



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 11, 2015

Mr. Eric A. Larson, Site Vice President  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
Mail Stop A-BV-SEB1  
P.O. Box 4, Route 168  
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNITS 1 AND 2 - REQUEST FOR  
ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT  
REQUEST TO ADOPT NATIONAL FIRE PROTECTION ASSOCIATION  
STANDARD 805 (TAC NOS. MF3301 AND MF3302)

Dear Mr. Larson:

By letter dated December 23, 2013, as supplemented by letters dated February 14, 2014, and April 27, 2015, FirstEnergy Nuclear Operating Company (the licensee), submitted a license amendment request to change the Beaver Valley Power Station, Units 1 and 2, fire protection program to one based on the National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, as incorporated into Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.48(c). To complete its review, the Nuclear Regulatory Commission staff requests a response to the enclosed Request for Additional Information questions.

The draft questions were sent to Mr. Phil Lashley, of your staff, to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. Please respond to the enclosed questions by June 26, 2015.

If you have any questions regarding this matter, please contact me at (301) 415-7128.

Sincerely,

A handwritten signature in black ink, appearing to read "Taylor A. Lamb", is written over the word "Sincerely,".

Taylor A. Lamb, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST TO ADOPT  
NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805  
PERFORMANCE BASED STANDARD FOR FIRE PROTECTION  
FOR LIGHT WATER REACTOR GENERATING PLANTS  
FIRSTENERGY NUCLEAR OPERATING COMPANY  
BEAVER VALLEY POWER STATION, UNITS 1 AND 2  
DOCKET NOS. 50-334 AND 50-412

By letter dated December 23, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14002A086), as supplemented by letters dated February 14, 2014, and April 27, 2015 (ADAMS Accession Nos. ML14051A499 and ML15118A484, respectively), FirstEnergy Nuclear Operating Company (the licensee), submitted a license amendment request (LAR) to change the Beaver Valley Power Station, Units 1 and 2 (BVPS-1 and BVPS-2, respectively) fire protection program to one based on the National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, as incorporated into Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.48(c). To complete its review, the Nuclear Regulatory Commission (NRC) staff requests a response to the Request for Additional Information (RAI) questions below.

**Human Factors RAI 01**

The regulations in 10 CFR Section 50.34(f) contain requirements related to Three Mile Island that address the human factors design considerations for Main Control Rooms (MCRs). Section 50.34(f)(2)(iii) of 10 CFR states:

Provide, for Commission review, a control room design that reflects state-of-the-art human factor principles prior to committing to fabrication or revision of fabricated control room panels and layouts.

Chapter 18.0, "Human Factors Engineering," of NUREG-0800, "Standard Review Plan," identifies guidance that may apply to the review of new/modified fire protection controls, alarms, displays and for the review of manual operator actions that may be altered by the use of new/modified hardware. The following questions are intended to support the NRC review related to human factors design as it is related to the NFPA 805 LAR.

LAR Attachment S, Table S-2, modifications BV1-1875 and BV2-0829 describe Very Early Warning Fire Detection Systems (VEWFDS) that will be installed in low voltage electrical

Enclosure

cabinets located in fire compartments 1-CR-4, 2-CB-1, and 2-CB-6 as part of the NFPA 805 transition. The following questions are regarding these systems:

The in-cabinet and area wide VEWFDS are new installations, and the information collected by the systems must be communicated to operators. This will occur through a new human-system interface (HSI) or through a modification to existing fire alarm control panels.

- (a) Describe any new or modified HSI that will be used as a result of the VEWFDS systems.
- (b) Describe visual displays, alarms/alerts, and controls.
- (c) Identify the human factors standards used to create or modify the HSI (such as NUREG-0700, "Human-System Interface Design Review Guidelines").
- (d) Include screen shots of any new computer screens being used and a description of any annunciator equipment being used to present alarms.

### **Human Factors RAI 02**

The regulations in 10 CFR Section 50.34(f) contain requirements related to Three Mile Island that address the human factors design considerations for MCRs. Section 50.34(f)(2)(iii) of 10 CFR states:

Provide, for Commission review, a control room design that reflects state-of-the-art human factor principles prior to committing to fabrication or revision of fabricated control room panels and layouts.

Chapter 18.0, "Human Factors Engineering," of the NUREG-0800, "Standard Review Plan," identifies guidance that may apply to the review of new/modified fire protection controls, alarms, displays and for the review of manual operator actions that may be altered by the use of new/modified hardware. The following questions are intended to support the NRC review related to human factors design as it is related to the NFPA 805 LAR.

LAR Attachment S, Table S-2 modifications BV1-1875 and BV2-0829 describe VEWFDS that will be installed in low voltage electrical cabinets located in fire compartment 1-CR-4, 2-CB-1, and 2-CB-6 as part of the NFPA 805 transition. The following questions are regarding these systems.

- (a) Describe the results of an operating experience review (including plant-specific condition reports, Licensee Event Reports, Institute of Nuclear Power Operations reports, and other relevant sources) regarding the use of similar VEWFDS systems.
- (b) Describe any changes that were required of the MCR task analysis that was necessary to support installation of VEWFDS displays. If no changes were necessary for the task analysis, describe how the task requirements were developed.
- (c) Describe any verification and validation that was done to ensure that any new or changed risk-important human actions can be completed within the time limits of the relevant scenarios. Include a description of the relevant conditions under which the

- 3 -

validation was conducted (for example, did the licensee use a representative sample of operators under Technical Specification minimum staffing?).

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/RA/

Taylor A. Lamb, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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\*via e-mail dated

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