NEXTera ENERGY SEABROOK

September 16, 2011

10 CFR 50.90

SBK-L-11184
Docket No. 50-443

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Seabrook Station

Response to Request for Additional Information Regarding License Amendment Request 10-02, Regarding the Containment Enclosure Emergency Air Cleanup System

References:

1. NextEra Energy Seabrook, LLC letter SBK-L-10074, "Application for Change to the Technical Specifications for the Containment Enclosure Emergency Air Cleanup System," May 14, 2010 (ADAMS Accession No. ML101390041).

2. NextEra Energy Seabrook, LLC letter SBK-L-10143, Response to Request for Additional Information Regarding License Amendment Request (LAR) 10-02, "Application for Change to the Technical Specifications for the Containment Enclosure Emergency Air Cleanup System," August 24, 2010 (ADAMS Accession No. ML 102380100).

3. NRC letter "Seabrook Station Unit NO.1 – Electronic Transmission, Draft Request for Additional Information Regarding License Amendment Request 10-02 Regarding the Containment Enclosure Emergency Air Cleanup System (TAC NO. ME3988)," August 10, 2011 (ADAMS Accession No. ML112210139)

In Reference 1 and supplemented by Reference 2, NextEra Energy Seabrook, LLC (NextEra) submitted a request for an amendment to the Technical Specifications (TS) for Seabrook Station.

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The proposed amendment would add an action statement allowing 24 hours of operation with both trains of the containment enclosure building emergency air cleanup system inoperable due to an inoperable containment enclosure building. This change would align TS 3.6.5.1 with TS 3.6.5.2, which currently allows operation for 24 hours if the containment enclosure building is inoperable.

In Reference 3, the NRC requested additional information in order to complete its review of the LAR. The Enclosure to this letter contains NextEra's response to the request for additional information.

Should you have any questions regarding this letter, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC.

Paul Freeman
Site Vice President

Enclosure

cc: NRC Region I Administrator
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FPL Energy
Seabrook Station

AFFIDAVIT

SEABROOK STATION UNIT 1

Facility Operating License NPF-86
Docket No. 50-443

Response to Request for Additional Information Regarding License Amendment Request 10-02, Regarding the Containment Enclosure Emergency Air Cleanup System

I, Paul Freeman, Site Vice President of NextEra Energy Seabrook, LLC hereby affirm that the information and statements contained within this response to request for additional information regarding License Amendment Request 10-02 are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Sworn and Subscribed
before me this
16 day of September, 2011

Shirley Sweeney
Notary Public

SHIRLEY SWEENEY
MY COMMISSION EXPIRES NOV. 18, 2014
NOTARY PUBLIC NEW HAMPSHIRE

Paul Freeman
Site Vice President

Enclosure

Response to Request for Additional Information (RAI)

RAI:

By letter dated May 14, 2010 (Agencywide Document Access and Management System (ADAMS) Accession No. ML 101390041), as supplemented by letter dated August 24, 2010 (ADAMS Accession No. ML 102380100), NextEra Energy Seabrook, LLC (NextEra or the licensee) submitted license amendment request (LAR) 10-02. LAR 10-02 proposed modifying Technical Specification (TS) 3.6.5.1 to add an action statement allowing 24 hours of operation with both trains of the containment enclosure building air cleanup system (CEEACS) inoperable due to an inoperable containment enclosure building. This change would align TS 3.6.5.1 with TS 3.6.5.2, which currently allows operation for 24 hours if the containment enclosure building is inoperable. To complete its review, the Nuclear Regulatory Commission staff needs the following information:

The supplement dated August 24, 2010, stated: "[t]he proposed changes are similar to provisions that exist in the TSs in NUREG-1431 [, "Standard Technical Specifications Westinghouse Plants," Revision 3,] for certain emergency air cleanup systems."

