FPL Energy Point Beach, LLC, 6610 Nuclear Road, Two Rivers, WI 54241

FPL Energy
Point Beach Nuclear Plant

March 31, 2008

NRC 2008-0018
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 259
Application for Technical Specification Improvement to Adopt
TSTF-490, Revision 0, Deletion of E Bar Definition and
Revision to Reactor Coolant System (RCS) Specific Activity
Technical Specification

References:
(1) Nuclear Regulatory Commission (NRC) Safety Evaluation (SE) approving TSTF-490, Revision 0, (ML070250176)
(2) Federal Register Notice for Comment published on November 20, 2006, 71 FR 67170, (ML062780062)
(3) Federal Register Notice of Availability dated March 15, 2007, 72 FR 12217 (ML070250176)

In accordance with the provisions of 10 CFR 50.90, "Application for amendment of license or construction permit," FPL Energy Point Beach, LLC is submitting a request for an amendment to the Point Beach Nuclear Plant (PBNP) Technical Specifications (TS) for Facility Operating Licenses DPR-24 and DPR-27, Units 1 and 2, respectively.

The proposed amendments would replace the current TS 3.4.16 limit on reactor coolant system (RCS) gross specific activity with a new limit on RCS noble gas specific activity. The noble gas specific activity limit would be based on a new DOSE EQUIVALENT Xe-133 (DEX) definition that would replace the current E Bar AVERAGE DISINTEGRATION ENERGY definition. In addition, the current DOSE EQUIVALENT I-131 (DEI) definition would be revised to clarify the use of additional thyroid dose conversion factors (DCFs).

The proposed changes are consistent with NRC-approved Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF–490, Revision 0, "Deletion of E Bar Definition and Revision to RCS Specific Activity Technical Specification." The availability of this TS improvement was announced in the Federal Register on March 15, 2007, 72 FR 12217, as part of the consolidated line item improvement process (CLIIP).

Enclosure 1 provides a description and assessment of the proposed changes, as well as confirmation of applicability. Enclosure 2 provides the existing TS pages marked-up to show the proposed changes. Enclosure 3 provides the existing TS Bases pages marked-up to show the proposed changes.

FPL Energy Point Beach requests approval of the proposed license amendment by September 30, 2008. Once approved, the amendment will be implemented within 30 days.

This submittal has been reviewed by the Plant Operations Review Committee. This application contains no new commitments or revisions to existing commitments.

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

I declare under penalty of perjury that the foregoing is true and correct.
Executed on March 31, 2008.

Very truly yours,

FPL ENERGY POINT BEACH, LLC

James H. McCarthy
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

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

LICENSE AMENDMENT REQUEST 259

DELETION OF E BAR DEFINITION AND REVISION TO T
HE REACTOR COOLANT SYSTEM SPECIFIC ACTIVITY TECHNICAL SPECIFICATION
IN ACCORDANCE WITH TSTF-490, REVISION 0,

3 pages follow

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," FPL Energy Point Beach proposes changes to Renewed Licenses Nos. DPR-24 and DPR-27 and Technical Specifications for Point Beach Nuclear Plant, Units 1 and 2, respectively.

The proposed changes would replace the current limits on primary coolant gross specific activity with limits on primary coolant noble gas activity. The noble gas activity would be based on DOSE EQUIVALENT Xe–133 and would take into account only the noble gas activity in the primary coolant. The changes were approved by the NRC staff Safety Evaluation (SE) (ML070250176) (Reference 1). Technical Specification Task Force (TSTF) change traveler TSTF–490, Revision 0, "Deletion of E Bar Definition and Revision to RCS Specific Activity Technical Specification," was announced for availability in the Federal Register on March 15, 2007 (ML070250176) (Reference 3), as part of the consolidated line item improvement process (CLIIP).

