NEXTera ENERGY POINT BEACH

July 24, 2009

NRC 2009-0075
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 241
Alternative Source Term
Response to Request for Additional Information

References:
(1) FPL Energy Point Beach, LLC letter to NRC, dated December 8, 2008, License Amendment Request 241, Alternative Source Term (ML083450683)
(2) FPL Energy Point Beach, LLC Letter to NRC, dated January 27, 2009, Supplement to License Amendment Request 241, Transmittal of Proposed License Conditions (ML090280348)
(3) NRC letter to NextEra Energy Point Beach, LLC, dated June 25, 2009, Point Beach Nuclear Plant, Units 1 and 2 – Request for Additional Information from Human Performance Branch Related to License Amendment Request No. 241 Alternate Source Term (TAC Nos. ME0219 and ME0220) (ML091620560)

NextEra Energy Point Beach, LLC (NextEra) submitted License Amendment Request (LAR) 241 (Reference 1) and transmitted proposed License Conditions related to LAR 241 in letter dated January 27, 2009 (Reference 2) for Commission review and approval pursuant to 10 CFR 50.90. The license amendment would revise the current licensing basis to implement the alternative source term (AST) through reanalysis of the radiological consequences of the Point Beach Nuclear Plant (PBNP) Final Safety Analysis Report Chapter 14 accidents.

Via letter dated June 25, 2009 (Reference 3), the NRC staff determined that additional information was required to enable the staff's review of the amendment request.

This letter transmits a revision to the License Conditions proposed in Reference (2). Enclosure 1 contains the revised proposed License Conditions. The proposed License Conditions also reflect the change of name for the license holder that was previously submitted to the Commission for approval on April 17, 2009, via License Amendment Request 250 (ML091070535).

The revised License Conditions do not alter the no significant hazards conclusion contained in Reference (2). An evaluation concludes that the revised License Conditions continue to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements for an environmental assessment.

The revision to the proposed License Conditions has been reviewed by the Plant Operations Review Committee.

Enclosure 2 provides the NextEra response to the NRC staff's request for additional information transmitted in Reference (3).

Enclosures 3 and 4 provide the proposed emergency operating procedure (EOP) and EOP background document markups, respectively, that will direct the operators to throttle containment spray and residual heat removal flow, and initiate primary auxiliary building ventilation (VNPAB) during the emergency core cooling system (ECCS) recirculation phase following a loss of coolant accident.

Summary of Regulatory Commitments

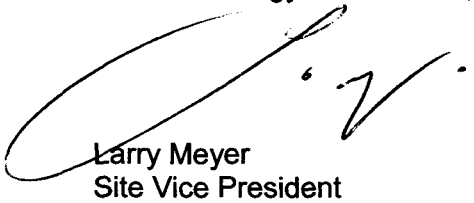
This letter contains no new regulatory commitments and no revisions to existing commitments.

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 July 24, 2009.

Very truly yours,

NextEra Energy Point Beach, LLC



Larry Meyer
Site Vice President

Enclosures

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

ENCLOSURE 1

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

LICENSE AMENDMENT REQUEST 241
ALTERNATIVE SOURCE TERM
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

PROPOSED LICENSE CONDITIONS TO APPENDIX C
FOR OPERATING LICENSES DPR-24 AND DPR-27

2 pages follow

APPENDIX C
ADDITIONAL CONDITIONS
OPERATING LICENSE DPR-24

NextEra Energy Point Beach, LLC shall comply with the following conditions and the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
	NextEra Energy Point Beach will modify the PBNP control room (CR) radiation shielding to ensure CR habitability requirements are maintained. This modification is scheduled to be completed following Nuclear Regulatory Commission (NRC) approval of LAR 241, "Alternative Source Term," during the Unit 1 (2010) refueling outage.	
	NextEra Energy Point Beach will modify the containment spray (CS) and residual heat removal (RHR) systems to provide throttling capability of CS and RHR during the emergency core cooling system (ECCS) recirculation phase. These modifications will be completed on a unit-specific basis at the next Unit 1 (2010) refueling outage.	
	NextEra Energy Point Beach will revise PBNP Emergency Operating Procedures (EOPs) to direct continued containment spray while on sump recirculation. These procedure changes will be implemented following NRC approval of LAR 241, "Alternative Source Term," and following the completion of each unit-specific installation of the CS and RHR system modifications to provide throttling capability during the ECCS recirculation phase.	
	NextEra Energy Point Beach will modify the control room emergency filtration system (CREFS) to create a new alignment for the accident mode that provides a combination of filtered outside air and filtered recirculation air. The modifications will include redundancy for all CREFS active components that must reposition from their normal operating position, and auto-start capability on loss of offsite power in conjunction with a containment isolation or high control room radiation signal from an emergency diesel generator supplied source for the CREFS fans required for the new system alignment. This modification will be completed following NRC approval of LAR 241, "Alternative Source Term," during the second site refueling outage that completes installation of the CS and RHR system modifications to provide throttling capability during the ECCS recirculation phase, thus completing installation for both units.	
	NextEra Energy Point Beach will modify the primary auxiliary building (PAB) ventilation system (VNPAB) to ensure redundancy of active components needed to operate the PAB exhaust system. VNPAB components credited for AST will be upgraded to an augmented quality status. No credit is taken by AST for the PAB charcoal filters. NextEra Energy Point Beach will revise PBNP EOPs to address starting the VNPAB fans. This modification is scheduled to be completed following Nuclear Regulatory Commission (NRC) approval of LAR 241, "Alternative Source Term," during the Unit 1 (2010) refueling outage.	

APPENDIX C
ADDITIONAL CONDITIONS
OPERATING LICENSE DPR-27

NextEra Energy Point Beach, LLC shall comply with the following conditions and the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
	NextEra Energy Point Beach will modify the PBNP control room (CR) radiation shielding to ensure CR habitability requirements are maintained. This modification is scheduled to be completed following Nuclear Regulatory Commission (NRC) approval of LAR 241, "Alternative Source Term," during the Unit 1 (2010) refueling outage.	
	NextEra Energy Point Beach will modify the containment spray (CS) and residual heat removal (RHR) systems to provide throttling capability of CS and RHR during the emergency core cooling system (ECCS) recirculation phase. These modifications will be completed on a unit-specific basis at the next Unit 2 (2009) refueling outage.	
	NextEra Energy Point Beach will revise PBNP Emergency Operating Procedures (EOPs) to direct continued containment spray while on sump recirculation. These procedure changes will be implemented following NRC approval of LAR 241, "Alternative Source Term," and following the completion of each unit-specific installation of the CS and RHR system modifications to provide throttling capability during the ECCS recirculation phase.	
	NextEra Energy Point Beach will modify the control room emergency filtration system (CREFS) to create a new alignment for the accident mode that provides a combination of filtered outside air and filtered recirculation air. The modifications will include redundancy for all CREFS active components that must reposition from their normal operating position, and auto-start capability on loss of offsite power in conjunction with a containment isolation or high control room radiation signal from an emergency diesel generator supplied source for the CREFS fans required for the new system alignment. This modification will be completed following NRC approval of LAR 241, "Alternative Source Term," during the second site refueling outage that completes installation of the CS and RHR system modifications to provide throttling capability during the ECCS recirculation phase, thus completing installation for both units.	
	NextEra Energy Point Beach will modify the primary auxiliary building (PAB) ventilation system (VNPAB) to ensure redundancy of active components needed to operate the PAB exhaust system. VNPAB components credited for AST will be upgraded to an augmented quality status. No credit is taken by AST for the PAB charcoal filters. NextEra Energy Point Beach will revise PBNP EOPs to address starting the VNPAB fans. This modification is scheduled to be completed following Nuclear Regulatory Commission (NRC) approval of LAR 241, "Alternative Source Term," during the Unit 1 (2010) refueling outage.	

