



102-08413-CDH/KJG
April 26, 2022

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

Subject: **Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3
Renewed Operating License Nos. NPF-41, NPF-51, and NPF-74
Docket Nos. STN 50-528, 50-529, and 50-530
Application for Technical Specification Improvement to Adopt
TSTF-487-A, Revision 1, Relocate DNB Parameters to the COLR**

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Arizona Public Service Company (APS) is submitting a request for an amendment to the Technical Specifications (TS) for PVNGS Units 1, 2, and 3. APS requests adoption of Technical Specification Task Force (TSTF)-487-A, *Relocate DNB Parameters to the COLR*, which is an approved change to the Improved Standard Technical Specifications, into the PVNGS Units 1, 2, and 3 TS.

The proposed amendment would allow PVNGS Units 1, 2, and 3 to replace the departure from nucleate boiling (DNB) numeric limits in the TS with references to the Core Operating Limits Report (COLR).

The changes are consistent with the Nuclear Regulatory Commission (NRC) approved Industry TSTF Standard Technical Specification Change Traveler, TSTF-487-A, Revision 1. The availability of this TS improvement was announced in the Federal Register (FR) on June 5, 2007 (72 FR 31108) as part of the consolidated line item improvement process (CLIIP).

The enclosure provides a description and assessment of the proposed changes, as well as confirmation of applicability. Attachment 1 of the enclosure provides the existing TS pages marked-up to show the proposed changes. Attachment 2 of the enclosure provides revised (clean) TS pages. Attachment 3 of the enclosure provides TS Bases pages marked-up to show proposed changes.

A pre-submittal meeting for TSTF-487-A was held between APS and the NRC staff on April 6, 2022. Approval of the proposed license amendment is requested by January 26, 2023. Once approved, the amendment will be implemented within 6 months.

In accordance with the PVNGS Quality Assurance Program, the Plant Review Board has reviewed and approved the license amendment request (LAR). By copy of this letter, the LAR is being forwarded to the Arizona Department of Health Services – Bureau of Radiation Control in accordance with 10 CFR 50.91(b)(1).

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No commitments are being made to the NRC by this letter.

Should you need further information regarding this please contact Matthew S. Cox,
Licensing Section Leader, at (623) 393-5753.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: April 26, 2022
(Date)

Sincerely,

Harbor, Cary
(Z16762)

Digitally signed by Harbor, Cary
(Z16762)
Date: 2022.04.26 11:26:20
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CDH/KJG/mg

Enclosure: Description and Assessment of Proposed License Amendment

cc:	S. A. Morris	NRC Region IV Regional Administrator
	S. P. Lingam	NRC NRR Project Manager for PVNGS
	L. N. Merker	NRC Senior Resident Inspector for PVNGS
	B. Goretzki	Arizona Department of Health Services – Bureau of Radiation Control

ENCLOSURE

**Description and Assessment of Proposed License
Amendment**

**Description and Assessment of Proposed
License Amendment**

Subject: Application for Technical Specification Improvement to Adopt TSTF-487-A, Revision 1, *Relocate DNB Parameters to the COLR.*

- 1.0 DESCRIPTION
- 2.0 PROPOSED CHANGES
- 3.0 BACKGROUND
- 4.0 TECHNICAL ANALYSIS
- 5.0 REGULATORY ANALYSIS
- 6.0 NO SIGNIFICANT HAZARDS CONSIDERATION
- 7.0 ENVIRONMENTAL EVALUATION

ATTACHMENTS:

- 1. Proposed Technical Specification Changes (Mark-Up)
- 2. Revised Technical Specification Pages
- 3. Proposed Technical Specification Bases Changes (Mark-Up)

1.0 DESCRIPTION

Arizona Public Service Company (APS) requests adoption of Technical Specification Task Force (TSTF)-487-A, Revision 1, *Relocate DNB Parameters to the COLR*, which is an approved change to the Improved Standard Technical Specifications (ISTS), into the Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 Technical Specifications (TS). The proposed amendment would revise TS 3.1.11, *Special Test Exceptions (STE) – Reactivity Coefficient Testing*, TS 3.4.1, *RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits*, TS 5.6.5, *Core Operating Limits Report (COLR)*, and the TS Bases B 3.1.11 and 3.4.1 to allow PVNGS Units 1, 2, and 3 to place the DNB numeric limits with references to the COLR.