2.0 PROPOSED CHANGES

Consistent with NRC-approved TSTF–490, Revision 0, the proposed TS changes:

A. Revise the definition of DOSE EQUIVALENT I–131.

B. Delete the definition of "E Bar, AVERAGE DISINTEGRATION ENERGY."

C. Add a new TS definition for DOSE EQUIVALENT Xe–133.

D. Revise LCO 3.4.16, "RCS Specific Activity" to delete references to gross specific activity; add limits for DOSE EQUIVALENT I–131 and DOSE EQUIVALENT Xe–133; and delete Figure 3.4.16–1, "Reactor Coolant DOSE EQUIVALENT I–131 Specific Activity Limit versus Percent of RATED THERMAL POWER."

E. Revise LCO 3.4.16 "APPLICABILITY" to specify the LCO is applicable in MODES 1, 2, 3, and 4.

F. Modify ACTIONS Table as follows:

1. CONDITION A is modified to delete the reference to Figure 3.4.16–1, and define an upper limit that is applicable at all power levels.

2. CONDITION B is modified to provide a CONDITION and REQUIRED ACTION for DOSE EQUIVALENT Xe–133 instead of gross specific activity. The Completion Time is changed from 6 hours to 48 hours. A Note allowing the APPLICABILITY of LCO 3.0.4.c is added, consistent with the Note to REQUIRED ACTION A.1.

3. CONDITION C is modified based on the changes to CONDITIONS A and B and to reflect the change in the LCO APPLICABILITY.

G. Modify SURVEILLANCE REQUIREMENTS (SR) Table as follows:

1. Revise SR 3.4.16.1 to verify the limit for DOSE EQUIVALENT Xe–133. A Note is added, consistent with SR 3.4.16.2 to allow entry into MODES 2, 3, and 4 prior to performance of the SR.

2. Delete SR 3.4.16.3.

3.0 BACKGROUND

The background for this application is as stated in the model Safety Evaluation (SE) in NRC's Notice of Availability dated March 15, 2007, 72 FR 12217, the NRC Notice for Comment published on November 20, 2006, 71 FR 67170, and TSTF–490, Revision 0.

4.0 TECHNICAL ANALYSIS

FPL Energy Point Beach has reviewed References 1, 2 and 3, and the model SE, 71 FR 67170, as part of the CLIIP Notice for Comment. FPL Energy Point Beach has applied the methodology in Reference 1 to develop the proposed TS changes. FPL Energy Point Beach has also concluded that the justifications presented in TSTF–490, Revision 0 and the model SE prepared by the NRC staff are applicable to PBNP, Units 1 and 2, and justify this amendment for the incorporation of the changes to the PBNP TS.

5.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability dated March 15, 2007, 72 FR 12217, the NRC Notice for Comment published in 71 FR 67170, and TSTF–490, Revision 0.

PBNP was licensed to operate prior to Appendix A being incorporated into 10 CFR 50 in 1971. Therefore, the applicable PBNP GDC for the control room at the time of initial plant licensing was GDC 11, not GDC 19, as stated in the regulatory analysis of this CLIIP. PBNP conforms to Appendix A GDC 19, however, via full compliance with NUREG-0737, Item III D.3.4.

6.0 NO SIGNIFICANT HAZARDS CONSIDERATION

FPL Energy Point Beach has reviewed the proposed no significant hazards consideration determination published in the Federal Register on March 15, 2007, 72 FR 12217 as part of the CLIIP. FPL Energy Point Beach has concluded that the proposed determination presented in the notice is applicable to PBNP and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

7.0 ENVIRONMENTAL EVALUATION

FPL Energy Point Beach has reviewed the environmental consideration included in the model SE published in the Federal Register on March 15, 2007, 72 FR 12217 as part of the CLIIP. FPL Energy Point Beach has concluded that the staff's findings presented therein are applicable to PBNP and the determination is hereby incorporated by reference for this application.

