May 8, 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. 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

May 8, 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. 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

DISTRIBUTION: See following pages
ADAMS Accession No.: **ML081050543**

OFFICE	LA:DLR	BC:RER2:DLR	PM:RPB2:DLR	BC:RPB2:DLR
NAME	Iking	RAuluck w/comments	KHoward	RFranovich
DATE	04/30/08	04//30/08	04/25/08	05/08/08

OFFICIAL RECORD COPY

BEAVER VALLEY POWER STATION (BVPS), UNITS 1 AND 2
LICENSE RENEWAL APPLICATION (LRA)
REQUESTS FOR ADDITIONAL INFORMATION (RAI), LICENSE RENEWAL APPLICATION
SECTIONS 3.5.2.1, 3.5.2.2, 3.5.2.3, B.2.1, B.2.3 AND 4.6

Section B.2.1, Appendix J

RAI B.2.1-1

In LRA Section 2.1, the applicant stated in the "Program Description" aging management program (AMP) element that BVPS uses option B, the performance-based approach to implement the containment leak rate tests. Since the relaxation of option B of the Integrated Leak Rate Test (ILRT) frequency is based on the risk impact assessment, the applicant is required to assess the risk impact incorporating the liner corrosion on the inaccessible side based on the 2006 findings for the period of extended operation. Please provide this assessment.

RAI B.2.1-2

Prior to initiating an ILRT test, a visual examination has to be conducted of accessible interior and exterior surfaces of the containment system. The purpose of the visual examination is to detect and repair, if necessary, structural degradation before an ILRT is performed. Since steel liner degradation may exist on the inaccessible side at BVPS, please explain how you addressed this issue in the ILRT pretest procedure.

Section B.2.3, IWE

RAI B.2.3-1

In LRA Section 2.3, the applicant stated in the "Operating Experience" AMP element that a temporary construction opening of Unit 1 containment in 2006 during the cycle 17 refueling outage revealed degradation from the inaccessible side of steel liner for which the applicant could not identify a root-cause from the observations in field or from the lab analysis. Since the steel liner is a key component in ensuring the essential leak-tight condition of the containment, please provide information related to the minimum required thickness of the liner. Include a discussion on the possibility and severity of the similar corrosion at other locations including Unit 2 containment, and to justify if the corrosion is active or not. If the corrosion is an aging effect, the GALL Report recommends further evaluation of plant-specific programs to manage this aging effect for inaccessible areas if corrosion is significant.

RAI B2.3-2

In the LRA Section 2.3, the applicant stated in the "Operating Experience" AMP element that following the Unit 1 cycle 17 refueling outage test procedures for the evaluation of the Containment liner plates were modified at both units. Please identify which test procedures or

part of the procedures have been modified because of this finding and how it compares with the previous procedures, as well as the procedures provided by ASME Section XI, Subsection IWE. Explain whether the modified test procedures can help to detect a similar containment liner degradation on the side in contact with concrete. If not, please explain how to ensure that the similar degradation, if any, will be detected.

RAI B2.3-3

The GALL AMP XI.S1, ASME Section XI, Subsection IWE states that ASME Section XI paragraph IWE-1240 requires augmented examinations of containment surface areas that are subject to degradation. Under the BVPS inservice inspection (ISI) Program - IWE, explain historically what inspection findings, including the 2006's findings of the liner degradation on the side in contact with concrete, have led to the need for augmented inspections. Explain any augmented inspections currently being performed on the containment surfaces; and if so, please provide the containment locations that are within the scope of the augmented inspections and what type of inspections have been performed.

Section B.2.4, IWF

RAI B.2.4-1

In LRA Section B.2.4 IWF AMP, the applicant identified six exceptions to GALL AMP XI.S3 due to the use of 1989 ASME edition. These exceptions included use of specific ASME Section XI Code Case N-491 as alternate rules for examination. The BVPS chose to use ASME Code Case N-491. However, in the "Operating Experience" element, the applicant indicated that Table IWF-2500-1 of ASME Section XI, Subsection IWF, 1989 edition was used instead of Table 2500-1 of Code Case N-491. Please clarify this issue and provide what version of Code Case N-491 was used.