The Seabrook TSs are of a different format and contain different content compared to NUREG-1431. Seabrook TSs contain the concept and defined term "CONTAINMENT ENCLOSURE BUILDING INTEGRITY;" NUREG-1431 does not contain this term and treats containment differently. NUREG-1431 contains limiting condition for operation (LCO) 3.0.6, which provides allowances for support and supported system inoperability. The Seabrook TSs do not contain a similar LCO.

Proposed Action b for Seabrook TS 3.6.5.1 would provide a relaxation from the current way that NextEra applies the TS requirements. The supplement dated August 24, 2010, stated that the CEEACS at Seabrook performs a similar function to systems in Standard TS (STS) 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," and 3.7.14, "Penetration Room Exhaust Air Cleanup System." The supplement stated that the proposed change would be similar to Condition B for both STS 3.7.12 and 3.7.14, allowing operation for 24 hours when both air-handling trains are inoperable due to an inoperable boundary. Seabrook TS 3.6.5.1 does not contain surveillance requirements (SRs) similar to SR 3.7.12.4 and 3.7.14.4.

Given the differences in format and content between NUREG-1431 and Seabrook TS, please describe how the proposed TS change provides an equivalent level of safety compared to that found in NUREG-1431.

Response to RAI

Containment Arrangements Addressed in the Technical Specifications (TS)

The RAI discusses that the Seabrook TS are of a different format and contain different content compared to NUREG-1431. Seabrook TSs contain the concept and defined term "CONTAINMENT ENCLOSURE BUILDING INTEGRITY;" NUREG-1431 does not contain this term and treats containment differently.

The following discussion compares the Seabrook containment to the containment arrangements addressed in NUREG-1431.

Seabrook Containment and Containment Enclosure

The Seabrook containment is a reinforced concrete dry structure, which is designed to function at atmospheric conditions. It consists of an upright cylinder topped with a hemispherical dome, supported on a reinforced concrete foundation mat. A welded steel liner plate, anchored to the inside face of the containment, serves as a leak tight membrane.

Located outside the containment building and having a similar geometry is the containment enclosure building. This structure provides leak protection for the containment and protects it from certain loads. The containment enclosure completely encloses the containment, forming a second barrier to the uncontrolled escape of radioactive sources in the event of an accident. The space between the containment and the enclosure building is maintained at a slight negative pressure during accident conditions. The containment enclosure includes the emergency core cooling systems (ECCS) equipment vaults and the containment penetration area.

The containment enclosure emergency air cleanup system (CEEACS) has two functions: (1) to produce a negative pressure post accident in the annular, cylindrical volume between the containment and the containment enclosure, and (2) to collect any hazardous materials that might leak into these areas from the containment structure or equipment and systems located within the enclosure (emergency core cooling systems) so that they may be disposed of in a controlled manner.

Containment Arrangements Addressed in NUREG-1431

NUREG-1431 provides TS requirements for four containment types: (1) atmospheric, (2) sub atmospheric, (3) dual, and (4) ice condenser. The atmospheric type containment is a reinforced concrete structure with a cylindrical wall, a flat foundation mat, and a shallow dome roof. The inside surface of the containment is lined with a carbon steel liner to ensure a high degree of leak tightness during operating and accident conditions. Seabrook's design is similar to the atmospheric type; however, Seabrook has the added feature of the containment enclosure building, which completely encloses the containment.

The dual and ice condenser type containments consist of a free standing steel pressure vessel surrounded by a reinforced concrete shield building. The annular space between the steel containment vessel and the shield building inner wall collects containment leakage that may occur following a loss of coolant accident. To be operable, the shield building must always be at a negative pressure and the boundary must not be breached (one door in the access openings must be closed).

Seabrook's containment enclosure building is similar to the shield building described in NUREG-1431; however, it would be an additional boundary to the shield building. Different from the requirements for the shield building, Seabrook's containment enclosure building is maintained at a negative pressure only following an accident and, consequently, its boundary may be breached during transit through the single door access openings. (Seabrook surveillance requirement (SR) 4.6.5.2 requires that the door in each access opening is closed except when the access opening is being used for normal transit entry and exit.)