8.0 REFERENCES

1. NRC Safety Evaluation approving TSTF–490, Revision 0 (ML070250176)

2. Federal Register Notice for Comment published on November 20, 2006, 71 FR 67170, "Notice of Opportunity To Comment on Model Safety Evaluation and Model License Amendment Request on Technical Specification Improvement Regarding Deletion of E Bar Definition and Revision to Reactor Coolant System Specific Activity Technical Specification; Babcock and Wilcox Pressurized Water Reactors, Westinghouse Pressurized Water Reactors, Combustion Engineering Pressurized Water Reactors Using the Consolidated Line Item Improvement Process."

3. Federal Register Notice of Availability dated March 15, 2007, 72 FR 12217, Model Safety Evaluation, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Technical Specification Task Force TSTF–490, Revision 0, "Deletion of E Bar Definition and Revision to RCS Specific Activity Technical Specification."

ENCLOSURE 2

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

LICENSE AMENDMENT REQUEST 259

PROPOSED TECHNICAL SPECIFICATION CHANGES

6 pages follow

1.1 Definitions

CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.4. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	~~DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table 2.1 of Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," September 1988.~~ DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Table 2.1 of EPA Federal Guidance Report No. 11, 1988, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion,"

1.1 Definitions

~~E - AVERAGE DISINTEGRATION ENERGY~~	~~E shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.~~
DOSE EQUIVALENT Xe-133	DOSE EQUIVALENT Xe-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body Deep Dose Equivalent as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT Xe-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil" or the average gamma disintegration energies as provided in ICRP Publication 38, "Radionuclide Transformations," or similar source.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 ~~The specific activity of the reactor coolant shall be within limits.~~

RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT Xe-133 specific activity shall be within limits:

APPLICABILITY: MODES ~~1 and 2,~~ 1, 2, 3, and 4.
~~MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.~~

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 not within limit.	----------Note---------- LCO 3.0.4.c is applicable. ---------- A.1 Verify DOSE EQUIVALENT I-131 ~~within the acceptable region of Figure 3.4.16-1.~~ ≤50 µCi/gm. AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	Once per 4 hours 48 hours
B. ~~Gross specific activity of the reactor coolant not within limit.~~ DOSE EQUIVALENT Xe-133 not within limit.	~~B.1 Be in MODE 3 with Tavg < 500°F.~~ ----------Note---------- LCO 3.0.4.c is applicable. ---------- B.1 Restore DOSE EQUIVALENT Xe-133 to within limit.	~~6 hours~~ 48 hours

(continued)

ACTIONS (continued)

