April 28, 2010

NRC 2010-0043
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

License Amendment Request 261
Extended Power Uprate
Response to Request for Additional Information

References: (1) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)

(2) NRC letter to NextEra Energy Point Beach, LLC, dated March 25, 2010, Point Beach Nuclear Plant, Units 1 and 2 - Request for Additional Information from Electrical Engineering Branch Re: Extended Power Uprate (TAC Nos. ME1044 and ME1045) (ML100810368)

NextEra Energy Point Beach, LLC (NextEra) submitted License Amendment Request (LAR) 261 (Reference 1) to the NRC pursuant to 10 CFR 50.90. The proposed amendment would increase each unit's licensed thermal power level from 1540 megawatts thermal (MWt) to 1800 MWt, and revise the Technical Specifications to support operation at the increased thermal power level.

Via Reference (2), the NRC staff determined that additional information is required to enable the staff's continued review of the request. Enclosure 1 provides the NextEra response to the NRC staff's request for additional information.

This letter contains no new Regulatory Commitments and no revisions to existing Regulatory Commitments.

The information contained in this letter does not alter the no significant hazards consideration contained in Reference (1) and continues to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements of an environmental assessment.

In accordance with 10 CFR 50.91, a copy of this letter is being provided to the designated Wisconsin Official.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 28, 2010.

Very truly yours,

NextEra Energy Point Beach, LLC

Larry Meyer
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

NEXTERA ENERGY POINT BEACH, LLC
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

LICENSE AMENDMENT REQUEST 261
EXTENDED POWER UPRATE
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The NRC staff determined that additional information was required (Reference 1) to enable the Electrical Engineering Branch complete the review of License Amendment Request (LAR) 261, Extended Power Uprate (EPU) (Reference 2). The following information is provided by NextEra Energy Point Beach, LLC (NextEra) in response to the NRC staff's request.

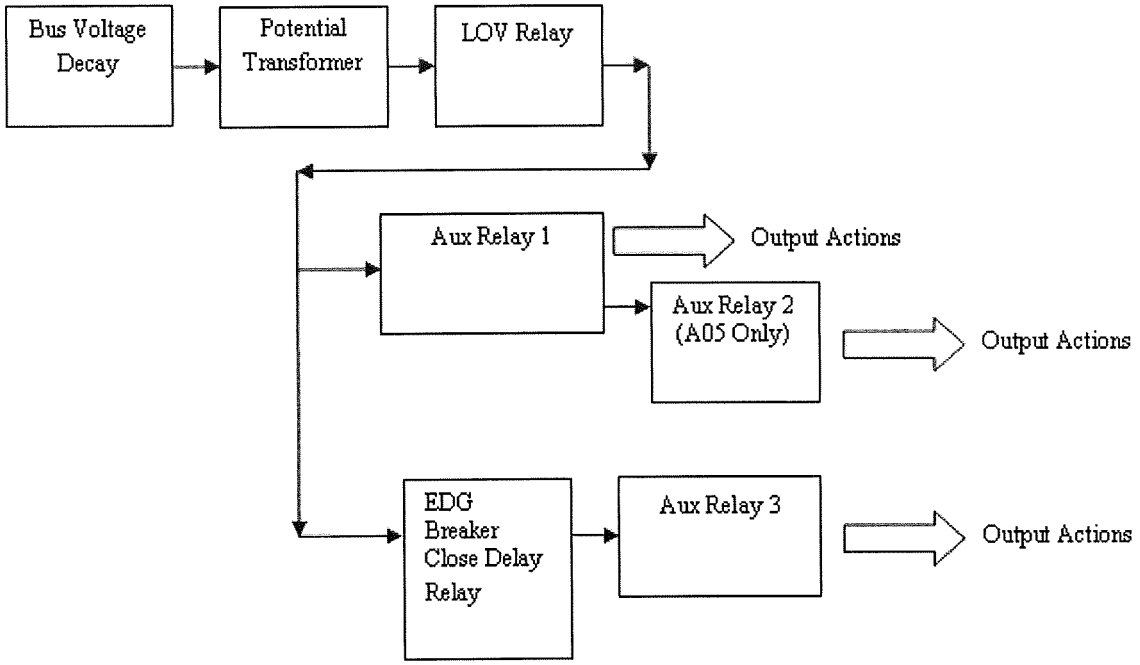
The following statement applies to request for additional information (RAI) EEEB-1 through 4:

