September 21, 2010

NRC 2010-0145
10 CFR 50.90
10 CFR 50.36

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, Supplement 9
Extended Power Uprate

References:
(1) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)
(2) NRC electronic mail to NextEra Energy Point Beach, LLC, dated August 11, 2010, Point Beach Nuclear Plant, Units 1 and 2 – Draft RAIs re: Extended Power Uprate (TAC Nos. ME1044 and ME1045) (ML102240636)
(3) NextEra Energy Point Beach, LLC letter to NRC, dated August 23, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML102370315)

Pursuant to 10 CFR 50.90, NextEra Energy Point Beach, LLC (NextEra) submitted License Amendment Request (LAR) 261 (Reference 1). The proposed amendment would increase the licensed thermal power level for Point Beach Nuclear Plant (PBNP) Units 1 and 2 to 1800 MWt and revise the Technical Specifications (TS) to support operation at the increased power level.

In Reference 3, NextEra responded to an NRC request for additional information (Reference 2). NextEra subsequently determined that one of the responses in Reference 3 should be revised. The revised response also involves an additional proposed change to the TS. Therefore, NextEra is submitting Supplement 9 to LAR 261 to provide revised information and a new proposed change to TS 3.4.16, "[Reactor Coolant System] RCS Specific Activity."

Enclosure 1 contains a revised response to NRC question IHPB-5 contained in Reference 2. This response supersedes in total the response to question IHPB-5 that was provided in Reference 3.

Enclosure 2 contains an evaluation of the proposed TS changes. The conclusions in the Significant Hazards Consideration provided in Reference 1 are not altered. However, the additional change to the TS provided in this supplement does affect the content of the determination because the change to the RCS noble gas concentration limit in TS 3.4.16 is not included in the detailed list of TS changes that are part of the Reference 1 LAR. Therefore, a significant hazards consideration is included in Enclosure 2 for the proposed change to TS 3.4.16. The proposed change continues to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements for an environmental assessment.

Enclosure 3 contains a markup of proposed TS changes.

Enclosure 4 contains a markup of proposed TS Bases changes. The TS Bases changes are provided for information only. NRC approval is not being requested for the TS Bases changes.

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

The proposed TS changes have been reviewed by the Plant Operations Review Committee.

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 September 21, 2010.

Very truly yours,

NextEra Energy Point Beach, LLC

Larry Meyer
Site Vice President

Enclosures (4)

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 261, SUPPLEMENT 9
EXTENDED POWER UPRATE
REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The NRC staff determined that additional information was required (Reference 1) to enable the Health Physics and Human Performance Branch to complete its review of License Amendment Request (LAR) 261, Extended Power Uprate (EPU) (Reference 2). NextEra Energy Point Beach, LLC (NextEra) responded to the NRC's request in Reference 3.

In question IHPB-5 of Reference 1, the NRC requested information to demonstrate that the consequences of a waste gas decay tank release/rupture met the NRC's acceptance criteria. NextEra referenced a proposed Technical Specifications (TS) reactor coolant system (RCS) activity limit of 0.5 µCi/gm dose equivalent (DE) 1-131 that would be in place following implementation of a license amendment for the alternative source term methodology (Reference 4). The revised DE I-131 limit corresponds to a reduced fuel defect level and results in dose values that are within the current 10 CFR 20 limits.

NextEra subsequently determined that limiting DE Xe-133 would provide a more direct method for ensuring that doses from noble gas releases remain within limits. Therefore, NextEra is providing a revised response to NRC question IHPB-5 that demonstrates regulatory limits will be met by limiting DE Xe-133 in the RCS. This response supersedes in total the response to question IHPB-5 provided in Reference 3. In support of this revised response, NextEra is also proposing to revise the DE Xe-133 limit in TS 3.4.16, "RCS Specific Activity," because the value used in the dose evaluation described in the revised response to IHPB-5 is more restrictive than the current TS limit. Other radiological dose analyses remain bounding, as the current TS DE Xe-133 value used in the analyses is conservative with respect to the proposed change.

