NRR-PMDAPEm Resource

From: Poole, Justin
Sent: Friday, September 09, 2016 3:04 PM
To: Browne, Kenneth
Subject: DRAFT - Need for Supplement RE: ASR Amendment
Attachments: MF8260 DRAFT NonAccept wOpportunity to Supplement.docx

Ken,

By letter dated August 1, 2016, NextEra Energy Seabrook, LLC (NextEra) submitted a license amendment request for Seabrook Station, Unit No. 1. The proposed amendment would revise the Seabrook Updated Final Safety Analysis Report to include methods for analyzing seismic Category I structures with concrete affected by an alkali-silica reaction (ASR). The purpose of this email is to provide **DRAFT** results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this amendment request. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

The NRC staff has reviewed your application and concluded that the information delineated in the **DRAFT** enclosure to this email is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment/relief request in terms of regulatory requirements and the protection of public health and safety and the environment.

After reading in enclosed **DRAFT** questions, please contact me about setting up phone call with your staff to make sure you understand the questions. Per the guidance in Office Instruction LIC-109, we would like to have the call next week.

Thanks.

Justin C. Poole
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NRR/DORL/LPLI-2
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From: Poole, Justin

Created By: Justin.Poole@nrc.gov

Recipients:
"Browne, Kenneth" <Kenneth.J.Browne@nexteraenergy.com>
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Options
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SUPPLEMENTAL INFORMATION NEEDED

LICENSE AMENDMENT REQUEST

NEXTERA ENERGY SEABROOK, LLC

SEABROOK STATION

DOCKET NO. 50-443

Background

By letter dated August 1, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16216A240), NextEra Energy Seabrook, LLC (NextEra) submitted a license amendment request (LAR) to revise their current licensing basis to adopt a methodology for the analysis of seismic category I structures with concrete affected by alkali-silica reaction (ASR). The proposed amendment would revise the Seabrook Updated Final Safety Analysis Report (UFSAR) to include new methods for analyzing seismic category I structures with concrete affected by ASR.

As discussed in Section 4.3.8.2 of NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation," as endorsed by NRC Regulatory Guide (RG) 1.187, when a licensee is requesting approval of a specific analysis for a specific application, "a thorough understanding of the terms, conditions, and limitations relating to the application of the methodology is essential. This information is usually documented in the original license application or license amendment request …."

Insufficiencies

The NRC staff has reviewed the LAR and concluded that the following information is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment and methodology in terms of regulatory requirements and the protection of public health and safety and the environment.

1. Section 3.5.1 of Enclosure 1 notes that NextEra will use an empirical correlation developed via testing to correlate concrete elastic modulus measurements with the through-thickness expansion to date. This correlation is a unique, first-of-a-kind approach and is necessary for the proposed monitoring program to be effective. The staff needs additional information on the technical basis for the correlation.

   Provide the technical basis for the correlation between concrete elastic modulus and through-thickness expansion. Include enough data from the testing for the staff to make a decision on the adequacy of the correlation.

2. Section 3.3 of Enclosure 1 proposes a "building deformation assessment" process to evaluate ASR impacts on each of the seismic Category I structures listed in UFSAR Section 3.8.4.1. This method is a first-of-a-kind, complex analysis, that has not been previously reviewed by the NRC or by a consensus industry group. Therefore, in order to have a thorough understanding of the methodology, the staff needs to review at least one detailed demonstration of the process to provide reasonable assurance that the approach is appropriate and repeatable.

Provide a demonstration of the building deformation assessment process being applied to a structure affected by ASR. The demonstration should include a structure that has gone through the entire process (i.e., through Stage Three).

3. Section 3.3 of Enclosure 1 notes that the concrete backfill may apply pressure to adjacent structures; however, no explanation is provided regarding how this pressure will be estimated.

   Explain how the pressure from concrete backfill is determined. Also include an explanation of how external pressure due to concrete expansion will be determined for the case of two adjacent concrete structures.

4. It's not clear to the NRC staff whether you are requesting approval to change your licensing basis to Regulatory Guide (RG) 1.92 "Combining Modal Responses and Spatial Components in Seismic Response Analysis," Revision 3, specifically changing from the square-root of sum-of-squares method to use the alternate 100-40-40 approach. If so, provide a detailed explanation, or example, demonstrating how you are meeting the guidance in RG 1.92, Revision 3.

5. Minimal information is provided about the ASR deformation program, especially how the status of the existing structures will be quantified. Section 3.3.2 notes that existing data will be reviewed but no explanation is provided regarding how much data is necessary to determine whether a structure is impacted by ASR deformation (e.g. how many locations will be monitored, how recent the inspection data will be, what specific indications will be looked for when reviewing existing data).

   Provide a more detailed summary of the ASR deformation program. Include a detailed discussion of what will be looked at during the field data review and how deformations and strains will be conservatively estimated. The discussion should explain how monitoring elements will be determined, how it will be determined that existing data is representative of the structure, and how it will be determined that enough data has been collected to properly estimate the demands on the structure. In addition, an example of applying the initial screening process to an existing structure should be provided and the example should highlight the generic portions of the process and explain how they will be repeated for other structures.