The proposed change would extend the time delay of the loss of voltage (LOV) relay to 2.3 seconds when it actuates at approximately 3156V. The proposed change also extends the closure time for emergency diesel generator (EDG) breaker to 3.55 seconds. The degraded voltage (DV) relay is set at approximately 3937V with a time delay of 5.68 seconds with a concurrent safety injection signal (SIS) and 39.14 seconds without a SIS available. The DV protection scheme does not directly start the EDG. A trip of the DV relay actuates the LOV relay which adds 2.3 seconds for relay actuation and 3.55 seconds for breaker closure, to the total time for start of EDG.

NextEra Response to General Comment

The degraded voltage (DV) Technical Specifications (TS) allowable values are based on the maximum safety limit (SL) of 6 seconds with a safety injection (SI) signal present and a maximum SL of 48 seconds without a SI signal present. The bus DV relay and the bus time delay relay provide the time delay for the DV scheme. For additional details on the DV TS, see Reference (3).

Additional clarification on the operation of the loss of voltage (LOV) relays and the emergency diesel generator (EDG) breaker close delay relays is presented below in the block diagram which illustrates the logic scheme:



In this scheme, auxiliary relay 1 (A05 and A06 bus) and auxiliary relay 2 (A05 bus only) provide the trip to the incoming 4.16 kV feeder breaker to A05/A06 and provide a start signal to the EDGs associated with the bus. Auxiliary relay 3 provides a close permissive for the EDG output breaker. Both the permissive from auxiliary relay 3 and the EDG ready to load permissive (adequate EDG voltage and speed) must be made up for the EDG output breaker to close.

The voltage and time delay settings for the relays in the 4.16 kV LOV scheme were selected in conjunction with the voltage and time delay settings for the 480 V LOV scheme whether the EDGs are running or not to ensure the following:

1. The EDGs will be started and their output breakers can be closed onto the bus within 14 seconds or less.

2. The EDGs will be able to meet the 14 seconds requirement for output breaker closure when considering a loss-of-coolant accident (LOCA) coincident with a DV condition.

3. 4.16 kV loads are stripped prior to closing the EDG output breakers to prevent block loading the 4.16 kV loads and to allow proper sequencing of loads.

4. The 480 V loads are stripped prior to closing the EDG output breakers to prevent block loading the 480 V loads and allow proper sequencing of the loads.

5. The motor voltage for both 4.16 kV and 480 V motor loads has decayed to a safe level prior to re-energizing buses to prevent damage to the motors resulting from being energized out of synchronization with the incoming EDG voltage.

Based upon the above requirements, the LOV relays and EDG breaker close delay relay requirements were established and provide basis for the TS change to Surveillance Requirement (SR) 3.3.4.3 previously submitted in Reference (2).

The LOV TS allowable values provided in LAR 261 are based on the minimum SL of 1.5 seconds and a maximum SL of 3 seconds. The minimum SL establishes the minimum time delay required to prevent premature separation from offsite power during a transmission system transient. The minimum time delay was selected based on transmission studies performed in accordance with North American Electrical Reliability Corporation (NERC) guidelines and the plant's licensing basis to ensure PBNP would remain connected to offsite power for a transmission system transient to allow protective relays on the transmission system to clear the transient and not separate from offsite power. The maximum SL was established to ensure that after a LOV event, the EDG would supply the safety-related buses within the requirements of the safety analysis.

The total maximum time for the EDGs to start and energize the bus is the sum of the bus voltage decay (0.8 sec), LOV relay time delay (safety limit value of 3 sec), auxiliary relay (0.1 sec), EDG start delay (10 sec) and EDG circuit breaker close delay (0.1 sec). These time delay values support the maximum 14-second requirement to re-energize the 4.16 kV buses to support Final Safety Analysis Report (FSAR) Chapter 14 accident analyses.