The TSTF Change Traveler, TSTF-487-A, Revision 1, *Relocate DNB Parameters to the COLR*, was announced for availability in the Federal Register (FR) on June 5, 2007 (72 FR 31108), as part of the consolidated line item improvement process (CLIIP).

2.0 PROPOSED CHANGES

Consistent with the Nuclear Regulatory Commission (NRC) approved TSTF-487-A, Revision 1, the following changes are proposed:

- Limiting Condition for Operation (LCO) 3.4.1, *RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits*, is revised to remove the specific limits specified in the LCO and to state that the limits are specified in the COLR.
- The Surveillance Requirements (SRs) in TS 3.4.1 are revised to remove the specific limits and to state that the limits are specified in the COLR.
- The TS Bases B 3.4.1 is revised to describe that the limits are specified in the COLR.
- The TS 5.6.5, *Core Operating Limits Report (COLR)*, paragraph a, is modified to add the methodology requirements for calculating the DNB numeric limits in the COLR.
- The TS 5.6.5, *Core Operating Limits Report (COLR)*, paragraph c, is modified to clarify that the COLR limits must be determined assuming that the plant is capable of operating at the Rated Thermal Power specified in Section 1.1, *Definitions*.

2.1 Variations

The PVNGS Units 1, 2, and 3 TS utilize different numbering than the ISTS on which TSTF-487-A, Revision 1, was based. Specifically, the PVNGS Units 1, 2, and 3 TS for *Core Operating Limits Report (COLR)*, is LCO 5.6.5, whereas the number used in TSTF-487-A for *Core Operating Limits Report (COLR)*, is LCO 5.6.3.

The proposed amendment includes editorial changes to TS 3.1.11, *Special Test Exceptions (STE) – Reactivity Coefficient Testing*, and the corresponding TS Bases B 3.1.11. These sections refer to LCO 3.4.1.b, which is being removed from TS

Enclosure

Description and Assessment of Proposed License Amendment

3.4.1 per TSTF-487-A, Revision 1. An editorial change to LCO 3.1.11 and TS Bases B 3.1.11 is included to remove "LCO 3.4.1.b" wording to state "RCS Cold Leg Temperature only."

PVNGS Units 1, 2, and 3 TS utilizes Figure 3.4.1-1, *Reactor Coolant Cold Leg Temperature vs. Core Power Level*, to stipulate the area of acceptable operation for reactor coolant system (RCS) cold leg temperature. Figure 3.4.1-1 is included with the conversion to the Improved Technical Specifications (ITS) as documented in License Amendment (LA) 117, dated May 20, 1998 [NRC Agencywide Documents Access and Management System (ADAMS) Accession Number ML021720060]. Figure 3.4.1-1 is being removed from TS 3.4.1 and incorporated into the COLR. TS Bases B 3.4.1 is also revised to describe that the LCO limit is specified in the COLR.

The editorial change made to SR 3.4.1.4 in TSTF-487-A is not included in this proposed amendment since PVNGS Units 1, 2, and 3 TS do not utilize this SR. PVNGS utilizes SRs 3.3.1.2 and 3.3.1.5 to satisfy the requirements for NUREG-1432, *Standard Technical Specifications Combustion Engineering Plants*, Revision 5. The surveillance frequency for SRs 3.3.1.2 and 3.3.1.5 are controlled by the Surveillance Frequency Control Program (currently on a 12 hour and 31 day frequency, respectively), rather than the 18 month frequency for SR 3.4.1.4 listed in NUREG-1432, Revision 5. This is consistent with the PVNGS Units 1, 2, and 3 licensing basis as documented in LA 117.

Additionally, PVNGS Units 1, 2, and 3 Modes of Applicability for TS 3.4.1 differ from the ISTS on which TSTF-487-A, Revision 1, was based. The ISTS specifies MODE 1 only. PVNGS Units 1, 2, and 3 Modes of Applicability for TS 3.4.1 is specific for MODE 1 for RCS total flow rate, MODES 1 and 2 for pressurizer pressure, MODE 1 for RCS cold leg temperature (T_c), and MODE 2 with $k_{eff} \geq 1$ for RCS cold leg temperature (T_c). The Modes of Applicability remain unchanged from the conversion to the ITSs as documented in LA 117 and is consistent with PVNGS Units 1, 2, and 3 licensing basis.