Section 3.5.2.1

RAI 3.5.2.1-1

Item 15 of LRA Table 3.5.2-36 refers to GALL Item VII.G-8, for cable trays and conduits component, aluminum material, exposed to raw water environment, and loss of material aging effect. GALL Item VII.G-8 recommends the Fire Protection Program to manage the aging effect. However, the Structures Monitoring Program is credited in the LRA. Please justify why the applicant's Fire Protection Program is not credited, and how the applicant's Structures Monitoring Program includes all GALL suggested elements of the Fire Protection Program for this line item.

RAI 3.5.2.1-2

Line items 36, 37, 38 and 248 of LRA Table 3.5.2-36 refer to GALL Item III.A6-11. GALL Item III. A6-11 recommends RG 1.127 program to manage the loss of material aging effect. However, the applicant's ASME Section XI, Subsection IWF Program is credited for these items. Please discuss how the elements of the RG 1.127 program are included in the applicant's ASME Section XI, Subsection IWF Program.

RAI 3.5.2.1-3

Item 3 of LRA Table 3.5.2-17 refers to GALL Item VII.C3-7, for screen guides component, alloy steel material, exposed to raw water environment, and loss of material aging effect. GALL Item VII.C3-7 suggests the Open-Cycle Cooling Water System Program to manage the aging effect. However, the applicant's Structures Monitoring Program is credited for this item. Please justify why the applicant's Open-Cycle Cooling Water System Program is not credited, and how the applicant's Structures Monitoring Program covers all GALL suggested elements of the Open-Cycle Cooling Water System Program for this item.

RAI 3.5.2.1-4

Some line items in LRA Table 3.5.2 refer to Note 518. Note 518 stated "The Structures Monitoring (B.2.39) Program is used to manage aging of these components. BVPS did not credit the RG 1.127 program, Inspection of Water-Control Structures Associated with Nuclear Power Plants, for managing aging. However, the Structures Monitoring (B.2.39) Program includes the elements of the RG 1.127 program necessary for BVPS structures." Please discuss how the elements of the RG 1.127 program are included in the applicant's Structures Monitoring Program.

Section 3.5.2.2

RAI 3.5.2.2-1

In LRA Subsection 3.5.2.2, the applicant stated that the concrete specifications for BVPS concrete were designed in accordance with ACI 318 and constructed in accordance with ACI 301 using materials conforming to ACI and ASTM standards. The GALL Report suggests that concrete is constructed in accordance with the recommendations in ACI 201.2R for a quality concrete with low water-to-cement mix ratio (0.35-0.45), smaller aggregate, long curing period, adequate air entrainment (3-6%), and through consolidation. Please compare BVPS concrete with ACI 201.2R including water-to-cement ratio and air content.

RAI 3.5.2.2-2

In LRA Section 3.5.2.2.1.1 and Item 3.5.1-01 of LRA Table 3.5.1, the applicant concluded that aging of concrete areas due to corrosion of embedded steel is not applicable to containment structures. However, in LRA Appendix B.2.5, "ASME Section XI, Subsection IWL", the following statement is made: "Previous BVPS Containment Building inspections have identified minor issues such as mildew and rust stains, spalling, surface cracks, and loose foreign materials."

Please clarify if corrosion of embedded steel is the cause for rust stains and spalling and surface cracks. If yes, justify your conclusion in the LRA that the aging effect is not applicable, and related items in LRA Table 3.5.1 and Table 3.5.2.

RAI 3.5.2.2-3

In LRA Section 3.5.2.2.1.1, the applicant concluded that the aging of concrete areas due to aggressive chemical attack is not applicable to concrete components below grade since BVPS groundwater chemistry is non-aggressive. The staff noted that the applicant has included groundwater monitoring under the Structures Monitoring Program. But there is no reference to any program to monitor BVPS above grade chemical conditions such as chemistry in air and rain due to the fact of surrounding industrial plants. If such inspections have been conducted, please specify the inspection frequency and chemical elements examined.

RAI 3.5.2.2-4

In LRA section 3.5.2.2.1.7, the applicant suggests that cracking due to SCC is not an applicable aging effect for the stainless steel penetration sleeves and bellows. However, SCC of the dissimilar metal welds is not discussed. Please (1) confirm whether cracking due to SCC is an applicable aging effect for dissimilar metal welds or not, (2) provide the history of the highest temperature that stainless steel penetration sleeves, penetration bellows, and dissimilar metal welds have been experienced, and (3) demonstrate what chemical elements that would support SCC have been monitored/inspected to ensure a none aggressive chemical environment.

