NRR-DMPSPEm Resource

From: Galvin, Dennis
Sent: Monday, December 11, 2017 2:04 PM
To: Arthur.Zaremba@duke-energy.com
Cc: Joshua.Duc@duke-energy.com
Subject: Harris and Robinson Supplemental RAI – LAR to adopt DPC-NE-3009-P, Revision 0, "Thermal-Hydraulic Models for Transient Analysis," (L-2016-LLA-0012)
Attachments: HNP-RNP LAR DPC-NE-3008-3009 Sup RAI APHB 2017-12-11 L-2017-LLA-0012.pdf

SUBJECT: DUKE ENERGY PROGRESS, LLC, FOR SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1, AND H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 – SUPPLEMENTAL REQUEST FOR ADDITIONAL INFORMATION REGARDING APPLICATION TO ADOPT DPC-NE-3008-P, REVISION 0, "THERMAL-HYDRAULIC MODELS FOR TRANSIENT ANALYSIS," AND DPC-NE-3009-P, REVISION 0, "FSAR /UFSAR CHAPTER 15 TRANSIENT ANALYSIS METHODOLOGY." (CAC NOS. MF8439 AND MF8440; EPID L-2016-LLA-0012)

Mr. Zaremba,

By letter dated October 3, 2016, Duke Energy Progress, LLC (Duke Energy or the licensee) submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (Harris) and H. B. Robinson Steam Electric Plant, Unit No. 2 (Robinson). The proposed amendment requested review, approval, and adoption into the Harris and Robinson Technical Specifications of DPC-NE-3008-P, Revision 0, "Thermal-Hydraulic Models for Transient Analysis," and DPC-NE-3009-P, Revision 0, "FSAR / UFSAR Chapter 15 Transient Analysis Methodology." The LAR supersedes a November 19, 2015, submittal in its entirety, which had submitted DPC-NE-3008-P for review without DPC-NE-3009-P. These methodologies will be used to support the performance of (1) thermal-hydraulic calculations and (2) updated FSAR Chapter 15 transient analysis as part of the reload design analysis for Harris and Robinson. By letter dated September 8, 2017, the U.S. Nuclear Regulatory Commission (NRC) staff issued requests for additional information (RAIs) related to DPC-NE-3009-P. Duke Energy responded on October 9 and 30, 2017.

The NRC staff has reviewed the licensee's responses in the October 30, 2017, submittal regarding human actions. The NRC staff has determined that additional information is needed to complete its review regarding the response to NRC-RAI-30 associated with Robinson. The enclosed RAI was e-mailed to the licensee in draft form on December 4, 2017. An RAI clarification call was held on December 11, 2017 and the licensee agreed to provide responses to the RAI by January 10, 2018. The NRC staff agreed with this date.

If you have any questions, please contact me at (301) 415-6256 or Dennis.Galvin@nrc.gov.

Respectfully,

Dennis Galvin
Project Manager
U.S Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Division of Operating Reactor Licensing
Licensing Project Branch 2-2
301-415-6256

Hearing Identifier: NRR_DMPS
Email Number: 38

Mail Envelope Properties (Dennis.Galvin@nrc.gov20171211140300)

Subject: Harris and Robinson Supplemental RAI – LAR to adopt DPC-NE-3009-P, Revision 0, “Thermal-Hydraulic Models for Transient Analysis,” (L-2016-LLA-0012)
Sent Date: 12/11/2017 2:03:42 PM
Received Date: 12/11/2017 2:03:00 PM
From: Galvin, Dennis

Created By: Dennis.Galvin@nrc.gov

Recipients:
"Joshua.Duc@duke-energy.com" <Joshua.Duc@duke-energy.com>
Tracking Status: None
"Arthur.Zaremba@duke-energy.com" <Arthur.Zaremba@duke-energy.com>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	2386	12/11/2017 2:03:00 PM
HNP-RNP LAR DPC-NE-3008-3009 Sup RAI APHB 2017-12-11 L-2017-LLA-0012.pdf	103991	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO ADOPT DPC-NE-3008-P, REVISION 0,

"THERMAL-HYDRAULIC MODELS FOR TRANSIENT ANALYSIS," AND DPC-NE-3009-P,

REVISION 0, "FSAR / UFSAR CHAPTER 15 TRANSIENT ANALYSIS METHODOLOGY"

DUKE ENERGY PROGRESS, LLC

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NOS. 50-400 AND 50-261

By letter dated October 3, 2016, Duke Energy Progress, LLC (Duke Energy or the licensee) submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (Harris) and H. B. Robinson Steam Electric Plant, Unit No. 2 (Robinson) (Reference 1). The proposed amendment requested review, approval, and adoption into the Harris and Robinson Technical Specifications of DPC-NE-3008-P, Revision 0, "Thermal-Hydraulic Models for Transient Analysis," and DPC-NE-3009-P, Revision 0, "FSAR / UFSAR Chapter 15 Transient Analysis Methodology." The LAR supersedes a November 19, 2015, submittal (Reference 2) in its entirety, which had submitted DPC-NE-3008-P for review without DPC-NE-3009-P. These methodologies will be used to support the performance of (1) thermal-hydraulic calculations and (2) updated FSAR Chapter 15 transient analysis as part of the reload design analysis for Harris and Robinson. By letter dated September 8, 2017 (Reference 3), the U.S. Nuclear Regulatory Commission (NRC) staff issued requests for additional information (RAIs) related to DPC-NE-3009-P. Duke Energy responded on October 9 and 30, 2017 (References 4 and 5).