<u>IHPB-5</u>

In response to the discussion related to the Waste Gas Decay Tank (WGDT) release/rupture event, please demonstrate how the licensee is maintaining dose acceptance criteria consistent with Branch Technical Position (BTP) 11-5 in NUREG 0800 by either,

1. *Demonstrating that the consequences of this postulated release are within the dose limits of the current 10 CFR Part 20, or*

2. *Demonstrating that the consequences of this postulated release are within a small fraction (i.e., 10 percent) of the 10 CFR Part 100 limits for whole body dose if the gaseous radwaste system is designed to withstand the effects of a hydrogen explosion and earthquakes for gaseous wastes produced during normal operation and anticipated operational occurrences.*

NextEra Response

Waste gas decay tank (WGDT) activity is directly proportional to the RCS activity, and the RCS activity is directly proportional to the fuel defect level. Therefore, the WGDT rupture doses resulting from the release of the WGDT activity are directly proportional to the fuel defect level.

The WGDT source term used in the EPU analysis submitted in LAR 261 (Reference 2) is based on an assumed 1% fuel defect level. However, the current Point Beach Nuclear Plant TS limits the fuel defect level to less than 1% by specifying RCS iodine and noble gas concentration limits. The current TS noble gas activity limit of 520 μCi/gm DE Xe-133 corresponds to a fuel defect level of approximately 0.727%. In Reference 2, NextEra demonstrated that the dose from a postulated release from a volume control tank was within the current 10 CFR 20 limit, assuming a DE Xe-133 concentration of 520 μCi/gm. In order to meet 10 CFR 20 dose limits for a postulated release of waste gas following a rupture of a WGDT or charcoal-filled decay tank (CDT), NextEra proposes to reduce the RCS noble gas TS limit to 300 μCi/gm DE Xe-133. This corresponds to a fuel defect level of approximately 0.42%.

The calculated dose for a postulated release from a WGDT, assuming an RCS TS activity limit of 300 μCi/gm DE Xe-133, is 0.08 rem whole body at the exclusion area boundary. The calculated dose for a postulated release from a CDT, assuming an RCS TS activity limit of 300 μCi/gm DE Xe-133, is 0.07 rem whole body at the exclusion area boundary. These results are within the current 10 CFR Part 20 limit of 0.1 rem whole body, consistent with the acceptance criteria of Branch Technical Position 11-5 in NUREG-0800. Note that the dose results at the low population zone (LPZ) and the control room reported in Reference 2 for the WGDT and CDT rupture accidents are conservative and already met the dose acceptance criteria.

References

(1) NRC electronic mail to NextEra Energy Point Beach, LLC, dated August 11, 2010, Point Beach Nuclear Plant, Units 1 and 2 – Draft RAIs re: Extended Power Uprate (TAC Nos. ME1044 and ME1045) (ML102240636)

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

(3) NextEra Energy Point Beach, LLC letter to NRC, dated August 23, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML102370315)

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

ENCLOSURE 2

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

LICENSE AMENDMENT REQUEST 261, SUPPLEMENT 9
EXTENDED POWER UPRATE

EVALUATION OF PROPOSED CHANGES TO TECHNICAL SPECIFICATION 3.4.16 REACTOR COOLANT SYSTEM (RCS) SPECIFIC ACTIVITY

6 pages follow

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend renewed operating license numbers DPR-24 and DPR-27 for Point Beach Nuclear Plant (PBNP) Units 1 and 2. The proposed change supplements the Extended Power Uprate (EPU) License Amendment Request (LAR) 261 (Reference 1), submitted by NextEra Energy Point Beach, LLC (NextEra). The Reference 1 proposed amendment would increase the licensed thermal power level for PBNP Units 1 and 2 to 1800 MWt and revise the Technical Specifications (TS) to support operation at the increased power level. NextEra subsequently determined that an additional change is needed to TS 3.4.16, [Reactor Coolant System] RCS Specific Activity, to support a revised evaluation of consequences following an accidental release of waste gas. The additional change is needed because a more restrictive value for RCS noble gas activity is used in the analyses to meet the 10 CFR Part 20 dose limit at the exclusion area boundary. The proposed TS change is in addition to the changes provided in Reference 1 and in previous supplements.

