

From: [Guzman, Richard](#)
To: ["Mirzai, Mahvash"](#)
Cc: [Walpole, Robert W](#)
Subject: Indian Point, Unit 3 - Request for Additional Information regarding LAR for One-Time Extension of the Containment Leakage Rate Test (EPID: L-2017-LLA-0406)
Date: Wednesday, May 23, 2018 2:14:07 PM

Mahvash,

On May 15, 2018, the U.S. Nuclear Regulatory Commission (NRC) staff sent Entergy Nuclear Operations, Inc. (Entergy or the licensee) the subject Request for Additional Information (RAI) as a draft (via e-mail shown below). This RAI relates to a license amendment request submitted by Entergy that requests a one-time extension to the Indian Point Unit No. 3 Containment Integrated Leakage Rate Test (from the current 15-year to a 16-year frequency). This test is required by Technical Specification 5.5.15 "Containment Leakage Rate Testing Program."

On May 23, 2018, the NRC staff conducted a conference call with the licensee staff to clarify the request. Following the discussion, you indicated that Entergy will provide a response to this RAI by July 6, 2018 (approximately 45 days from the date of this correspondence). Updated below is the official (final) RAI. A publicly available version of this e-mail and RAI will be placed in the NRC's ADAMS system. Please contact me should you have any questions in regard to this request.

Thanks,

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Rich Guzman  
Sr. PM, Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
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**From:** Guzman, Richard [<mailto:Richard.Guzman@nrc.gov>]  
**Sent:** Tuesday, May 15, 2018 12:33 PM  
**To:** Walpole, Robert W  
**Cc:** Mirzai, Mahvash  
**Subject:** Indian Point, Unit 3 - LAR for One-Time Extension of the Containment Leakage Rate Test - DRAFT Request for Additional Information (EPID: L-2017-LLA-0406)

Mahvash,

By letter dated December 8, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17349A131), Entergy Nuclear Operations, Inc. (Entergy, licensee) submitted a license amendment request (LAR) requesting one-time extension from 15 years to 16 years frequency for the Indian Point Unit No. 3 (IP3) containment Integrated Leakage Rate Test (ILRT). The Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed to complete its review, as described in the request for additional information (RAI) shown below.

This RAI is identified as draft at this time to confirm your understanding of the information that the NRC staff needs to complete the evaluation. Please contact me if you would like to set up a conference call to clarify this request for information.

Thanks,

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Rich Guzman

Sr. PM, Division of Operating Reactor Licensing

Office of Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST (LAR)

FOR ONE-TIME EXTENSION OF THE

CONTAINMENT TYPE A LEAK RATE TESTING FREQUENCY FROM 15 TO 16 YEARS

INDIAN POINT UNIT NO. 3

DOCKET NO. 50-286

By letter dated December 8, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17349A131), Entergy Nuclear Operations, Inc. (Entergy, licensee) submitted a license amendment request (LAR) requesting one-time extension from 15 years to 16 years frequency for the Indian Point Unit No. 3 (IP3) containment Integrated Leakage Rate Test (ILRT). This test is required by TS 5.5.15 "Containment Leakage Rate Testing Program." The following requests for additional information (RAIs) outline the information needed for the NRC staff to complete its review:

RAI-01 – External Events Screening

Electric Power Research Institute (EPRI) Technical Report No. 1009325, Revision 2-A (ADAMS Accession No. ML14024A045) states that "[w]here possible, the analysis should include a quantitative assessment of the contribution of external events (for example, fire and seismic) in the risk impact assessment for extended ILRT intervals. For example, where a licensee possesses a quantitative fire analysis and that analysis is of sufficient quality and detail to assess the impact, the methods used to obtain the impact from internal events should be applied for the external event." EPRI TR-1009325, Revision 2-A further states that the "assessment can be taken from existing, previously submitted and approved analyses or another alternate method of assessing an order of magnitude estimate for contribution of the external event to the impact of the changed interval."

In Section 5.7 of Attachment 1 to the LAR, the licensee performed an assessment of external event contribution. The licensee's analysis reflected the contribution from internal fire and seismic event. The licensee stated that high winds, external floods and "Other" external events were considered negligible in estimation of the external events impact on the ILRT extension application. This conclusion appears to be reached based on the IP3 Individual Plant Examination for External Events (IPEEE) analysis performed in 1997.

Consistent with the Regulatory Guide (RG) 1.174 guidance that the probabilistic risk

assessment (PRA) scope, level of detail and technical acceptability be based on the as-built and as-operated plant, and maintained to reflect the current operating experience at the plant, provide justification for the applicability of the IPEEE conclusions to the current plant and its environs, considering each of the external hazards screened from this application and taking into account any updated risk studies and insights. The analysis should include all hazard groups (i.e., high winds, external flooding, transportation events, aircraft, industrial facilities, and other external hazards)

RAI-02 – Assumptions used for Alternative Approach for External Events Impact

Section 2.5.3 of RG 1.174, Revision 3, states, “[t]he impact of using alternative assumptions or models may be addressed by performing appropriate sensitivity studies or by using qualitative arguments, based on an understanding of the contributors to the results and how they are impacted by the change in assumptions or models.” In addition, Section 2.5.5 of RG 1.174 states, “[i]n general, the results of the sensitivity studies should confirm that the guidelines are still met even under the alternative assumptions (i.e., change generally remains in the appropriate region).”

In Section 5.7 of Attachment 1 to the LAR, the licensee performed an assessment of external event contribution. The licensee used two approaches: the multiplier approach, which applies a multiplier to the internal events results (the multiplier is derived from the ratio of external events core damage frequency (CDF) to the internal events CDF) and an "alternative" approach where each EPRI accident class frequency is re-examined. The licensee calculated an increase in population dose risk from changing the ILRT frequency from three in 10 years to once in 16 years as 3.67 person-rem/year or 1.00% (when using the multiplier approach) and 3.84 person-rem/year or 0.69% when using the alternative approach. The reported increase in total population dose is close to the acceptance criteria values of 1 person-rem/year or 1% provided in EPRI TR-1009325, Revision 2-A, and defined in Section 3.2.4.6 of the NRC safety evaluation for NEI 94-01, Revision 2 (ADAMS Accession No. ML081140105).

It appears that the reduction in the % population dose change obtained through the use of the “alternative” approach included in Section 5.7.5 of Attachment 1 to the LAR relies on increasing the total estimated population dose due to external hazards for the base case, corresponding to the three in 10 year frequency. Two assumptions appears to be key to this reduction in population dose change:

- The frequency for the EPRI accident Class 7 sequences (accidents involving containment failure induced by severe accident phenomena) is increased by assuming that 50% of the CDF is due to late Class 7 sequences, as compared to the internal events value of 15%, with the justification that “the external events contributors are dominated by unrecoverable SBO-like scenarios”.
- The frequency of the EPRI accident Class 2 sequences (containment isolation failures) is increased by assuming that 0.1% of the external events CDF is due to large containment isolation failures, as opposed to the internal events contribution of 0.03%, with the justification that “seismic and fire initiated events would likely be

more susceptible” to large containment isolation failures.

In accordance with the guidance in RG 1.174, provide a detailed justification for assuming the value of 50% for the external events contribution to the Class 7 late sequences and the value of 0.1% for the Class 2 sequences. The explanation should include the concepts used to identify the assumptions made for the contributors which ultimately resulted in dose risk change to less than 1.0%. Include a discussion of the conservatisms in the analysis and the risk significance of these conservatisms.