ENCLOSURE 2

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

LICENSE AMENDMENT REQUEST 241
ALTERNATIVE SOURCE TERM
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Via letter dated June 25, 2009 (Reference 1), the NRC staff determined that additional information was required to enable the Human Performance Branch to complete its review of License Amendment Request (LAR) 241, Alternative Source Term (AST) (Reference 2). The following information is provided by NextEra Energy Point Beach, LLC (NextEra) in response to the NRC staff's request.

Question 1.a

The licensee stated in its submittal, "Credit is taken for manual operator action to restore [Primary Auxiliary Building Ventilation System] VNPAB within 30 minutes following the alignment of [residual heat removal] RHR to containment sump recirculation mode of operation. If a [loss of coolant accident] LOCA occurs coincident with a [loss of off-site power] LOOP, the VNPAB will be manually restarted to ensure that the auxiliary building vent stack is the source of the release associated with the [emergency core cooling system] ECCS leakage phase of the event.

a. *What are the cues that alert the operator to initiate these actions, e.g., how will the operator know that action is required? Annunciator? Procedure step sequencing? Parameter monitoring?*

NextEra Response

Procedure step sequencing will be the cue that alerts the operator(s) to initiate primary auxiliary building ventilation (VNPAB). Proposed procedural Step 31 performed in emergency operating procedure (EOP) 1.3, Transfer to Containment Sump Recirculation – Low Head Injection, is to be accomplished directly after stopping the high head safety injection (HHSI) pump. The proposed step will direct the operator to ensure that VNPAB ventilation is in operation (i.e., two fans including either the A or B Auxiliary Building exhaust stack fan and the corresponding A or B Auxiliary Building filter fan). See the proposed EOP-1.3, Step 31 in Enclosure 3.

Question 1.b

b. Will operators need to know that there is a time-constraint of 30 minutes associated with these actions? If so, how will the time-constraint be communicated to the operator and how will the start time be determined and documented?

NextEra Response

The operators will need to know that there is a time constraint of 30 minutes associated with placing VNPAB into service. The time constraint will be communicated to the operator in the EOP-1.3 background document BG-EOP-1.3, Transfer to Containment Sump Recirculation - Low Head Injection, in proposed Step 31 (see Enclosure 4). The start time will be determined by a proposed direct action Step 31 in EOP-1.3 that is sequenced within the manual steps used to transition from the injection phase to the recirculation phase. Changes to EOP-1.3 and BG-EOP-1.3 will be implemented in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The basis for the 30-minute requirement will be addressed as part of the licensed operator requalification training.

Question 1.c

c. How have these actions been validated to be feasible and reliable? Who was, or will be, involved in the validation?

NextEra Response

The required actions of starting two fans (including either the A or B primary auxiliary building exhaust stack fan and the corresponding A or B primary auxiliary building filter fan) have not been validated. Validation will occur as part of the EOP verification and validation process. The required actions will be taken in the control room, will be direct action EOP steps after sump recirculation is established, and will be sequenced within the manual steps used to transition from the injection phase to the recirculation phase (see proposed EOP-1.3, Step 31 in Enclosure 3). The fan switches are located on the back of the 1C-04 panel of the Unit 1 main control board. The two primary auxiliary building exhaust stack fans and the two primary auxiliary building filter fans are shared by both units.

Changes to EOP-1.3 will be implemented in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The Operations Manager, verification team, validation team, EOP writer, Design Engineering, Probabilistic Risk Assessment (PRA), Reactor Engineering, Operations Training, Radiation Protection, and other assigned reviewers from affected organizations have responsibilities associated with the verification and validation process.

Question 1.d

d. Describe the changes, if any, to the plant-reference simulator and training that are planned to support these actions.

NextEra Response

AST-related simulator upgrades including switches, lights, alarms, software changes, and procedure revisions (as proposed in Enclosures 3 and 4) will be completed to support the first cycle of licensed operator requalification training in 2010. Training is accomplished as a part of the engineering change (EC) process associated with the AST modifications. Completion of these activities will allow implementation of AST for both units following NRC approval of LAR 241.

Question 1.e

e. Describe the changes, if any, to the plant procedures that are planned to support these actions. Copies of marked-up procedure pages or procedure change requests should be included if available.

NextEra Response

A proposed direct action EOP-1.3, Step 31 (Enclosure 3) is being added to ensure that either the A or B primary auxiliary building exhaust stack fan and the corresponding A or B primary auxiliary building filter fan are in operation after the HHSI pumps are secured. The timing bases for dose calculations will be included in the EOP-1.3 background document BG-EOP-1.3 for proposed Step 31 (see Enclosure 4).

Proposed procedure markups in lieu of procedure change requests are provided in Enclosures 3 and 4 to provide a preliminary outline of procedure changes that are planned. NextEra will use the approved administrative procedure governing the EOP verification and validation process to verify and validate that the procedure changes are correct and will function in an optimum fashion.

Question 2.a

Regarding the control room emergency filtration system (CREFS) and Control Room Ventilation (VNCR), the licensee stated in its submittal, "A new operational mode for CREFS, known as Mode 5 will be established. The mode is referred to as VNCR accident mode to avoid confusion with plant operating MODES in the TS. This change will provide for a combination of filtered outside air and filtered recirculation. The VNCR accident mode will provide a total flow rate of 4950 cfm ±10 percent with a minimum of 1955 cfm of filtered return air."

a. What effect does the new CREFS Mode 5 have on the control room environment when compared to normal control room ventilation? For example, is the noted flowrate of 4950 cfm more, less, or equal to normal flowrate?

NextEra Response

The total flow rates for the new control room emergency filtration system (CREFS) Mode 5 and the existing Mode 4 are the same. The control room flow for the new CREFS Mode 5 will consist of a minimum of 1955 cfm of return air and total filter fan flow of 4950 cfm +/-10% to meet the assumptions in the AST control room dose calculations. This equates to a flow of approximately 2500 cfm of fresh air. Mode 4 operation allows approximately 4950 cfm of fresh air. The fresh air flow for the control room ventilation normal operating mode (Mode 1) is approximately 1000 cfm.

Question 2.b

b. Is there any effect on control room humidity or temperature?

NextEra Response

The new CREFS Mode 5 will result in a decreased quantity of outside air drawn into the control room as compared to the current Mode 4 accident operation (i.e., approximately 2500 cfm versus approximately 4950 cfm). However, for the new Mode 5, CREFS is automatically started with either a containment isolation signal or a high control room radiation signal. For the current Mode 4 with a loss of offsite power, CREFS is to be manually started during the event as directed by EOP-0. The result is that new Mode 5 will ensure a supply of outside air to the control room earlier in the event than for current Mode 4. This will result in a decreased temperature in the control room during the early part of the event. The control room humidity will not be significantly changed for the two accident modes.

Question 2.c

Elsewhere in the submittal, the licensee stated,

> *The modifications will include redundancy for all CREFS active components and auto-start capability on loss of offsite power from a diesel generator supplied source for the CREFS fans required for the new system alignment.... FPL Energy Point Beach will revise [Point Beach Nuclear Plant] PBNP [Emergency Operating Procedures] EOPs to address starting the VNPAB fans....*

c. Please clarify. For example, what is the functional relationship between the CREFS fans and the VNPAB fans? For a LOCA with concurrent LOOP, describe how the CREFS is put into the accident mode. Which components are auto-started or auto-aligned, and which require manual actions?