2.0 DETAILED DESCRIPTION

In Reference 2, NextEra submitted a LAR for full-scope implementation of the alternative source term (AST) methodology. Consistent with Issue 11 of the NRC Regulatory Issue Summary (RIS) 2006-04, Experience with Implementation of Alternative Source Term, the events resulting in accidental waste gas releases were excluded from the AST LAR. In the EPU LAR (Reference 1), three tank rupture event doses were analyzed using the current licensing basis analysis methodology (TID-14844) and the current Point Beach offsite dose acceptance criteria consistent with RIS 2006-04. The three tank ruptures considered are the waste gas decay tank (WGDT), charcoal-filled decay tank (CDT), and volume control tank (VCT). Doses were calculated based on activity resulting from operation at the proposed increased power level with 1% fuel defect or the RCS TS specific activity limit for noble gas activity.

In Reference 3, the NRC requested additional information to demonstrate that current dose limits were met for a WGDT rupture. In Reference 4, NextEra responded by showing that, with a fuel defect level consistent with the proposed AST TS RCS activity limit of 0.5 µCi/gm dose equivalent (DE) I-131, the RCS noble gas activity would be well below that assumed in the dose analysis, and the 10 CFR 20 dose limit of 0.1 rem whole body at the exclusion area boundary would be met. This RCS activity level corresponds to a fuel defect level of approximately 0.1337%. The calculated dose from a postulated VCT rupture met the Part 20 dose limit based on assumed activity from operation with RCS activity at the TS limits, so it was not necessary to re-calculate dose using a reduced RCS activity level.

NextEra subsequently determined that it is more appropriate to base the WGDT and CDT activities on the TS RCS activity limit for noble gas, rather than on extrapolation from the iodine limit. In order to meet the 10 CFR Part 20 offsite dose limit for WGDT and CDT rupture accidents using the TS RCS noble gas activity limit, the current limit had to be reduced. The revised analyses were based on use of the EPU analyses with an assumption that the tank activity was based on the proposed reduced TS limit for noble gas activity. In order to demonstrate that resulting dose would remain within the 10 CFR 20 dose limits, it was necessary to use a DE Xe-133 value that is less than the current TS value. Therefore, consistent with the revised analysis, NextEra is proposing to reduce the TS limit in Surveillance Requirement SR 3.4.16.1 for DE Xe-133 from 520 µCi/gm to 300 µCi/gm. This lower value was used in the analyses. This RCS noble gas level corresponds to a fuel defect level of approximately 0.42%.

A detailed description of the associated proposed TS change is provided below. A proposed markup for TS 3.4.16 is provided in Enclosure 3. Additionally, proposed markups for the TS Bases for Section 3.4.16 are provided in Enclosure 4 for NRC staff information.

2.1 Proposed Change:

Surveillance Requirement (SR) 3.4.16.1

Replace:
"Verify reactor coolant DOSE EQUIVALENT Xe-133 Specific Activity ≤520 μCi/gm."

With:
"Verify reactor coolant DOSE EQUIVALENT Xe-133 Specific Activity ≤300 μCi/gm."

Basis for the change: Limiting the RCS DE Xe-133 specific activity to 300 μCi/gm ensures that the inventory of radioactive gas in the waste gas system remains below the activity assumed in the analyses for accidental release of waste gas. The assumption supports a conclusion that the consequences for this postulated release are within the dose limits in 10 CFR 20.