Evaluation of Level of Safety Provided by the Proposed Change Compared to that Provided in NUREG-1431

Comparison of NUREG required actions for an inoperable shield building to Seabrook's proposed change

The functions of the shield building and the shield building air cleanup system (SBACS) in NUREG-1431 are very similar to the functions of Seabrook's containment enclosure building and the CEEACS. The shield building collects containment leakage that may occur following a loss of coolant accident. Similarly, the function of the Seabrook containment enclosure building is to collect any fission products that leak from the primary containment structure into the containment enclosure and contiguous areas following a loss-of-coolant accident. The SBACS establishes a negative pressure in the annulus between the shield building and the steel containment vessel, and filters in the system then control the release of radioactive contaminants to the environment. Likewise, the CEEACS is designed to maintain a negative pressure within the containment enclosure following an accident, to remove and retain airborne particulates and radioactive iodine, and to exhaust filtered air to the plant vent. Comparing the NUREG-1431 required actions for an inoperable shield building to NextEra's proposed change for two inoperable trains of CEEACS due to an inoperable boundary shows that the level of safety provided by the proposed change is equivalent to that provided by the NUREG.

Standard TS (STS) Limiting Condition for Operability (LCO) 3.6.8 in NUREG-1431 requires an operable shield building in Modes 1 through 4, and a Completion Time of 24 hours is provided to restore an inoperable shield building. On an 18-month staggered test basis for each train of SBACS, STS SR 3.6.8.4 demonstrates shield building operability by confirming that the building can be maintained at a specified negative pressure with a specified air flow within a specified time following a SBACS start signal. The primary purpose of this SR is to ensure shield building integrity. If this SR could not be met due to a loss of shield building integrity, STS LCO 3.6.8

would not be met, and Condition A provides a 24-hour Completion Time to restore shield building operability. During the period it is inoperable, the shield building cannot perform its functions of limiting radioactive leakage from the containment to assumed leakage rates and paths and ensuring proper operation of the SBACS. However, the Bases for STS 3.6.8 discuss that 24 hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a design basis accident occurring during the time period.

Seabrook's proposed change to TS 3.6.5.1 addresses a condition similar to the inoperable shield building scenario discussed above. If both trains of CEEACS are incapable of establishing a negative pressure in the containment enclosure due to a loss of enclosure building integrity (similar to the condition that both trains of SBACS are incapable of maintaining a negative pressure in the shield building due to loss of integrity), the proposed change would permit 24 hours to restore containment enclosure building operability. During this time, the containment enclosure building and CEEACS would not be capable of performing their specified functions, similar to the case discussed above for the shield building and the SBACS. A loss of enclosure building integrity may not necessarily render the CEEACS totally ineffective. The location and size of the breach in the enclosure building would determine the extent that performance of the CEEACS would be degraded.

The proposed change to the Seabrook TS provides 24 hours to restore containment enclosure building operability when both trains of CEEACS are inoperable due to an inoperable ventilation area boundary. This change is similar to the 24-hour Completion Time provided by STS LCO 3.6.8 for a shield building that is inoperable due its inability to maintain a negative pressure. Consequently, NextEra concludes that the proposed change provides a level of safety equivalent to the level of safety provided in NUREG-1431 for a loss of shield building integrity.

Comparison of NUREG required actions for inoperable emergency air cleanup systems to Seabrook's proposed change

The RAI discusses that NextEra's August 24, 2010 supplement to the proposed change stated that the CEEACS at Seabrook performs a similar function to systems in Standard TS (STS) 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," and 3.7.14, "Penetration Room Exhaust Air Cleanup System." The supplement stated that the proposed change would be similar to Condition B for both STS 3.7.12 and 3.7.14, allowing operation for 24 hours when both air-handling trains are inoperable due to an inoperable boundary. Seabrook TS 3.6.5.1 does not contain surveillance requirements (SRs) similar to SR 3.7.12.4 and 3.7.14.4.