NextEra Response

The CREFS and VNPAB are independent; there is no functional relationship between the two systems.

The new VNCR accident mode (new CREFS Mode 5) will be automatically initiated by a containment isolation signal, by a high radiation signal from the control room area monitor RE-101, or by a high radiation signal from process monitor RE-235 located in the supply duct to

the control room. Manual initiation of this mode of operation will also be available from the control room air conditioning panel (C-67) located in the control room.

No manual actions are required for the CREFS fans. The CREFS fans will auto-start on loss of offsite power in conjunction with a containment isolation or high control room radiation signal from a diesel generator supplied source.

New proposed control room operator actions in BG-EOP-1.3, Step 31 (Enclosure 4) are required to restore the VNPAB within 30 minutes following the alignment of residual heat removal (RHR) to containment sump recirculation mode of operation. If a loss of coolant accident (LOCA) occurs coincident with a loss of offsite power (LOOP), the VNPAB system will be manually restarted to ensure that the primary auxiliary building vent stack is the source of the release associated with leakage during the emergency core cooling system (ECCS) recirculation phase of the event.

Question 3

Regarding modifications to Containment Spray and RHR, the licensee stated, "FPL Energy Point Beach will modify the CS and RHR systems to provide throttling capability of CS and RHR during the ECCS recirculation phase." What instrumentation will be provided to support the operators' capability to throttle CS and RHR?

NextEra Response

A fixed orifice at the discharge of the containment spray (CS) pumps is used to throttle CS flow during ECCS recirculation and a preset throttle position for an existing valve is used to throttle the RHR flow. The operator is not required to manually adjust flow. Status lights are provided on the main control boards to allow the operator to confirm the proper alignment of the CS pump discharge valves and to confirm that the preset throttle position has been reached for the RHR valve. Regulatory Guide 1.97, Category 2, Type D flow instrumentation is available on the main control boards to allow the operators to monitor the operation of the CS and RHR systems.

Question 3.a

a. What cues alert operators to the need to throttle CS and RHR?

NextEra Response

The cues that alert the operators to the need to throttle CS and RHR are provided in proposed direct action procedure steps. Proposed EOP-1.3, Step 32 stops the injection phase CS when the RWST is depleted. Proposed EOP-1.3, Step 33 establishes the reduced RHR deluge (or upper plenum) recirculation flow and the flow controlled CS recirculation flow path. The operator is not required to manually adjust CS or RHR flow. See the proposed EOP-1.3 markups in Enclosure 3.

Question 3.b

b. What feedback is provided to operators?

NextEra Response 3.b.

Status lights are provided on the main control boards to allow the operator to confirm the proper alignment of the CS pump discharge valves and to confirm that the preset throttle position has been reached for RHR valves SI-852A or B, RHR pump core deluge valves. Regulatory Guide 1.97, Category 2, Type D flow instrumentation is available on the main control boards to allow the operators to monitor the operation of the CS and RHR systems during the ECCS recirculation phase of a LOCA.

Question 3.c

c. What kind of controls are used and are they consistent with other throttling controls in the CR?

NextEra Response

A fixed orifice at the discharge of the CS pumps is used to throttle CS flow during ECCS recirculation and a preset throttle position for an existing valve is used to throttle the RHR flow. The operator is not required to manually adjust flow.

CS orifice installation adds a fixed resistance in one of the parallel flow paths at the discharge of each of the CS pumps. This creates a full flow and reduced flow path for each of the CS pumps. Both the full flow and reduced flow paths will automatically open in the injection phase. The reduced flow path is aligned during sump recirculation by manually closing, from the control room, the valve in the full flow discharge path using a new three gang, three-position valve switch that has a maintain-to-close and a spring return-to-auto from the open position. The valve in the reduced flow path can be operated using an existing valve control switch.

The RHR alignment is achieved using an existing valve control switch on the main control board that is rewired to add a valve limit switch contact in the close circuit, which stops the valve at a pre-set intermediate position. In addition, an indicating light is added to show that the valve has reached its intermediate position.

Question 3.d

d. What aids are provided to help the operator quickly find the appropriate throttling point, e.g. are appropriate settings pre-determined and labeled?

NextEra Response

No operator aids are required because a fixed orifice at the discharge of the CS pumps is used to throttle CS flow during ECCS recirculation and a preset throttle position for an existing valve is used to throttle the RHR flow. The operator is not required to manually adjust flow. Status lights are provided on the main control boards to allow the operator to confirm proper alignment of the CS pump discharge valves and to confirm that the preset throttle position has been reached for the RHR valve.

Question 3.e

e. How have these actions been validated to be feasible and reliable? Who was, or will be, involved in the validation?

NextEra Response

The alignment to recirculation spray to ensure that the necessary actions can be accomplished well within 20 minutes has been demonstrated on the simulator. Validation of the alignment process occurs as part of the EOP verification and validation process. The required actions will be taken in the control room, will be direct action EOP steps, and will be sequenced within the manual steps used to transition from the injection phase to the recirculation phase (see proposed EOP-1.3, Steps 32 and 33, in Enclosure 3).

Changes to EOP-1.3 will be implemented in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The Operations Manager, verification team, validation team, EOP writer, Design Engineering, Probabilistic Risk Assessment (PRA), Reactor Engineering, Operations Training, Radiation Protection, and other assigned reviewers from affected organizations have responsibilities associated with the verification and validation process.

Question 3.f

f. Describe the changes, if any, to the plant-reference simulator and training that are planned to support these actions.

NextEra Response

AST-related simulator upgrades including switches, lights, alarms, software changes, and procedure revisions (as proposed in Enclosures 3 and 4) will be completed to support the first cycle of licensed operator requalification training in 2010. Training is accomplished as a part of the EC process associated with the AST modifications. Completion of these activities will allow implementation of AST for both units following NRC approval of LAR 241.

Question 3.g

g. Describe the changes, if any, to the plant procedures that are planned to support these actions. Copies of marked-up procedure pages or procedure change requests should be included if available.

NextEra Response

The proposed revision to EOP-1.3 incorporates the steps necessary to reduce the RHR core deluge (or upper plenum) recirculation flow and initiate the sump recirculation phase CS flow. Proposed EOP-1.3, Step 32 stops the injection phase CS when the refueling water storage tank (RWST) is depleted. Proposed EOP-1.3, Step 33 establishes the reduced RHR core deluge recirculation flow and the flow controlled CS flow path during recirculation (Enclosure 3). Additionally, the proposed revision to BG-EOP-1.3 incorporates the background information for these steps (Enclosure 4).

Proposed procedure markups in lieu of procedure change requests are provided in Enclosures 3 and 4 to provide a preliminary outline of procedure changes that are planned. NextEra will use the approved administrative procedure governing the EOP verification and validation process to verify and validate that the procedure changes are correct and will function in an optimum fashion.

Question 3.h

h. What methods have been used to minimize the probability of human error?

NextEra Response

The probability of human error has been minimized by reducing operator burden and decision making requirements through the use of automatic actions (such as automatic valve positioning) and equipment configuration. A fixed orifice at the discharge of the CS pumps is used to throttle CS flow and a preset throttle position for an existing valve is used to throttle the RHR flow. The operator is not required to manually adjust flow. Status lights are provided on the main control boards to allow the operator to confirm the proper alignment of the CS pump discharge valves and to confirm that the preset throttle position has been reached for RHR valves SI-852A or B, RHR pump core deluge valves.

Question 3.i

i. What methods have been used to optimize the probability of recovery from likely human errors?