3.0 TECHNICAL EVALUATION

The NRC approved changes to the PBNP TS that added a new definition for DE Xe-133 and established a limit for DE Xe-133 in amendments 233 and 238 for Unit 1 and Unit 2, respectively (Reference 5). The changes were generally consistent with NRC-approved Technical Specifications Task Force (TSTF) traveler TSTF-490, Deletion of E Bar Definition and Revision to RCS Specific Activity Tech Spec, (Reference 6). As noted in the safety evaluation, the change to incorporate DE Xe-133 into the TS is acceptable from a radiological dose perspective, since it resulted in a limiting condition for operation (LCO) that more closely relates the non-iodine RCS activity limits to the dose consequence analyses that form their bases. The site-specific limit for DE Xe-133 was established based on the maximum accident analysis RCS activity corresponding to 1% fuel clad defects with sufficient margin to accommodate the exclusion of those isotopes based on low concentration, short half life, or small dose conversion factors. The primary purpose of the TS 3.4.16 LCO on RCS specific activity and its associated conditions is to support the dose analyses for design basis accidents. The whole body dose is primarily dependent on the noble gas activity. The current RCS DE Xe-133 limit of 520 μCi/gm in TS 3.4.16, is based on limiting potential consequences resulting from a steam line break or steam generator tube rupture (SGTR) to within criteria in the Standard Review Plan (SRP).

PBNP Final Safety Analysis Report (FSAR) Section 11.2.5, Accidental Release – Waste Gas, provides a description of accidental releases of waste. The waste gas accident is defined as an unexpected and uncontrolled release to the atmosphere of radioactive xenon and krypton fission product gases stored in the waste gas storage system. Failure of a gas decay tank or associated piping could result in a release of this gaseous activity. Even with the worst case expected conditions, the offsite doses following release of the activity would be low. Branch Technical Position (BTP) 11-5, Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure, contained in Standard Review Plan (SRP) 11.3, Gaseous Waste Management Systems, provides the appropriate accident-specific dose acceptance criteria. One option is to demonstrate that the consequences are within the current 10 CFR 20 dose limits. These include a whole body dose limit of 0.1 rem at the exclusion area boundary. As described above,

NextEra revised the dose calculations for waste gas releases to demonstrate these limits are met.

The revised evaluation for a WGDT rupture reflects changes to WGDT activity release based on the proposed TS limit for RCS noble gas activity of 300 µCi/gm. Dose from a postulated rupture of a WGDT is calculated to be 0.08 rem whole body at the exclusion area boundary when the proposed noble gas limit of 300 µCi/gm DE Xe-133 is assumed. This is within the 10 CFR 20 dose limit of 0.1 rem whole body.

The revised analysis of the CDT rupture is also based on the proposed TS limit of 300 µCi/gm for RCS noble gas activity. Dose from a postulated rupture of a CDT is calculated to be 0.07 rem whole body at the exclusion area boundary, when the proposed noble gas limit of 300 µCi/gm DE Xe-133 is assumed. This is within the 10 CFR 20 dose limit of 0.1 rem whole body.

The AST radiological accident analyses submitted with the AST LAR (Reference 2) utilized the current TS limit for RCS noble activity of 520 µCi/gm DE Xe-133. The proposed change to reduce the RCS noble gas activity limit from 520 to 300 µCi/gm DE Xe -133 is appropriate, because it conservatively bounds values assumed in the radiological accident analyses.

