

NRR-PMDAPEm Resource

From: Poole, Justin
Sent: Wednesday, July 27, 2016 9:43 AM
To: 'Ossing, Michael'; Browne, Kenneth
Subject: DRAFT RAIs on ILRT (Balance of Plant Branch)
Attachments: DRAFT RAIs from SBPB re Seabrook ILRT Extension (MF7565).docx

Mike/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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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

Balance of Plant Branch (SBPB)

SBPB-RAI-1

NEI 94-01, Revision 0 (Reference 1) reads in part:

“10.2.1.2 Extended Test Intervals (Except Containment Airlocks)

The test intervals for Type B penetrations may be increased based upon completion of two consecutive periodic As-found Type B tests where results of each test are within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive satisfactory tests used to determine performance shall be 24 months or the nominal test interval (e.g., refueling cycle) for the component prior to implementing Option B to Appendix J. An extended test interval for Type B tests may be increased to a specific value in a range of frequencies from greater than once per 24 months up to a maximum of once per 120 months. The specific test interval for Type B penetrations should be determined by a licensee in accordance with Section 11.0.”

Letter dated March 31, 2016 (license amendment request (LAR), Reference 2), Section 3.1.2 (1st paragraph, Attachment 1, page 10 of 36) reads in part:

“For Type B testing, 3 of 13 penetrations are currently on extended frequency. Two of the 13 penetrations are electrical penetrations. Since the electrical penetrations are train related, each penetration is tested every other refueling outage.”

The NRC staff notes that this leaves eight of the Type B penetrations not on an extended test interval of *“from greater than once per 24 months up to a maximum of once per 120 months.”*

The NRC staff's review of Reference 2, “Table 2- Type B Penetrations most recent two tests” (Attachment 1, page 10 of 36), indicates that based on the “Limit (scfh [standard cubic feet per hour])” for each penetration and the associated leakage values of the “Most Recent Test” and the “Previous Test” that all penetrations appear to be eligible, per the methodology in Reference 1, Section 10.2.1.2, to be on extended test intervals.

Based on the information contained in Table 2, the NRC staff requests that NextEra Energy Seabrook, LLC (NextEra) specifically describe: (a) which three penetrations are currently on an

extended test interval of 120 months; (b) which penetrations are opened each refueling outage and therefore not eligible to be on an extended test interval; and (c) which penetrations are not included in parts (a) and (b) but are eligible for extended test intervals and explain why these residual penetrations are not on an extended test interval (including any ongoing corrective actions).

SBPB-RAI-2

In Reference 2, Section 3.1.2 "Type B and C Testing" (Attachment 1, pages 8 and 9 of 36), details a history, dating back to March 1999 during OR06, of local leakage-rate test (LLRT) failures associated with inside containment isolation check valve, IA-V-531, for instrument air penetration X-68.

During OR06, the then existing valve was replaced with the soft seated check valve.

With the new soft seated valve, the following LLRT values were recorded during refueling outages:

OR06 (March, 1999)	– 0.279 scfh
OR07	– 0.542 scfh
OR08	– 0.589 scfh (IA-V-531 put on extended test frequency)
OR11 (Fall, 2006)	– 1.492 scfh.
OR14 (Spring, 2011)	– 4.592 scfh (Condition reports 01673034/01682493 were initiated to address the increasing trend)
OR15 (Fall, 2012)	– 3.569 scfh (LLRT value after soft seat replacement via Work Order [WO] 40132878)
OR16 (Spring, 2014)	– 10.661 scfh (value from LAR Table 3)
OR17 (Fall, 2015)	– 19.661 scfh (value from LAR Table 3)

In Section 3.1.2 of Reference 1, NextEra states that the LLRT failure(s), since installation of a soft seated check valve IA-V-531 in 1999, have been attributed to the following potential causes:

1. Dirt or grit from the carbon steel system in combination with close tolerances between the disc/disc guide and the bore; and/or
2. advanced age of the soft seat.

The fourth paragraph of Attachment 1, Page 9 of 36, of Reference 1 reads:

"The age of the replacement seat may help explain why the AS LEFT test was non zero. A durometer test was not done, but the new soft seats felt slightly more pliable than the old soft seat."

The seventh paragraph of Attachment 1, Page 9 of 36, of Reference 1 reads:

"The local leak rate test was performed satisfactorily in OR16 and OR17, which re-establishes valve performance."