NextEra Response

Two Human Action Induced Failure Modes have been identified for this design:

- The Human Action Induced Failure Mode associated with the CS alignment is the operator mispositioning of the control switches for the CS pump discharge valves in the full flow discharge path in the CLOSE position during normal operation. This would defeat the automatic function of these valves to open upon receipt of a CS signal at the start of the injection phase. Consistent with the approaches outlined in FSAR Section 7.3.1.1, a combination of administrative controls and control room annunciation is implemented to ensure that the control switches for these valves remain in the auto position except when the recirculation spray alignment is entered.

- The Human Action Induced Failure Mode associated with establishing the RHR valve preset throttle position is operator failure to hold the control switch in the close position when trying to fully close the valve. Local indication via control board indicating lights provides valve position indication to the operator.

Question 3.j

j. Is there a time-constraint associated with establishing the appropriate flow in the CS and RHR systems? If yes, how will the time-constraint be communicated to the operator(s) and how will the start time be determined and documented?

NextEra Response

The dose projections for the LOCA radiological analysis assume that CS is maintained throughout the injection phase, and continued for three hours during the ECCS recirculation phase. There will be no more than a 20-minute spray interruption to switch from injection to recirculation spray.

The timing bases for dose calculations including the three-hour duration for CS recirculation and the 20-minute interruption time constraints will be communicated to the operators in the proposed revision of BG-EOP-1.3, Step 33 (Enclosure 4). In addition, a proposed note will be added to EOP-1.3, Step 33 to alert the operators that the spray duration is a minimum of three hours, and after the three-hour period and prior to starting the SI pump on sump recirculation, the CS flow will be stopped as directed by proposed EOP-1.3, Step 39 (Enclosure 3). The CS recirculation start time is determined by proposed direct action EOP-1.3, Step 33. The start time for the CS pumps on recirculation will be documented in the Station Log.

Question 4

The licensee also stated, "For a LOCA, manual operator actions are required to align the CS and RHR systems for CS on recirculation from the containment sump..." Please list all operator actions involved in aligning CS and RHR for recirculation from the containment sump. Identify any actions that are taken locally and state what the environmental conditions will be at the time and location that the actions are needed.

NextEra Response

The actions to align the CS and RHR systems for sump recirculation are as follows:

Note: Steps requiring local actions are annotated accordingly. Steps without annotation are performed from the control room. In addition, local action steps are accomplished prior to initiating recirculation from the containment sump and therefore, environmental conditions at the time and location of the actions are normal (see action 20 below).

1. Manually reset the SI signal.
2. Check if the containment sump pH must be adjusted to achieve a range of 7 to 9.5.
3. Ensure that only one train of SI is running.
4. Monitor core cooling.
5. Isolate component cooling flow to non-essential equipment and align service water to the component cooling heat exchangers. [Local Actions]
6. Non-essential personnel leave the auxiliary building to minimize exposure. [Local Action] When the plant is switched over to sump recirculation, higher activity levels may cause higher than normal radiation in the auxiliary building.
7. Check that control room fans are armed.
8. Isolate component cooling flow to containment.
9. Isolate component cooling flow to non-regenerative heat exchanger.

10. Check the six service water pumps are running.
11. Check that a continuous flow path for the service water supply ring header is established.
12. Establish component cooling water flow to the RHR heat exchangers.
13. Ensure the core deluge valves are both open.
14. Align SI test lines for recirculation. [Local Action]
15. Align RHR sump suction valves.
16. Perform final check to ensure that Train A and B are ready for recirculation.
17. Check RWST level is less than or equal to 34%.
18. Check containment sump B level greater than 37 inches.
19. Ensure component cooling system alignment is complete. [Local Actions]
20. Align Train B of RHR for containment sump recirculation.
21. Check component cooling water heat exchanger outlet temperature is less than 120°F.
22. Align Train A of RHR for containment sump recirculation.
23. Check component cooling water heat exchanger outlet temperature is less than 120°F.
24. Check that at least one RHR train is on sump recirculation.
25. Monitor containment sump performance.
26. Check that the SI pumps are both stopped.
27. *Start either the A fans or the B fans of VNPAB ventilation within 30 minutes following the alignment of RHR to containment sump recirculation mode of operation.
28. *Stop CS when the RWST level is 15%.
29. *Align CS system for recirculation within 20 minutes of exhausting the RWST volume.
    - Place the RHR core deluge (or upper head) injection valve in the restricted flow position by momentarily placing the control switch for SI-852 to shut.
    - Close the unrestricted CS pump discharge valve SI-860.
    - Close the Spray Additive Tank Discharge valve SI-836.
    - Open the CS pump RHR suction valve SI-871.
    - Close the CS pump suction from the RWST valve SI-870.
    - Start the CS pump and verify CS flow.
30. *Operate CS on containment sump recirculation for a minimum of three hours.

*These are proposed new EOP-1.3 actions related to the AST modifications (Enclosures 3 and 4). The remaining actions currently exist in EOP-1.3.

Question 5.a

Regarding EOPs the licensee stated,

> *Point Beach will revise PBNP EOPs to direct continued CS while on sump recirculation, if containment radiological conditions and/or core damage indicates it is required.... The dose calculations prepared in support of this submittal assume that CS is maintained throughout the injection phase of a LOCA and continued during the early portions of the recirculation phase with no more than a 20-minute interruption. The ability to maintain spray during the early recirculation phase is essential, as this is the period of highest iodine evolution from a postulated damaged core....*

a. *How do the EOPs address the conditional statement in the quote above,"... if containment radiological conditions and/or core damage indicates it is required."?*

NextEra Response

To reduce operator burden and the potential for human error, NextEra will not incorporate the conditional statement, "if containment radiological conditions and/or core damage indicates it is required" into EOP-1.3. The proposed EOP-1.3, Step 33 starts CS recirculation with no such conditional statement (Enclosure 3).

Accordingly, NextEra is modifying the License Conditions proposed in Reference (3) to eliminate the wording, "if containment radiological conditions and/or core damage indicates it is required," as shown in Enclosure 1.

Question 5.b

b. *How will the analytical assumptions that CS is maintained throughout the injection phase of a LOCA and continued during the early portions of the recirculation phase with no more than a 20-minute interruption be assured?*

NextEra Response

Maintaining CS throughout the injection phase of a LOCA is verified in EOP-0, Reactor Trip or Safety Injection. Operation of CS continues until the RWST level of 15% is reached as prescribed in proposed EOP-1.3, Step 32 (Enclosure 3).

The three-hour time duration for CS recirculation and the 20-minute interruption will be contained in the proposed revisions to BG-EOP-1.3 (Enclosure 4), will be included as part of the licensed operator requalification training and be validated as part of the EOP change process. In addition, a proposed note will be added to EOP-1.3 (Enclosure 3) to alert the operators that the spray duration is a minimum of three hours, and after the three-hour period and prior to starting the SI Pump on sump recirculation, the CS flow will be stopped as directed by proposed EOP-1.3, Step 39 (Enclosure 3). The 20-minute interruption to establish CS recirculation will be time validated in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The alignment to recirculation spray to ensure that the necessary actions can be accomplished well within 20 minutes has been demonstrated on the simulator.

Question 5.c

c. How will interruptions be timed? What are the consequences of delays greater than 20 minutes? Are any recovery actions feasible?

NextEra Response

The 20-minute interruption for establishing CS recirculation will not be timed in EOP-1.3, but will be time validated in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The basis for the 20-minute requirement will be addressed as part of the licensed operator requalification program.