The proposed changes to the PBNP TS 3.4.16 are generally consistent with Standard Technical Specification 3.4.16, RCS Specific Activity, contained in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Revision 3 (Reference 7), as modified by NRC approved TSTF-490 (Reference 6). TSTF-490 added a limit for primary coolant noble gas activity and added a definition for DE Xe -133. The current PBNP TS Bases and the TSTF- 490 both describe the DE Xe-133 limit for limiting potential consequences of a steam line break (SLB) or SGTR. The proposed limit for DE Xe-133 in the PBNP TS is more conservative than what is described in TSTF-490 because NextEra is also proposing to use the DE Xe-133 TS value to limit potential consequences from a release of waste gas. For PBNP, the DE Xe-133 limit needed for a release of waste gas is more restrictive than the limit needed for a SLB or SGTR. NextEra thus proposes to modify (conservatively) the TS Bases that were provided for information in TSTF-490 to include a discussion of the waste gas release as part of the basis for the DE Xe -133 limit. The availability of TSTF- 490 was announced in the *Federal Register* on March 15, 2007 (72 FR 12217), as part of the consolidated line item improvement process.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

NextEra submitted LAR 261 (Reference 1) to the NRC pursuant to 10 CFR 50.90. The proposed license amendment would increase each unit's licensed thermal power level from 1540 megawatts thermal (MWt) to 1800 MWt, and revise the Technical Specifications (TS) to support operation at the increased thermal power level. NextEra has determined that the proposed TS changes do not require any exemptions or relief from regulatory requirements and do not affect conformance with any GDC differently than described in the PBNP Final Safety Analysis Report (FSAR).

PBNP was licensed prior to the 1971 publication of 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants (GDC) (ML003674718). As such, PBNP is not licensed to Appendix A, GDCs. PBNP FSAR Section 1.3 lists the plant-specific GDCs to which the plant was licensed. The PBNP GDCs are similar in content to the draft GDCs proposed for public

comment in 1967. The following discussion addresses the proposed change with respect to meeting the requirements of the applicable draft design criteria to which PBNP is licensed.

PBNP GDC 11 - Control Room. The facility shall be provided with a control room from which actions to maintain safe operational status of the plant can be controlled. Adequate radiation protection shall be provided to permit continuous occupancy of the control room under any credible post-accident condition or as an alternative, access to other areas of the facility as necessary to shut down and maintain safe control of the facility without excessive radiation exposures of personnel.

The compliance with this GDC for the radiological consequences of accidental waste gas releases is discussed in Licensing Report Section 2.9.10.1 of Attachment 5 of Reference 1. As shown on Table 2.9.10.1-10, the acceptance criteria for control room dose are met for waste gas decay tank (WGDT), volume control tank (VCT), and charcoal-filled decay tank (CDT) rupture accidents.

In addition, the design of the waste gas system for radioactivity control must be justified on the basis of 10 CFR 20 requirements for offsite doses to the public. NextEra is proposing to reduce the maximum reactor coolant system (RCS) noble gas activity level in the TS to reflect a reanalysis of waste gas accidents that are based on the maximum RCS TS value. The WGDT rupture accident and CDT rupture accident do not result in fuel damage. Therefore, the radiological consequence analyses are appropriately based on release of primary coolant activity at the maximum TS value. The limits on RCS noble gas activity ensure that the offsite doses are appropriately limited for accidents that are based on activity releases from the RCS with no significant amount of fuel damage.

4.2 Precedent

None

4.3 Significant Hazards Consideration

NextEra has evaluated whether or not a significant hazards consideration is involved with the proposed change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   Reactor coolant specific activity is not an initiator for any accident previously evaluated. The limit on primary coolant activity is not an initiator to any accident previously evaluated. As a result, the proposed change does not significantly increase the probability of an accident. The proposed change will limit primary coolant noble gases to concentrations consistent with the accident analyses. As a result, the consequences of any accident previously evaluated are not significantly increased.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed change in specific activity limits does not alter any physical part of the plant nor does it affect any plant operating parameter. The change does not create the potential for a new or different kind of accident from any previously calculated.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

