

April 17, 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. MD 6593 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 by e-mail at klh1@nrc.gov.

Sincerely,

/RA/

Kent L. Howard, Sr. Project Manager
Reactor 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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|--------|-----------|-----------|-------------|-------------|
| OFFICE | LA:DLR | SBPB:DSS | PM:RPB2:DLR | BC:RPB2:DLR |
| NAME | SFigueroa | SGardocki | KHoward | RFranovich |
| DATE | 4/16/08 | 4/16/08 | 4/16/08 | 4/17/08 |

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BEAVER VALLEY POWER STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION (RAI), SECTIONS 2.2, 2.3.3.4, 2.3.3.7, 2.3.3.12,
2.3.3.14, 2.3.3.16, 2.3.3.17, 2.3.3.19, 2.3.3.21

Section 2.2, Plant Level Scoping Results

RAI 2.2-1

In License Renewal Application (LRA) Table 2.2-2, Mechanical Systems Not Within the Scope of License Renewal, the applicant indicates that the Unit 1 area ventilation systems – Auxiliary Building is not in scope of license renewal. However, in Unit 1 UFSAR Section 9.13.2, the applicant states the Unit 1 area ventilation system – Auxiliary Building has automatic dampers that divert the system’s exhaust air stream through one of the supplementary leak collection and release system (SLCRS) filter banks upon a high-high radiation alarm. Additionally, the applicant states that the charging pump cubicles’ ventilation subsystem has features that provide a level of fire protection equivalent to Appendix R, Section III.G.2.

Justify why the Unit 1 area ventilation systems - Auxiliary Building is not considered within the scope of license renewal based on criteria 54.4(a)(1)(iii) and 54.4(a)(3), which are to prevent or mitigate the consequences of accidents that could result in potential offsite exposure in excess of limits and to meet fire protection regulations, respectively.

RAI 2.2-2

In LRA Sections 2.4.12 and 2.4.11, the applicant states that the emergency response facility (ERF) Substation Building and ERF Diesel Generator Building structures are in scope of license renewal based on 10 CFR 54.4(a)(3), because they provide structural or functional support required to meet anticipated transient without scram (ATWS) and fire protection. In LRA Section 2.4.11, the applicant states that the ERF Diesel Generator Building houses the nonsafety-related ERF diesel generator (also known as the reserve generator or the black diesel). This generator provides electric power via the ERF substation switchgear to the Unit 1 dedicated auxiliary feedwater pump, the ATWS mitigating system actuating circuitry (AMSAC) panel, and equipment associated with the Unit 2 diesel-driven station air compressor. However, in LRA Table 2.2-2, the ERF fire protection system is identified as a mechanical system not within the scope of license renewal.

Justify the exclusion of the ERF fire protection system, located within the ERF Diesel Generator Building structure, from the scope of license renewal based on 10 CFR 54.4(a)(3).

Section 2.3.3.4, Building and Yard Drains System

RAI 2.3.3.4-1 (Unit 1)

On license renewal drawing 1-41D-2, the applicant highlights piping and other components of the Turbine and Service Building and yard drains system as being included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for spatial concerns. However, at

locations D7 and E9, the applicant does not highlight the vents and flanges associated with the following equipment: tank DA-TK-2, oil interceptor DA-SP-1, and flow controller, indicating they are not within the scope for 10 CFR 54.4(a)(2) spatial concerns.

Justify the exclusion of the above-mentioned components from the scope of license renewal.

Section 2.3.3.7, Compressed Air System

RAI 2.3.3.7-1 (Unit 2)

On license renewal drawing 2-34-2, the applicant highlights piping from the standby instrument air train that supplies backup containment instrument air as being within the scope of license renewal. The applicant highlights a 1-inch branch line to valve 614 in the Cable Vault Building at location F-5, which has a continuation arrow and note, indicating that it supplies downstream components in the containment penetrations cubicle. Also, the applicant highlights a 1-inch branch line and a ¾-inch branch line in the Auxiliary Building at location E-10, which have continuation arrows, indicating they supply some downstream components. The staff is unable to confirm which components are within the scope of license renewal and subject to an aging management review downstream of these continuation lines.

Describe the components that are connected by the ¾-inch and two 1-inch compressed air branch lines and their intended function or provide a copy of the continuation drawings for these branch lines identifying the components to be included within the scope of license renewal, as appropriate.