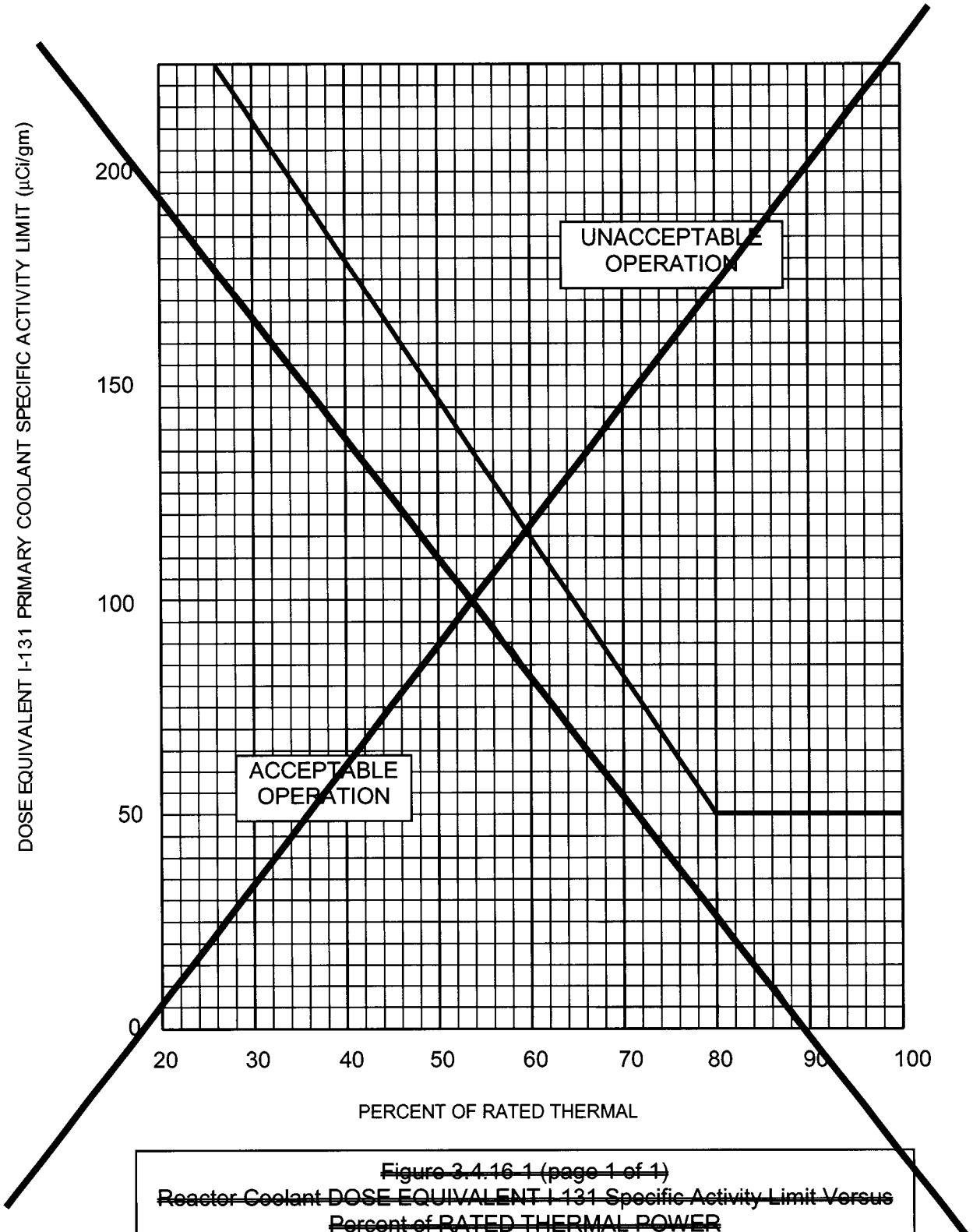
CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 ~~in the unacceptable region of Figure 3.4.16-1.~~ >50 µCi/gm.	C.1 Be in MODE 3. ~~with Tavg < 500°F.~~ AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	~~Verify reactor coolant gross specific activity ≤ 100/Ē µCi/gm.~~ ----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT Xe-133 specific activity ≤520 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

~~SURVEILLANCE REQUIREMENTS (continued)~~

~~SURVEILLANCE~~	~~FREQUENCY~~
~~SR 3.4.16.3~~ ~~NOTE~~ ~~Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~ ~~Determine $\bar{E}$ from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.~~	~~184 days~~



~~Figure 3.4.16-1 (page 1 of 1)~~
~~Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity Limit Versus Percent of RATED THERMAL POWER~~

ENCLOSURE 3

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

LICENSE AMENDMENT REQUEST 259

TECHNICAL SPECIFICATION BASES CHANGES

11 pages follow

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.16 RCS Specific Activity

BASES

BACKGROUND

~~The maximum dose to the whole body and the thyroid that an individual at the site boundary can receive for 2 hours during an accident is specified in 10 CFR 100 (Ref. 1). The limits on specific activity ensure that the doses are held to a small fraction of the 10 CFR 100 limits 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 offsite radioactivity dose consequences in the event of a steam generator tube rupture (SGTR) accident.~~

~~The LCO contains specific activity limits for both DOSE EQUIVALENT I-131 and gross specific activity. The allowable levels are intended to limit the 2 hour dose at the site boundary to a small fraction of the 10 CFR 100 dose guideline limits. The limits in the LCO are standardized, based on parametric evaluations of offsite radioactivity dose consequences for typical site locations.~~

~~The parametric evaluations showed the potential offsite dose levels for a SGTR accident were an appropriately small fraction of the 10 CFR 100 dose guideline limits. Each evaluation assumes a broad range of site applicable atmospheric dispersion factors in a parametric evaluation.~~

The maximum dose that an individual at the exclusion area boundary can receive for 2 hours following an accident, or at the low population zone outer boundary for the radiological release duration, is specified in 10 CFR 100.11 (Ref. 1). 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.