The NRC staff has reviewed the licensee's responses in the October 30, 2017, submittal regarding human actions. The NRC staff has determined that additional information is needed to complete its review regarding the response to NRC-RAI-30 associated with Robinson.

NRC-RAI 30.1

Section 15.2.8 of the Robinson UFSAR states that the feedwater system pipe break event is bounded by the steam system piping failure event. At Robinson, the steam generator (SG) design is such that the main feedwater line break is not expected to result in loss of significant liquid inventory from the SGs, and thus is expected to be a cooldown event that is bounded by the main steam line break.

The response to NRC-RAI-30 states that the existing steam system piping failure analysis credits an operator manual action to isolate auxiliary feedwater (AFW) flow to a faulted SG within 10 minutes. The response states that this action will be credited in any new feedwater system pipe break analysis, should a new analysis be required.

The NRC staff reviewed the credited human actions against the criteria in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light Water Reactor] Edition" (SRP) Section 18, "Human Factors Engineering,"

(Reference 6) and NUREG-1764, “Guidance for the Review of Changes to Human Actions,” (Reference 7).

Please provide the following:

1. DPC-NE-3009, Section 5.2.5, states that the credited operator actions for the feedwater system pipe break event are to terminate pumped safety injection and cycle AFW flow. By contrast, the response to NRC-RAI-30 implies that for Robinson the implicitly credited action is to terminate AFW flow to a faulted SG within 10 minutes (operator actions to terminate pumped safety injection for Robinson are judged unnecessary in the RAI response because the analyzed shutoff pressure of the high-head pumped safety injection is below the reactor coolant system pressure). Please clarify which operator action will be assumed in future Robinson plant analyses, and confirm that cycling AFW flow would be considered a new operator action for Robinson (to be evaluated in accordance with the requirements of 10 CFR 50.59 as stated in the RAI response).

2. The RAI response states that the Robinson feedwater system pipe break event is bounded by the steam system piping failure event as a primary system cooldown transient, and thus the credited operator action for the steam system piping failure event is implicitly credited for the feedwater system pipe break event. Clarify whether the future analysis scope, which credits operator manual action to isolate AFW flow to a faulted SG within 10 minutes, includes events other than cooldown events such as, but not limited to, overheating or overpressurization events. If so, please provide details of these events.

3. The RAI response states that the operator action and the timing of the action are validated by procedure for the steam system piping failure event. Please provide the rationale (e.g. event timeline operator action validation, event timeline comparisons, etc.…) that supports crediting the operator manual action to isolate AFW flow to a faulted SG within 10 minutes (currently credited in the steam system piping failure event) in future feedwater system pipe break event analyses. Please include any areas where feedwater break and main steam break analyses may differ. The rationale should address any “other events” identified in item 2 above, unless the operator action would be treated as a new operator action for Robinson (to be evaluated in accordance with the requirements of 10 CFR 50.59 as stated in the RAI response).

References

1. J. Elnitsky, Duke Energy Progress, LLC, letter to U.S. Nuclear Regulatory Commission, “Supplemental Information for License Amendment Request Regarding Methodology Report DPC-NE-3008-P,” October 3, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16278A082 (proprietary) and ML16278A080 (non-proprietary)).

2. R. Repko, Duke Energy Progress, LLC, letter to U.S. Nuclear Regulatory Commission, “Application to Revise Technical Specifications to Adopt Methodology Report DPC-NE-3008-P, Revision 0, "Thermal-Hydraulic Models for Transient Analysis,” November 19, 2015 (ADAMS Accession No. ML15323A352 (proprietary) and ML15323A351 (non-proprietary)).

3. Galvin, D. J., U.S. Nuclear Regulatory Commission, letter to K Henderson, Duke Energy Progress, LLC, “Duke Energy Progress, LLC, for Shearon Harris Nuclear Power Plant, Unit

1, and H. B. Robinson Steam Electric Plant, Unit No. 2 - Request for Additional Information Regarding Application to Adopt DPC-NE-3008-P, Revision 0, "Thermal-Hydraulic Models for Transient Analysis," and DPC-NE-3009-P, Revision 0, "FSAR / UFSAR Chapter 15 Transient Analysis Methodology" (CAC Nos. MF8439 and MF8440)," September 8, 2017 (ADAMS Accession Nos. ML17226A263 (proprietary) and ML17226A264 (non-proprietary)).

4. J. Donahue, Duke Energy Progress, LLC, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding Application to Revise Technical Specifications for Methodology Report DPC-NE-3009, Revision 0," October 9, 2017 (ADAMS Accession Nos. ML17282A024 (proprietary) and ML17282A023 (non-proprietary))

5. J. Donahue, Duke Energy Progress, LLC, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information (RAI) Regarding Application to Revise Technical Specifications for Methodology Report DPC-NE-3009, Revision 0 (Part 2)," October 30, 2017 (ADAMS Accession Nos. ML17303B205 (proprietary) and ML17303B209 (non-proprietary))

6. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan," Section 18, "Human Factors Engineering," Revision 3, December 2016 (ADAMS Accession No. ML16125A114)

7. U.S. Nuclear Regulatory Commission, NUREG-1764, "Guidance for the Review of Changes to Human Actions," Revision 1, September 2007 (ADAMS Accession No. ML072640413)