The EDG breaker close delay TS allowable values provided in LAR 261 are based on a minimum SL of 1.8 seconds and a maximum SL of 4 seconds. The minimum SL establishes the minimum time delay required to allow operation of the 480 V LOV relays to actuate and initiate load stripping and to allow sufficient time for the system voltage to decay to a safe level prior to re-energizing the safety-related buses by the EDG to prevent equipment damage. The maximum SL was established to ensure that after a DV or a LOV event, the EDG would supply the safety-related buses within the requirements of the PBNP safety analysis.

The worst-case condition for the EDG breaker close delay relay is when a LOV is preceded by a DV condition coincident with a SI signal. Therefore, the total time for the safety-related buses to be energized by the EDG is the sum of bus DV relay (safety limit of 6 seconds), bus voltage decay (0.8 sec), LOV relay time delay (safety limit value of 3.0 sec), auxiliary relay (0.1 sec), EDG breaker close delay relay (safety limit of 4 seconds) and EDG circuit breaker close delay (0.1 sec). These time delay values provide the basis for the maximum 14 second requirement to support FSAR Chapter 14 accident analyses. This bounds the condition for a LOV condition which would result in a maximum start time of 10 seconds for the EDG circuit breaker close delay because the timer operates at the same time as the EDG start.

EEEB-1

Provide a summary of the analyses that demonstrates that the safety-related equipment will not be degraded when required to operate at a voltage level marginally above the LOV relay setpoint for approximately 39 seconds.

NextEra Response

The maximum allowable time delay of 48 seconds provides the basis for the bus DV relay and the bus time delay relay. This time limit will eliminate undesired tripping of the safety-related loads by over-current protective devices when the voltage is below the DV relay setpoint but above the LOV relay setpoint. The allowable value for the relays protects the 48-second time limit. The total time delay without a SI is the combination of both the bus DV relay and the bus time delay relay. For additional clarification on the DV scheme and basis for the setpoint which addresses Question EEEB-1, see Reference (3).

The maximum allowable time delay was established to ensure the satisfactory operation of equipment would occur without tripping over-current protective devices when the voltage is below the DV relay setpoint but above the LOV relay setpoint. The LOV relay TS allowable value is ≥ 3156 V. This results in a nominal system voltage of 75.8% (3156 V / 4160 V). The AC electrical system analysis references American National Standards Institute (ANSI) Standard C50.41-1977 for motors. The standard requires motors to operate for 60 seconds at a voltage ≥75% of motor voltage rating with no damage and the equipment will operate as designed. The LOV relay setpoint protects the motors under these conditions. An analysis has been performed to show that no over-current protective device will trip as a result of the higher current from the motors operating at just above the LOV relay setting for at least 48 seconds. For additional details, see Reference (3).

EEEB-2

Provide a summary of the analyses that demonstrates that plant safety is not compromised if EDG start is delayed by approximately 42 seconds and EDG breaker closure is delayed by an additional 3.55 seconds following degraded grid conditions with plant bus voltages marginally above the LOV relay setting for 39 seconds.

NextEra Response

For PBNP FSAR Chapter 14 accidents which consider a loss of offsite power (LOOP), the initiating event is based on a coincident LOCA (which generates a safety injection signal) at the time of the LOV relay actuation. The PBNP FSAR Chapter 14 accident analyses take into consideration a 15 seconds delay from the initiating event until power is restored to safety-related buses. As described above, the time delay associated with the EDG breaker close delay relay still ensures the time requirements of the PBNP FSAR Chapter 14 accident analyses remain valid.

However, for the condition when the voltage on the safety-related buses are below the DV relay setpoint, but above the LOV relay setpoint without a SI signal, the EDG breaker close delay relay would not impact the time required for the safety-related buses to be energized by the EDGs. This is because the EDG start time of 10 seconds is longer than the time delay for the EDG breaker close delay relay of 3.55 seconds. The PBNP FSAR Chapter 14 event would be initiated when the LOV relay setpoint is reached or the DV scheme initiates a LOV by opening the main bus breaker when no SI signal is present. In addition, as discussed in the EEEB-1 response above, equipment would operate as designed when the voltage is between the DV relay setpoint and the LOV relay setpoint. As a result, the time delay in the accident analyses remains valid.

EEEB-3

The undervoltage protective schemes (LOV and DV) are not bypassed during EDG (Train) A operation. Point Beach Technical Specifications do not stipulate transient or steady state EDG voltage requirements. Provide details on acceptance criteria established in plant procedures to ensure that EDG achieves acceptable voltage band within the allowed time during an emergency start. Provide a comparison of the LOV and DV relay reset values and the criteria for acceptable EDG voltage.