STS SRs 3.7.12.4 and 3.7.14.4 verify the capability of the Emergency Core Cooling System Pump Room Exhaust Air Cleanup System (ECCS PREACS) and the Penetration Room Exhaust Air Cleanup System (PREACS) to maintain a negative pressure during the post-accident mode of operation. The function of these systems is to filter air from the area of active ECCS components and from the penetration areas to limit radioactive releases. The Seabrook design does not include individual emergency air cleanup systems for the ECCS equipment areas and containment penetration areas. The containment enclosure, which provides a low leakage rate

barrier between the containment and the environment to control all leakage from the containment boundary, surrounds the containment, ECCS equipment vaults, and penetration areas. Therefore, the CEEACS, which establishes a negative pressure in the containment enclosure under post-accident conditions, performs functions similar to the ECCS PREACS and the PREACS. Seabrook SR 4.6.5.1.d.4 verifies on an 18-month frequency that the CEEACS produces a negative pressure in the containment enclosure within four minutes following a start signal. This SR essentially demonstrates the same capability as that performed by STS SRs 3.7.12.4 and 3.7.14.4.

In the event that the ECCS pump room boundary or the penetration room boundary becomes inoperable, the associated emergency air cleanup system cannot perform its intended function. As a result, Condition B in STS LCO 3.7.12 and LCO 3.7.14 each address the case in which both emergency air cleanup system trains are inoperable due to an inoperable ventilation area boundary. A Completion Time of 24 hours is provided to restore the ECCS pump room boundary or penetration room boundary to operable status.

Considering that the CEEACS essentially performs the same functions as the ECCS PREACS and PREACS, NextEra concludes that the proposed change to allow 24 hours to restore containment enclosure building operability when both trains of CEEACS are inoperable due to an inoperable ventilation area boundary provides an equivalent level of safety as that provided in NUREG-1431.

STS LCO 3.0.6

The RAI notes that NUREG-1431 contains LCO 3.0.6, which provides allowances for support and supported system inoperability. The Seabrook TS do not contain a similar LCO.

In general, LCO 3.0.6 establishes an exception to meeting the Required Actions of the associated Conditions for supported systems rendered inoperable by inoperable support systems. Entry into LCO 3.0.6 also requires an evaluation to determine if a loss of safety function exists. If a loss of function exists, then the Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of function is due solely to a single TS support system, the appropriate LCO to apply is the LCO for the support system.

With regard to support system – supported system relationship, the containment enclosure building supports operation of the CEEACS. The CEEACS maintains a negative pressure within the containment enclosure following an accident, removes and retains airborne particulates and radioactive iodine, and exhausts filtered air to the plant vent. To accomplish these functions, the containment enclosure building must be operable. The building must be intact (operable) so that it can sustain a negative pressure and collect leakage to support the ability of the CEEACS to filter and discharge radioactive leakage.

Although the Seabrook TS do not include LCO 3.0.6, applying this exception to the Seabrook condition involving a loss of containment enclosure building integrity would show that the condition requires meeting the Action for the inoperable support system – the containment

enclosure building – which provides 24 hours to restore containment enclosure building operability. For a situation involving a loss of function solely due to a single TS support system, the Actions for a support system LCO adequately address the inoperabilities of that system without reliance on entering its supported system LCO. Therefore, LCO 3.0.6 would require meeting only the 24-hour Action of TS 3.6.5.2 for an inoperable containment enclosure building. Because the Seabrook TS do not include LCO 3.0.6, the proposed change provides 24 hours to restore containment enclosure building operability when both CEEACS trains are inoperable due to an inoperable containment enclosure building boundary.

NextEra concludes that the proposed change provides a level of safety equivalent to NUREG-1431 with regard to STS LCO 3.0.6.