3.0 BACKGROUND

The background for this application is consistent with the model safety evaluation (SE) in the NRC Notice of Availability published on June 5, 2007 (72 FR 31108), and TSTF-487-A, Revision 1.

4.0 TECHNICAL ANALYSIS

APS has reviewed Generic Letter 88-16, *Removal of Cycle-Specific Parameter Limits from Technical Specifications*, dated October 4, 1988, and the model SE published on June 5, 2007 (72 FR 31108) as part of the CLIIP Notice for Comment. APS has applied the methodology in Generic Letter 88-16 to develop the proposed TS changes. APS has also concluded that the justifications presented in TSTF-487-A, Revision 1, and the model SE prepared by the NRC staff are applicable to PVNGS Units 1, 2, and 3, and justify this amendment for the incorporation of the changes to the PVNGS Units 1, 2, and 3 TS.

The change to TS 5.6.5, *Core Operating Limits Report (COLR)*, paragraph c, to clarify that the COLR limits are determined assuming that the plant is capable of operating at the Rated Thermal Power is included to address an NRC concern that a plant could administratively limit the plant to a lower operating power and recalculate the COLR

limits based on that lower power. Such an action would not be consistent with 10 CFR 50.46. Therefore, the statement that the COLR limits must be based on the assumption that the plant is capable of operating at Rated Thermal Power is added to TS 5.6.5.c to ensure that the requirements are not inadvertently misapplied. This is an approved change incorporated into Revision 4 of the ISTS.

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 published on June 5, 2007 (72 FR 31108), the NRC Notice for Comment published on March 15, 2007 (72 FR 12223), and TSTF-487-A, Revision 1.

6.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Arizona Public Service Company (APS) requests adoption of Technical Specification Task Force (TSTF)-487-A, Revision 1, *Relocate DNB Parameters to the COLR*. TSTF-487-A replaces the departure from nucleate boiling (DNB) parameter limits with references to the core operating limits report (COLR) in accordance with Generic Letter 88-16, *Removal of Cycle Specific Parameter Limits from Technical Specifications*, dated October 4, 1988.

APS has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) 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.

The proposed amendment replaces the limit values of the reactor coolant system (RCS) DNB parameters (i.e., pressurizer pressure, RCS cold leg temperature, and RCS flow rate) in Technical Specifications (TS) with references to the COLR, in accordance with the guidance of Generic Letter 88-16, to allow these parameter limit values to be recalculated without a license amendment. The proposed amendment does not involve operation of any required structures, systems, or components (SSCs) in a manner or configuration different from those previously recognized or evaluated. The cycle-specific values in the COLR must be calculated using the NRC approved methodologies listed in TS 5.6.5, *Core Operating Limits Report (COLR)*. Replacing the RCS DNB parameter limits in TS with references to the COLR will maintain existing operating fuel cycle analysis requirements. Because these parameter limits are determined using the NRC approved methodologies, the acceptance criteria established for the safety analyses of various transients and accidents will continue to be met. Therefore, neither the probability nor consequences of any accident previously evaluated will be increased by the proposed change.

Therefore, operation of the facility in accordance with the proposed amendment 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 amendment to replace the RCS DNB parameter limits in the TS with references to the COLR does not involve a physical alteration of the plant, nor a change or addition of a system function. The proposed amendment does not involve operation of any required SSCs in a manner or configuration different from those previously recognized or evaluated. No new failure mechanisms will be introduced by the proposed change.

Therefore, the proposed amendment 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 amendment to replace the RCS DNB parameter limits in the TS with references to the COLR will continue to maintain the margin of safety. The DNB parameter limits specified in the COLR will be determined based on the safety analysis of transients and accidents, performed using NRC approved methodologies that show that, with appropriate measurement uncertainties of the parameters accounted for, the acceptance criteria for each of the analyzed transients are met. This provides the same margin of safety as the limit values currently specified in the TS. Any future revisions to the safety analyses that require prior NRC approval are identified per the 10 CFR 50.59 review process.

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

Based on the above, APS concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

7.0 ENVIRONMENTAL EVALUATION

APS has reviewed the environmental consideration included in the model SE published in the Federal Register on June 5, 2007 (72 FR 31108) as part of the CLIP. APS has concluded that the staff's findings presented therein are applicable to PVNGS Units 1, 2, and 3 and the determination is hereby incorporated by reference for this application.