   Response: No

   The proposed change reduces the limits on noble gas radioactivity in the primary coolant. The proposed change is consistent with the assumptions in the safety analyses and will ensure the calculated offsite and control room doses meet the acceptance criteria in the safety analyses.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The conclusion in the Significant Hazards Consideration provided in Reference 1, which provided proposed changes to the operating license and TS to reflect an extended power uprate, is not altered. The additional change to the TS that is described in this supplement does affect the content of the determination because the change is not included in the detailed list of TS changes that are part of the EPU LAR.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

The Plant Operations Review Committee has reviewed the proposed changes and concurs with this conclusion.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

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

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

(3) NRC electronic mail to NextEra Energy Point Beach, LLC, dated August 11, 2010, Point Beach Nuclear Plant, Units 1 and 2 – Draft RAIs re: Extended Power Uprate (TAC Nos. ME1044 and ME1045) (ML102240636)

(4) NextEra Energy Point Beach, LLC letter to NRC, dated August 23, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML102370315)

(5) NRC letter to FPL Energy Point Beach, LLC, dated July 14, 2008, Issuance of Amendments RE: Deletion of E Bar and Revision of Reactor Coolant System Specific Activity Tech, (TAC Nos. MD8423 and MD8424) (ML080950341)

(6) Technical Specifications Task Force (TSTF), TSTF-490, "Deletion of E Bar and Revision to RCS Specific Activity Tech Spec, Revision 0 (ML052630462)

(7) NUREG-1431, Revision 3, dated June 30, 2004, Standard Technical Specifications Westinghouse Plants – Specifications and Bases, June 2004 (ML041830205, ML041830207, and ML041830209)

ENCLOSURE 3

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

LICENSE AMENDMENT REQUEST 261 SUPPLEMENT 9
EXTENDED POWER UPRATE

PROPOSED TECHNICAL SPECIFICATION 3.4.16 CHANGE

1 page follows

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 >50 µCi/gm.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT Xe-133 Specific Activity ≤ ~~520~~300 µCi/gm.	7 days
SR 3.4.16.2	----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 0.8 µCi/gm.	14 days AND Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period

ENCLOSURE 4

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

LICENSE AMENDMENT REQUEST 261, SUPPLEMENT 9
EXTENDED POWER UPRATE

PROPOSED TECHNICAL SPECIFICATION 3.4.16 BASES CHANGES

(FOR INFORMATION ONLY)

5 pages follow

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.16 RCS Specific Activity

BASES

BACKGROUND

The maximum dose that an individual at the exclusion area boundary can receive for 2 hours following a~~n~~ radiological accident, or at the low population zone outer boundary for the radiological release duration, is specified in 10 CFR 100.11 (Ref. 1). The offside dose limits for waste gas release accidents is specified in 10 CFR Part 20 (Ref. 5). Doses to control room operators must be limited per GDC 19. The limits on specific activity ensure that the offsite and control room doses are appropriately limited during analyzed transients and accidents.

The RCS specific activity LCO limits the allowable concentration level of radionuclides in the reactor coolant. The LCO limits are established to minimize the dose consequences in the event of a steam line break (SLB) or steam generator tube rupture (SGTR) accident. These limits also minimize the dose consequences of a waste gas release accident.

The LCO contains specific activity limits for both DOSE EQUIVALENT I-131 and DOSE EQUIVALENT Xe-133. The allowable levels are intended to ensure that offsite and control room doses meet the appropriate acceptance criteria in the Standard Review Plan (Ref. 2 and 6).

APPLICABLE SAFETY ANALYSES

The LCO limits on the specific activity of the reactor coolant ensure that the resulting offsite and control room doses meet the appropriate SRP acceptance criteria following a SLB or SGTR accident or a waste gas release accident. The safety analyses (Refs. 3, ~~and~~ 4, and 7) assume the specific activity of the reactor coolant is at the LCO limits, and an existing reactor coolant steam generator (SG) tube leakage rate of 500 gallons per day per steam generator exists. The safety analyses assume the specific activity of the secondary coolant is at its limit of 1.0 μCi/gm DOSE EQUIVALENT I-131 from LCO 3.7.13, "Secondary Specific Activity."