NextEra Response

The function of the DV scheme is to sense a DV condition on the safety-related buses when the buses are supplied from their offsite power source. As a result, the only action from a DV relay actuation is to send a trip signal to the associated safety-related 4.16 kV bus main feeder breaker, which isolates the safety-related buses from the offsite power source. Once the EDGs are supplying the safety-related buses, the DV relays do not perform a function. As a result, no acceptance criteria are required for the EDGs related to the DV relays when the safety-related buses are powered from the EDGs.

The function of the 480 V LOV relays is to initiate the 480 V load stripping scheme when a LOV on the 480 V buses occurs. When the 480 V LOV relays actuate, the appropriate 480 V breakers receive a trip signal. The required safety-related loads are sequenced onto the buses once voltage is restored. The Train "A" 480 V LOV function is bypassed when the EDGs are supplying the buses. This results in the 480 V load stripping function being blocked when the EDGs are supplying the buses. However, the Train "B" 480 V LOV function remains in service when EDGs are supplying the bus. PBNP performed an EDG transient analysis that demonstrated that the Train "B" voltage remains above the 480 V LOV relays with significant margin, based on the allowable steady-state voltage range of the EDGs of 4050 V to 4300 V.

The current design function of the 4.16 kV LOV relays are to provide a trip signal to the associated safety-related 4.16 kV bus main feeder breaker, which separates the safety-related buses from the offsite power source; and initiate a start signal to the EDG to connect to the safety-related buses. A new function is being added to the 4.16 kV LOV relays to also include a trip signal to the new 4.16 kV auxiliary feedwater (AFW) pump motors when a LOV on the bus occurs. Once the EDGs are supplying the safety-related buses, the only function that remains is the trip of the new 4.16 kV AFW pump motors. PBNP has performed an EDG transient analysis that demonstrates the voltage response of the system. The results of the calculation provided in Reference (4) are based on an allowable steady-state voltage range of the EDGs of 4050 V to 4300 V. The new LOV time delay settings allow for the LOV relays to ride through the transient without actuating the relays to trip the new 4.16 kV AFW pump motors.

The design basis for the EDG steady-state voltage requirements is to maintain a voltage between 4050 V and 4300 V. Procedures direct the operators to verify the EDG steady state voltages remain within these values. In addition, the steady state voltage of the EDG is confirmed during the monthly TS testing to confirm the voltage remains within the acceptable range during a start. PBNP EDG calculations are performed based on the minimum allowable steady state voltage to demonstrate that the 480 V LOV and 4.16 kV LOV relays will not impact the operation of plant equipment during an event.

EEEB-4

Plant licensing basis assumes simultaneous loss of offsite power (LOOP) coupled with a design basis accident. For events such as a Large Break Loss of Coolant Accident, a SIS starts the EDG at the onset of the event. For other events that may not generate a SIS immediately (such as steam generator tube rupture) occurring simultaneously with a LOOP, provide details on consequences of delaying EDG start by 2.3 seconds and adding 3.55 seconds for breaker closure when the plant is operating at uprated conditions.

NextEra Response

The FSAR Chapter 14 accident analyses are based on the EDGs supplying the safety-related 4.16 kV buses after a 14-second delay from the initiation of the event. The total time delay of 14 seconds is based on the maximum SL time delay of 3 seconds for the LOV relays. A TS Allowable Value of 2.3 seconds for the LOV relays ensures that the FSAR Chapter 14 accident analyses remain bounded.

When event initiation is considered with a simultaneous LOOP, the EDG breaker close delay relay does not impact the time at which the EDG will energize the bus because the maximum SL time delay of 4 seconds is bounded by the EDG start time of 10 seconds. The EDG receives a start signal at the same time the EDG Breaker close delay relay start timing. As a result, the EDG breaker close delay relay will complete its time delay and provide the appropriate permissive for EDG output breaker closure prior to the EDG start delay, which is 10 seconds after start signal. Therefore, the EDG breaker close relay will ensure that the FSAR Chapter 14 accident analyses remain valid.

