



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

July 28, 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, UNIT NOS. 1 AND 2, SUMMARY OF
AUDIT OF FEBRUARY 23 – 26, 2015, ASSOCIATED WITH LICENSE
AMENDMENT REQUEST TO TRANSITION TO NATIONAL FIRE PROTECTION
ASSOCIATION STANDARD 805 (TAC NOS. MF3301 AND MF3302)

Dear Mr. Larson:

A review team, consisting of U.S. Nuclear Regulatory Commission (NRC) staff, and contractors from the Pacific Northwest National Laboratory (PNNL) and Southwest Research Institute/Center for Nuclear Waste Regulatory Analyses (CNWRA), conducted a regulatory audit at the Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS-1 and 2) in Shippingport, Pennsylvania on February 23 - 26, 2015. This audit was associated with the National Fire Protection Association Standard 805 (NFPA 805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, license amendment request (LAR) dated December 23, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14002A086), as supplemented.

The regulatory audit supports the review of the LAR filed by First Energy Nuclear Operating Company to transition the plant's fire protection licensing basis to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.48(c), which endorses, with exceptions, NFPA 805, 2001 Edition.

The purpose of the audit was to gain an understanding of the information needed to support the NRC staff's licensing decision regarding the LAR and to develop high quality requests for additional information (RAI), as needed. The information submitted in support of the BVPS-1 and 2 LAR is under final review. Any additional information needed to support the LAR review will be formally requested by the staff using the RAI process in accordance with Office of Nuclear Reactor Regulation Office Instruction LIC-101, "License Amendment Review Procedures."

The audit team consisted of twelve NRC staff from NRC headquarters located in Rockville, Maryland, four NRC staff from NRC Region 1, two NRC contractors from PNNL, and two NRC contractors from CNWRA. Enclosure 1 provides the schedule of activities during the audit. Enclosure 2 lists audit team participants from NRC, PNNL, CNWRA, BVPS, and the licensee's contractors who participated in the audit.

The NRC audit team held an entrance meeting on February 23, 2015, with the licensee's staff and contractors. During the remainder of the audit, team members participated in technical discussions based on their discipline according to the audit plan available in ADAMS under Accession No. ML15027A235. Technical discussions were focused on five major areas: fire

protection engineering, safe shutdown/circuit analyses, fire probabilistic risk assessment, fire modeling, and programmatic review. The audit team participated in plant walkdowns, tours, and technical presentations focusing on these topical areas.

At the conclusion of the audit, the audit team participated in a summary exit meeting with the licensee on February 26, 2015. The NRC staff provided a brief conclusion of the team goals, objectives, walkdown experience, and technical discussions.

Please direct any inquiries to me at (301) 415-7128 or Taylor.Lamb@nrc.gov.

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

Enclosures:

1. Schedule of Activities
2. List of Participants
3. List of Documents Reviewed

cc w/Enclosures: Distribution via Listserv

E. Larson

-2-

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Sincerely,

/RA/

Taylor A. Lamb, Project Manager
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DISTRIBUTION:

PUBLIC

LPL1-2 Reading

LFields, NRR

RidsNrrDraAfpb Resource

RidsNrrDraApra Resource

RidsACRS_MailCTR Resource

RidsNrrPMBeaverValley Resource

RidsNrrDorLpl1-2 Resource

BMiller, NRR

RidsNrrLALRonewicz Resource

RidsOgcMailCenter

ADAMS Accession No.: ML15203A188

*via memo

OFFICE	NRR/DORL/LPL1-2/PM	NRR/DORL/LPL11-2/LA	NRR/DRA/AFP/BC
NAME	TLamb	LRonewicz	AKlein*
DATE	7/27/15	7/28/15	6/9/15
OFFICE	NRR/DRA/APRA/BC	NRR/DORL/LPL1-2/BC	NRR/DORL/LPL1-2/PM
NAME	SRosenberg*	DBroaddus (REnnis for)	TLamb
DATE	6/9/15	7/27/15	7/28/15

OFFICIAL RECORD COPY

Schedule of Activities

Monday, February 23, 2015

8:00 am Audit team members met onsite at the Beaver Valley Power Station
9:00 am Audit entrance meeting and virtual tour were conducted
10:00 am Commence technical discussions for fire probabilistic risk assessment (PRA),
fire modeling (FM), and safe shutdown (SSD)/fire protection engineering
(FPE). Breakout sessions started.
12:30 pm Dosimetry badges were distributed
1:15 pm Continue technical discussions for fire PRA and FM in support of fire PRA and
SSD/FPE
4:00 pm Technical discussion on incipient detection plant modification
4:55 pm U.S. Nuclear Regulatory Commission (NRC) debrief meeting
5:00 pm Licensee wrap-up meeting

Tuesday, February 24, 2015

8:00 am Briefings and preparations for plant walkdowns completed. Walkdowns
conducted in predetermined areas according in accordance with walkdown
plan. Groups were broken into SSD, PRA, and FM disciplines.
1:15 pm Continue technical reviews for fire PRA, FM, and SSD
4:00 pm Presentation on plant Attachment S and presentation of plant modifications
4:30 pm NRC debrief meeting
5:00 pm Licensee wrap-up meeting