ATTACHMENT 1:

Proposed Technical Specification Changes (Mark-Up)

Changed Pages

3.1.11-1

3.4.1-1

3.4.1-2

3.4.1-3

5.6-3

5.6-8

3.1 REACTIVITY CONTROL SYSTEMS

3.1.11 Special Test Exceptions (STE) - Reactivity Coefficient Testing

LCO 3.1.11 During performance of PHYSICS TESTS, the requirements of:
 LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
 LCO 3.1.8, "Part Strength Control Element Assembly (CEA) Insertion Limits;" and
 LCO 3.4.1, "RCS Pressure, Temperature and Flow limits" (~~LCO 3.4.1.b~~, RCS Cold Leg Temperature only)
 may be suspended, provided LHR and DNBR do not exceed the limits in the COLR.

APPLICABILITY: MODE 1 with Thermal Power > 20% RTP during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LHR or DNBR outside the limits specified in the COLR.	A.1 Reduce THERMAL POWER to restore LHR and DNBR to within limits.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.11.1 Verify LHR and DNBR do not exceed limits by performing SR 3.2.1.1 and SR 3.2.4.1.	Continuously

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified below:

in the COLR.

- a. ~~Pressurizer pressure \geq 2130 psia and \leq 2295 psia; and~~
- b. ~~RCS cold leg temperature (T_c) shall be within the area of acceptable operation shown in Figure 3.4.1-1; and~~
- c. ~~RCS total flow rate \geq 155.8 E6 lbm/hour.~~

APPLICABILITY: MODE 1 for RCS total flow rate,
 MODES 1 and 2 for pressurizer pressure,
 MODE 1 for RCS cold leg temperature (T_c).
 MODE 2 with $K_{eff} \geq 1$ for RCS cold leg temperature (T_c).

-----NOTE-----
 Pressurizer pressure limit does not apply during:
 a. THERMAL POWER ramp > 5% RTP per minute; or
 b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS flow rate not within limit.	A.1 Restore RCS flow rate to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Pressurizer pressure or RCS cold leg temperature not within limits.	C.1 Restore parameter(s) to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

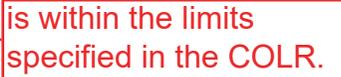
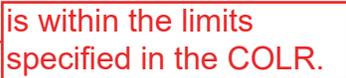
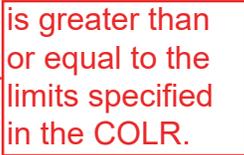
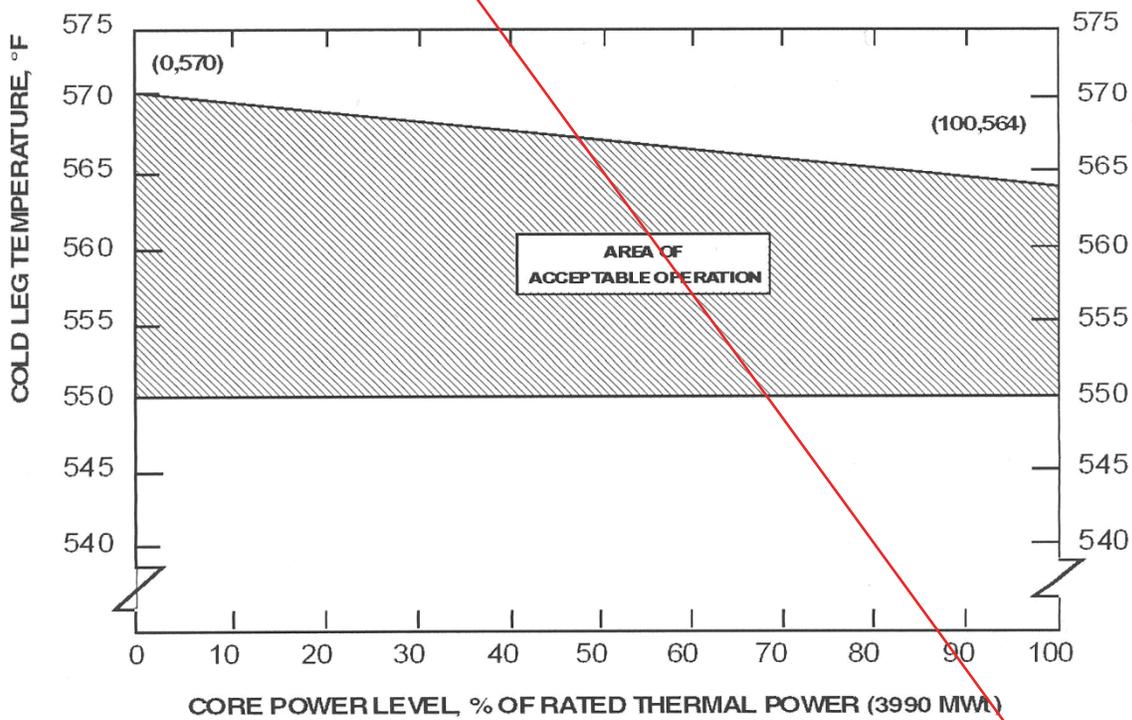
SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify pressurizer pressure ≥ 2130 psia and ≤ 2295 psia.  ←	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2 Verify RCS cold leg temperature within limits as shown in Figure 3.4.1-1.  ←	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3 -----NOTE----- Required to be met in MODE 1 with all RCPs running. Verify RCS total flow rate $\geq 155.8 \text{ E}6$ lbm/hour.  ←	In accordance with the Surveillance Frequency Control Program