The following questions pertain to High Energy Line Break Environmental Qualification (EQ) of the equipment or components:

EEEB-5

The NRC staff requests the licensee to provide a detailed comparison of the following EQ temperature and pressure profiles:

a. Current conditions
b. Existing bounding EQ profile
c. *At proposed EPU conditions*

NextEra Response

LAR 261, Attachment 5, Section 2.3.1, Environmental Qualification of Electrical Equipment, Tables 2.3.1-1 through 2.3.1-4 provides a comparison of the current environmental qualification (EQ) parameters and EPU EQ parameters. Figures 2.3.1-1 and 2.3.1-2 provide a comparison of the containment LOCA EPU temperature and pressure profiles to the composite EQ profiles. Using these figures, an additional curve of the current LOCA minimum SI (MINSI) containment pressure and temperature response are provided in Figures 1 and 2.

Figure 1
LOCA Pressure Vs. Time

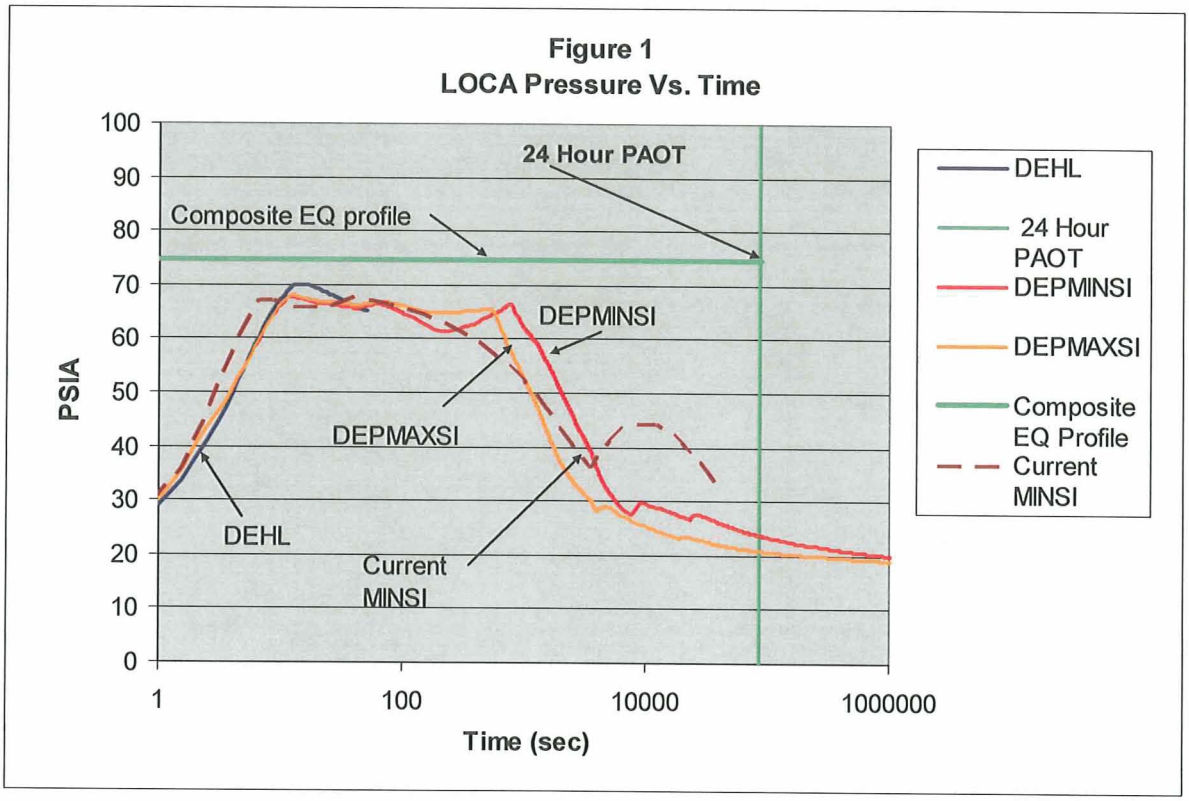
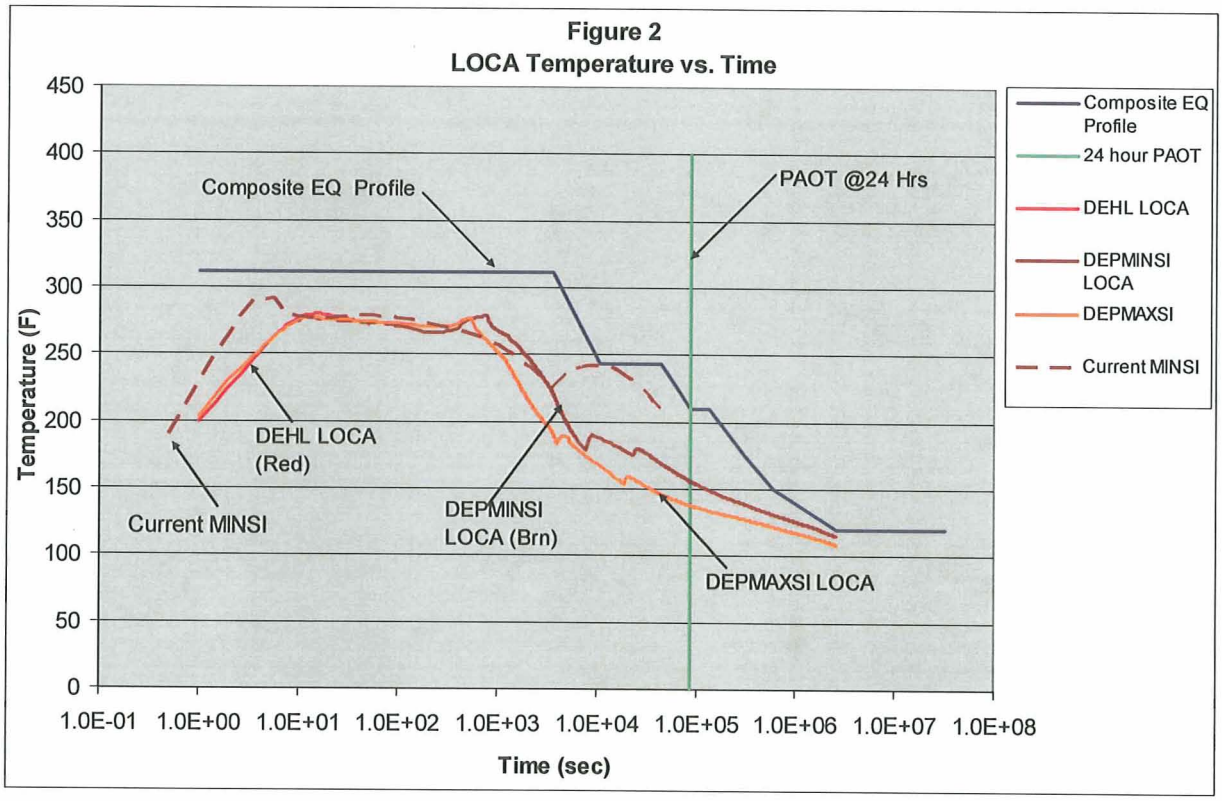


