



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

December 23, 2015

LICENSEE: Duke Energy Progress, Inc.

FACILITY: H. B. Robinson Steam Electric Plant Unit No. 2

SUBJECT: SUMMARY OF THE H. B. ROBINSON STEAM ELECTRIC PLANT UNIT
NO. 2 - SEPTEMBER 22 - 26, 2014, AUDIT ASSOCIATED WITH
LICENSE AMENDMENT REQUEST TO TRANSITION TO THE
NATIONAL FIRE PROTECTION ASSOCIATION 805 STANDARD
(CAC NO. MF2746)

By letter dated September 16, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13267A211), Duke Energy Progress, Inc. (Duke Energy), the licensee, for the H. B. Robinson Steam Electric Plant Unit No. 2 (Robinson), submitted a license amendment request (LAR) to adopt a new fire protection licensing basis that complies with the requirements of Title 10 of the *Code of Federal Regulations*, Sections 50.48(a) and (c); the guidance in Regulatory Guide 1.205, Revision 1, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants"; and National Fire Protection Association (NFPA) 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (2001 Edition). The purpose of this summary is to document the results of the audit performed at Robinson associated with this LAR.

An audit team, consisting of U.S. Nuclear Regulatory Commission (NRC) staff and contractors from the Pacific Northwest National Laboratories (PNNL) and Southwest Research Institute (SwRI)/Center for Nuclear Waste Regulatory Analyses (CNWRA) conducted a regulatory audit of Robinson, which occurred during September 22 - 26, 2014, at the Duke Energy offices in Charlotte, North Carolina. The purpose of the audit was to understand what information the NRC staff needed to support its review of the LAR and to develop requests for additional information as needed. The information submitted in support of the LAR is under final review, and the staff will request any additional information needed to support its review in accordance with NRC Office of Nuclear Reactor Regulation, Office Instruction LIC-101, "License Amendment Review Procedures" (ADAMS Accession No. ML113200053).

The audit team consisted of ten NRC staff, three PNNL staff, and one CNWRA staff. Enclosure 1 provides the schedule of activities during the audit. Enclosure 2 lists NRC staff, PNNL staff, CNWRA staff, and the licensee's staff and contractors that participated in the audit. Enclosure 3 contains a list of documents reviewed by the team. The audit plan, dated September 4, 2014, is available in ADAMS at Accession No. ML14246A509.

The audit team held an entrance meeting with the licensee's staff and contractors on September 22, 2014. During the remainder of the audit, the licensee's staff provided plant walkdowns and presentations on fire protection engineering, post-fire safe shutdown circuit analysis, fire probabilistic risk assessment, and fire modeling. NRC and licensee discussions focused on these subjects and on fire protection programmatic review.

At the conclusion of the audit, the NRC's audit team participated in a summary exit meeting with the licensee's staff and management on September 25, 2014.

Please direct any inquiries to Dennis Galvin at (301) 415-6256 or Dennis.Galvin@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Candice M. Potbury" followed by a small flourish.

Martha Barillas, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:

1. Schedule of Activities
2. List of Participants
3. List of Documents Reviewed During
the Audit

cc w/enclosures: Distribution via Listserv

Schedule of Activities

Monday September 22, 2014

- 9:00 AM Audit entrance meeting
Plant overview discussions
Virtual tour
Self-induced station blackout discussion
Overview of fire event
- 1:00 PM Technical breakout sessions performed: fire modeling (FM), radioactive release, safe shutdown, fire probabilistic risk assessment (PRA), main control room (MCR) abandonment, multiple spurious operations, recovery actions, non-power operations, nuclear safety capability assessment, and fire protection engineering (FPE)
- Review of plant walkdown plans and tour areas
- 4:45 PM U.S. Nuclear Regulatory Commission (NRC) end of day debrief
- 5:00 PM Licensee wrap-up briefing

Tuesday September 23, 2014

- 8:30 AM Plant walkdowns and tour – preparation for tours: safe shutdown analysis (SSA), FM, PRA, and FPE
- Pre-tour safety/security briefing
- 1:00 PM Technical discussion/breakouts for all focus areas
- 4:30 PM NRC debrief
- 4:45 PM Licensee wrap-up briefing

Wednesday September 24, 2014

9:00 AM	PRA breakout Joint FM/PRA breakout – MCR abandonment
10:30 AM	FM breakout SSA breakout
1:00 PM	Observer meeting
2:00 PM	Request for additional (RAI) information timeline discussion
2:30 PM	Joint session
4:45 PM	NRC debrief
5:00 PM	Licensee wrap-up briefing

Thursday September 25, 2014

9:00 AM	Final RAI closeout meetings for SSA, FM, and FPE Internal PRA meeting
10:00 AM	Joint PRA discussion
11:30 AM	Lunch
12:30 PM	PRA closeout
1:30 PM	Audit exit meeting

List of Participants

U.S. Nuclear Regulatory Commission (NRC) Team

- | | | |
|--------------------|-----|-----------------------|
| • Alex Klein | NRC | Branch Chief |
| • Hossein Hamzehee | NRC | Branch Chief |
| • Leslie Fields | NRC | Audit Team Leader |
| • Barry Miller | NRC | RAI Coordinator |
| • Paul Lain | NRC | Quality Assurance/FPE |
| • Harold Barrett | NRC | FPE/SSA |
| • Brian Metzger | NRC | FM/FPE |
| • Thinh Dinh | NRC | SSA |
| • Mollie Semmes | NRC | Observer |
| • Daniel O'Neal | NRC | PRA |