Section 3.5.2.3

RAI 3.5.2.3-1

For Item 1 of LRA Table 3.5.2-20, the applicant indicates that no aging effect requires management and therefore no AMP is applied for pile component type, carbon steel material, and below grade environment. Notes G and 512 are used for this line item. Note 512 states "Pipe piles driven in soils have been shown to be unaffected by corrosion." However, Note 526 states "Pipe piles driven into disturbed soils have been shown to experience only minor to moderate corrosion." Please justify why corrosion is not an aging effect for carbon steel material in below grade environment. If the pipe piles are vulnerable to corrosion, please explain how to monitor/inspect the factors of soil aggressiveness that would support pipe pile corrosion.

RAI 3.5.2.3-2

For Items 1 and 15 of LRA Table 3.5.2-25, the applicant indicates that no aging effect requires management and therefore no AMP is applied for pump casement component type, carbon steel material, and below grade environment However, carbon steel is susceptible to corrosion in soil. Please justify why corrosion is not an aging effect for carbon steel material in below grade environment for pump casement component.

RAI 3.5.2.3-3

Items 4, 5, 6, 21, 22, and 23 of LRA Table 3.5.2-14 and Items 11, 12, 32, 38, 39, 77, 78, 95 and 97 of LRA Table 3.5.2-22 refer to GALL Item III.A5-13 and Notes I. GALL Item III.A5-13 is associated with (1) cracking due to SCC and (2) loss of material due to pitting and crevice corrosion for fuel pool liners. The staff notices that loss of material due to pitting and crevice corrosion is an applicable aging effect at BVPS. However, Note I suggests that the aging effect is not applicable. Please clarify why Note I is used for these line items.

RAI 3.5.2.3-4

Items 221 and 222 of LRA Table 3.5.2-36 refer to Notes J and 527 for elastomer material and below grade environment,. For these two line items, no aging effect is identified and no AMP is applied by the applicant. Note J states “Neither the component nor the material and environment combination is evaluated in NUREG-1801”, and Note 527 states “These below-grade elastomer components are sheltered from air, elevated temperature, and ultraviolet and ionizing radiation. They do not have aging effects requiring management.” Please provide the technical basis of not having aging effects requiring management for elastomer material in below grade environment.

Section 4.6, Containment Liner TLAA

RAI 4.6.2-1

In LRA Section 4.6.2, “Containment Liner Corrosion Allowance,” the applicant specified the corrosion allowance of the liner floor plate and the projected penetration due to corrosion of the inserted channel to the end of the period of extended operation. The staff reviewed the related on-site basis documents and found that a different thickness for corrosion allowance was calculated in one of the documents. Please explain the discrepancy of the corrosion allowance for the liner floor plate.

Letter to P. Sena from K. Howard, dated May 8, 2008

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)

DISTRIBUTION:

E-MAIL:
PUBLIC
SSmith (srs3)
SDuraiswamy
RidsNrrDlr
RidsNrrDlrRlra
RidsNrrDlrRlrb
RidsNrrDlrRlrc
RidsNrrDlrReba
RidsNrrDlrRebb
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

David W. Jenkins, Attorney
FirstEnergy Nuclear Operating Company
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

Ohio EPA-DERR
ATTN: Zack A. Clayton
P.O. Box 1049
Columbus, OH 43266-0149

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

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

Commissioner James R. Lewis
West Virginia Division of Labor
749-B, Building No. 6
Capitol Complex
Charleston, WV 25305

Director, Utilities Department
Public Utilities Commission
180 East Broad Street
Columbus, OH 43266-0573

Director, Pennsylvania Emergency
Management Agency
2605 Interstate Drive
Harrisburg, PA 17110-9364

cc:

Dr. Judith Johnsrud
Environmental Coalition on Nuclear Power
Sierra Club
433 Orlando Avenue
State College, PA 16803

Director
Bureau of Radiation Protection
Pennsylvania Department of
Environmental Protection
Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469

Mayor of the Borough of Shippingport
P.O. Box 3
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

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

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