Figure 2
LOCA Temperature vs. Time



EEEB-6

The NRC staff requests the licensee to provide a detailed discussion regarding whether the existing EQ profiles envelop the proposed EPU conditions.

NextEra Response

LAR 261, Attachment 5, Section 2.3.1.2, Environmental Qualification of Electrical Equipment, (Reference 2) Technical Evaluation (Inside Containment Evaluation) and Figures 2.3.1-1 and 2.3.1-2 demonstrate that the existing EQ profiles for temperature and pressure bound the EPU conditions.

EEEB-7

The NRC staff requests the licensee to provide radiation doses for the inside and outside containment due to the EPU condition. Provide a discussion and confirm that the EQ components are still qualified.

NextEra Response

LAR 261, Attachment 5 Section 2.3.1.2, Environmental Qualification of Electrical Equipment, Technical Evaluation (Radiation Environments) and Tables 2.3.1-1 through 2.3.1-4 provide radiation doses for the inside and outside containment due to the EPU conditions. LAR 261, Section 2.3.1 also provides a discussion and confirmation that the EQ components are still qualified, with the exception of four (4) Honeywell micro-switches in the containment facades and one (1) Nutherm panel in the primary auxiliary building (PAB). The Honeywell micro-switches and Nutherm panel have been qualified by analysis to the EPU conditions.