The analyses for the SLB, ~~and~~ SGTR, and waste gas release accidents establish the acceptance limits for RCS specific activity. Reference to these analyses is used to assess changes to the unit that could affect RCS specific activity, as they relate to the acceptance limits.

The safety analyses for SLB and SGTR consider two cases of reactor coolant iodine specific activity. One case assumes specific activity at 0.8 μCi/gm DOSE EQUIVALENT I-131 with a concurrent large iodine spike that increases, by a factor of 500, the rate of release of iodine from the fuel rods containing cladding defects to the primary coolant

APPLICABLE SAFETY ANALYSES (continued)

immediately after a SLB or SGTR, respectively. The second case assumes the initial reactor coolant iodine activity at 50.0 μCi/gm DOSE EQUIVALENT I-131 due to an iodine spike caused by a reactor or RCS transient prior to the accident. In both cases, the noble gas specific activity is assumed to be 520 μCi/gm DOSE EQUIVALENT Xe-133.

The safety analyses for waste gas release accidents assume that the equilibrium RCS specific activities are at their limits (e.g., 300 μCi/gm for DOSE EQUIVALENT Xe-133). No additional fuel failure is assumed.

The analysis also assumes a loss of offsite power at the same time as the SGTR event. The SGTR causes a reduction in reactor coolant inventory. The reduction initiates a reactor trip from a low pressurizer pressure signal or an RCS overtemperature ΔT signal.

The coincident loss of offsite power causes the steam dump valves to close to protect the condenser. The rise in pressure in the ruptured SG discharges radioactively contaminated steam to the atmosphere through the atmospheric steam dump valves and the main steam safety valves. The unaffected SGs remove core decay heat by venting steam to the atmosphere until the cooldown ends.

The SLB radiological analysis assumes that offsite power is lost at the same time as the pipe break occurs outside containment. The affected SG blows down completely and steam is vented directly to the atmosphere. The unaffected SG removes core decay heat by venting steam to the atmosphere until the cooldown ends and the RHR system is placed in service.

Operation with iodine specific activity levels greater than the LCO limit is permissible, if the activity levels do not exceed 50.0 μCi/gm for more than 48 hours.

The limits on RCS specific activity are also used for establishing standardization in radiation shielding and plant personnel radiation protection practices.

RCS specific activity satisfies Criterion 2 of 10 CFR 50.36 (c)(2)(ii).

BASES

LCO

The iodine specific activity in the reactor coolant is limited to 0.8 μCi/gm DOSE EQUIVALENT I-131, and the noble gas specific activity in the reactor coolant is limited to ~~520~~ 300 μCi/gm DOSE EQUIVALENT Xe-133. The limits on specific activity ensure that offsite and control room doses will meet the appropriate SRP acceptance criteria (Ref. 2 and 6).

The SLB, ~~and~~ SGTR and waste gas release accident analyses (Refs. 3, ~~and~~ 4, and 7) show that the calculated doses are within acceptable limits. Violation of the LCO may result in reactor coolant radioactivity levels that could, in the event of a SLB, ~~or~~ SGTR, or waste gas release accident lead to doses that exceed the SRP acceptance criteria (Ref. 2 and 6).

APPLICABILITY

In MODES 1, 2, 3, and 4, operation within the LCO limits for DOSE EQUIVALENT I-131 and DOSE EQUIVALENT Xe-133 is necessary to limit the potential consequences of a SLB ~~or~~, SGTR, or waste gas release accident to within the SRP acceptance criteria (Ref. 2 and 6).

In MODES 5 and 6, the steam generators are not being used for decay heat removal, the RCS and steam generators are depressurized, and primary to secondary leakage is minimal. Therefore, the monitoring of RCS specific activity is not required.