RAI 2.3.3.7-2 (Unit 2)

In LRA Section 2.3.3.7, the applicant states that the compressed air system provides compressed air to position air-operated valves that are required for post-fire safe shutdown for fire protection in accordance with 10 CFR 54.4(a)(3). On license renewal drawing 2-34-3, between locations B-1 and B-8, the applicant highlights a 3-inch containment instrument air loop header, indicating that it is within the scope of license renewal. The applicant places, at locations B-5 and B-1, two system 2-34 scoping boundary flags on the 3-inch containment instrument air loop header. The downstream section of this piping is not isolable from the part of the header that is within the scope of license renewal should a loss of pressure occur from a break of this downstream 3-inch containment instrument air loop header.

In NUREG-1800, Revision 1, page 2.1-8, the staff guidance for the review of scoping methodology to identify SSCs that are credited by regulated events, states in part, that “all SSCs that are relied upon in the plant’s current licensing basis (CLB) (as defined in 10 CFR 54.3), plant-specific operating experience, industry-wide experience (as appropriate), and safety analyses or plant evaluations to perform a function that demonstrates compliance with NRC regulations identified under 10 CFR 54.4(a)(3), are required to be included within the scope of the rule.”

On June 20, 2007, San Onofre Nuclear Generating Station Unit 2 experienced a loss of instrument air due to a failure of a joint in its 3-inch instrument air header, which resulted in a reactor trip. This event was reported in a letter regarding Docket No. 50-361, Licensee Event Report Nos. 2007-001 and 2007-002, San Onofre Nuclear Generating Station, Unit 2, dated August 17, 2007 (ML072400282). This event represents relevant industry operating experience of an instrument air header failure that would be applicable to the Beaver Valley license renewal application.

Justify the exclusion of the entire 3-inch containment instrument air loop header within the scope of license renewal in accordance with 10 CFR 54.4(a)(3).

RAI 2.3.3.7-3 (Unit 2)

In LRA Section 2.3.3.7, the applicant states that the Unit 2 compressed air system provides compressed air to position air-operated valves required for post-fire safe shutdown in accordance with 10 CFR 54.4(a)(3).

In Unit 2 UFSAR Section 9.5A.1.2.3.1.12, the applicant states that two station air compressors (2SAS-C21A and 2SAS-C21B) direct air to the required components via a cross-connect to the containment instrument air header station to position several flow control, hand control, and air operated valves that are required for post-fire safe shutdown.

On license renewal drawings 2-34-1A and 2-34-2, the applicant does not highlight the station service air compressors 2SAS-C21A and 2SAS-C21B at locations D-7 and F-7, nor the station service air system piping, air receivers, and air dryer components that connect to the standby instrument air train header.

a) Provide an explanation of the apparent difference in the credited source of compressed air for post-fire safe shutdown between the UFSAR and the application.

b) Justify the exclusion of the identified portions of station service air system piping and components on license renewal drawings 2-34-2 and 2-34-1A from the scope of license renewal that are credited for post-fire safe shutdown in accordance with 10 CFR 54.4(a)(3).

Section 2.3.3.12, Emergency Diesel Generators – Air Start System

RAI 2.3.3.12-1 (Unit 1 and Unit 2)

On license renewal drawing 1-36-1 for the emergency diesel generators - air start system, at locations E2, E3, E7, E8, F4, F6, and F9, the applicant highlights strainers and filters as being within the scope of license renewal. Also, on license renewal drawing 2-36-3 for the emergency diesel generators - air start system, at locations B2, D4, E5, B7, D9, and E10, the applicant highlights strainers and filters as being within the scope of license renewal. In LRA Table 2.3.3-12, the applicant identifies that component types “strainer body” and “filter housing” are within the scope of license renewal, for the purpose of a pressure boundary intended function in accordance with 10 CFR 54.4(a)(1).

NEI 95-10, Revision 6, Table 4.1-1, Typical Passive Structure and Component Intended Functions, identifies that filtration is an intended function for the component type, “filter.” However, in LRA Table 2.3.3-12, the applicant does not identify component type “filter” with the intended function of filtration.

Justify the exclusion of the intended function “filtration” for the above mentioned component types, strainers and filters, in the emergency diesel generators – air start system from LRA Table 2.3.3-12.