EEEB-8

The NRC staff requests the licensee to identify the existing components that are being replaced due to the EPU conditions and confirm that replacements are qualified in accordance with Title 10 of the Code of Federal Regulations, Section 50.49.

NextEra Response

LAR 261, Attachment 5, Section 2.3.1.2, Environmental Qualification of Electrical Equipment, Technical Evaluation, identifies components that were being analyzed for EPU conditions to determine if replacement is necessary. Four (4) Honeywell micro-switches in the containment facades and one (1) Nutherm panel in the PAB have been identified. Additional analyses have been completed for these components and they have been qualified by analysis for EPU conditions in accordance with 10 CFR 50.49.

LAR 261, Attachment 5, Section 2.3.1.2, Environmental Qualification of Electrical Equipment, Technical Evaluation, also stated that based on the resulting environmental conditions for high energy line break events at EPU, all equipment currently in the EQ program remains qualified. However, as part of the final EQ documentation update for EPU, the following four cables that are affected by a high energy line break in PAB fan rooms 272 and 273 could not be qualified and are being replaced with qualified cables prior to implementation of EPU.

The following cables currently in the EQ program are being replaced with cables qualified to the new EPU conditions.

Cable ID	Manufacturer/Type	Equipment	EQ Package	Room
ZM1I478A	Okonite PVC Cable (2/C #16 AWG TSP)	1PT-00478	EQCK-ROME-001	272
ZN1I479A	Okonite PVC Cable (2/C #16 AWG TSP)	1PT-00479	EQCK-ROME-001	272
ZR2I478A	BIW P/N A7244-H-002 Hypalon Insulated/Jacketed Cable (2/C #16 AWG TSP)	2PT-00478	EQCK-BOST-001	273
ZS2I479A	BIW P/N A7244-H-002 Hypalon Insulated/Jacketed Cable (2/C #16 AWG TSP)	2PT-00479	EQCK-BOST-001	273

In addition, solenoid valves for the feedwater regulating valve upgrades and steam flow transmitters and connectors being replaced due to EPU are being qualified in accordance with 10 CFR 50.49 to EPU conditions. This corrects information previously submitted in Reference (2).

EEEB-9

The NRC staff requests the licensee to identify any new components added to the EQ program due to the EPU conditions. Furthermore, the staff requests the licensee to confirm that these components, if of the same model or make, as components already in the EQ program, are also maintained per the EQ program.

NextEra Response

LAR 261, Attachment 5, Section 2.3.1, Environmental Qualification of Electrical Equipment, Technical Evaluation, identified new components that are to be added to the EQ program as a result of the HELB reconstitution effort for EPU. These new components were four refueling water storage tank (RWST) level transmitters and four steam generator (SG) blowdown header control valve solenoid valves (SOVs) located in the lower elevation of the containment facades.

The four RWST level transmitters (1 & 2LT-972 & 973) were added to the EQ program and have been qualified to EPU conditions. These components have been maintained in accordance with the plant maintenance program, which is consistent with EQ maintenance requirements.

The SG blowdown header control valve SOVs (1 & 2MS-2042-S and 1 & 2MS-2045-S) were removed from the EQ required list, since these valves are not required to mitigate a HELB in the containment facades. Therefore, these SOVs will not be added to the EQ program, as previously stated in the LAR 261 Attachment 5, Section 2.3.1, Environmental Qualification of Electrical Equipment, Technical Evaluation.

References

(1) NRC letter to NextEra Energy Point Beach, LLC, dated March 25, 2010 Point Beach Nuclear Plant, Units 1 and 2 – Request for Additional Information from Electrical Engineering Branch Re: Extended Power Uprate (TAC Nos. ME1044 and ME1045) (ML100810368)

(2) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)

(3) NRC letter to Nuclear Management Company, LLC, dated March 21, 2007, Point Beach Nuclear Plant, Units 1 and 2 – Issuance of Amendments Re: Loss of Power Diesel Generator Start Instrumentation (TAC Nos. MD0936 and MD0937) (ML070600608)

(4) NextEra Energy Point Beach, LLC letter to NRC, dated April 15, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML101050357).