ACTIONS

A.1 and A.2

With the DOSE EQUIVALENT I-131 greater than the LCO limit, samples at intervals of 4 hours must be taken to demonstrate that the specific activity is ≤50.0 μCi/gm. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is continued every 4 hours to provide a trend.

The DOSE EQUIVALENT I-131 must be restored to within limit within 48 hours. The Completion Time of 48 hours is acceptable since it is expected that, if there were an iodine spike, the normal coolant iodine concentration would be restored within this time period. Also, there is a low probability of a SLB or SGTR occurring during this time period.

A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(s), relying on Required Action A.1 and A.2 while DOSE EQUIVALENT I-131 LCO limit is not met. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient-specific activity excursions while the plant remains at, or proceeds to, power operation.

BASES

ACTIONS (continued)

B.1

With the DOSE EQUIVALENT Xe-133 greater than the LCO limit,

DOSE EQUIVALENT Xe-133 must be restored to within limit within 48 hours. The allowed Completion Time of 48 hours is acceptable since it is expected that, if there were a noble gas spike, the normal coolant noble gas concentration would be restored within this time period. Also, there is a low probability of a SLB, ~~or~~ SGTR, or waste gas release accident occurring during this time period.

A note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(s), relying on Required Action B.1 while the DOSE EQUIVALENT Xe-133 LCO limit is not met. This allowance is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient-specific activity excursions while the plant remains at, or proceeds to, power operation.

C.1 and C.2

If the Required Action and associated Completion Time of Condition A or B is not met, or if the DOSE EQUIVALENT I-131 is > 50 μCi/gm, the reactor must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.16.1

SR 3.4.16.1 requires performing a gamma isotopic analysis as a measure of the noble gas specific activity of the reactor coolant at least once every 7 days. This measurement is the sum of the degassed gamma activities and the gaseous gamma activities in the sample taken. This Surveillance provides an indication of any increase in the noble gas specific activity.

Trending the results of this Surveillance allows proper remedial action to be taken before reaching the LCO limit under normal operating conditions. The 7 day Frequency considers the low probability of a gross fuel failure during the time.

SURVEILLANCE REQUIREMENTS (continued)

Due to the inherent difficulty in detecting Kr-85 in a reactor coolant sample due to masking from radioisotopes with similar decay energies, such as F-18 and I-134, it is acceptable to include the minimum detectable activity for Kr-85 in the SR 3.4.16.1 calculation. If a specific noble gas nuclide listed in the definition of DOSE EQUIVALENT Xe-133 is not detected, it should be assumed to be present at the minimum detectable activity.

A Note modifies this SR to allow entry into and operation in MODE 4, MODE 3, and MODE 2 prior to performing the SR. This allows the Surveillance to be preformed in those MODES, prior to entering MODE 1.

SR 3.4.16.2

This surveillance is performed to ensure iodine specific activity remains within the LCO limit during normal operation and following fast power changes when iodine spiking is more apt to occur. The 14 day Frequency is adequate to trend changes in the iodine activity level, considering noble gas activity is monitored every 7 days. The Frequency, between 2 and 6 hours after a power change ≥15% RTP within a 1 hour period, is established because the iodine levels peak during this time following iodine spike initiation; samples at other times would provide inaccurate results.

The Note modifies this SR to allow entry into and operation in MODE 4, MODE 3, and MODE 2 prior to performing the SR. This allows the Surveillance to be preformed in those MODES, prior to entering MODE 1.

REFERENCES

1. 10 CFR 100.11.
2. Standard Review Plan (SRP), Section 15.1.5 Appendix A (SLB) and Section 15.6.3 (SGTR).
3. FSAR, Section 14.2.4.
4. FSAR, Section 14.2.5.
5. 10 CFR Part 20, Subpart D.
6. Standard Review Plan, Section (SRP), Branch Technical Position 11-5 (Waste Gas System Leak or Failure).
7. FSAR, Section 11.2.5