Wednesday, February 25, 2015

8:00 am Continued technical reviews for fire PRA and FM in support of fire PRA and
SSD
1:00 pm Request for additional information timeline discussion
2:00 pm Combined SSD/PRA meeting
2:30 pm Radiation release discussion
3:00 pm Additional modification discussion with licensee
4:30 pm NRC debrief meeting
4:45 pm Licensee wrap-up
5:00 pm Simulator tour conducted

Thursday, February 26, 2015

8:15 am Additional modification discussion with licensee
9:00 am Closeout meeting for FPE/SSD
9:30 am Closeout meeting for Fire Modeling
12:00 pm Exit meeting

List of Participants

U.S. Nuclear Regulatory Commission (NRC) Team

• Leslie Fields	NRC	Audit Team Leader
• Alex Klein	NRC	Branch Chief
• Hossein Hamzehee	NRC	Branch Chief
• Barry Miller	NRC	RAI Coordinator
• Taylor Lamb	NRC	Project Manager
• Charles Moulton	NRC	Quality Assurance
• Harold Barrett	NRC	FPE
• Thinh Dinh	NRC	SSD
• Naeem Iqbal	NRC	Fire Modeling
• David Gennardo	NRC	FPRA
• JS Hyslop	NRC	FPRA
• Mihaela Biro	NRC	Observer
• Stephanie Galbreath	NRC	Region I Observer
• Jeff Rady	NRC	Region I Observer
• John Richmond	NRC	Region I Observer
• Keith Young	NRC	Region I Observer

Pacific Northwest National Lab (PNNL) Team

• Fleur de Peralta	PNNL	FPE
• Garill Coles	PNNL	FPRA

Center for Nuclear Waste Regulatory Analyses (CNWRA) Team

• Marc Janssen	CNWRA	FM
• Nathan Hall	CNWRA	Programmatic

Beaver Valley Power Station Team

• Eric Larson	FENOC	Site Vice President
• Chaz McFeaters	FENOC	Director, Site Operation
• Tim Steed	FENOC	Director, Performance Improvement
• Dave Huff	FENOC	Director, Maintenance
• Mark Manoleras	FENOC	Director, Engineering
• Will Cothen	FENOC	Manager, Compliance
• Carmen Mancuso	FENOC	Manager, Design Engineering
• Francy Mantine	FENOC	NFPA 805 Project Manager
• Thomas Migdal	FENOC	Operations

• Samantha Milosh	FENOC	Operations
• Dave Held	FENOC	Operations
• Rick Stremple	FENOC	PRA Engineer
• Chris Lord	FENOC	FPE
• Tom Collopy	FENOC	FM
• Jeff Miller	FENOC	Fire Marshall
• Derek Gmys	FENOC	Fire System Engineer
• Brian Sepelak	FENOC	Supervisor, Regulatory Compliance
• Dave McCreary	FENOC	Licensing

List of Documents Reviewed

- Letter from J.J. Carey of Duquesne Light Company (DLC) to Steven A. Varga of the U.S. Nuclear Regulatory Commission (NRC), Re: Beaver Valley Power Station, Supplemental Information to Fire Protection – Appendix R Review Report, dated October 22, 1982
- Letter from J.J. Carey of DLC to Steven A. Varga of the NRC, Reference: Fire Protection - Response to Appendix R Requirements and Generic Letter 81-12, dated June 30, 1982, and enclosures related to Chapters 6, 8, 9, 11
- Letter from Steven A. Varga of NRC to J.J. Carey of DLC, Subject: Request for Exemption from Some Requirements of Appendix R to 10 CFR 50, dated March 14, 1983
- Letter from Steven A. Varga of NRC to J.J. Carey of DLC, Subject: Request for Additional Information from Some Requirements of 10 CFR Part 50, dated August 30, 1984
- Letter from J.J. Carey of DLC to Steven A. Varga of the NRC, Reference: Appendix R – Additional Exemption Requests Based on Generic Letter 83-33
- Document 8700-01-062-0012, Fire PRA Task 11 Detailed Fire Modeling of 1-CV-3
- Document PRA-BV1-AL-R052, Level 2 LERF Analysis Notebook, Rev. 5a
- Report #2601.620-000-001: Detailed Fire Modeling Procedure
- Report #2701.620-000-004: V&V of Fire Modeling Tools
- Report #2701.620-000-020: Unit 2 MCR Detailed Fire Modeling
- Report #2701.620-000-022: Multi-Compartment Fire Analysis
- Report #2701.620-000-026: Detailed Fire Modeling Report for 2-CB-1
- Report #2701.620-000-027: Detailed Fire Modeling Report for 2-CB-6
- Report #2701.620-000-028: Detailed Fire Modeling Report for 2-CV-1
- Report #2701.620-000-039: Detailed Fire Modeling Report for 2-SB-2
- Report #2701.620-000-040: Detailed Fire Modeling Report for 2-SB-3
- Report #2701.620-000-050: Fire Modeling V&V
- Report #8700-01.062-0017: Detailed Fire Modeling Report for 1-CR-4

- Report #8700-01.062-0023: Detailed Fire Modeling Report for 1-ES-1
- Report #8700-01.062-0024: Detailed Fire Modeling Report for 1-ES-2
- Report #8700-01.062-0027: Detailed Fire Modeling Report for 1-NS-1
- Report #8700-01.062-0034: Unit 1 MCR Detailed Fire Modeling