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).

BASES

APPLICABLE SAFETY ANALYSES

~~The LCO limits on the specific activity of the reactor coolant ensures that the resulting 2 hour doses at the site boundary will not exceed a small fraction of the 10 CFR 100 dose guideline limits following a SGTR accident. The SGTR safety analysis (Ref. 2) assumes the specific activity of the reactor coolant at the LCO limit and an existing reactor coolant steam generator (SG) tube leakage rate of 1 gpm. The safety analysis assumes the specific activity of the secondary coolant at its limit of 1.0 μCi/gm DOSE EQUIVALENT I-131 from LCO 3.7.13, "Secondary Specific Activity."~~

~~The analysis for the SGTR accident establishes the acceptance limits for RCS specific activity. Reference to this analysis is used to assess changes to the unit that could affect RCS specific activity, as they relate to the acceptance limits.~~

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. The safety analyses (Refs. 3 and 4) 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 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.

BASES

APPLICABLE SAFETY ANALYSES (continued)

~~The analysis is for two cases of reactor coolant specific activity. One case assumes specific activity at 0.8 µCi/gm DOSE EQUIVALENT I-131 with a concurrent large iodine spike that increases the I-131 activity in the reactor coolant by a factor of about 50 immediately after the accident. The second case assumes the initial reactor coolant iodine activity at 50 µCi/gm DOSE EQUIVALENT I-131 due to a pre-accident iodine spike caused by an RCS transient. In both cases, the noble gas activity in the reactor coolant assumes 1% failed fuel, which closely equals the LCO limit of 100/$\bar{E}$ µCi/gm for gross specific activity.~~

~~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 safety analysis shows the radiological consequences of an SGTR accident are within a small fraction of the Reference 1 dose guideline limits. Operation with iodine specific activity levels greater than the LCO limit is permissible, if the activity levels do not exceed the limits shown in Figure 3.4.16-1, in the applicable specification, for more than 48 hours. The safety analysis has concurrent and pre-accident iodine spiking levels up to 50 µCi/gm DOSE EQUIVALENT I-131.~~

~~The remainder of the above limit permissible iodine levels shown in Figure 3.4.16-1 are acceptable because of the low probability of a SGTR accident occurring during the established 48 hour time limit. The occurrence of an SGTR accident at these permissible levels could increase the site boundary dose levels, but still be within 10 CFR 100 dose guideline limits.~~

~~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 the NRC Policy Statement.~~

BASES

APPLICABLE SAFETY ANALYSES (continued)

The safety analyses 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 immediately after a SLB or SGTR, respectively. The second case assumes the initial reactor coolant iodine activity at 50 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 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 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 specific iodine activity is limited to 0.8 µCi/gm DOSE EQUIVALENT I-131, and the gross specific activity in the reactor coolant is limited to the number of µCi/gm equal to 100 divided by $\bar{E}$ (average disintegration energy of the sum of the average beta and gamma energies of the coolant nuclides). The limit on DOSE EQUIVALENT I-131 ensures the 2 hour thyroid dose to an individual at the site boundary during the Design Basis Accident (DBA) will be a small fraction of the allowed thyroid dose. The limit on gross specific activity ensures the 2 hour whole body dose to an individual at the site boundary during the DBA will be a small fraction of the allowed whole body dose.~~

~~The SGTR accident analysis (Ref. 2) shows that the 2 hour site boundary dose levels are within acceptable limits. Violation of the LCO may result in reactor coolant radioactivity levels that could, in the event of an SGTR, lead to site boundary doses that exceed the 10 CFR 100 dose guideline limits.~~

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 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).