Pacific Northwest National Laboratory (PNNL) Team

- | | | |
|------------------|------|---------|
| • Karl Bohlander | PNNL | FPE/SSA |
| • Garill Coles | PNNL | PRA |

Center for Nuclear Waste Regulatory Analyses (CNWRA) Team

- | | | |
|----------------|-------|---------------|
| • Jason Huczek | CNWRA | Fire Modeling |
|----------------|-------|---------------|

Duke Energy Response Team

- | | | |
|-------------------|-------------------------|--|
| • Jeff Ertman | Duke Energy (Corporate) | Fleet NFPA 805 Program Manager (FPE) Lead |
| • Kelly Lavin | Duke Energy (Corporate) | Robinson (RNP) NFPA 805 Implementation Project Manager |
| • Justin Wild | Duke Energy (RNP) | Regulatory Affairs |
| • Bob Rishel | Duke Energy (Corporate) | PRA Director |
| • Bruce Morgen | Duke Energy (Corporate) | PRA Manager |
| • Jamie McCrory | Duke Energy (Corporate) | PRA Lead |
| • Harold Stiles | Duke Energy (Corporate) | PRA |
| • Alan Holder | Duke Energy (Corporate) | Programmatic Lead |
| • Joelle DeJoseph | Duke Energy (Corporate) | FM Lead |
| • Cathy Chan | Duke Energy (Corporate) | SSA |
| • Derek Schroeder | Duke Energy (RNP) | RNP Program Manager |
| • Frank Modlin | Duke Energy (RNP) | SSA |
| • Marie Conrad | Duke Energy (RNP) | SSA |
| • Tim Groch | Duke Energy (RNP) | FPE |
| • Stan Chingo | Duke Energy (RNP) | FPE |

• Jason Outlaw	Duke Energy (RNP)	FPE
• Kevin McGee	Duke Energy (RNP)	Operations Fire Marshall
• Bob Femal	Duke Energy (RNP)	Operations Support (SSA and NPO)
• Richardson, Michael	Reg Srvs	Lead/Licensing
• Baker, Steve	Engr	Audit Lead/Design Engr
• Hampshire, Dave	Engr	Lead/FP Engr
• Hromyak, Dan	Engr	Sys Engr/FP Engr
• Arsene, Alex	Engr	FP Engr/FP Engr
• Baradaran, Rasool	PRA	Lead/PRA
• Pyo, John	PRA	Analyst/PRA
• Barber, Nathan	PRA	Analyst/PRA (Seismic)
• Shepard, Matt	PRA	Analyst/PRA
• Imbaratto, David	PRA	Analyst/PRA
• Montoya, Ariel	Engr	Lead EE/EE
• Lodolo, Larry	Engr	SSD EE/EE (CIRCAL)
• Leatham, Russ	Engr	EE/EE
• Chitwood, Tony	Operations	Support/OPS (NPO)
• Williams, Dave	Operations	Support/OPS (NPO)
• Wernet, Todd	Fire Chief	Support/OPS (Fire Dept.)
• Horstman, Bill	Engr	Lead CE/Engr (Seismic)

List of Documents Reviewed During the Audit

1. Hughes Report No. 0004-0042-000-001, "Evaluation of Development and Timing of HGL [Hot Gas Layer] Conditions in RNP [Robinson Nuclear Plant] Fire Zone 20," Revision 1
2. Hughes Report No. 0004-0042-412-002, "Evaluation of MCR [Main Control Room] Abandonment Times at the H.B. Robinson NP," Revision 1
3. NED-M-MECH-1008, "Fire Zone of Influence Calculation," Revision 0
4. NED-M-MECH-1009, "Thermal Damage Times of Cables Above a Burning Ignition Source," Revision 0, January 2008
5. RND-M-MECH-1826, "Hot Gas Layer Calculation," Revision 1, August 2013
6. RNP-M-MECH-1884, "V&V [Verification and Validation] of Fire Models Supporting RNP Fire PRA [Probabilistic Risk Assessment]," Revision 0, August 2013
7. RNP-0206, "Compressor Oil Fires in Fire Zone 7," Revision 0, November 2013 (in subfolder RNP-0206)
8. RNP-F/PSA-0089, "RNP Fire PRA [Probabilistic Risk Assessment] Multi-Compartment Analysis," Revision 0, May 2013
9. RNP-F/PSA-0094 Part 1, Attachment 09, "Structural Steel-Fire Interaction Analysis," Revision 3, April 2013
10. Thermal-hydraulic analysis used as a basis for timing used in fire PRA success criteria

At the conclusion of the audit, the NRC's audit team participated in a summary exit meeting with the licensee's staff and management on September 25, 2014.

Please direct any inquiries to Dennis Galvin at (301) 415-6256 or Dennis.Galvin@nrc.gov.

Sincerely,

/RA CPfefferkorn for/

Martha Barillas, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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LPL2-2 R/F

BMiller, NRR

LFields, NRR

JRobinson, NRR

ADAMS Accession No.: ML15343A071 PKG ML15343A072

***by memo**

OFFICE	DORL/LPLII-2/PM	DORL/LPLII-2/PM	DORL/LPLII-2/LA	DRA/AFP/PM*
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DATE	12/15/2015	12/15/2015	12/15/2015	5/11/2015
OFFICE	DRA/AFP/BC*	DRA/APLA/BC*	DORL/LPLII-2/BC	DORL/LPLII-2/PM
NAME	AKlein	SRosenberg	BBeasley	(CPfefferkorn for) MBarillas
DATE	5/11/2015	5/11/2015	12/22/2015	12/23/2015

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