As stated in Reference (2), "The ability to maintain spray during the early recirculation phase is essential, as this is the period of highest iodine evolution from a postulated damaged core..." The consequences of delays greater than 20 minutes would be an increase in dosages to the control room. Feasible recovery actions include continuing spray operation for longer than three hours, the use of self-contained breathing apparatus (SCBA), and the use of potassium iodide (KI). In addition, plant staff personnel will be available to provide recommendations for contingency actions, and could relieve the operators, especially during the first 24 hours of an accident, thus reducing the time that the operators are in the control room and their radiation exposure levels.

Question 5.d

d. How have the proposed actions been validated to be feasible and reliable? Who was, or will be, involved in the validation?

NextEra Response

The proposed actions have not been validated. Validation of the actions will occur as part of the EOP verification and validation process. The required actions will be taken in the control room, will be direct action EOP steps, and will be sequenced within the manual steps used to transition from the injection phase to the recirculation phase (see proposed EOP-1.3, Steps 32, 33, 34, and 39 in Enclosure 3).

Changes to EOP-1.3 will be implemented in accordance with the approved administrative procedure governing the EOP verification and validation process. Timing requirements will be confirmed and documented as part of the verification and validation process. The Operations Manager, verification team, validation team, EOP writer, Design Engineering, Probabilistic Risk Assessment (PRA), Reactor Engineering, Operations Training, Radiation Protection, and other assigned reviewers from affected organizations have responsibilities associated with the verification and validation process.

Question 5.e

e. *It is also stated in the submittal, "The AST LOCA dose analysis assumes CS is operated for three hours while in the ECCS recirculation phase." How will this assumption be confirmed before implementation, and how will it be assured during execution of the EOPs?*

NextEra Response

This assumption will be validated as part of the EOP change verification and validation process and a proposed note will be added to EOP-1.3, Step 33 addressing the three-hour requirement (Enclosure 3). During execution of the EOPs, after the three-hour period of CS recirculation and prior to starting the SI Pump on sump recirculation, the CS flow will be stopped as directed by proposed EOP-1.3, Step 39 (Enclosure 3).

Question 5.f

f. *Is there an inherent conflict possible between the EOP direction to continue CS while on sump recirculation, if containment radiological conditions and/or core damage indicates it is required, and the AST assumption that CS is operated for three hours while in the ECCS recirculation phase. Are criteria included in the EOPs for when to stop or reduce CS flow?*

NextEra Response

The proposed EOP-1.3 revision will direct that CS is to be operated for a minimum of three hours while in ECCS recirculation and will not contain a conditional statement regarding radiological conditions and/or core damage. Therefore, there is no potential for inherent conflict. After the three-hour period of CS recirculation and prior to starting the SI pump on sump recirculation, the CS flow will be stopped as directed by proposed EOP-1.3, Step 39 (Enclosure 3).

Question 5.g

g. *Is guidance or training provided regarding how to balance CS and RHR flows? For example, if radiation conditions in containment require continued CS flow, but sump level is at or near minimum and RHR pumps are cavitating due to insufficient [net positive suction head] NPSH, does the operator shut down CS? If so, does the operator count this as part of the 20 minute interruption limit, or does he/she just continue when sump volume returns to greater than minimum and continue until a total of three hours of CS flow is complete?*

NextEra Response

Set flows for RHR and CS are established by a pre-established motor-operated valve (MOV) position for RHR and a fixed orifice for CS which eliminates the need for operator manual adjustment of flows. Therefore, balancing is in the design of the systems once the AST modifications are completed. Training on the AST modifications will be accomplished as part of the EC process.

EOP-1.3 has foldout page criteria (Enclosure 3) to transition to emergency contingency action (ECA) 1.1, Loss of Containment Sump Recirculation, if containment sump recirculation cannot be established or maintained, or to ECA-1.3, Containment Sump Blockage, if indications of pump cavitation caused by sump blockage prevent establishing or maintaining ECCS flow in the

recirculation mode. In addition, foldout page criteria provide instructions for stopping the CS pump if the suction source is lost, and for restoring core cooling in response to high core exit temperatures or low reactor vessel levels. The operator will be directed back to EOP-1.3 to reestablish CS flow, once these situations are corrected, and this will resume the three-hour time constraint for CS recirculation. Depending on the timeframes associated with the performance of either ECA-1.1 or ECA-1.3, the 20-minute interruption limit may be exceeded. Since the events associated with these ECAs are beyond the current licensing bases for the station, contingency actions at that point would need to be determined based on the existing circumstances.

References

(1) NRC letter to NextEra Energy Point Beach, LLC, dated June 25, 2009, Point Beach Nuclear Plant, Units 1 and 2 – Request for Additional Information from Human Performance Branch Related to License Amendment Request No. 241 Alternate Source Term (TAC Nos. ME0219 and ME0220) (ML091620560).

(2) FPL Energy Point Beach, LLC Letter to NRC, dated December 8, 2008, License Amendment Request 241, Alternative Source Term (ML083450683).

(3) FPL Energy Point Beach, LLC Letter to NRC, dated January 27, 2009, Supplement to License Amendment Request 241, Transmittal of Proposed License Conditions (ML090280348).

ENCLOSURE 3

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

LICENSE AMENDMENT REQUEST 241
ALTERNATIVE SOURCE TERM
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
IN THE AREA OF HUMAN PERFORMANCE

PROPOSED EOP-1.3 CHANGES

14 pages follow

A. PURPOSE

1. This procedure provides the necessary instructions for transferring the low head RHR and Containment Spray system to the containment sump recirculation mode for a large break loss of coolant accident and directs the operator to the appropriate procedure for small break loss of coolant accident.

2. This procedure is applicable for specified entry conditions.

FOLDOUT PAGE FOR EOP-1.3 UNIT 2

1. LOSS OF RECIRCULATION CRITERIA

   o IF containment sump recirculation can NOT be established or maintained on at least one SI train, THEN go to ECA-1.1 UNIT 2 LOSS OF CONTAINMENT SUMP RECIRCULATION.

   OR

   o IF indications of pump cavitation caused by sump blockage that prevents establishing or maintaining at least one train of ECCS flow in the recirculation mode, THEN go to ECA-1.3 UNIT 2, CONTAINMENT SUMP BLOCKAGE.

2. LOSS OF PUMP SUCTION CRITERIA

   IF suction source is lost to any SI, RHR, containment spray or charging pump, THEN place affected pumps in pull-out.

   - RWST level less than 15% for containment spray pumps.
   - RWST level less than 9% for RHR, SI and charging pumps.

3. SI REINITIATION CRITERIA

   IF any condition below occurs, THEN manually start SI and RHR pumps as necessary to restore core cooling:

   o Core exit thermocouple temperatures as indicated on recorders 2TR-00001A and 2TR-00001B - GREATER THAN 700°F

   OR

   o Reactor vessel level less than required value from table below:

RCPs RUNNING	REQUIRED REACTOR VESSEL LEVEL
2	wide range greater than [120 ft] 110 ft
1	wide range greater than [100 ft] 90 ft
0	narrow range greater than [19 ft] 16 ft

4. AFW SUPPLY SWITCHOVER CRITERIA

   IF CST level lowers to less than 8 feet, THEN switch to alternate AFW suction supply per AOP-23 UNIT 2 , ESTABLISHING ALTERNATE AFW SUCTION SUPPLY.

