



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 28, 2015

Mr. Dean Curtland  
Site Vice President  
Seabrook Station NextEra Energy  
626 Lafayette Road  
Seabrook, NH 03874

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO THE REVIEW OF  
THE SEABROOK STATION, UNIT 1, LICENSE RENEWAL  
APPLICATION – SET 24 (TAC NO. ME4028)

Dear Mr. Curtland:

By letter dated May 25, 2010, NextEra Energy Seabrook, LLC submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the Operating License NPF-86 for Seabrook Station, Unit 1, respectively. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

The request for additional information was discussed with Mr. Edward Carley, and a mutually agreeable date for the response is within 45 days from the date of this letter. If you have any questions, please contact me at 301-415-1427 or by e-mail at [richard.plasse@nrc.gov](mailto:richard.plasse@nrc.gov).

Sincerely,

/RA/

Richard Plasse, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:  
Requests for Additional Information

cc: Listserv

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SEABROOK STATION, UNIT 1  
LICENSE RENEWAL APPLICATION  
REQUEST FOR ADDITIONAL INFORMATION SET 24

**RAI 3.0.3.3.5-1**

Background

By letter dated May 26, 2015, the applicant provided its response to A/LAI 3 of the MRP-227-A report. The applicant stated that the original equipment Alloy X-750 control rod guide tube (CRGT) split pins were proactively replaced at Seabrook with cold worked Type 316 stainless steel split pins to mitigate potential stress corrosion cracking concerns based on industry operating experience. In addition, the applicant explained that there are currently no vendor specific requirements to inspect the replacement CRGT split pins; however, through the station's participation in industry groups and the evaluation of industry operating experience this position may change as warranted. The applicant stated that plants that have already installed the replacement Type 316 stainless steel split pins will provide a leading indicator for operating experience, and Seabrook will evaluate any split pin failures from these plants.

The staff noted that Section 3.2.5.3 of the SE, Rev.1, for MRP-227 states, in part, that it is recommended that the evaluation performed by the applicant in response to A/LAI 3 "consider the need to replace the Alloy X-750 support pins (split pins), if applicable, or inspect the replacement Type 316 stainless steel support pins (split pins) to ensure that cracking has been mitigated and that aging degradation is adequately monitored during the extended period of operation."

Issue

Since the applicant has already replaced all of its X-750 split pins at Seabrook and the applicant is not proposing to inspect the replacement Type 316 stainless steel support pins (split pins) it is not clear to the staff how the applicant will ensure that cracking has been mitigated and that aging degradation is adequately monitored during the period of extended operation (PEO). The applicant did not provide adequate justification how split pin operating experience and inspections of CRGT split pins at other plants will be used to provide a reasonable forecast for plant-specific operating experience at Seabrook.

Request

- If inspection of the replacement Type 316 stainless steel support pins (split pins) is not proposed, provide the basis that the concerns documented in Section 3.2.5.3 of the SE, Rev.1 for MRP-227 and A/LAI 3 are adequately addressed in the LRA and that age-related degradation is adequately monitored during the PEO.

- Provide the following information if operating experience and inspections of CRGT split pins at other Westinghouse-designed facilities will be used as part of the basis for managing potential cracking in the CRGT split pins at Seabrook Station: (a) identify the plants that will be performing inspections of their replaced Type 316 cold-worked CRGT split pins on behalf of Seabrook Station, (b) identify the process or processes that will be used in accordance with the “Administrative Controls” or “Confirmation Process elements of the PWR Reactor Internals Program to collect and compile the inspection data from these plants, (c) identify the criteria that will be implemented in accordance with the “monitoring and trending” program element of the AMP to assess the data from the other plants, and (d) identify the plant-specific “acceptance criteria” that will be used to assess such data and the “corrective actions” that will be taken if the acceptance criteria are not met.

### **RAI 3.0.3.3.5-2**

#### Background:

LRA Table 3.1.2-3, Reactor Vessel Internals, as amended by letter dated May 26, 2015, indicates that the clevis insert bolts are nickel alloy and that loss of material will be managed by the PWR Vessel Internals Program. In addition, the staff noted that Enclosure 2, Table 1, of the May 26, 2015, letter indicates that the clevis insert bolts are managed as part of inspections performed in accordance with ASME Code Section XI. Appendix A to MRP-227-A indicates that failures of Alloy X-750, precipitation-hardenable nickel-chromium alloy clevis insert bolts were reported by one Westinghouse designed plant in 2010. Furthermore, the staff noted that these clevis insert bolts failed because of cracking, which is an aging effect that was not addressed in MRP-227-A.

#### Issue:

It is not clear to the staff whether the generic operating experience associated with Westinghouse-design clevis insert bolt cracking is applicable to the design of the clevis insert assemblies and clevis insert bolts at Seabrook Station and, if so, how the PWR Vessel Internals Program will be used to monitor and manage cracking of clevis insert bolts at the plant, including the potential need for adjusting the “Existing Program” protocols for clevis insert bolts in the MRP-227-A report.

#### Request:

Discuss and justify whether the generic operating experience associated with cracking of the Westinghouse-design clevis insert bolts is applicable to design of the clevis insert assemblies and clevis insert bolts at Seabrook Station.

1. If it is not applicable to the design of the clevis insert assemblies at Seabrook, explain and justify why the operating experience does not apply to the plant.
2. If the generic operating experience is applicable to design of the clevis insert assemblies and clevis insert bolts at Seabrook Station, explain and provide a basis for each of the following items:
  - (a) Specify the material of fabrication, including any applicable heat treatment, for the clevis insert bolts that were procured for the station and are currently in-service. Clarify (explain) whether the material of fabrication is susceptible to:
    - (i) fatigue induced cracking, or
    - (ii) cracking induced by any of the stress corrosion cracking, or
    - (iii) intergranular attack mechanisms.
  - (b) Clarify how the PWR Vessel Internals program or an alternative AMP will be used to monitor and manage cracking of clevis insert bolts at the plant:
    - (i) If the PWR Vessel Internals Program will be used for aging management of the clevis insert bolts, clarify how the "Existing Program" protocols of the AMP will be augmented (if at all) to inspect the clevis insert bolts in a manner that is capable of detecting cracking in the bolts.
    - (ii) If the PWR Vessel Internals Program will not be augmented, provide a technical justification for the adequacy of the existing VT-3 visual inspection method to detect cracking in the bolts before a loss of clevis insert assembly intended function.
    - (iii) If an alternative AMP will be used for aging management of cracking in the bolts, identify the AMP and clarify the "Detection of Aging Effects" and "Monitoring and Trending" program element criteria that will be used to monitor for cracking. The response should include details about the method and frequency that will be used for the inspections and sample of clevis insert assemblies and bolts that will be inspected out of the total population of clevis insert assemblies and bolts that are included in the plant design.

Letter to D. Curtland from R. Plasse dated August 28 2015

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