Figure 3.4.1-1

Reactor Coolant Cold Leg Temperature vs. Core Power Level



5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
1. Shutdown Margin - Reactor Trip Breakers Open for Specification 3.1.1.
 2. Shutdown Margin - Reactor Trip Breakers Closed for Specification 3.1.2.
 3. Moderator Temperature Coefficient BOL and EOL limits for Specification 3.1.4.
 4. Boron Dilution Alarm System for Specification 3.3.12.
 5. CEA Alignment for Specification 3.1.5.
 6. Regulating CEA Insertion Limits for Specification 3.1.7.
 7. Part Strength CEA Insertion Limits for Specification 3.1.8.
 8. Linear Heat Rate for Specification 3.2.1.
 9. Azimuthal Power Tilt - T_q for Specification 3.2.3.
 10. DNBR for Specification 3.2.4.
 11. Axial Shape Index for Specification 3.2.5.
 12. Boron Concentration (Mode 6) for Specification 3.9.1.
 13. Fuel types and cladding material in the reactor for Specification 4.2.1.a and 4.2.1.b, and the associated COLR methodologies for Specification 4.2.1.a.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

12. RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits for Specification 3.4.1

13.

14.

-----NOTE-----
 The COLR will contain the complete identification for each of the Technical Specification referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

assuming operation up to
RATED THERMAL POWER

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any mid cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 PAM Report

When a report is required by Condition B or F of LCO 3.3.10, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 Tendon Surveillance Report

Any abnormal degradation of the containment structure detected during the tests required by the Pre-Stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.

5.6.8 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, Steam Generator (SG) Program. The report shall include:

- a. The scope of inspections performed on each SG.
- b. Active degradation mechanisms found.
- c. Nondestructive examination techniques utilized for each degradation mechanism.
- d. Location, orientation (if linear), and measured sizes (if available) of service induced indications.
- e. Number of tubes plugged during the inspection outage for each active degradation mechanism.
- f. Total number and percentage of tubes plugged to date.
- g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

(continued)

ATTACHMENT 2:

Revised Technical Specification Pages

Changed Pages

3.1.11-1

3.4.1-1

3.4.1-2

3.4.1-3

5.6-3

5.6-8

3.1 REACTIVITY CONTROL SYSTEMS

3.1.11 Special Test Exceptions (STE) - Reactivity Coefficient Testing

LCO 3.1.11 During performance of PHYSICS TESTS, the requirements of:
 LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
 LCO 3.1.8, "Part Strength Control Element Assembly (CEA) Insertion Limits;" and
 LCO 3.4.1, "RCS Pressure, Temperature and Flow limits" (RCS Cold Leg Temperature only)

may be suspended, provided LHR and DNBR do not exceed the limits in the COLR.