RAI 2.3.3.12-2 (Unit 2)

In Unit 2 UFSAR Section 3.6B.1.3.3.1, the applicant states that for all high-energy lines outside containment, each postulated break type and orientation is investigated to determine if the unrestrained whipping of severed pipe could impact and damage any safety components. In UFSAR Section 3.6B.1.1.1, the applicant defines high-energy piping systems as fluid systems that are either in operation or maintained pressurized under conditions where either or both of the following are met: a maximum operating temperature exceeding 200°F or pressure exceeding 275 psig. The Unit 2 EDG air start system operates at pressures greater than 425 psig and contains fluids; therefore, this system meets the definition of a high-energy piping system. On license renewal drawing 2-36-3, the applicant does not highlight parts of the EDG air start system, indicating it is not within the scope of license renewal.

Justify the exclusion of the non-highlighted EDG air start piping from the scope of license renewal.

Section 2.3.3.14, Emergency Diesel Generators – Fuel Oil System

RAI 2.3.3.14-1 (Unit 1)

On license renewal drawing 1-36-2 for the emergency diesel generators - fuel oil system, the applicant does not highlight the “diesel generator fuel oil holding tank,” EE-TK-6, at location D4. In UFSAR Section 9.14.6, the applicant describes that the contents of the holding tank are sampled prior to transferring oil to the diesel generator storage tanks.

Justify the exclusion of the diesel generator fuel oil holding tank from the scope of license renewal.

Section 2.3.3.16, Emergency Diesel Generators – Water Cooling System

RAI 2.3.3.16-1 (Unit 2)

For the emergency diesel generators - water cooling system, the applicant indicates that coolingwater is supplied to the turbo chargers for both emergency diesel generator 2EGS-EG2-1 on license renewal drawings 2-36-4A at locations D7 and E7, and for emergency diesel generator 2EGS-EG2-2 on license renewal drawings 2-36-4B at locations D7 and E7.

In LRA Tables 2.3.3-11 and 2.3.3-16, the applicant lists Components Subject to Aging Management Review for the emergency diesel generators - air intake and exhaust system, and the emergency diesel generators - water cooling system, respectively. In LRA Table 2.3.3-11, the applicant includes the component type, "turbo charger housing." In LRA Table 2.3.3-16, the applicant does not include "turbo charger housing" as a component type.

In LRA Tables 3.3.2-11 and 3.3.2-16, the applicant identifies the Summary of Aging Management Evaluations for the emergency diesel generators - air intake and exhaust system and the emergency diesel generators - water cooling system, respectively. In LRA Table 3.3.2-11, the applicant identifies a component type of "turbo charger housing." The applicant does not identify an environment of closed cooling water for "turbo charger housing," and only identifies air as an environment. In addition, in LRA Table 3.3.2-16, pages 3.3-412 through 3.3-422, the applicant does not identify a component type of "turbo charger housing."

Justify the exclusion of the component type "turbo charger housing" from LRA Tables 2.3.3-16 and 3.3.2-16. Justify the exclusion of the associated environment of "closed cooling water" in LRA Tables 3.3.2-11 and 3.3.2-16, Summary of Aging Management Evaluations.

Section 2.3.3.17, Emergency Response Facility Substation System

RAI 2.3.3.17-1 (Common)

On license renewal drawing 1-58E-1, at location C-7, the applicant highlights a component labeled "injector," as being included within the scope of license renewal in accordance with 10 CFR 54.4(a). In LRA Tables 2.3.3-17 and 3.3.2-17, the applicant does not list the injector as a component type with an intended function of pressure boundary.

Clarify that the component type "injector" should be included within the scope of license renewal in LRA Tables 2.3.3-17 and 3.3.2-17, or if "injector" is included within the scope under another component type.

RAI 2.3.3.17-2 (Common)

In the Unit 2 UFSAR Section 9.5A.1.2.3.1.12, the applicant states that the black diesel, located in Unit 1, supplies electric power to the station air compressors subsequent to the loss of offsite power (LOOP). In LRA Section 2.3.3-17, the applicant does not describe this function as a part of the system intended functions in accordance with 10 CFR 54.4 (a)(3).

Justify why the function of the black diesel to supply the station air compressors should not be included as an intended function under 10 CFR 54.4 (a)(3).