5. ADVERSE CONTAINMENT CONDITIONS

   IF any condition listed below occurs, THEN environmentally qualified (EQ) equipment and adverse containment setpoint values in brackets, [], shall be used:

   o Containment pressure - GREATER THAN 5 PSIG

   OR

   o Containment radiation level - GREATER THAN OR EQUAL TO 10^4 R/HR

   OR

   o Integrated dose to containment - GREATER THAN OR EQUAL TO 3.5×10^4 R

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Check CCW HX Outlet Temperature - LESS THAN 120°F • 2TI-621	Perform the following: • Ensure CCW system properly aligned. AND • Reduce RHR flow while maintaining flow greater than 1100 gpm.
28	Check RHR Trains - AT LEAST ONE ON SUMP RECIRCULATION o Train "A" OR o Train "B"	Go to ECA-1.1, Loss of Containment Sump Recirculation.
29	Monitor Containment Sump Performance • SI pump operation - NORMAL • Low head injection flow - STABLE • High head injection flow - STABLE	Go to ECA-1.3 UNIT 2, CONTAINMENT SUMP BLOCKAGE.
30	Check SI Pumps - BOTH STOPPED • 2P-15A • 2P-15B	Secure any running SI pumps.
31	Check PAB Ventilation: a. Ensure the Auxiliary Building Filter/Exhaust Fans - OPERATING: • W-30A • W-21A OR • W-30B • W-21B	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

Critical Safety Procedures (CSPs) may now be implemented.

32	Check If Containment Spray Should Be Stopped:	
	a. Check RWST level - LESS THAN OR EQUAL TO 15%	a. WHEN RWST level less than or equal to 15%, THEN do Steps 32.b through 32.e. Continue with Step 34.
	b. Place both containment spray pumps in pull-out • 2P-14A, train A • 2P-14B, train B	
	c. Reset containment spray signal	
	d. Shut containment spray pump RWST suction MOVs • 2SI-870A, train A • 2SI-870B, train B	
	e. Shut both spray additive tank discharge valves • 2SI-836A, train A • 2SI-836B, train B	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- During the Recirculation Phase of a LOCA only one train of RHR will be used to supply one train of Containment Spray.
- Containment Spray Pumps shall be operated a total of 3 hours minimum on Containment Sump Recirculation.

33	IF Containment Spray ACTUATED, THEN align Containment Spray System for recirculation:	Proceed to Step 34
	a. Check RWST level - LESS THEN 15%.	a. Continue with Step 34. WHEN RWST level less then 15%, THEN perform Step 33.b.
	b. Realign Containment Spray System Train A as follows:	
	1) Verify train A RHR - IN SERVICE.	1) Continue with Step 33.c.
	2) Momentarily place RHR pump core deluge valve - SHUT: • 2SI-852A - white light ON	
	3) Ensure the Containment Spray pump discharge valves aligned as follows: • 2SI-860A - SHUT • 2SI-860B - OPEN	
	4) Ensure spray additive tank discharge valve - SHUT: • 2SI-836A	

(Step 33. continued on next page)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 33. (continued from previous page)

5) Ensure Containment Spray pump RHR suction MOV - OPEN:

- 2SI-871A

5) IF Containment Spray pump RHR suction MOV can NOT be opened, THEN perform the following:

a) Place train A Containment Spray pump in PULL-OUT.

b) Ensure Containment Spray pump discharge valve - SHUT:

- 2SI-860B

c) Consult plant staff to determine contigency action.

6) Ensure Containment Spray pump RWST suction MOV - SHUT:

- 2SI-870A

7) IF Containment Spray pump train A has been stopped due to RWST level, THEN perform the following:

a) Start Containment Spray pump train A:

- 2P-14A

b) Verify Containment Spray flow:

- 2FI-962

c) Verify total train A RHR pump flow - LESS THAN 1450 gpm:

- 2FI-626 + 2FI-962

8) Proceed to Step 34.

(Step 33. continued on next page)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 33. (continued from previous page)

c. Realign Containment Spray System Train B as follows:

1) Verify train B RHR - IN SERVICE.

1) Continue with Step 34.

2) Momentarily place RHR pump core deluge valve - SHUT:

- 2SI-852B - white light ON

3) Ensure the Containment Spray pump discharge valves aligned as follows:

- 2SI-860C - SHUT
- 2SI-860D - OPEN

4) Ensure spray additive tank discharge valve - SHUT:

- 2SI-836B

5) Ensure Containment Spray pump RHR suction MOV - OPEN:

- 2SI-871B

5) IF Containment Spray pump RHR suction MOV can NOT be opened, THEN perform the following:

a) Place train A Containment Spray pump in PULL-OUT.

b) Ensure Containment Spray pump discharge valve - SHUT:

- 2SI-860D

c) Consult plant staff to determine contigency action.

6) Ensure Containment Spray pump RWST suction MOV - SHUT:

- 2SI-870B

(Step 33. continued on next page)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 33. (continued from previous page)

7) IF Containment Spray pump train A has been stopped due to RWST level, THEN perform the following:

a) Start Containment Spray pump train A:

- 2P-14B

b) Verify Containment Spray flow:

- 2FI-963

c) Verify total train A RHR pump flow - LESS THAN 1675 gpm:

- 2FI-928 + 2FI-963

8) Proceed to Step 34.

34 Check If RWST Makeup Required:

a. Check RWST level - LESS THAN OR EQUAL TO 15%

a. WHEN RWST level less than or equal to 15%, THEN do Steps 34.b through 34.c. Continue with Step 35.

b. Add makeup to RWST per Attachment B while continuing with this procedure

c. OBSERVE CAUTION PRIOR TO STEP 37 and go to Step 37.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
35	Check Reactor Makeup Control:	
	a. Reset 2B-03 and 2B-04 non-safeguards equipment lockouts	
	b. Ensure MCCs - ENERGIZED • 2B-31, 2B52-38C, train A • B-33, 2B52-37C, train A • B-21, 2B52-28C, train B	
	c. Check makeup set for greater than 2700 ppm • 2HC-110 • 2HC-111	c. Adjust controls as necessary to establish makeup at greater than 2700 ppm.
	d. Ensure makeup armed and in auto	
	e. Check VCT level - GREATER THAN 17%	e. Redirect makeup to VCT inlet: 1) Open boric acid blender to VCT. • 2CV-110C 2) Shut boric acid blender to VCT flow control. • 2CV-110B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	Align Charging Pump Suction To VCT:	
	a. Check VCT level - GREATER THAN 17%	a. Perform the following: 1) Stop any charging pumps taking suction from RWST. 2) WHEN VCT level is greater than 17%, THEN do Steps 36.b through 36.d. OBSERVE CAUTION PRIOR TO STEP 37 and continue with Step 37.
	b. Open VCT outlet to charging pump suction MOV • 2CV-112C	b. OBSERVE CAUTION PRIOR TO STEP 37 and go to Step 37.
	c. Shut RWST to charging pump suction MOV • 2CV-112B	
	d. Check charging pumps - AT LEAST ONE RUNNING o 2P-2A, train A o 2P-2B, train A o 2P-2C, train B	d. Perform the following: 1) IF component cooling water flow to any RCP thermal barrier is lost, THEN locally shut affected RCP(s) seal injection throttle valve before starting charging pumps. o 2CV-300A, RCP A o 2CV-300B, RCP B 2) Start charging pumps as necessary to establish at least one running.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Leakage accumulation in RHR pump cubicles may result in loss of RHR pumps.

37 Check RHR Pump Room High Level Alarm - CLEAR

- C01-A 4-11

Complete the following:

a. Determine affected RHR pump using individual RHR pump room lights.

b. Open affected RHR pump drain to sump control valves.

   o 2WL-4100, train A
   o 2WL-4101, train B

c. Monitor operation frequency of -19 ft. elevation sump pumps.