APPLICABILITY: MODE 1 with Thermal Power > 20% RTP during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LHR or DNBR outside the limits specified in the COLR.	A.1 Reduce THERMAL POWER to restore LHR and DNBR to within limits.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.11.1 Verify LHR and DNBR do not exceed limits by performing SR 3.2.1.1 and SR 3.2.4.1.	Continuously

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1 for RCS total flow rate,
 MODES 1 and 2 for pressurizer pressure,
 MODE 1 for RCS cold leg temperature (Tc).
 MODE 2 with $K_{eff} \geq 1$ for RCS cold leg temperature (Tc).

-----NOTE-----
 Pressurizer pressure limit does not apply during:
 a. THERMAL POWER ramp > 5% RTP per minute; or
 b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS flow rate not within limit.	A.1 Restore RCS flow rate to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Pressurizer pressure or RCS cold leg temperature not within limits.	C.1 Restore parameter(s) to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify pressurizer pressure is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2 Verify RCS cold leg temperature is within the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.3 -----NOTE----- Required to be met in MODE 1 with all RCPs running. ----- Verify RCS total flow rate is greater than or equal to the limits specified in the COLR.	In accordance with the Surveillance Frequency Control Program

Figure Deleted

5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
1. Shutdown Margin - Reactor Trip Breakers Open for Specification 3.1.1.
 2. Shutdown Margin - Reactor Trip Breakers Closed for Specification 3.1.2.
 3. Moderator Temperature Coefficient BOL and EOL limits for Specification 3.1.4.
 4. Boron Dilution Alarm System for Specification 3.3.12.
 5. CEA Alignment for Specification 3.1.5.
 6. Regulating CEA Insertion Limits for Specification 3.1.7.
 7. Part Strength CEA Insertion Limits for Specification 3.1.8.
 8. Linear Heat Rate for Specification 3.2.1.
 9. Azimuthal Power Tilt - T_q for Specification 3.2.3.
 10. DNBR for Specification 3.2.4.
 11. Axial Shape Index for Specification 3.2.5.
 12. RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits for Specification 3.4.1.
 13. Boron Concentration (Mode 6) for Specification 3.9.1.
 14. Fuel types and cladding material in the reactor for Specification 4.2.1.a and 4.2.1.b, and the associated COLR methodologies for Specification 4.2.1.a.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

-----NOTE-----

The COLR will contain the complete identification for each of the Technical Specification referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

- c. The core operating limits shall be determined assuming operation up to RATED THERMAL POWER such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any mid cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 PAM Report

When a report is required by Condition B or F of LCO 3.3.10, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 Tendon Surveillance Report

Any abnormal degradation of the containment structure detected during the tests required by the Pre-Stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.

5.6.8 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, Steam Generator (SG) Program. The report shall include:

- a. The scope of inspections performed on each SG.
- b. Active degradation mechanisms found.
- c. Nondestructive examination techniques utilized for each degradation mechanism.
- d. Location, orientation (if linear), and measured sizes (if available) of service induced indications.
- e. Number of tubes plugged during the inspection outage for each active degradation mechanism.
- f. Total number and percentage of tubes plugged to date.
- g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

(continued)

ATTACHMENT 3:

**Proposed Technical Specification Bases Changes
(Mark-Up)**

Changed Pages

B 3.1.11-2

B 3.4.1-1

B 3.4.1-2

BASES

BACKGROUND
(continued)

The PHYSICS TESTS requirements for reload fuel cycles ensure that the operating characteristics of the core are consistent with the design predictions and that the core can be operated as designed (Ref. 4).

PHYSICS TESTS procedures are written and approved in accordance with established formats. The procedures include all information necessary to permit a detailed execution of testing required to ensure that design intent is met. PHYSICS TESTS are performed in accordance with these procedures and test results are approved prior to continued power escalation and long term power operation.

Examples of PHYSICS TESTS include determination of critical boron concentration, CEA group worth, reactivity coefficients, flux symmetry, and core power distribution.

APPLICABLE
SAFETY ANALYSES

It is acceptable to suspend certain LCOs for PHYSICS TESTS because fuel damage criteria are not exceeded. Even if an accident occurs during PHYSICS TESTS with one or more LCOs suspended, fuel damage criteria are preserved because the limits on power distribution and shutdown capability are maintained during PHYSICS TESTS.

