From:	Poole, Justin
Sent:	Monday, August 01, 2016 4:05 PM
To:	Browne, Kenneth
Subject:	DRAFT RAIs on ILRT (PRA Licensing Branch)
Attachments:	DRAFT RAIs from APLA re Seabrook ILRT Extension (MF7565).docx

Ken,

By letter dated March 31, 2016, as supplemented by letter dated May 31, 2016 (ADAMS Accession Numbers ML16068A128 and ML16159A194), NextEra Energy Seabrook, LLC (NextEra), submitted a license amendment request to revise Technical Specification 6.15, Containment Leakage Rate Testing Program. In reviewing NextEra's request, the NRC staff has developed the attached DRAFT request for additional information (RAI). Please review to ensure that the RAI questions are understandable, the regulatory basis is clear, there is no proprietary information contained in the RAI, and to determine if the information was previously docketed. If further clarification is needed, and you would like to discuss the questions in a conference call, let us know. This email does not convey a formal NRC staff position, and it does not formally request for additional information.

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U.S. Nuclear Regulatory Commission
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

REVISION OF TS 6.15 FOR ADOPTION OF NEI 94-01, REVISION 3-A

NEXTERA ENERGY SEABROOK, LLC,

SEABROOK STATION, UNIT 1

DOCKET NO. 50-443

By letter dated March 31, 2016, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16095A278), as supplemented by letter dated May 31, 2016 (ADAMS Accession No. ML16159A194), NextEra Energy Seabrook, LLC, requested an amendment to Seabrook Station, Unit No. 1 (Seabrook) Technical Specifications (TS). The proposed amendment will revise Seabrook TS Section 6.15, "Containment Leakage Rate Testing Program," to allow extension of the Type A test interval up to one test in 15 years and extension of the Type C test interval up to 75 months. Responses to the request for additional information (RAI) questions listed below are needed to support the U.S. Nuclear Regulatory Commission (NRC) staff's continued technical review of the proposed license amendment request (LAR).

PRA Licensing Branch (APLA)

APLA RAI-1

Section 4.2.2 of Electric Power Research Institute (EPRI) TR-1009325, Revision 2-A, states that "The most relevant plant-specific information should be used to develop population dose information. The order of preference shall be plant-specific best estimate, Severe Accident Mitigation Alternative (SAMA) for license renewal, and scaling of a reference plant population dose."

Accordingly, NRC Staff reviewed results documented in NUREG-1437, Supplement 46, Volume 2, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants - Seabrook" (ADAMS Accession No. ML15209A870). Appendix F of the NUREG states that the Seabrook Core Damage Frequency (CDF) is approximately 1.2E-5 per year for both internal and external events with the internal events, internal flooding, and external flooding CDF totaling approximately 7.8E-6 per year. Table 4-1 of Attachment 4 of the LAR cites the internal events, internal flooding, and external flooding CDF as 6.64E-6 per year (3.76E-6 + 2.86E-6 + 2.09E-8 per year). Explain the difference, justifying why a lower value is now cited. Note any changes to Tables 4-2 and 4-3 that would result if the NUREG-1437 value was used instead.

APLA RAI-2

Notes (4) and (5) in Section 5.2 of Attachment 4 of the LAR indicate that Accident Class 7 and 8 plant-specific person-rem doses are assigned as the frequency-weighted average of the dose from pertinent release categories (LE4, LL3, LL4, LL5, and SELL for Class 7 and SE1, SE2,

LE1, and LE2, for Class 8). Using the frequencies and population doses provided in Tables 4-2 and 4-4 of Attachment 4 of LAR, respectively (analogous to Notes (1) and (2)), values of 9.83E6 and 2.63E6 person-rem (50 miles) are calculated. These values reflect increases of 1.8 and 1.3 person-rem, or approximately a 6 percent and 311 percent, in the total person-rem per year reported in Table 5-5, for Class 7 and 8, respectively.

Provide an explanation for this discrepancy and/or correct the calculations for the Class 7 and 8 population dose estimates and any subsequent calculations and tables based on this result.

APLA RAI-3

Section 6-3 of Attachment 4 of the LAR indicates that the Large Early Release Frequency (LERF) contribution from fire events (1.3E-10) appears to be atypically low (approximately four orders of magnitude) when compared to the corresponding fire Core Damage Frequency, especially given that the LERF from the total internal and external events is approximately only two orders of magnitude lower than its corresponding CDF. From Table 4-2, there are four release categories that contribute to LERF (LE1 – LE4). Of these, at least categories LE2 (containment bypass via interfacing Loss of Coolant Accident (ISLOCA) through Residual Heat Removal (RHR) pipe rupture (unscrubbed release)), LE3 (containment isolation failure (large penetration, containment overpressure values)), and LE4 (long term containment basement failure with delayed evacuation), could plausibly result from fire-initiators. For example, the following scenarios are plausible: fire-induced opening or failure to close of containment isolation valves in piping; fire-induced opening or failure to close of containment overpressure valves; and fire-induced transients that lead to a LOCA via a stuck-open pressure operated relieve valve(s) and/or failure to close corresponding block valves.

Table 4-2 indicates that approximately 70 percent of the LERF contribution arises from these three release categories. Therefore, even if only 10 percent of their non-fire LERF were attributed to fire, the corresponding fire LERF-to-CDF ratio would be approximately two orders of magnitude of the fire CDF ((0.1)(1.81E-8 + 8.59E-10 + 9.20E-8)/(1.48E-6) = 0.0075), consistent with the cited total LERF-to-CDF ratio. Notably, for seismic events, the LERF-to-CDF ratio is also approximately two orders of magnitude (9.85E-8/3.25E-6 = 0.030).

Provide additional explanation for why the fire events contribution to LERF is approximately four, rather than approximately two, orders of magnitude less than the fire CDF. If this is incorrect, provide the revised value for fire LERF and discuss any changes to the overall analysis and conclusions.

APLA RAI-4

Please address the following questions associated with Attachment 1, "Seabrook Station PRA Peer Review Findings" of the May 31, 2016, LAR supplement.

a. The peer review finding for fact and observation (F&O) HR-G7-1 addresses the licensee's identification and treatment of dependency between multiple human actions. Please indicate if a specific floor value was defined (*e.g.* via post-processing) to ensure scenarios containing multiple human failure events/human error probabilities (HFEs/HEPs) did not drop below a minimum threshold. If any cutsets resulted in joint HEPs lower than 1E-6,

provide a sensitivity evaluation of imposing such a minimum value and address whether this affects the conclusions drawn in the application.

b. The peer review finding for F&O 5-5 (IFSN-A9) addresses the potential for discrepancies between defined source values and associated spreadsheets. The reviewer provides an example where a turbine building flow rate of 15,000 gallons per minute is cited in a spreadsheet whereas the source value was 56,000 gallons per minute. Please confirm the resolution of this discrepancy.

c. The peer review finding for F&O LE-E4-01 (SRs LE-E4 & E1) addresses the incorporation of state of knowledge uncertainty throughout the model. The licensee resolution states that Level 1 and Level 2 sequences were reviewed to identify where the state-of-knowledge correlation might be important and noted that the ISLOCA evaluation explicitly accounts for the state-of-knowledge correlation.   The licensee further states that based on its review, it is "judged" that other sequences would not benefit from application of state-of-knowledge correlation corrections. Please provide the basis for this judgment.