The SLB and SGTR accident analyses (Refs. 3 and 4) 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, lead to doses that exceed the SRP acceptance criteria (Ref. 2).

APPLICABILITY

~~In MODES 1 and 2, and in MODE 3 with RCS average temperature ≥ 500°F, operation within the LCO limits for DOSE EQUIVALENT I-131 and gross specific activity are necessary to contain the potential consequences of an SGTR to within the acceptable site boundary dose values.~~

~~For operation in MODE 3 with RCS average temperature < 500°F, and in MODES 4 and 5, the release of radioactivity in the event of a SGTR is unlikely since the saturation pressure of the reactor coolant is below the lift pressure settings of the main steam safety valves.~~

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 to within the SRP acceptance criteria (Ref. 2).

BASES

APPLICABILITY (continued)

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 limits of Figure 3.4.16-1 are not exceeded. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is done to continue to provide a trend.~~

~~The DOSE EQUIVALENT I-131 must be restored to within limits within 48 hours. The Completion Time of 48 hours is required, if the limit violation resulted from normal iodine spiking.~~

~~A Note permits the use of the provisions of LCO 3.0.4.c. This allowance permits entry into the applicable MODE(S) while relying on the ACTIONS. This allowance is acceptable due to the significant~~

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 $\leq$50 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

ACTIONS (continued) ~~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.~~

~~B.1 and B.2~~

~~With the gross specific activity in excess of the allowed limit, the unit must be placed in a MODE in which the requirement does not apply.~~

~~The change within 6 hours to MODE 3 and RCS average temperature < 500°F lowers the saturation pressure of the reactor coolant below the setpoints of the main steam safety valves and prevents venting the SG to the environment in an SGTR event. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner and without challenging plant systems.~~

~~C.1~~

~~If a Required Action and the associated Completion Time of Condition A is not met or if the DOSE EQUIVALENT I-131 is in the unacceptable region of Figure 3.4.16-1, the reactor must be brought to MODE 3 with RCS average temperature < 500°F within 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner and without challenging plant systems.~~

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.

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 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

BASES

ACTIONS (continued)

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 gross specific activity of the reactor coolant at least once every 7 days. While basically a quantitative measure of radionuclides with half lives longer than 15 minutes, excluding iodines, 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 gross 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 Surveillance is applicable in MODES 1 and 2, and in MODE 3 with Tavg at least 500°F. The 7 day Frequency considers the unlikelihood of a gross fuel failure during the time.~~

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.

BASES

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 performed in those MODES, prior to entering MODE 1.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.4.16.2~~

~~This Surveillance is performed in MODE 1 only to ensure iodine remains within limit during normal operation and following fast power changes when fuel failure is more apt to occur. The 14 day Frequency is adequate to trend changes in the iodine activity level, considering gross 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 fuel failure; samples at other times would provide inaccurate results.~~

~~SR 3.4.16.3~~

~~A radiochemical analysis for $\bar{E}$ determination is required every 184 days (6 months) with the plant operating in MODE 1 equilibrium conditions. The $\bar{E}$ determination directly relates to the LCO and is required to verify plant operation within the specified gross activity LCO limit. The analysis for $\bar{E}$ is a measurement of the average energies per disintegration for isotopes with half lives longer than 15 minutes, excluding iodines. The Frequency of 184 days recognizes $\bar{E}$ does not change rapidly.~~

~~This SR has been modified by a Note that indicates sampling is required to be performed within 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for at least 48 hours. This ensures that the radioactive materials are at equilibrium so the analysis for $\bar{E}$ is representative and not skewed by a crud burst or other similar abnormal event.~~

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 ≥5% 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.

BASES

REFERENCES

1. 10 CFR 100.11~~, 1973~~
2. ~~FSAR, Section 14.2.4.~~
   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.