

From: Luke Haeg
Sent: Tuesday, January 2, 2024 9:59 AM
To: Duc, Joshua Brian
Cc: Ryan.Treadway@duke-energy.com; David Wrona; Byrne, Tom R.
Subject: Request for Additional Information Regarding Duke's August 20, 2023, License Amendment Request for Robinson, Unit 2 (EPID L-2023-LLA-0122)
Attachments: RAI for Robinson LBB LAR EPID L-2023-LLA-0112.pdf

Dear Mr. Duc,

By letter dated August 30, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23242A084), Duke Energy Progress, LLC (Duke Energy, the licensee) submitted a license amendment request for H. B. Robinson Steam Electric Plant, Unit No. 2 (Robinson). The proposed amendment would eliminate the dynamic effects of postulated pipe ruptures to auxiliary piping systems attached to the Reactor Coolant System from the Robinson design and licensing basis using Leak-Before-Break methodology.

The U.S. Nuclear Regulatory Commission staff is reviewing your submittal and determined that additional information is required to complete the review.

A request for additional information (RAI) is attached. A draft RAI was sent to you to ensure that it was understandable, the regulatory basis for the question was clear, and to determine whether the information was previously docketed.

Based on a discussion with Mr. Byrne of your organization, a response from Duke Energy to the attached RAI is requested within 30 days from the date of this email (i.e., by February 2, 2024).

The NRC staff considers timely responses to RAIs help to ensure sufficient time is available for staff review and contribute to the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-0272 or Lucas.Haeg@nrc.gov. Thank you.

Luke Haeg
Project Manager
NRR/DORL/LPL2-2
U.S. Nuclear Regulatory Commission
301-415-0272

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Created By: Lucas.Haeg@nrc.gov

Recipients:

"Ryan.Treadway@duke-energy.com" <Ryan.Treadway@duke-energy.com>

Tracking Status: None

"David Wrona" <David.Wrona@nrc.gov>

Tracking Status: None

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Tracking Status: None

"Duc, Joshua Brian" <Joshua.Duc@duke-energy.com>

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Options

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DRAFT REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE AMENDMENT REQUEST TO ELIMINATE THE DYNAMIC EFFECTS
OF POSTULATED PIPE RUPTURES TO AUXILIARY PIPING SYSTEMS ATTACHED
TO THE REACTOR COOLANT SYSTEM FROM THE ROBINSON DESIGN AND
LICENSING BASIS USING LEAK-BEFORE-BREAK METHODOLOGY

EPID L-2023-LLA-0122

DUKE ENERGY PROGRESS, LLC

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

DOCKET NO. 50-261

INTRODUCTION

By letter dated August 30, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23242A086), Duke Energy Progress, LLC (Duke Energy, the licensee), submitted a license amendment request (LAR) for H. B. Robinson Steam Electric Plant, Unit No. 2 (Robinson). The proposed amendment would eliminate the dynamic effects of postulated pipe ruptures to auxiliary piping systems attached to the Reactor Coolant System (RCS) from the Robinson design and licensing basis using Leak-Before-Break (LBB) methodology.

REGULATORY BASIS

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion (GDC) 4, "Environmental and dynamic effects design bases," following the guidance of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition", Section 3.6.3, "Leak-Before-Break Evaluation Procedures".

As noted in GDC 4, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

INFORMATION REQUESTED

RAI-1

For the LBB analysis that was performed for the Pressurizer Surge Line, the Residual Heat Removal Lines (RHR), and Accumulator Lines, clarify whether the flow momentum loss due to crack path turning (turning loss) is considered in the calculation of the leakage flow size. If so, describe the total number of turns and turning angle for each leakage flaw discussed in the submittal and their technical basis. If it is not considered, explain why turning losses do not need

to be considered. In addition, describe the crack surface roughness used in the leakage flow size calculation and its technical basis.

RAI-2

When the leakage and critical flaw lengths are expressed as the multiplication of the pipe radius and the angle of the flaw, clarify which radius of the pipe (e.g., inner, mean, or outer radius) is used in the calculation of the flaw lengths.