Reference 5 defines requirements for initial testing of the facility, including PHYSICS TESTS. Requirements for reload fuel cycle PHYSICS TESTS are defined in ANSI/ANS-19.6.1-1985 (Ref. 4). Although these PHYSICS TESTS are generally accomplished within the limits of all LCOs, conditions may occur when one or more LCOs must be suspended to make completion of PHYSICS TESTS possible or practical. This is acceptable as long as the fuel design criteria are not violated. As long as the linear heat rate (LHR) and DNBR remain within its limits, fuel design criteria are preserved.

In this test, the following LCOs are suspended:

- LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
- LCO 3.1.8, "Part Strength Control Element Assembly (CEA) Insertion Limits"; and
- LCO 3.4.1, "RCS Pressure, Temperature, and Flow Limits" (~~LCO 3.4.1.b~~, RCS Cold Leg Temperature only).

(continued)

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

BASES

BACKGROUND

These Bases address requirements for maintaining RCS pressure, temperature, and flow rate within limits assumed in the safety analyses. The safety analyses (Ref. 1) of normal operating conditions and anticipated operational occurrences assume initial conditions within the normal steady state envelope. The limits placed on DNB related parameters ensure that these parameters will not be less conservative than were assumed in the analyses and thereby provide assurance that the minimum Departure from Nucleate Boiling Ratio (DNBR) will meet the required criteria for each of the transients analyzed.

The LCO limits for minimum and maximum RCS pressures as measured at the pressurizer are consistent with operation within the nominal operating envelope and are bounded by those used as the initial pressures in the analyses.

The LCO limit for minimum and maximum RCS cold leg temperatures are in accordance with the area of acceptable operation shown in ~~Figure 3.4.1-1~~, are consistent with operation at the indicated power level, and are bounded by those used as the initial temperatures in the analyses.

the COLR

The LCO limit for minimum RCS flow rate is bounded by those used as the initial flow rates in the analyses. The RCS flow rate is not expected to vary during plant operation with all pumps running.

APPLICABLE SAFETY ANALYSES

The requirements of LCO 3.4.1 represent the initial conditions for DNB limited transients analyzed in the safety analyses (Ref. 1). The safety analyses have shown that transients initiated from the limits of this LCO will meet the DNBR criterion of greater than or equal to the DNBR Safety Limit. This is the acceptance limit for the RCS DNB parameters. Changes to the facility that could impact these parameters must be assessed for their impact on the DNBR criterion.

(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

The transients analyzed for include loss of coolant flow events and dropped or stuck Control Element Assembly (CEA) events. A key assumption for the analysis of these events is that the core power distribution is within the limits of LCO 3.1.7, "Regulating CEA Insertion Limits"; LCO 3.1.8, Part Strength CEA Insertion Limits"; LCO 3.2.3, "AZIMUTHAL POWER TILT (T_q)"; and LCO 3.2.5, "AXIAL SHAPE INDEX (ASI).

The RCS DNB limits satisfy Criterion 2 of 10 CFR 50.56(c)(2)(ii).

values for pressure, temperature, and flow rate specified in the COLR are given for the measurement location but have

LCO

These variables are contained in the COLR to provide operating and analysis flexibility from cycle to cycle.

This LCO specifies limits on the monitored process variables - RCS pressurizer pressure, RCS cold leg temperature, and RCS total flow rate - to ensure that the core operates within the limits assumed for the plant safety analyses. Operating within these limits will result in meeting the DNBR criterion in the event of a DNB limited transient.

The LCO numerical value for minimum flow rate is given for the measurement location but has not been adjusted for instrument error. Plant specific limits of instrument error are established by the plant staff to meet the operational requirements of minimum flow rate.

APPLICABILITY

In MODE 1 for RCS flow rate, MODES 1 and 2 for RCS pressurizer pressure, Mode 1 for RCS cold leg temperature, and MODE 2 with $K_{eff} \geq 1$ for RCS cold leg temperature, the limits must be maintained during steady state operation in order to ensure that DNBR criteria will be met in the event of an unplanned loss of forced coolant flow or other DNB limited transient. In all other MODES, the power level is low enough so that DNBR is not a concern.

A Note has been added to indicate the limit on pressurizer pressure does not apply during short term operational transients that include a THERMAL POWER ramp increase or decrease of >5% RTP per minute or a THERMAL POWER step increase or decrease of >10% RTP. These conditions represent short term perturbations where actions to control pressure variations might be counterproductive. Also, DNBR margin exists to offset the temporary pressure variations.

(continued)