 and 2 BVPS UFSAR, respectively.
14. Emergency seepage removal system, including concrete shafts extending from grade to the instrument pits located in the top of the containment foundation mat.

### **Section 2.4.23**

#### **RAI 2.4.23-1**

Based on the description of Units 1 and 2 Refueling Water Storage Tank and Chemical Addition Tank Pad in Section 2.4.23 of the LRA, MB, FB, and FLB should be listed as intended functions for the relevant components in Table 2.4-23, "Refueling Water Storage Tank and Chemical Addition Tank Pad and Surrounding - Components Subject to Aging Management Review". Please discuss the missing intended functions.

### **Section 2.4.24**

#### **RAI 2.4.24-1**

Based on the description of Relay Building in Section 2.4.24, "Relay Building (Common)", of the LRA both the original building and the addition to the building have masonry block exterior walls. This description is not consistent with Table 3.5.2-24 of the LRA which lists the material for the exterior walls of the Relay Building as concrete. Please discuss this inconsistency.

### **Section 2.4.25**

#### **RAI 2.4.25-1**

As shown on Figures 3.8-2 and 3.8-5 and as noted in Table 3.6B-2 of the BVPS Unit 2 UFSAR, the recirculation spray coolers and pumps are located in the Safeguards building. As noted in Table 2.4-22, "Reactor Containment Building Components Subject to Aging Management Review", of the LRA the Unit 1 recirculation spray cooler shield and support are considered in-scope. Table 2.4-25, "Safeguards Building Components Subject to Aging Management Review", of the LRA does not include the recirculation spray coolers and associated supports for Unit 2. Please discuss and provide the basis for the exclusion of these components from the scope of the LR.

## **Section 2.4.26**

### **RAI 2.4.26-1**

Table 2.4-26, "Service Building Components Subject to Aging Management Review", of the LRA for Unit 2 Service Building does not include exterior walls below grade indicating that this building is a surface founded structure. Considering the pipe tunnel elevation and information in Table 3.7B-2 of the BVPS Unit 2 UFSAR, please provide justification for the exclusion of exterior walls below grade from the scope of the license renewal.

### **RAI 2.4.26-2**

Based on a review of Figures 3.8-45 and 3.8-46 of the BVPS Unit 2 UFSAR, there is a sump pit in Unit 2 Service Building. The sump pit(s) should be considered in-scope and subject to an AMR. Please provide justification for the exclusion of Unit 2 Service Building sump pit(s) from the scope of the license renewal.

## **Section 2.4.27**

### **RAI 2.4.27-1**

Based on Section 2.4.27, "Solid Waste Building (Unit 1 only)", of the LRA the Unit 1 solid waste building is designated as a safety related and Seismic Category I Structure. The list of intended functions for this building for 10 CFR 54.4(a)(1) requirements should include missile barrier to be consistent with the intended functions listed in Table 2.4-27, "Solid Waste Building (Unit 1 Only) Components Subject to Aging Management Review", of the LRA. Please discuss this discrepancy.

## **Section 2.4.28**

### **RAI 2.4.28-1**

Table 2.4-28, "South Office and Shops Building (Common) Components Subject to Aging Management Review", of the LRA does not include floor slabs as in-scope component subject to an AMR. The floor slabs (horizontal diaphragms) are an integral part of lateral load resisting system (the floor slabs transfer the wind/seismic loads to the vertical bracing system). Please provide justification for the exclusion of floor slabs from the scope of the LR.

## **Section 2.4.31**

### **RAI 2.4.31-1**

The intended function of Turbine Building should include 10 CFR 54.4(a)(2) since this building is adjacent to safety related structures and it is designed not to collapse as described in Section 2.4.31, Turbine Building", of the LRA. Please discuss this discrepancy.

**RAI 2.4.31-2**

Table 2.4-31 "Turbine Building Components Subject to Aging Management Review", of the LRA for Unit 2 Turbine Building does not include exterior walls below grade. Considering the turbine building foundation elevation (715.3 feet) shown in Figure 2.5.4-41 and final plant grade elevation of 735 feet shown in Figure 2.5.4-8 of the BVPS Unit 2 UFSAR, please discuss Unit 2 Turbine Building exterior wall embedment below grade and provide justification for the exclusion of exterior walls below grade from the scope of the license renewal.

**Section 2.4.32**

**RAI 2.4.32-1**

Based on the description of Unit 1 Valve Pit in Section 2.4.32 of the LRA, a sump pit is located at the bottom of each compartment. Table 2.4-32 "Valve Pit Components Subject to Aging Management Review", of the LRA does not include the sump pit(s). Please confirm that the sump pit(s) are in-scope and subject to an AMR or provide justification for their exclusion from the scope of the LR.

**Section 2.4.33**

**RAI 2.4.33-1**

In accordance with BVPS Unit 2 UFSAR Section 3.8.4.1.16, the Waste Handling building is designed to provide biological shielding where required. Table 2.4-33, "Waste Handling Building (Unit 2 only) Components Subject to Aging Management Review", of the LRA does not include shielding as intended function of components identified in this table. Please discuss this discrepancy.

**Section 2.4.35**

**RAI 2.4.35-1**

Based on the description of Section 2.4.35 "Yard Structures" of the LRA, the concrete (fire) walls are included in the scope of the license renewal. Consistent with this statement, fire protection should be an intended function of yard structures. In Section 2.4.35, "Yard Structures," of the LRA under the heading of 10 CFR 54.4(a)(3) only Station Blackout (SBO) has been identified as an intended function. Please discuss this discrepancy.

**Section 2.4.36**

**RAI 2.4.36-1**

Cranes, hoists and miscellaneous monorails are listed in Section 2.4.36, "Bulk Structural Commodities", of the LRA as in-scope components. Please confirm that this component type includes all cranes/monorails/hoists within in-scope structures (e.g., bridge crane in the Turbine Building, permanent auxiliary crane in the containment building, or refueling cavity manipulator crane).

**RAI 2.4.36-2**

Table 2.4-36, "Bulk Structural Commodities - Components Subject to Aging Management Review", of the LRA includes "Crane girders and rails" as a component type subject to an AMR. Please confirm that other relevant components of the cranes and monorails (bridge and trolley, rail hardware, etc.) are within the scope of the LR and subject to an AMR.

**RAI 2.4.36-3**

Referring to Table 2.4-36, "Bulk Structural Commodities - Components Subject to Aging Management Review", of the LRA, please discuss if the following component types apply to the BVPS and should be screened in and subject to an AMR or provide basis for their exclusion from the scope of the LR.

1. Grout pads for equipment and support (including building columns) base plates
2. Vibration Isolators (if any) at the interface between the equipment and the support structure
3. Steel or concrete missile shields and associated supports (support members, welds bolts, etc.)
4. Tank Foundations
5. Battery Racks
6. Plant Vent Stack
7. Radiation Shield Panels