RAI 2.3.3.17-3 (Common)

In the Unit 2 Fire Protection Safe Shutdown Report, Section 3.50.3, the applicant states that the black diesel is assumed lost following a fire in Unit 1. However, in LRA Section 2.3.3-17, the applicant states that the black diesel supplies the Unit 1 dedicated nonsafety-related auxiliary feedwater pump with a highly reliable source of electrical power.

Explain if the black diesel is assumed lost in a Unit 1 fire, how the diesel can supply power to the Unit 1 dedicated nonsafety-related auxiliary feedwater pump which is credited in a Unit 1 fire that causes the loss of the three safety-related auxiliary feedwater pumps.

RAI 2.3.3.17-AMR-1

In the Unit 1 UFSAR Section 8.4.5, the applicant describes a buried 30,000 gallon fuel oil storage tank. In LRA Table 3.3.2-17, the applicant does not include an exterior environment of soil listed for component type “tank.”

Clarify that the 30,000 gallon fuel storage tank is subject to an aging management review or justify its exclusion.

Section 2.3.3.19, Fuel Pool Cooling and Purification System

RAI 2.3.3.19-1 (Unit 1)

In LRA Table 2.4-14 for the Unit 1 Fuel Building and LRA Table 2.4-22 for the Unit 1 Reactor Containment Building, the applicant identifies the spent fuel pool liner and the refueling cavity liner as subject to aging management review with the intended function of structural pressure boundary. On license renewal drawing 1-20-1 for the Unit 1 fuel pool cooling and purification system, the applicant does not highlight the component spent fuel pool skimmer, 1FC-SK-1, at location A3, and associated piping and refueling cavity skimmer 1FC-SK-2 at location A-10. Skimmers 1FC-SK-1 and 1FC-SK-2 appear to be structurally attached to the spent fuel pool liner and refueling cavity liner, respectively.

Justify why skimmers 1FC-SK-1 and 1FC-SK-2, and their associated piping, do not have an intended function of structural pressure boundary.

Section 2.3.3.21, Liquid Waste Disposal System

RAI 2.3.3.21-1 (Unit 1 and Unit 2)

In LRA Table 2.3.3-21, Components Subject to Aging Management Review, the applicant lists all of the components in the liquid waste disposal system to be within the scope of license renewal with an intended function of “leakage boundary (spatial).” On the license renewal

drawings identified below, the applicant does not highlight several components. These identified components are in the same room/building as other components in this system, which are highlighted as being within the scope of license renewal.

Justify the exclusion of the following components from the scope of license renewal for leakage boundary:

| <u>Drawing</u> | <u>Location</u> | <u>Component</u> |
|----------------|-----------------|--|
| 2-17-1 | B-4 | tank vent for waste drain tanks TK-21A |
| | B-1 | tank vent for waste drain tanks TK-21B |
| 1-17-1 B-5 | | tank vent for tank LW-TK-2A |

| <u>Drawing</u> | <u>Location</u> | <u>Component</u> |
|----------------|-----------------|--------------------------------|
| | B-7 | tank vent for tank LW-TK-2B |
| | B-1 | tank vent for tank LW-TK-3A |
| | B-3 | tank vent for tank LW-TK-3B |
| | E-1 | tank vent for tank LW-TK-6A |
| | E-3 | tank vent for tank LW-TK-6B |
| 1-17-3 B-4 | | pipng line with valve ILW-486. |

RAI 2.3.3.21-2 (Unit 1)

On license renewal drawing 1-17-2, the applicant highlights expansion joint MEJ-LW-1, at location E-2, which indicates that this expansion joint is within the scope of license renewal in accordance with 10 CFR 54.4(a). However, in LRA Tables 2.3.3-21 and 3.3.2-21, the applicant does not list this component type “expansion joint;” whereas, other LRA tables include component type “expansion joint” in applicable systems.

Justify the exclusion of component type “expansion joint” from the scope of license renewal in LRA Tables 2.3.3-21 and 3.3.2-21.

Letter to P. Sena from K. Howard, dated April 17, 2008

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HARD COPY:

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E-MAIL:

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SSmith (srs3)

SDuraiswamy

RidsNrrDir

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RidsNrrDciCvib

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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

Beaver Valley Power Station,
Units 1 and 2

- 2 -

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