   - P-40A
   - P-40B

d. IF any RHR pump has a failed seal AND affected train NOT required for core cooling, THEN isolate affected RHR pump:

   1) Stop affected RHR pump.

      o 2P-10A, train A
      o 2P-10B, train B

   2) Shut affected containment sump B suction valve.

      o 2SI-851A, train A
      o 2SI-851B, train B

   3) Shut affected SI pump discharge valve.

      o 2SI-866A, train A
      o 2SI-866B, train B

   4) Shut affected RHR pump discharge valve.

      o 2SI-852A, train A
      o 2SI-852B, train B

   5) Shut affected RHR pump suction valve.

      o 2SI-856A, train A
      o 2SI-856B, train B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
38	Prepare For High Radiation Levels In PAB: a. ENSURE portable shielding positioned per FIGURE 1 b. EVACUATE personnel from PAB	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39	Determine If Transfer to SI Pump Recirculation Will Be Required:	
	a. Containment Spray pumps have been operating a total of 3 hours on Containment Sump Recirculation: 1) Secure the selected Containment Spray Pump and place in - PULL-OUT: o 2P-14A o 2P-14B 2) Close the selected Containment Spray pump discharge valve: o 2SI-860B o 2SI-860D	a. <u>WHEN</u> Containment Spray pumps have been operating for a total of 3 hours on Containment Sump Recirculation, <u>THEN</u> continue with this step. Consult Plant Staff to determine contingency actions.
	b. Align SI train "B" for recirculation: 1) Check RHR train "B" - ON CONTAINMENT SUMP RECIRCULATION 2) Check SI train "B" - READY FOR RECIRCULATION 3) Ensure train "B" SI pump in - PULL-OUT • 2P-15B 4) Ensure train "B" SI pump suction from RWST isolation valve - SHUT • 2SI-896B, train "B" 5) Open train "B" RHR heat exchanger outlet to SI pump suction valve • 2SI-857B, train B 6) Start train "B" SI pump • 2P-15B, train B 7) Throttle train "B" RHR heat exchanger outlet flow control valve to establish total train injection flow less than 1550 gpm • 2RH-625, train B	b. Align SI train "A" for recirculation: a) Check RHR train "A" - ON CONTAINMENT SUMP RECIRCULATION b) Check SI train "A" - READY FOR RECIRCULATION c) Ensure train "A" SI pump in PULL-OUT. • 2P-15A d) Ensure train "A" SI pump suction from RWST isolation valve - SHUT. • 2SI-896A, train A e) Open train "A" RHR heat exchanger outlet to SI pump suction valve. • 2SI-857A, train A f) Start train "A" SI pump. • 2P-15A, train A g) Throttle train "A" RHR heat exchanger outlet flow control valve to establish total train injection flow less than 1750 gpm. • 2RH-624, train A

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
40	Return To Procedure And Step In Effect	

-END-

ENCLOSURE 4

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

LICENSE AMENDMENT REQUEST 241
ALTERNATIVE SOURCE TERM
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
IN THE AREA OF HUMAN PERFORMANCE

PROPOSED EOP BACKGROUND DOCUMENT BG-EOP-1.3 CHANGES

15 pages follow

BG-EOP-1.3

TRANSFER TO CONTAINMENT SUMP RECIRCULATION - LOW HEAD INJECTION

DOCUMENT TYPE: CONTROLLED REFERENCE

REVISION: ~~31~~ 32

EFFECTIVE DATE: ~~APRIL 19, 2007~~

APPROVAL AUTHORITY: DEPARTMENT MANAGER

PROCEDURE OWNER (title): OPERATIONS

OWNER GROUP: OPERATIONS

ERG STEP: N/A **PBNP STEP: 31**

Check PAB Ventilation.

PURPOSE

To alert the operator that either the "A" fans or "B" fans of VNPAB Ventilation is required to be in operation prior to RHR to containment sump recirculation.

BASIS

The VNPAB system is responsible for filtering exhaust from (1) rooms potentially containing iodine vapor (selected rooms) and (2) rooms potentially containing particulates (all rooms) during normal and accident conditions to limit offsite releases, and support auxiliary building habitability. The VNPAB system shall also provide a flow path for venting the containment via the PACV System to reduce containment hydrogen concentrations following a loss-of-coolant accident. The VNPAB System shall provide a flow path for venting portions of the auxiliary building that are subject to hydrogen line leaks or breaks, to maintain hydrogen levels below allowable limits. The VNPAB System shall provide sufficient control of building temperatures during normal, abnormal, and accident conditions to maintain equipment with in operational temperatures limits. The VNBR System shall provide sufficient control of the control building battery room (D-05 and D-06) environment during normal, abnormal, and accident conditions to maintain the batteries within design temperature limits, and the hydrogen concentration within allowable limits.

The assessment of the EDG loading and fuel oil consumption concluded that by loading the PAB filter and PAB stack fans on the EDGs after the Safety Injection pump is stopped during the sump recirculation phase of a large break LOCA, the EDGs can be maintained below their 2000 hr rating.

Operator actions are required to restore VNPAB within 30 minutes following the alignment of RHR to containment sump recirculation mode of operation. If a LOCA occurs coincident with a LOOP, the VNPAB system will be manually restarted to ensure that the ABVS is the source of the release associated with the ECCS leakage phase of the event.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: N/A | PBNP STEP: ~~31~~ Note 1
32

NOTE

Critical Safety Procedures (CSPs) may now be implemented.

PURPOSE

To inform the operator that CSPs may now be performed to address CSF challenges that may exist.

BASIS

At this point in the procedure, one train of RHR is on sump recirculation. All that remains is to wait for the remaining RWST water to be injected. Consequently, the guidance in the CSPs is once more applicable and the operator should implement the CSPs consistent with the "rules of usage".

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None

ERG STEP: 3-Caution 1 | PBNP STEP: ~~31~~ 32

Check If Containment Spray Should Be Stopped:

PURPOSE

To stop containment spray when the RWST is empty.

BASIS

Containment spray must be stopped when the RWST level is ~~9%~~ 15% since its suction source has been depleted.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None

ERG STEP: N/A PBNP STEP: NOTE 33

NOTE: During the recirculation phase of a LOCA only one train of RHR will be used to supply one train of Containment Spray.

PURPOSE

To alert the operator that only one train of RHR should be used to supply one train of Containment Spray during the recirculation phase.

BASIS

To ensure that proper redundancy exist during the transition to the recirculation spray alignment, if both trains of RHR and Containment Spray are available, the operator is directed to establish flow from the Residual Heat Removal heat exchanger not being used to maintain core cooling to the suction of the respective Containment Spray pump. If both trains of RHR and Containment Spray are not available, the operator is directed to establish the recirculation spray alignment by closing the respective Containment Spray pump full flow discharge valve (SI-860A or SI-C), placing valve SI-852A or SI-852B in the preset intermediate position, opening the respective Containment Spray suction valve (SI-871A or SI-871B), and starting the applicable Containment Spray pump.

If both trains of Containment Spray and RHR are available, the recirculation spray alignment will be established by directing the discharge flow from the residual heat removal heat exchanger not being used to maintain core cooling to the suction of the respective spray. This ensures the redundant train is available if SI-852A or SI-852B were to fail close to the preset intermediate position. The single failure analysis assesses failures on a train level because the trains are independent. If only one train of Containment Spray and RHR is available, then the single active failure has already occurred and a second failure is beyond design basis requirements.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: N/A **PBNP STEP: NOTE 33**

NOTE: Containment Spray Pumps shall be operated a total of 3 hours minimum on Containment Sump Recirc.

PURPOSE

This to remind the operator that when the Containment Spray Pumps are aligned to the containment sump that they shall be operated a minimum of 3 hours.

