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

September 6, 2013

Mr. Kevin Walsh, Site Vice President
c/o Michael Ossing
Seabrook Station
NextEra Energy Seabrook, LLC
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 – REQUEST FOR ADDITIONAL INFORMATION FOR LICENSE AMENDMENT REQUEST 12-04, APPLICATION REGARDING COLD LEG INJECTION PERMISSIVE (TAC NO. MF1158)

Dear Mr. Walsh:

By letter dated March 13, 2013 (Agencywide Documents Access and Management System Accession No. ML13079A122), NextEra Energy Seabrook, LLC (licensee) submitted license amendment request 12-04 for Seabrook Station, Unit No. 1 (Seabrook). The proposed change is to the Seabrook Technical Specifications. The proposed amendment modifies the circuitry that initiates high-head safety injection by adding a new permissive, cold leg injection permissive (P-15). This permissive prevents opening of the high-head safety injection valves until reactor coolant system pressure decreases to the P-15 set point.

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing your submittal and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). The RAI questions were provided in draft form to Mr. Paul Willoughby of your staff via e-mail on August 12, 2013. The draft questions were sent to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. The licensee agreed to provide answers to the request for additional information within 60 days of the date of this letter.

Please note that if you do not respond to this letter by the agreed-upon date or provide an acceptable alternate date in writing, we may reject your application for amendment under the provisions of Title 10 of the *Code of Federal Regulations*, Section 2.108.

If you have questions, you can contact me at 301-415-3100 or by e-mail at John.Lamb@nrc.gov.

Sincerely,

John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST 12-04

APPLICATION REGARDING COLD LEG INJECTION PERMISSIVE

NEXTERA ENERGY SEABROOK, LLC.

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

By letter dated March 13, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13079A122), NextEra Energy Seabrook, LLC (NextEra or licensee) submitted license amendment request 12-04 for Seabrook Station, Unit No. 1 (Seabrook). The proposed change is to the Seabrook Technical Specifications. The proposed amendment modifies the circuitry that initiates high-head safety injection (SI) by adding a new permissive, cold leg injection permissive (P-15).

The charging to cold leg injection valves are provided as part of the engineered safety features to inject highly borated water from the refueling water storage tank into the four Reactor Coolant System cold legs. Seabrook's current design opens the cold leg injection valves when an SI signal is provided by the Engineered Safety Features Actuation System (ESFAS). The licensee is proposing to modify the safety injection circuitry by adding a cold leg injection permissive ESFAS interlock P-15.

The U.S. Nuclear Regulatory Commission staff has determined that additional information is necessary to complete its review.

REQUEST FOR ADDITIONAL INFORMATION (RAI)

Basis for the Request #1

In its application, the licensee stated for the steam line breaks inside containment that although an increase in SI injection delay is considered non-conservative, a sensitivity calculation was specifically performed to evaluate the impact of SI and the results show that mass and energy releases are not impacted by the increased delay time for SI.

Request for Additional Information #1

Describe the sensitivity cases referenced in the application and explain why they were chosen. In addition, explain how the mass and energy releases are not impacted by the increased delay time for SI, as referenced in the application.

Enclosure

Basis for the Request #2

In its application, the licensee stated that the hot zero-power steam line break event remains bounding for operation at the current uprate conditions and that the P-15 modification does not impact the limiting case for hot zero-power steam line break results, because the cold leg injection valves will be fully open before the as-modeled high-head SI flow starts. Seabrook's updated final safety analysis report (UFSAR), Chapter 15, Section 15.1.5 analyzes the limiting steam line break, which is a double-ended rupture of the main steam line at the steam generator nozzle at zero power with offsite power available. In the analysis, it states that after generation of the SI signal, the appropriate valves begin to operate and the high-head SI pump starts.

In 27 seconds, the valves are assumed to be in their final position and the pump is assumed to be at full speed. In addition, the results state that SI will initiate by the low steam line pressure signal. The P-15 modification causes a delay in SI flow, if SI initiates on any SI signal other than the low pressurizer pressure signal. Since during the hot zero-power steam line break event, SI is initiated by the low steam line pressure signal, there will be an additional delay induced by the P-15 modification.

Request for Additional Information #2

Provide a description of the re-analysis of limiting hot zero-power steam line break event; include a timeline for this event that shows the SI flow is delivered by the current analysis of record, 27.55 seconds, and shows that it remains bounding for operation at the current uprate conditions, as stated in the application.

Basis for the Request #3

In its application, the licensee stated that prior to P-15 implementation, the Chemical and Volume Control System (CVCS) malfunction event was bounded by the inadvertent Emergency Core Cooling System (ECCS) actuation at power and was not analyzed. With the addition of P-15, the inadvertent ECCS actuation at power is no longer the limiting mass addition event. As part of the P-15 modification effort, the CVCS malfunction described in Section 15.5.2 of the UFSAR has been analyzed with P-15 and the same methodology used for the inadvertent ECCS actuation analysis.

Request for Additional Information #3

Provide the newly performed analysis that NextEra plans to incorporate into Section 15.5.2 of the UFSAR.

Basis for the Request #4

The CVCS malfunction event time sequence of events in Table 3 of the application states that the high pressurizer level alarm occurs at 483.1 seconds, that the operator is credited with isolating the normal charging flow path at 600 seconds, and that time to fill the pressurizer if reactor coolant pump (RCP) seal injection is not terminated is 1082.1 seconds.

Request for Additional Information #4

The sequence of events presented in Table 3 of the application, allows 1.9 minutes (116.9 seconds) for the operator to respond to the pressurizer high-level alarm reactor trip and isolate the normal charging flow path. This is followed by another 8 minutes (482.1 seconds) for the operator to then isolate RCP seal injection flow and terminate the event.

Considering the above sequence of events explain: (1) how long will it take to fill the pressurizer and open the safety valve without operator action, (2) are there other indications and alarms in the control room that will alert the operator to this postulated event, (3) what actions are the operators expected to take to isolate charging flow and isolate RCP seal injection flow, and how long does it take to complete these actions, (4) what actions are required for a reactor trip and how long does it take to complete these actions, (5) is this event going to be incorporated into training and if so, what type of training and at what frequency, and (6) was this postulated event ran in the simulator with an operating crew as part of this analysis, if so how long did it take the operating crew to terminate the event, if not explain why it was not ran in the simulator as part of this analysis.

Regulatory Analysis Basis

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90, Application for amendment of license, construction permit, or early site permit states:

> Whenever a holder of a license, including a construction permit and operating license under this part, and an early site permit, combined license, and manufacturing license under part 52 of this chapter, desires to amend the license or permit, application for an amendment must be filed with the Commission, as specified in §§ 50.4 or 52.3 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

If you have questions, you can contact me at 301-415-3100 or by e-mail at John.Lamb@nrc.gov.

Sincerely,
/ra/
John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Request for Additional Information

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ADAMS Accession No: ML13224A091 ****via memo**

OFFICE	LPL1-2/PM	LPL1-2/LA	SRXB/BC	LPL1-2/BC (A)	LPL1-2/PM
NAME	JLamb	ABaxter	CJackson**	VRodriguez	JLamb
DATE	08/14/13	08/14/13	08/05/13	09/05/13	09/06/13

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