Based on the above, the NRC staff requests:

1. Does the "AS LEFT test" value referred to in the fourth paragraph refer to the 3.569 scfh value listed above? The "age of the replacement seat" along with the large LLRT values associated with penetration X-68 since OR15 would suggest that the replacement seat installed under WO 40132878 had an advanced shelf life or was installed with an advanced shelf life. Given the carbons steel systems propensity for dirt and grit and given the check valves close tolerances, what justified installing an "aged" soft seat? An accurate interpretation of the fourth paragraph cited above is needed.
2. Since a soft seated check valve IA-V-531 was first installed in 1999, the penetration X-68 LLRT leakage rate has steadily increased and by a cumulative factor of more than 20 times the "as-left" leakage rate of OR06. What phenomena explains this steady increase in leakage rates and are any corrective actions planned?

SBPB-RAI-3

NEI 94-01, Revision 0 (Reference 1) reads in part:

"10.2.3.2 Extended Test Interval

Test intervals for Type C valves may be increased based upon completion of two consecutive periodic As-found Type C tests where the result of each test is within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive passing tests used to determine performance shall be 24 months or the nominal test interval (e.g. refueling cycle) for the valve prior to implementing Option B to Appendix J. Intervals for Type C testing may be increased to a specific value in a range of frequencies from 24 months up to a maximum of 120 months. Test intervals for Type C valves should be determined by a licensee in accordance with Section 11.0."

Regulatory Guide 1.163 (Reference 3) Regulatory Position C.2 reads:

"Section 11.3.2, "Programmatic Controls," of NEI 94-01 provides guidance for licensee selection of an extended interval greater than 60 months or 3 refueling cycles for a Type B or Type C tested component. Because of uncertainties (particularly unquantified leakage rates for test failures, repetitive/common mode failures, and aging effects) in historical Type C component performance data, and because of the indeterminate time period of three refueling cycles and insufficient precision of programmatic controls described in Section 11.3.2 to address these uncertainties, the guidance provided in Section 11.3.2 for selecting extended test intervals greater than 60 months for Type C tested components is not presently endorsed by the NRC staff. Further, the interval for Type C tests for main steam and feedwater isolation valves in BWRs, and containment purge and vent valves in PWRs and BWRs, should be limited to 30 months as specified in Section 3.3.4 of ANSI/ANS-56.8-1994, with consideration given to operating experience and safety significance."

Section 3.1.2 of Reference 2, Attachment 1, page 10 of 36, second paragraph, reads in part:

“For Type C testing, 26 of 37 eligible penetrations are on extended frequency. This does not include the two penetrations that are required to be tested on a 30 month frequency per Regulatory Guide 1.163. Of the 11 penetrations not on extended frequency, four are train related and are tested every other outage. ... One penetration [i.e. X-68] is not on extended frequency due to the failure previously discussed. The remaining six penetrations are tested every outage.”

The NRC staff notes that this leaves six of the Type C penetrations not on an extended test interval of greater than once per 24 months up to a maximum of once per 60 months.

The NRC staff's review of Reference 2, "Table 3 -Type C Penetrations most recent two tests" (Attachment 1, pages 11 and 12 of 36), indicates that based on the "Limit (scfh)" for each penetration and the associated leakage values of the "Most Recent Test" and the "Previous Test" that all Penetrations appear to be eligible, per the methodology in Reference 1, Section 10.2.3.2, to be on extended test intervals.

Based on the information contained in Table 3, the NRC staff requests that NextEra specifically describe which six penetrations are eligible for extended test intervals but are not on an extended test interval. Provide a brief valve synopsis including description, design function, service life and any required corrective actions. Also provide an explanation of why these six penetrations have not qualified for an extended test interval.

SBPB RAI-4

The NRC staff notes that the "Response for Seabrook" for Limitation Condition 3 in Reference 2, Attachment 1 (page 25 of 36), contains an apparent error in the words "*Reference Section 3.2.1 through 3.2.9.*" Reference 2 only contains Sections 3.2.1 through 3.2.7. Please update the sentence with the correct reference.

References:

- 1 NEI Topical Report 94-01, Revision 0, dated July 26, 1995 "Industry Guideline for Implementing Performance Based Option of 10 CFR Part 50, Appendix J" [ADAMS Accession No. ML11327A025]
- 2 NextEra Energy Seabrook, LLC letter (SBK-L-16029) to NRC dated March 31, 2016 "Seabrook Station; License Amendment Request 16-01 Request to Extend Containment Leakage Test Frequency;" Docket No. 50-443, Facility Operating License No. NPF-86, (MF7565) [ADAMS Accession Number ML16095A278].
- 3 NRC RG 1.163, dated September 1995, "Performance-Based Containment Leak-Rate Testing program," [ADAMS Accession No. ML003740058]