BASIS

This is to ensure containment spray is operated in recirculation alignment for the minimum time assumed in the PBNP Alternate Source Term (AST) radiological analyses for large break LOCA. The accident doses assumed in these analyses are based on recirculation spray occurring for a minimum of 3 hours.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: 6 **PBNP STEP: 33**

IF Containment Spray actuated, THEN align Containment Spray System For Recirculation.

PURPOSE

This step is included in this procedure as a reminder that one train of the spray system should be realigned, if necessary, to take suction from the RHR pumps.

BASIS

This step, its implementation, and its timing is highly plant dependent. PBNP requires that the spray pump be secured prior to RWST level reaching 15% to ensure adequate NPSH. The radiological accident analysis for a large break LOCA assumes that 900 gpm Containment Spray flow is established within 20 minutes of exhausting the RWST volume.

To ensure that proper redundancy exist during the transition to the recirculation spray alignment, if both trains of RHR and Containment Spray are available, the operator is directed to establish flow from the Residual Heat Removal heat exchanger not being used to maintain core cooling to the suction of the respective Containment Spray pump. If both trains of RHR and Containment Spray are not available, the operator is directed to establish the recirculation spray alignment by closing the respective Containment Spray pump full flow discharge valve (SI-860A or SI-860C), placing valve SI-852A or SI-852B in the preset intermediate position, opening the respective Containment Spray suction valve (SI-871A or SI-871B), and starting the applicable Containment Spray pump.

If both trains of Containment Spray and RHR are available, the recirculation spray alignment will be established by directing the discharge flow from the residual heat removal heat exchanger not being used to maintain core cooling to the suction of the respective spray. This ensures the redundant train is available if SI-852A or SI-852B were to fail close to the pre-set intermediate position. The single failure analysis assesses failures on a train level because the trains are independent. If only one train of Containment Spray and RHR is available, then the single active failure has already occurred and a second failure is beyond design basis requirements.

Steps are included to restart the containment spray pumps if the pumps have been stopped. The full flow discharge valve is closed to limit the spray pump discharge flow and prevent RHR pump runout condition.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: N/A | PBNP STEP: ~~32~~34

Check If RWST Makeup Required

PURPOSE

To initiate refill of RWST if RWST level is 9% or less.

BASIS

If the containment sump were blocked, then it is strategic to have alternate water sources available for core cooling. If the RWST level is equal to or less then 9%, the RWST can be filled and then be used as a source for injection if needed.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

NRC Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump recirculation at Pressurized Water Reactors".

NRC to NMC letter dated October 18, 2005 (NRC 2005-0134)

DEVIATIONS	*JUSTIFICATION*
1. New step added to procedure	1. This step checks if refill of the RWST can be performed using Attachmnet B. Requires RWST level to be equal to or less than 9%.

ERG STEP: 3 PBNP STEP: ~~33~~35

Check Reactor Makeup Control:

PURPOSE

To ensure makeup is sufficient to supply the charging pumps.

BASIS

Since the RWST is now empty, normal reactor makeup is the only remaining charging pump suction source. The boron concentration of the makeup water should be set for greater than the RCS concentration to avoid boron dilution.

KNOWLEDGE/ABILITIES

Adjustment of reactor makeup water and boric acid flow controllers for the desired boron concentration is considered within the skill of the operator.

COMMITMENTS

None

ERG STEP: 3 PBNP STEP: ~~3~~436

Align Charging Pump Suction To VCT:

PURPOSE

To maintain charging flow or stop the charging pumps if their suction supply is lost.

BASIS

The charging pumps are running at this time to provide seal injection to the RCPs. If the level in the VCT reaches the low-low level setpoint, the charging pump suction is automatically switched to the RWST. However, during the progress of this procedure, level in the RWST may be less than or equal to 6% and, hence, this suction source for the charging pumps will be eliminated. If no other suction source can be established (e.g., refilling the VCT), the charging pumps should be stopped.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None

ERG STEP: N/A | PBNP STEP: ~~35~~ 37 -Caution 1

CAUTION

Leakage accumulation in RHR pump cubicles may result in loss of RHR pumps.

PURPOSE

To warn of situations which could result in loss of RHR pumps.

BASIS

If RHR pump seal leakage exceeds the capacity of the -19 ft sump pumps, the room will fill with water until the RHR pump is submerged. This sequence of events would result in failure of the affected RHR pump.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None

ERG STEP: N/A | PBNP STEP: ~~35~~ 37

Check RHR Pump Room High Level Alarm - CLEAR

PURPOSE

To ensure that there is no excessive RHR pump seal leakage into the auxiliary building.

BASIS

Actuation of the RHR pump room high level alarm would indicate an accumulation of water in the room. This water would most likely be coming from the RHR pump seals. If this alarm sounds, the operator should correct any sump pump problems. If water level in the RHR pump room cannot be controlled and RHR pumps are not needed for core cooling, the RHR pump should be stopped and isolated to prevent further loss of SI water.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None

ERG STEP: N/A **PBNP STEP: 38**

Prepare For High Radiation Levels in PAB

PURPOSE

This step is to make the operator and plant personnel of increasing radiation levels inside the PAB.

BASIS

During a LOCA, water from the RCS with higher than normal activity will be transferred from the break in the RCS to the containment sump. If the accident involves failed fuel, containment sump recirculation will cause radiation levels in increase even further. A plant announcement should be made to alert the plant personnel of possible changing radiation fields, due to placing RHR/Containment Spray on containment sump recirculation.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: N/A **PBNP STEP: 39**

Determine If Transfer to SI Pump Recirculation Will Be Required.

PURPOSE

This step provides instructions to evaluate Containment Spray for termination and align SI/RHR system for Containment Sump Recirculation.

BASIS

Following the initiation of a LOCA, switchover to SI Pump Recirculation mode is performed due to boron precipitation concerns. Establishing SI Pump recirculation terminates boiling in the core and precludes boron precipitation from the boric acid solution which could potentially hinder core cooling.

Contingent actions can be provided by Plant Staff to maintain the RHR in a low head alignment if SI Pump Recirculation can not be established. RHR provides significant core cooling during the recirculation phase of ECCS operation. Plant Staff is informed of the condition to allow consideration for increased possibility of boron plate out in the upper vessel regions and to investigate why SI Pump Recirculation can not be established. When the condition is corrected, the operator should attempt to establish SI Pump Recirculation.

The time period for swapping to SI Pump Recirculation is to ensure containment spray is operated for the minimum time assumed in the PBNP Alternate Source Term (AST) radiological analyses for large break LOCA. The accident doses assumed in these analyses are based on recirculation spray occurring for a minimum of 3 hours after the contents of the RWST have been exhausted. A time period of 4.5 hours has been established for establishment of SI Pump Recirculation due to boron precipitation concerns. The limiting factor is the minimum 3 hours after the contents of the RWST have been exhausted for the operation of the Containment Spray pumps. The AST radiological analyses for large break LOCA will call for 900 gpm of spray flow with in 20 minutes of exhausting RWST volume. This analysis considers 3 to 4 hours of recirculation spray.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

License Amendment XXX/XXX, License Conditions for Appendix C for Operating Licenses DPR-24 and DPR-27

ERG STEP: 7 PBNP STEP: ~~37~~ 40

Return To Procedure And Step In Effect

PURPOSE

To direct the operator to the proper procedure following successful completion of the steps in this procedure.

BASIS

After the SI system (and containment spray system if necessary) has been aligned for recirculation, the operator should continue plant recovery operations by returning to the procedure and step that was in effect at the time this procedure was entered.

KNOWLEDGE/ABILITIES

None

COMMITMENTS

None